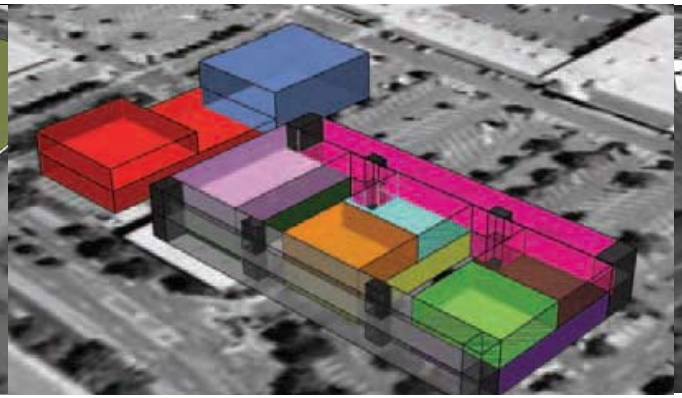
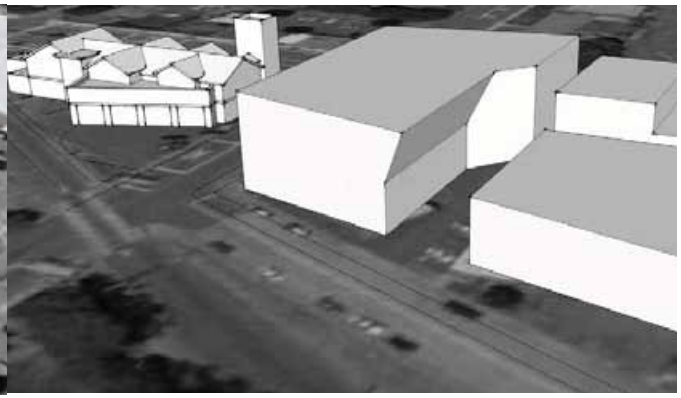
Fall 2009

City of Gresham - Program for a New City Hall

1206 U of Oregon
Eugene, OR 97403

t 541.346.3582
f 541.346.3626

sci@uoregon.edu
sci.uoregon.edu

Brett Holverstott, MArch Candidate

Professor Jean E von Bargen

Department of Architecture

SCI
Sustainable Cities Initiative

UNIVERSITY OF OREGON

Buildings | Neighborhoods | Regions | Architecture | Planning | Landscape | Policy

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Urban Design and Planning
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Elaine Fultz, Associate City Planner – CDBG-HOME, Home Ownership, Housing
Lauren McGuire, Senior City Planner – Design Commission Liaison, Downtown Plan
Jamie Zimmerman, Administrative Assistant II – Administration, Comprehensive Planning
Brian Martin, Associate Planner
Mike Abbate, Urban Design and Planning Director

Finance and Management Services
Wyatt Parno, Finance & Accounting Services Division, Finance Manager
Orpha Keel, Financial Services Division, Manager
David Brugato, Facilities & Fleet Management Division, Manager

City Attorney
Diane Johnson, Administrative Supervisor, City Attorney support.

Police Department

Environmental Services
Tam Driscoll, Office of Community Relations, Manager
Molly Vogt, Mapping Program, GIS Specialist – GIS and Mapping Coordinator
Marsha Penn, Public Works Construction Inspection, Program Technician
Ken Koblitz, Development Engineering, Development Engineering & Inspection Manager
Keely Thompson, Water Division, Water Svcs Coord/Admin.
Don Bilyeu, Trans Engineering, Engineering Technician III
John Dorst, Deputy Director

Fire Department
Scott Lewis, Fire Chief
Jim Klum, Deputy Chief
Frank Ray, Management Analyst
Michelle Amend, Admin Asst. III
Mark Maunder, Battalion Chief “B - Shift”
Eric Lofgren, Battalion Chief “A - Shift”

Economic Development
Janet Young, Director

Information Technology
Randy Paden, Director

Urban Renewal
Alice Rouyer, Executive Director – Rockwood-West Gresham Urban Renewal Agency

Community Development
Judy Wylie, Permit Center, Permit Technician III
Norm Nomie, Plumbing Services, Chief Plumbing Inspector
Rita Humphrey, Code Compliance Division, Senior Code Compliance Inspector
Darryl Godsby, Rental Housing Inspection Division, Senior Rental Housing Inspector

Office of Governance and Management
Stephanie Betteridge, Management Analyst

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Julie Livingston, AIA, LEED A.P., Housing Authority of Portland
Erica Dunn, AIA, LEED A.P., Hennebery Eddy Architects
Karen Munro, Head, Portland Library and Learning Commons

SCI
Sustainable Cities Initiative

About SCI

Sustainable Cities Initiative (SCI) is a cross-disciplinary organization at the University of Oregon that seeks to promote education, service, public outreach and research on the development and design of sustainable cities.

Our work addresses sustainability issues across multiple scales, from the region down to the building, and emerges from the conviction that creating the sustainable city cannot happen within any single discipline. SCI is grounded in cross-discipline engagement as the key strategy for solving community sustainability issues. We serve as a catalyst for expanded research and teaching; market this expertise to scholars, policymakers, community leaders, and project partners; and work to create and sponsor academic courses and certificates. Our work connects student passion, faculty experience, and community need to produce innovative, tangible solutions for the creation of a sustainable society.

About SCY

The Sustainable Cities Year Initiative is a 'partnership' with one city in Oregon per year where a number of courses from across the University focus on assisting that city with their sustainability goals and projects. The Sustainable Cities Year faculty and students work with that city through a variety of studio projects and service learning programs to: 1) provide students with a real world project to investigate; 2) apply their training; and 3) provide real service and movement to a local city ready to transition to a more sustainable and accessible future.

About Gresham

With just over 100,000 people, Gresham is the fourth largest city in Oregon. It is bordered to the west by Portland, the largest city in the state. Gresham is home to the Mount Hood Jazz Festival and is known as "The City of Music". It is close in proximity to the Columbia Gorge National Scenic Area and Mount Hood, the highest point in Oregon. Gresham has a wide variety of neighborhoods including the Civic Center, known for its active transportation network, rapid transit connections and residential, commercial and retail mix.

SCI Co-Directors

Nico Larco, Assistant Professor of Architecture
Marc Schlossberg, Associate Professor of Community & Regional Planning
Robert Young, Assistant Professor of Community & Regional Planning

Nick Fleury, SCI Program Manager
Price Armstrong, SCI Research Assistant

Course Participants

Programming Study

Jean E von Bargen, Adjunct Instructor, Architecture

Group A1
Liz Kilgore, Architecture Undergraduate
Craig Race, Architecture Graduate
Nicole Holt, Architecture Graduate
Kate Casselman, Architecture Graduate

Group A2
Ellen Hagen, Architecture Graduate
Sina Meier, Architecture Graduate
Jessica Kreitzberg, Architecture Undergraduate
Mark Schmidt, Architecture Graduate

Group A3
Hilary Olson, Architecture Undergraduate
Kelsey Lovett, Architecture Undergraduate
Adam Newman, Architecture Undergraduate
Stephen Varady, Architecture Undergraduate

Group B4
Tim Harkin, Architecture Graduate
Aaron Frease, Architecture Graduate
Craig Riegelnegg, Architecture Graduate
Brianne Johnson, Architecture Graduate
Megan Coyle, Architecture Graduate

Group B5
Andrew Harmon, Architecture Graduate
Jon De Leonardo, Architecture Graduate
Beta Curea, Architecture Graduate
Kris Celtnieks, Architecture Graduate

Group B6
Ted Mitchner, Architecture Graduate
Alex Toevs, Architecture Graduate
Adrian Chan, Architecture Graduate
Brett Holverstott, Architecture Graduate

Fall 2009

City of Gresham - Program for a New City Hall

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SCI
Sustainable Cities Initiative

Square Footage Summary Table

See below for estimates of current and future square footage needs for each department, determined through interviews by student groups. These estimates are modified to account for a ~25% growth in the population of Gresham, resulting in an increase in staff for each department.

City Hall Building	**current**	**future**		**offices**	**increase**	**new offices**	**new sq ft**	**total**
Finance & Management Services	10,199	10,199	*	26	20%	6	720	10,919
Urban Design & Planning	5457	5457		27	20%	6	720	6,177
City Attorney's Office	1924	2804		9	20%	2	240	3,044
Department of Environmental Services	7060	7060	*	46	20%	10	1200	8,260
Economic Development	872	1052		2	20%	1	120	1,172
Department of Information Technology	4131	4131		10	40%	4	480	4,611
Department of Urban Renewal	1202	1202		5	40%	2	240	1,442
Office of Governance and Management	6086	6086	*	31	20%	7	840	6,926
Council Chambers	0	2500			0%	0	0	2500
Community Development	8345	8345	*	40	20%	8	960	9,305
Common Spaces	14701	18168						18,168
Parks & Rec	0	1000		6	n/a			1000
net	59,977	68,004						72524
gross	79969	**90672**						**96699**

Police Department							
net	10711	21276	31	20%	7	840	22,116
gross	14281	**28368**					**29488**

Fire Department							
station garage	4544	4544					
student estimate	2588	2588					
net	7132	7132	11	20%	3	360	7,492
gross	9509	**9509**					**9989**

Library	20000	**30000**

Notes: Starred (*) values indicate that the student group did not differentiate between current and future values. Current values for council chambers is 0 because it is not currently in the City Hall building, but in the Public Safety Building. The Parks & Rec department does not yet exist, so growth factors do not apply. To calculate gross square footage, the equation net/gross = .75 was used, or rearranged, gross = net / .75.

II Executive Summary

This year the Fall 2009 Architectural Programming class participated in the Sustainable Cities Initiative (SCI) Sustainable City of the Year, Gresham topic. The Architectural Programming class was assigned to develop a program for a new City Hall for the City of Gresham.

In the Sustainable Cities Year Initiative, one city in Oregon per year will be "adopted" by the Sustainable Cities program and the Sustainable Cities Year students will work with that city through a variety of studio projects and service learning programs across the University to: 1) provide students with a real world project to investigate; 2) apply their training; and 3) provide real service and movement to a local city ready to transition to a more sustainable and accessible future. (SCI)

With just over 100,000 people, Gresham is the fourth largest city in Oregon. It is bordered to the east by Portland, the largest city in the state. Gresham is home to the Mount Hood Jazz Festival and is known as "The City of Music". It is close in proximity to the Columbia Gorge National Scenic Area and Mount Hood, the highest point in Oregon. Gresham has a wide variety of neighborhoods including the Civic Center, known for its active transportation network, rapid transit connections and residential, commercial and retail mix. (SCI)

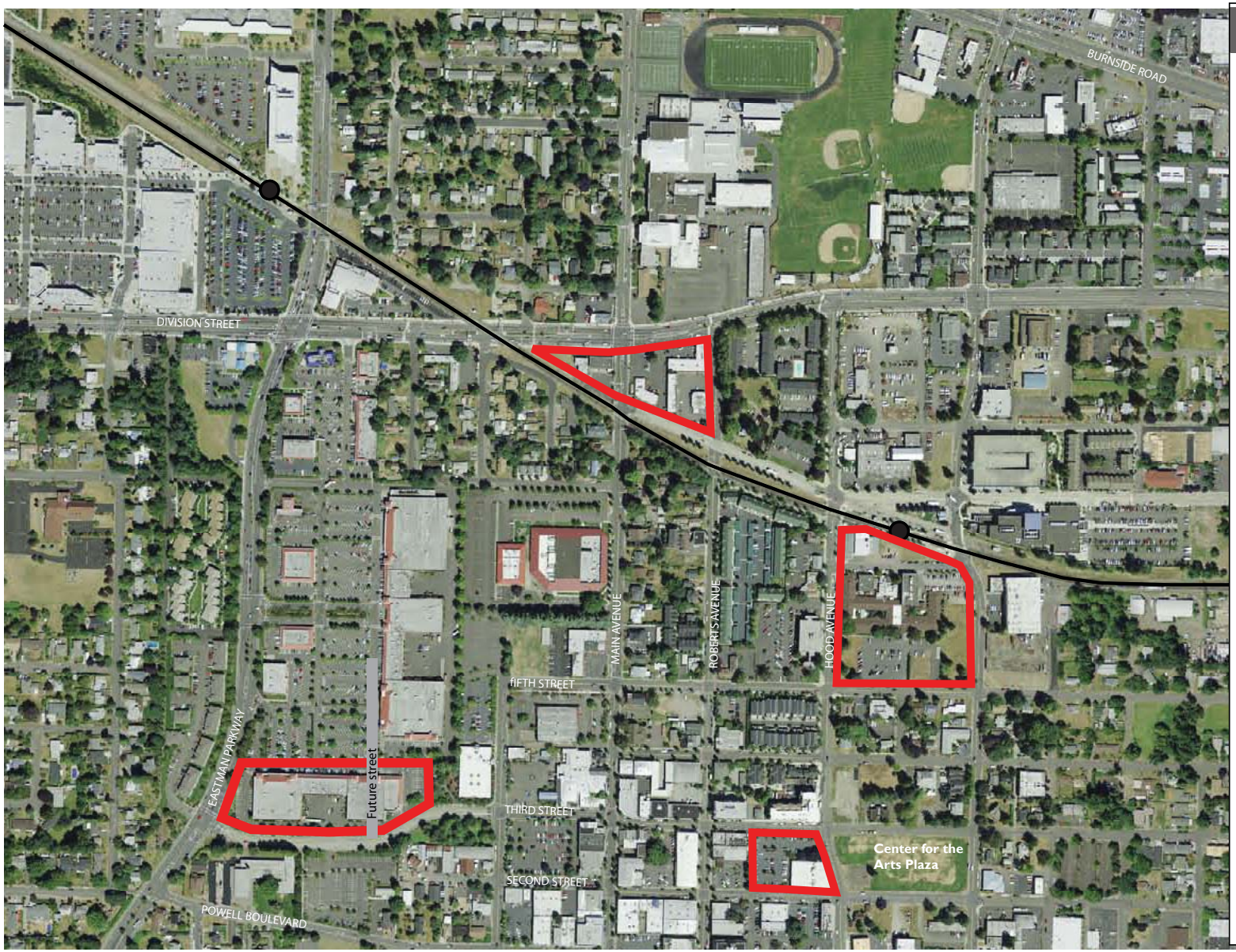
Gresham City Hall currently shares a large site at 1333 Northwest Eastman Parkway with the Police Department and the Fire Department. The site is adjacent to the 'Gresham City Hall' MAX stop and north of Downtown Gresham.

Student Groups.

To maximize the benefit to the city of Gresham and the opportunities for the students, six students groups were formed from the twenty-eight students registered for the Architectural Programming class. The class make-up included twenty-two graduate students and six undergraduate students. Students determined their own group members. Groups were either four of five students in size and were not required to be exclusively graduate or undergraduate in make-up. See the table of contents for group and site assignments.

Site Selection.

Site selection criteria were developed as part of the City of Gresham Downtown Plan process in 2008-2009. Four sites best met the established criteria. These four sites were assigned to the six student groups with some regard to their preference providing at least one group examined each site. The City of Gresham after attending student final presentations selected two sites to recommend for studio study: Site 3 south of the MAX line and north of NE 5th Street between NE Kelly Avenue and NE Hood Avenue; and Site 4 north of the MAX line and south of NE Division between NE



City of Gresham

Downtown study sites

Potential sites for a new Gresham City Hall

Legend

- Light-rail transit stop
- Light-rail line
- Downtown study site

N

Roberts Avenue and NE 10th Drive. These sites were selected for three major reasons: First, concern for potential private development; Second, visibility; and, Third, proximity to downtown Gresham.

Student Program Content.

In their Downtown Plan the City of Gresham acknowledges that a successful downtown will include a diversity of activities. To this end, students were instructed to consider, if site allowed, inclusion of additional program matching the Downtown Goals. At the front of each group program a title page announces the departmental programming included and the site assigned, however additional programming outside of the core program may be included and documented in the final plans and massing diagrams. Library areas were developed by documented City use patterns and programming the library was not part of this project.

Although these programs are for a minimum 50 year building areas have been planned 20 years growth based on City area annexation and planned growth data supplied by the City of Gresham to our class. An increase in service area typically means a direct increase in size of regular services and a spike in the increase for single event services followed by a general, economics-based elevation of single event services.

An operations management consultant specializing in this work could best assess these growth potentials. In absence of this guidance, a minimum general increase was estimated for City Hall, Fire and Police size over 20 years of 20%. Fire and Police may be larger primarily from a support services side if these projects are associated with new City Hall development. Actual fire and police services may be provided by satellite facilities so that required response times could be met.

Students were able to fit their programs onto assigned sites.

Site 1, the old fairgrounds site, was larger than what was required. Students in groups A2 and A3 were challenged by the 'fringe' nature of the site and the site size made it difficult to create a civic, urban environment without going against the suburban context. This site was large enough to accommodate Fire and Police Department facilities and although this is the current arrangement at City Hall, it does not seem to co-locate in an urban way very well. The large area demanded by the fire engine movements and the associated parking for fleet, staff and visitor vehicles forced this site into a super block. Perhaps if public streets separated the site this could become a more urban presence. Ultimately even a smaller block strategy grouping these facilities could result in a dead neighborhood in downtown after 5pm each day and on the weekends. Site 1 utilized a future parking structure planned by the City.

Site 2, across from the future Center for the Arts, had parking capacity issues and required underground accommodation to preserve the at-grade pedestrian environment. There were discussions of shared parking with the Center for the Arts; however there is no City goal that ties the two developments together for planning and funding a shared underground garage. The massing at this small site predictably is high and dense. Group A1 and B6 chose very

different orientations which pointed out the inherent confusion that this site may have between facing downtown, the Center for the Arts and the plan designated pedestrian-friendly street.

Site 3, south of the MAX line on the north edge of downtown, could potentially be another super block. Group B5 quickly realized that the site was larger than required and developed a phased concept of development. This site takes advantage of the MAX stop proximity and opportunities for a gateway style development for downtown.

Site 4, pinched between the MAX line and NE Division Street, is area challenged. Students in Group B4 gracefully wedged the full program onto this site; however their work only clarified that the fire department and police programs with their associated fleets were unsuited to the adjacent MAX line service time interference and the triangulated site. This site is an excellent gateway site to downtown Gresham and would be highly visible to traffic on NE Division Street. The challenge here will be to design a building envelope that appeals to both vehicle and pedestrian traffic.

Sustainability.

Programming must incorporate and support sustainable design practices including the three tenets of economy, environment and equity. Only in the past few years have the advantages of early introduction of sustainable design been quantified. Some of the sustainability tools used include:

- Establishing goals, facts, needs and ideas
- Building area requirements
- Site research
- Materials and spatial research
- Building mass manipulation
- Energy modeling

Students gathered information from the site during building tours and staff interviews. This information was then organized into a matrix for each department interviewed. The matrix focuses on clearly listing the goals declared by staff. These goals then were brainstormed by students and rolled together with facts learned and needs identified. Each goal has at least one fact affecting it and one need associated with it. Ultimately, these feed into an architectural 'idea' that students develop together that may resolve the facts and needs around a particular goal. These matrices are the backbone of each program.

Building area requirements establish how big a facility needs to be. The footprint (the area of the ground floor of a building) of the facility directly weighs on one particular environmental aspect of sustainable design: only build what you need. This is a difficult chore for most programs. Programming seeks to identify the total current and future requirements of a facility. This often leads to oversized spaces and excessive common space definitions which may be the first elements cut from a project when costs are identified. To prevent this, our class used the current Gresham City Hall as a start point for accurately sizing spaces.

Site research touches on economy, environment and equity. Students examined the four sites identified by the City of Gresham. Context and respect for existing businesses were discussed. Students reviewed current codes and plans affecting the sites and made recommendations for how much site would be required to house the City Hall. Groups A3 and B5 did not need their entire site and made recommendations for future development of other services and businesses. Group B4 added incubator businesses to the City Hall program as a way to directly support the Downtown Plan small business development vision. Environment, for this project, was less critical as all the sites were previously developed, urban sites. If there were greenfield sites included, they would be identified and placed into the scales of decision making against declared project values. Finally, students were very focused on equity and site through examination of access. Thoughtful analysis of how citizens, staff and City Representatives could access each site concluded with bus/lightrail access, more difficult personal car access, and ideas on how to share existing lots, future structured parking and opportunities for underground parking.

Students are encouraged to research materials and technologies that complement project values, goals, facts, needs and ideas. Sustainability emerged as a strong project value from the interviews students conducted with City of Gresham staff. Students used this guidance to introduce design ideas to their programs that complemented the typology of a City Hall. Group A2 and B4 used photos of environmental conditions to illustrate ideas for manifesting goals such as 'comfort in the work environment' and 'access to natural light and air'. Group B6 integrated opportunities for green roof and photovoltaics into their program.

Building mass manipulation is critical to protecting the solar access of neighboring properties and to determine if the proposed scale of a facility is appropriate and complementary to a neighborhood. Students looked at how massing supported the City Hall program, but then they also located the models on virtual sites. This allows for discussion of the impacts on the neighbors, traffic and identity.

A building mass model built in freeware Google Sketchup also has the advantage of being tested by another freeware product called IESVE which plugs into Sketchup and produces energy models. Very little skill needs to be developed by the students to manipulate Sketchup for these models: the simpler the better the outcome information. This makes early energy modeling viable at the programming phase without the inclusion of costly engineering that would need much more design detail for an accurate outcome. These early models do not yield the annual cost of operating a facility, however they do yield comparisons between conditions. Students were asked to model three different conditions of construction for their City Hall projects. Typically this varied in the mechanical equipment or insulation. The results were varied, but all groups found the existing City Hall did not meet the 2030 Challenge proposed by Ed Mazria and supported by the American Institute of Architects. These were inroads for the students towards empowering architects in the world of design and energy.

Department Mission Statements

This material is excerpted from the Expenditure Information Document, which is located in the Appendix. See the Appendix for full summaries of departments.

OFFICE OF GOVERNANCE & MANAGEMENT

MISSION STATEMENT

Work with people to prepare for the future. Strategically guide the organization by providing leadership and facilitating community participation in government. Proactively partner with customers, deliver quality service, create innovative solutions and promote mutual respect and diversity.

CITY ATTORNEY'S OFFICE

MISSION STATEMENT

Identify, anticipate and respond to the legal needs of the City by providing high quality, timely and cost-effective legal and risk management services.

OFFICE OF THE CITY AUDITOR

MISSION STATEMENT

To help improve the performance and ensure the accountability of city government for the benefit of the citizens of Gresham. The Office of the City Auditor achieves its mission by reporting independent assessments of city services and by recommending actions for achieving greater efficiency and effectiveness.

FINANCE & MANAGEMENT SERVICES DEPARTMENT

MISSION STATEMENT

Be good stewards of public funds and city assets by providing quality financial and maintenance services.

INFORMATION TECHNOLOGY DEPARTMENT

MISSION STATEMENT

Provide and maintain reliable technology based infrastructure and projects essential for the daily operations of city staff.

POLICE DEPARTMENT

MISSION STATEMENT

Provide police services which involve the community in problem solving aimed at enhancing public safety and the quality of life, and which respect the Constitutional rights of all citizens.

FIRE & EMERGENCY SERVICES DEPARTMENT

MISSION STATEMENT

Protect lives, property and the environment.

URBAN DESIGN & PLANNING SERVICES DEPARTMENT

MISSION STATEMENT

Your partners in creating a greater Gresham.

DEVELOPMENT SERVICES DEPARTMENT

MISSION STATEMENT

Your partners in creating solutions for quality development and a healthy business climate.

ECONOMIC DEVELOPMENT SERVICES DEPARTMENT

MISSION STATEMENT

Your partners in creating solutions for quality development and a healthy business climate.

DEPARTMENT OF ENVIRONMENTAL SERVICES

MISSION STATEMENT

Provides and maintain public infrastructure and oversee and implement programs essential for protection of the environment.

III. Introduction Programming and Gresham City Hall

The students participated in five progressive projects over the Fall 2009 term that built basic programming skills around a New Gresham City Hall concept. Each project was developed to result in deliverables that summarized student data gathered and to be used as reference for each sequential project. The project descriptions may be found in the Appendix of this document.

Project 1	Qualitative Report + Quantitative Report
Project 2	Program: Interviewing Prep, Tactics + Execution
Project 3	Program: Gathering, Documenting + Analyzing Data
Project 4	Program: Site Analysis/Plan/Massing Manipulation
Project 5	Energy Program

The first project focused on actively separating qualitative and quantitative information. Each student independently visited the Gresham City Hall to analyze their first impressions in media of their choice. Then students separately researched a current event involving Gresham using newspaper resources and wrote a synopsis of the work focusing on the affects of the event on Gresham. Students were encouraged to keep a sketchbook of ideas and impressions that could make it simpler to separate the facts of the program from preconceived results.

The second project introduced the students to the art and science of programming interviews. Students organized into six groups: A1, A2, A3, B4, B5, and B6. Brian Martin, Associate Planner for the City of Gresham, requested representatives from each department at the City Hall, Police Department and Fire Station to attend a full morning of interviews with the students. Each student group was responsible for interviewing representatives from at least two departments to gather their goals, facts, needs and ideas.

The third project consisted of student groups developing an analysis for each department using:

- Internal (relationship of spaces within the department) adjacency diagrams;
- External (relationship to other departments) adjacency diagrams;
- Area (square feet) tables;
- Values, goals, facts, needs and ideas matrix to take interview comments to architectural concepts;
- Ideas graphics illustrating types of spaces to consider based on the matrix.

These were then made available to all student groups for use in Project 4. Results were shared over the University of Oregon internal server so each group could develop a full and complete program for the City Hall.

In the fourth project student groups were assigned sites to test their programs against. Four sites were selected by the City of Gresham, all in within the jurisdiction of the 2009 Downtown Gresham Plan. Work included:

- Site analysis of contextual and environmental influences;
- Adjacency diagram of all departments in City Hall, this is a precursor to a building plan;
- Building plans for each floor; and,
- Conceptual massing diagrams for the potential City Hall that contained all programming requirements identified in Projects 2 and 3.

Massing diagrams show in a three dimensional environment the impact of the proposed program on the site.

The final project specifically examined operations energy. The environmental cost of the facility construction is not estimated. First students compared the existing City Hall against the 2030 Challenge (www.architecture2030.org) using utility data provided by the City. Next students used two freeware programs to compare variations on their massing designs, such as increases in insulation and sizes and types of windows or mechanical systems.

Assumptions and Limitations.

To accomplish this work some assumptions were made and limitations allowed.

- Students were asked to assume that the Gresham City Hall should move.
- City representatives selected to participate were interviewed, but due to university term limits, no time was available to confirm conclusions with the interviewees.
- Existing office and cubicle sizes were noted as sufficient by City Hall employees in interviews and were used to develop diagrams, plans and areas. Each department had differing ideas about growth and these are noted in student work, but rectified in overall numbers provided in the Executive Summary.
- Omissions and irregularities in process dictated by term length, student volume, class time limitations, access to client
- Typically a building committee is formed to represent the needs of a building in programming phase; due to the limits of term length and class time Brian Martin, Associate Planner, served this role.
- The public did not have involvement in this work.
- Sustainability opportunities in Programming phase of architecture design development are limited and may be used as comparables only to variations within the same tools.
- No results are the same for student analysis of the existing City Hall energy use. This may be attributed to many factors such as consistent use of the online tools, variation on the assumed area and construction of the existing facilities.
- Although there is currently no Park Department in Gresham there has been one in the past and the need is a proven industry standard for the care for organization and planning of greenspace for communities. We

understand the City is working on a 'Gresham Parks Futures' project. In anticipation of the future need to accommodate this department, we have included a core group of 6 in our program area estimates.

- Parking requirements were an approximation based on current use patterns at City Hall. Students were asked to accommodate 180 parking spaces or offer explanation why fewer would be needed. Public Works yard and vehicles are located at another site and will not be co-located with City Hall. Current approximate parking counts at City Hall are:
  - 139 stalls: staff, visitor, fleet and Office of Governance and Management
  - 233 stalls (overflow lot): staff, fleet, school district
  - 8 stalls: fire
  - 81 stalls: police staff and police fleet

IV. Scenario Alternatives and Additional Studies

Common Space Area Estimates

	dimens	current	future	fixtures
Large Conference Rm	80 x 30	3120	3120	6
Entry / Reception	60 x 35	2100	2100	
Kitchen / Lunch	55 x 40	2200	2200	4
Print Center		630	630	
Storage / Archive Rm		3467	6934	
Restrooms / Locker		2684	2684	
Bike Storage		500	500	
		14701	**18168**	

Notes: fixtures indicates the number of plumbing fixtures (womens + mens) that must be associated with the room according to Table 29-A of the OSSC.

Total Plumbing Fixture Estimates

		fixtures
city hall	72524	20
police	22,116	10
fire	7,492	6

Design Codes and Standards

- **Building**: Oregon Structural Specialty Code (OSSC) 2007
- **Accessibility**: American National Standard ICC / ANSI A117.1-98, Accessible and Usable Buildings and Facilities; Americans with Disability Act Title II / Current Edition; CBC Chapters 11 and 11B. The most stringent standards apply.
- **Fire**: Oregon Fire Code 2007
- **Energy**: Oregon Structural Specialty Code 2007, Chapter 13 Energy Efficiency
- **Safety**: Applicable Oregon OSHA Regulations

Code Analysis

Below is a breakdown of code requirements for each building. To simplify this work we assume B occupancy for a majority of the area of each facility.

City Hall

OSSC 2007 Criteria

- Use group classification: B, A3
- Type of construction: I.B
- Number of stories allowable: 11
- Building area allowed: Unlimited
- Allowable occupant load (from Table 1004.1.1):
    - Business Areas: 100 sf per occupant
    - Assembly Areas: 7 sf per occupant
- Energy code: Heated Spaces, Insulation values Table 13-E:
    - Exterior Walls (frame construction): Min R-Value 13
    - Glazing (windows up to 30% glazing fraction): Max U-Value 0.54
    - Roof Assembly: min R-Value 19

    - Doors: Max U-Value 0.2
    - Floor: Min R-Value 11
- Allowable area and stories will increase if the buildings become sprinklered, and if fire access frontage is increased.

Fire Building

- Use group classification: B, A3, R2,
- Type of construction: I.B
- Considered an “Essential facility” according to ORS 455.447
- Number of stories allowable: 11
- Building area allowed: Unlimited
- Allowable occupant load (from Table 1004.1.1):
    - Business Areas: 100 sf per occupant
    - Assembly Areas: 7 sf per occupant
    - Residential Areas: 200 sf per occupant
- Energy code: Heated Spacs, Insulation values Table 13-E:
    - Exterior Walls (frame construction): Min R-Value 13
    - Glazing (windows up to 30% glazing fraction): Max U-Value 0.54
    - Roof Assembly: min R-Value 19
    - Doors: Max U-Value 0.2
    - Floor: Min R-Value 11
- Allowable area and stories will increase if the buildings become sprinklered, and if fire access frontage is increased.

Police Building

- Use group classification: B, R2,
- Type of construction: I.B
- Considered an “Essential facility” according to ORS 455.447

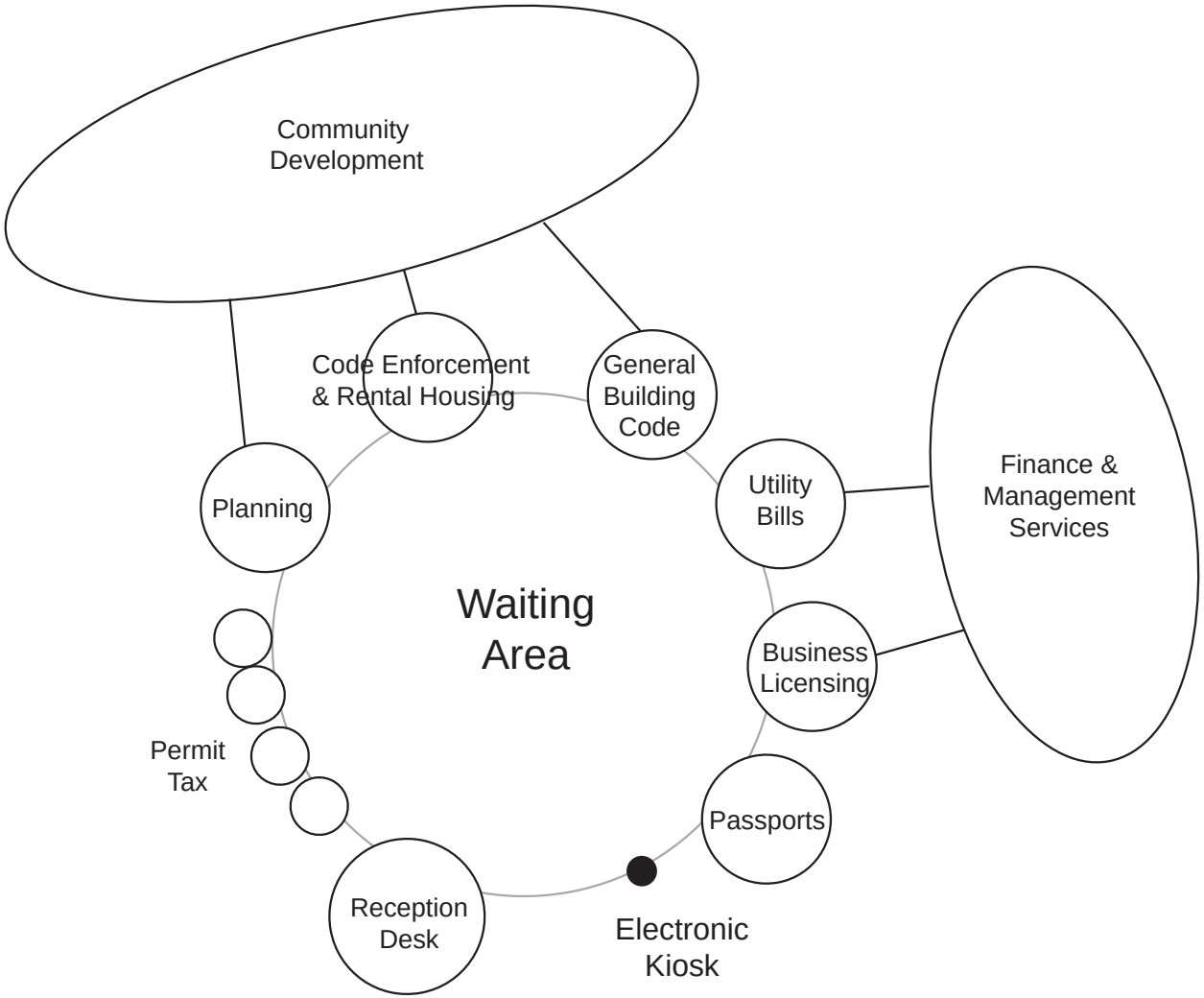
- Number of stories allowable: 11
- Building area allowed: Unlimited
- Allowable occupant load (from Table 1004.1.1):
    - Business Areas: 100 sf per occupant
    - Residential Areas: 200 sf per occupant
- Energy code: Heated Spaces, Insulation values Table 13-E:
    - Exterior Walls (frame construction): Min R-Value 13
    - Glazing (windows up to 30% glazing fraction): Max U-Value 0.54
    - Roof Assembly: min R-Value 19
    - Doors: Max U-Value 0.2
    - Floor: Min R-Value 11
- Allowable area and stories will increase if the buildings become sprinklered, and if fire access frontage is increased.

Special Consideration - Permit Windows

In considering the design of the City Hall Building, a special consideration is the arrangement of the permit windows and their relationship to the other departments and circulation.

In an ideal configuration, input windows have close access to the departments they serve. Windows are large enough to allow the review of physical or electronic plans without moving to a conference room.

In this scheme, it may be possible to shorten permit times from a matter of weeks to a matter of hours, allowing customers to access needed windows in sequence.



Group A1

3rd & Hood

Kate Casselman
Nicole Holt
Elizabeth Kilgore
Craig Race

A1 24 SCI
Sustainable Cities Initiative

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CONTENTS AND METHODS

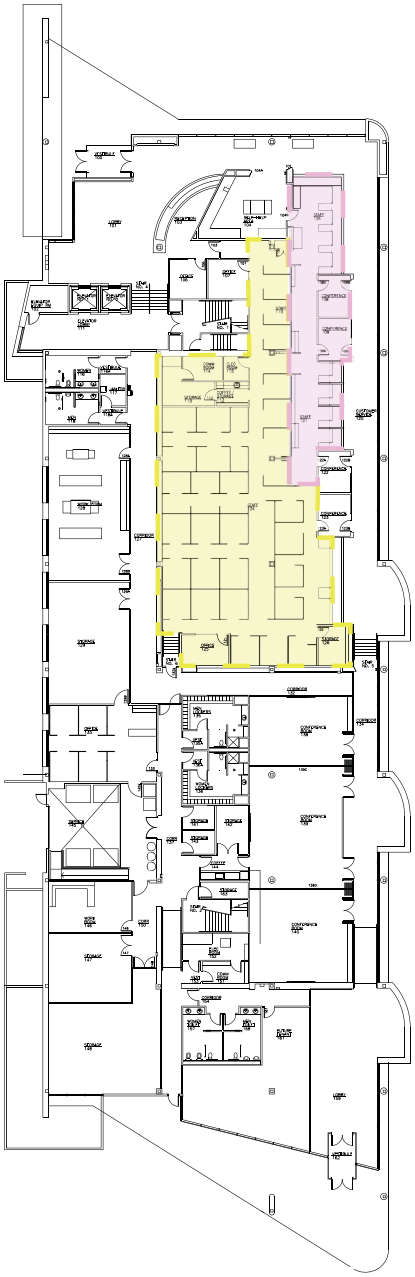
The purpose of this project is to create a comprehensive program for a new city hall for the city of Gresham, Oregon. The charts and diagrams contained in the following document illustrate the information gathered through our interactions with the city of Gresham and external research. The methods used to gather information include: preliminary research through articles, site analysis, interviews, program analysis through diagrams, and facility tours.

EXECUTIVE SUMMARY

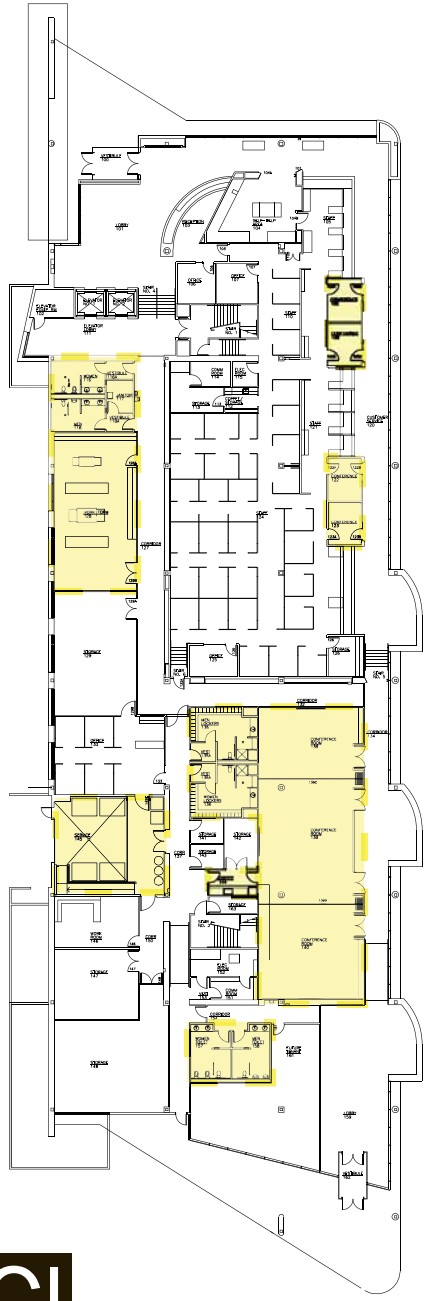
As a programming class we were charged with developing a comprehensive program for a new Gresham City Hall building. We started initially researching the city of Gresham by examining past articles about the challenges the city has faced during its development. We found out the city has had problems with creating a sense of identity and sustaining a thriving downtown. After visiting the site of the existing city hall it was clear the new city hall needed a stronger community connection and presence and needed to create a new identity for itself. During an interview session with specific departments within city hall, we focused on understanding how the building is used and what each user group's needs are. For each person, we were interested in themselves as part of a larger department, their department as part of the city hall, and city hall as part of the city of Gresham. We were also interested in how they used to do their job, how things are done currently, and how operations might change in the future. After touring the existing facilities and analyzing what we heard from the interviews through charts and diagrams, we determined the following:

Gresham City Hall will serve as an identity for an emerging downtown while promoting community revitalization.

Departments



Communal Spaces



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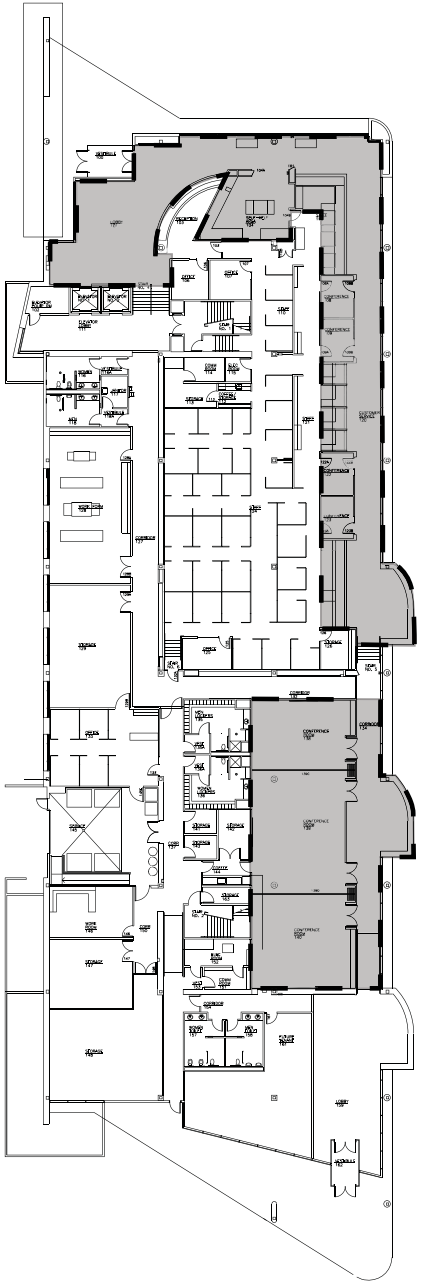
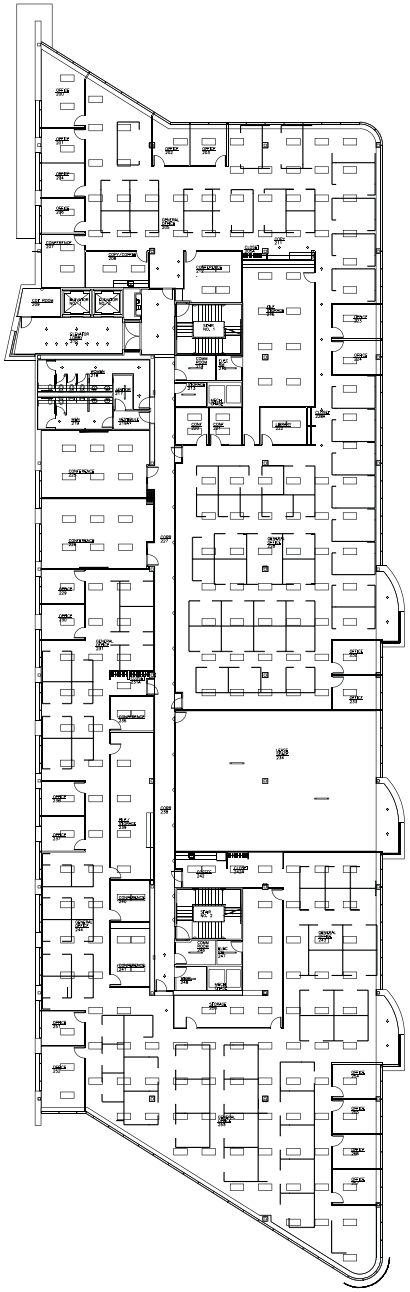
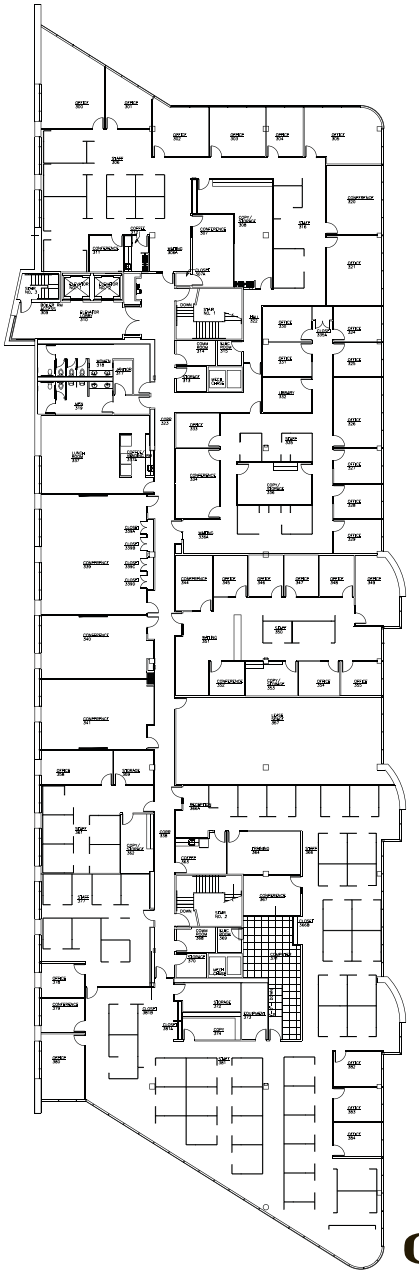
SCI
Sustainable Cities Initiative

Public Interaction







DEPARTMENT INTERVIEW DIAGRAMS

In order to efficiently obtain information from the employees who work in Gresham's City Hall, our team interviewed two departments and pooled our information with other teams who interviewed other departments.

We interviewed Elaine Fultz, Jamie Zimmerman, and two others from the Urban Design and Planning department and Orpha Keel and Wyatt Parno from the Finance and Management Services department. We compiled our information into three graphics to better understand each departments needs and their relationships and share with the other teams.

The diagrams on the following pages represent the information we gathered from our interviews with these two departments.

Intradepartment Adjacency Diagram

describes the physical needs and relationships within the department.

Department connections Diagram

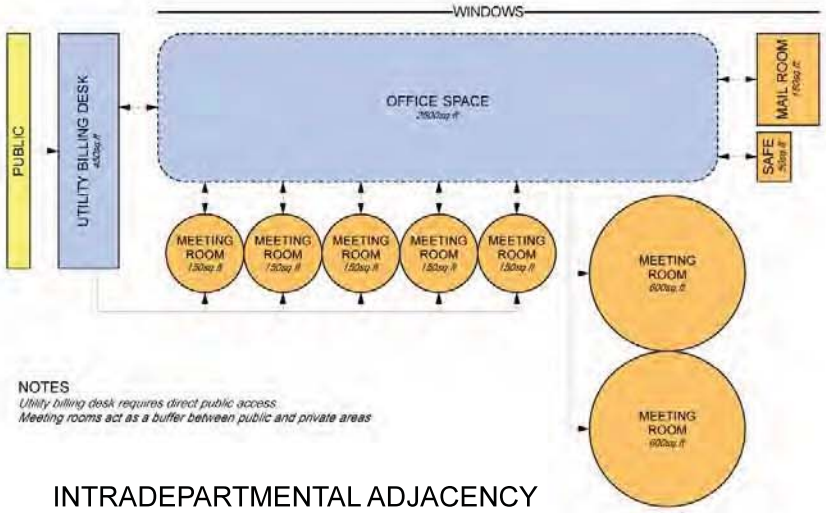
shows the relationships of the department to other departments in City Hall as well as to the public.

Values Chart

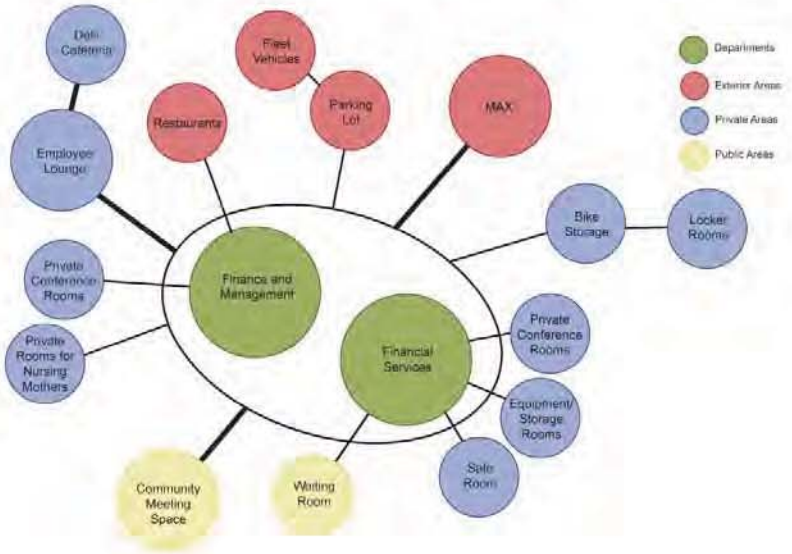
expresses, in a text spreadsheet, the goals of the department, how they function, their needs to fulfill their goals and ideas to make their department effective and efficient in achieving their goals.

Finance & Management Services

Values	Goals	Facts	Needs	Ideas
Human				
Environmental	**More efficient layout**	Currently separate department divisions are inconvenient	Financial services require public access for bill payments	Privacy heirarchy or spaces (Bill payment desk - Meeting rooms - Cubes - Safe & mail room)
		Areas must be allocated to private meeting spaces	More interactive spaces for employees	Group entire department in one space
				Provide break-out spaces
	Accommodate clients	Often have lunch meetings	Proximity to restaurants	Locate in established area
	Accommodate staff	Most employees eat at desk	Better lunch facilities	Include cafeteria in city hall
				Inviting outdoor space w/ tables
	Appropriately incorporate support facilities	Department uses a safe and mail room	Separate mail room and separate safe room	Locate in separate room
Cultural	**Connect to community**	Often hold community meetings (1 - 100 people)	Variable sizes of meeting rooms	Large communal event room
		Most people coming to city hall are there to pay bills	Easily accessible	Information marquee
			Security presence	Street presence
Technological	**Access to Portland**	Frequent meetings in Portland	Access to public transit	Locate near public transit
		Prefer to take public transit		Incentivize transit use
Temporal				
Economic				
Aesthetic				
Safety				



INTRADEPARTMENTAL ADJACENCY



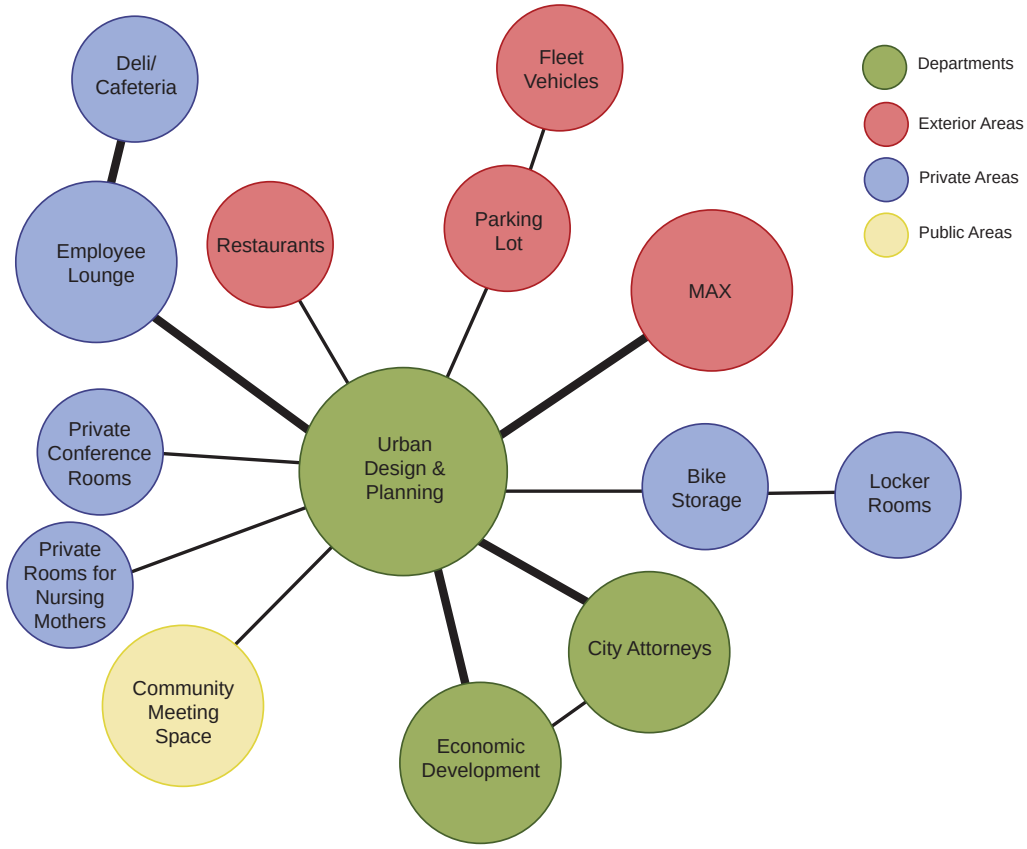
DEPARTMENT CONNECTIONS

Financial and Manag. Services

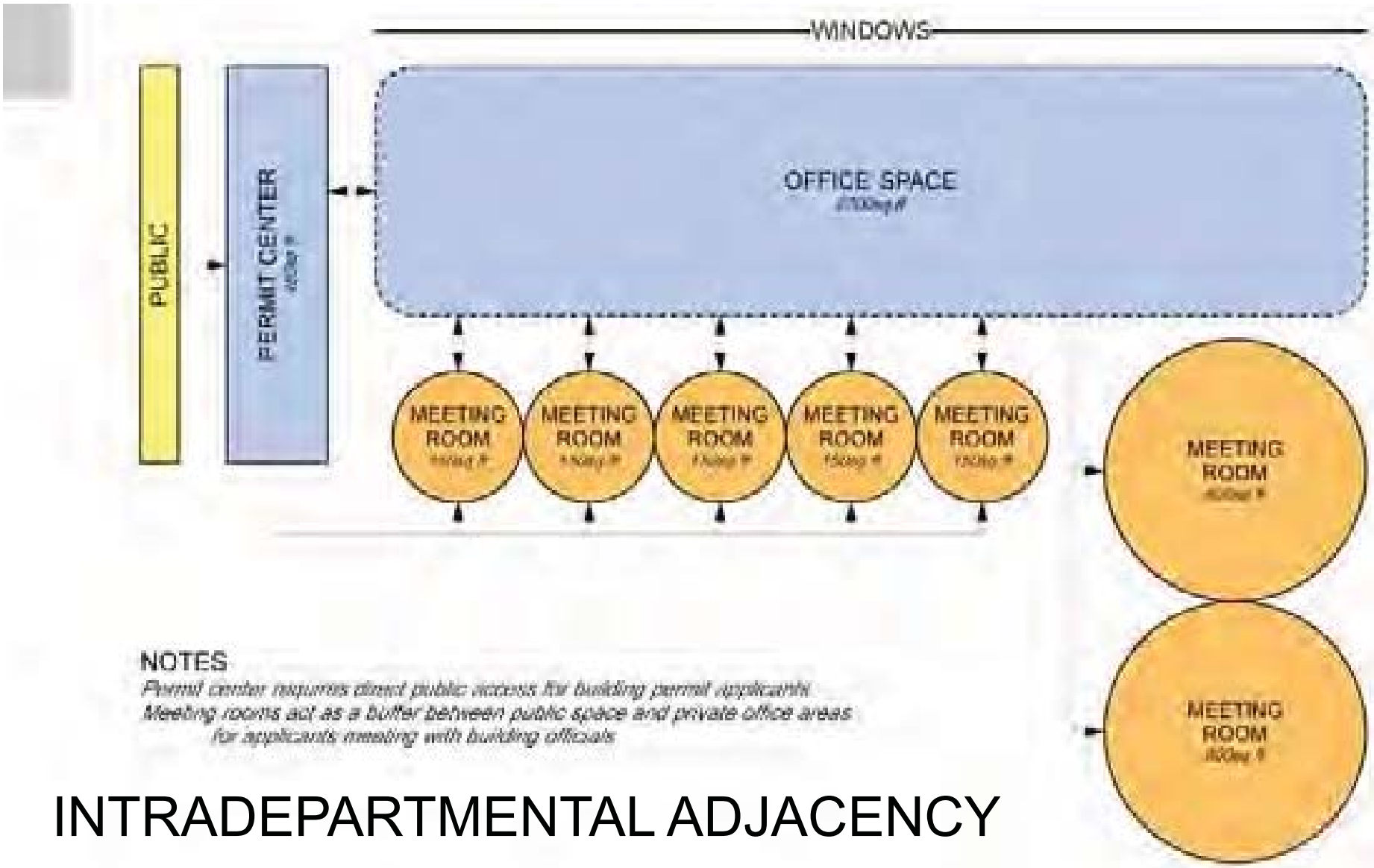
ROOM TYPE Name	EXISTING # of Rooms	FUTURE # of Rooms	RM DIMS. Ft	CURRENT Sq Ft	FUTURE Sq Ft	NOTES
Bike Storage	1	1	~20x50	796	796	Some other storage too
Restrooms - Women's	3	3	varies	588	588	Includes locker room
Restroom - Men's	3	3	varies	588	588	Includes locker room
Reception	1	1	varies	1075	1075	
Lunch/Coffee Room	2	2	8x10	153	153	
Lg. Conference (20-50)	3	3	~30x25	2,250	2,250	Can combine 2-3 into a lg
Sm Conference (2-10)	6	6	~15x12	1080	1080	
Supply/Print/Work Room	2	2	vaires	1,348	1,348	
Large File Storage	2	2	~25x30	1,500	1,500	
General Office Spaces	26	26	~10x10/desk	2,600	2,600	includes desks and offices
Public Conference tables	2	2	8x10/desk	524	524	

Urban Design & Planning

Values	Goals	Facts	Needs	Ideas
Human	**Accommodate personal privacy needs**	Little consideration for nursing mothers	Personal space	Incorporate private stalls into women's bathroom for nursing privacy
		Sick room is useful amenity		
		Acoustic seperation required for sensitive meetings		
Environmental	**Flexible spaces**	Reconfigure department frequently	Reconfigurable work spaces	Open plan
		Workload varies depending on development economy	Growth spaces	Furniture on wheels
				Mixed-use space
	Improved public interface	Department currently segregated	Definite public/private seperation	Privacy heirarchy or spaces (Permit desk - Meeting rooms - Cubes)
		Not welcoming	Accessible meeting spaces	Keep entire department in one space
		Difficult to navigate		Obvious path of travel
	Improved spatial organization	Maze of cubes tough to navigate	Collaborative spaces	Low cube walls (if any at all)
			Transparency	Simple circulation
			Incubate creativity and interaction	Communal spaces that promote interaction
	Improved indoor environment	Connection to outdoors improves work environment	Natural light & ventilation	Narrow floorplate for proximity to windows
			Views	Operable windows
				Indoor courtyard for year round connection to nature
				Skylights or light shafts
Cultural	**Connect to community**	Often hold community meetings (10 - 100 people)	Variable sizes of meeting rooms	Large communal event room
		Most people coming to city hall are there for permits	Easily accessible	Information marquee
		Community meetings tend to take place in evening	Security presence	Street presence
Technological	**Access to Portland**	Frequent meetings in Portland	Access to public transit	Locate near public transit
		Prefer to take public transit		Incentivize transit use
Temporal				
Economic				
Aesthetic	**Incubate collaboration & creativity**	Building feels sterile	Break-out spaces	"Creative spaces" for group work
		Artwork uninspiring	Interaction with space	Rotating exhibitions curated by employees
		Lack of interaction		
Safety				



ROOM TYPE Name	EXISTING # of Rooms	FUTURE # of Rooms	RM DIMS. Ft	CURRENT Sq Ft	FUTURE Sq Ft	NOTES
Restrooms - Women's	1	1	10x19	192	192	
Restroom - Men's	1	1	10x19	192	192	
Lunch/Coffee Room	2	2	10x18, 8x12			Shared
Quiet Room	1	1	6x8	48	48	Shared
Lg. Conference (20-50)	2	2	~30x20	600	600	Shared, combine into a lg
Sm Conference (2-10)	7	7	~15x12	1260	1260	Shared
Supply/Print/Work Room	1	1	10x18	180	180	Shared
Large File Storage	1	1	18x28	504	504	Shared
General Office Spaces	27	27	~10x10/desk	2,700	2,700	includse desks and offices

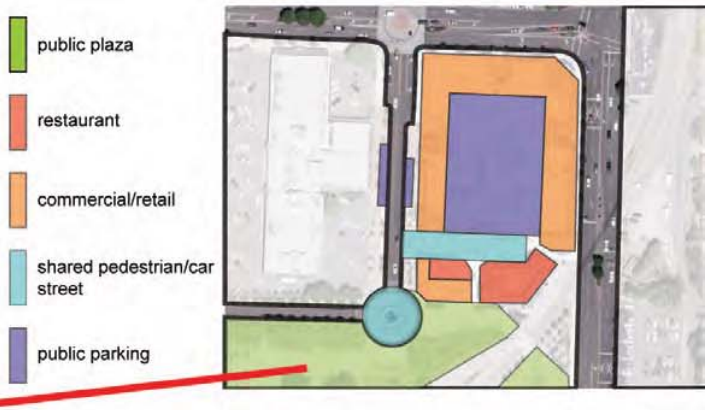


INTRADEPARTMENTAL ADJACENCY

Precedent Studies

LAKE OSWEGO MILLENIUM PARK

MacLeod Reckord Landscape Architects
1999



Pavers and bollards to slow traffic where to give priority to pedestrians.

Pedestrian focused public plaza mixed with commercial/retaurant space to hide parking and create a thriving civic center

Regularly occuring events to serve as a center location in the city

Recreation opportunities

Pedestrian friendly open spaces with seating, planters and low shelters

TORONTO CITY HALL

Viljo Revell
1965

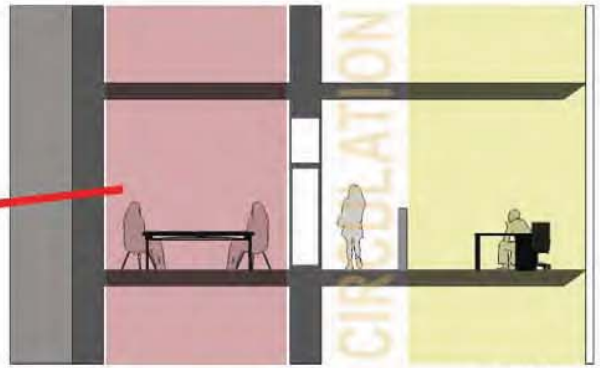
Differentiated geometries to indicated uses and a public and private separation.

OFFICES

COUNCIL CHAMBER

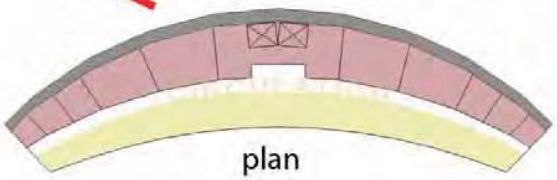
PUBLIC USES

PUBLIC PLAZA



section

Offices near the glazing for maximum daylight. Circulation space separates the office space from the support spaces.



plan

support spaces

offices

SEATTLE CITY HALL

Bohlin Cywinski Jackson and
Bassetti Architects
201,000 sq. ft. LEED Gold

Natural lighting wherever possible

A large central atrium organizes the public space

Exterior is inviting with appropriate grandiose civic feeling (without being intimidating) while attention is paid to the human scale

Highly visible green features to promote civic pride and identity for the building

Art installations inspire creativity and provide a sense of place

Area Chart

ROOM TYPE Name	EXISTING # of Rooms	CURRENT Sq Ft	FUTURE # of Rooms	FUT. DIMS. Ft	FUTURE Sq Ft
Enclosed offices	50	8050	70	120-300	11900
Cubes	185	15660	200	9x9	16200
Small Conference	18	3275	25	15x12	4500
Large Conference	9	5890	10	30x25	7500
Small Storage	16	1680	20	6x10	1200
Large File Storage	4	3000	6	30x30	5400
Break/Lunch rooms	2	867	3	30x20	1800
Coffee spaces	5	513	2	10x12	240
Copy/work room	8	2478	8	15x20	2400
Men's Room	5	1026	6	10x19	1140
Women's Room	5	1058	6	10x19	1140
Closets	11	195	12	2x8	192
Public Conference desks	6	524	8	10x8	640
Relax/Nap/Nurse room	6	462	3		30,000
Library	1	132	1	20x15	300
Reception/Public Atrium	2	1075	3		1200
Bike Storage	1	1090	1	60x25	1600
Computer/Training room	1	667	1	35X20	700

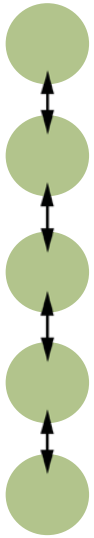
Guiding Design Principles

Flexible and efficient layout

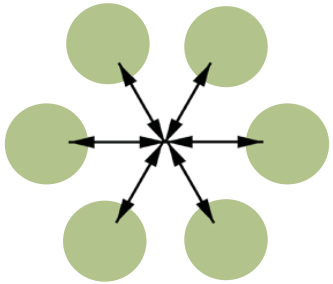
Simple and welcoming public interface with a strong civic feel

Healthy indoor environment including natural light and ventilation

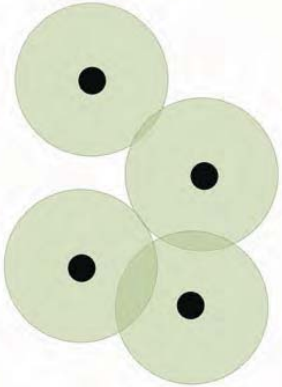
Design Diagrams



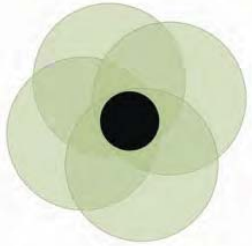
Current City Hall
linear layout of forces people to walk through desk space to connect with other departments. Our interviewee's indicated that this set up was both distracting and confusing.



Our Proposal
a layout where there is central circulation that allows more positive interactions and simplifies circulation.



Current City Hall
communal space such as copy rooms, small conference rooms and break rooms are scattered randomly throughout the floor, which isolates workers and adds to the confusing layout.



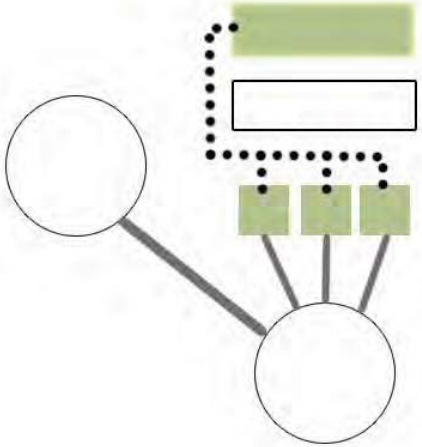
Our Proposal
to centralize shared spaces such as conference rooms and break rooms to promote inter-departmental interactions and a greater sense of community among employees.

Design Diagrams Continued

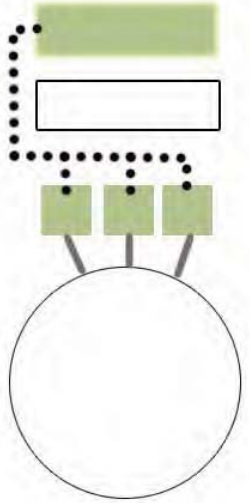
Current City Hall
the public is directed, by the main receptionist, through other departments to access a given public department. Generally, wayfinding is very difficult and the layout is not logical for public trying to access desks or departments that deal with public issues.

Our Proposal
to locate departments that deal with the public near the reception desk and to make wayfinding very clear for these departments.

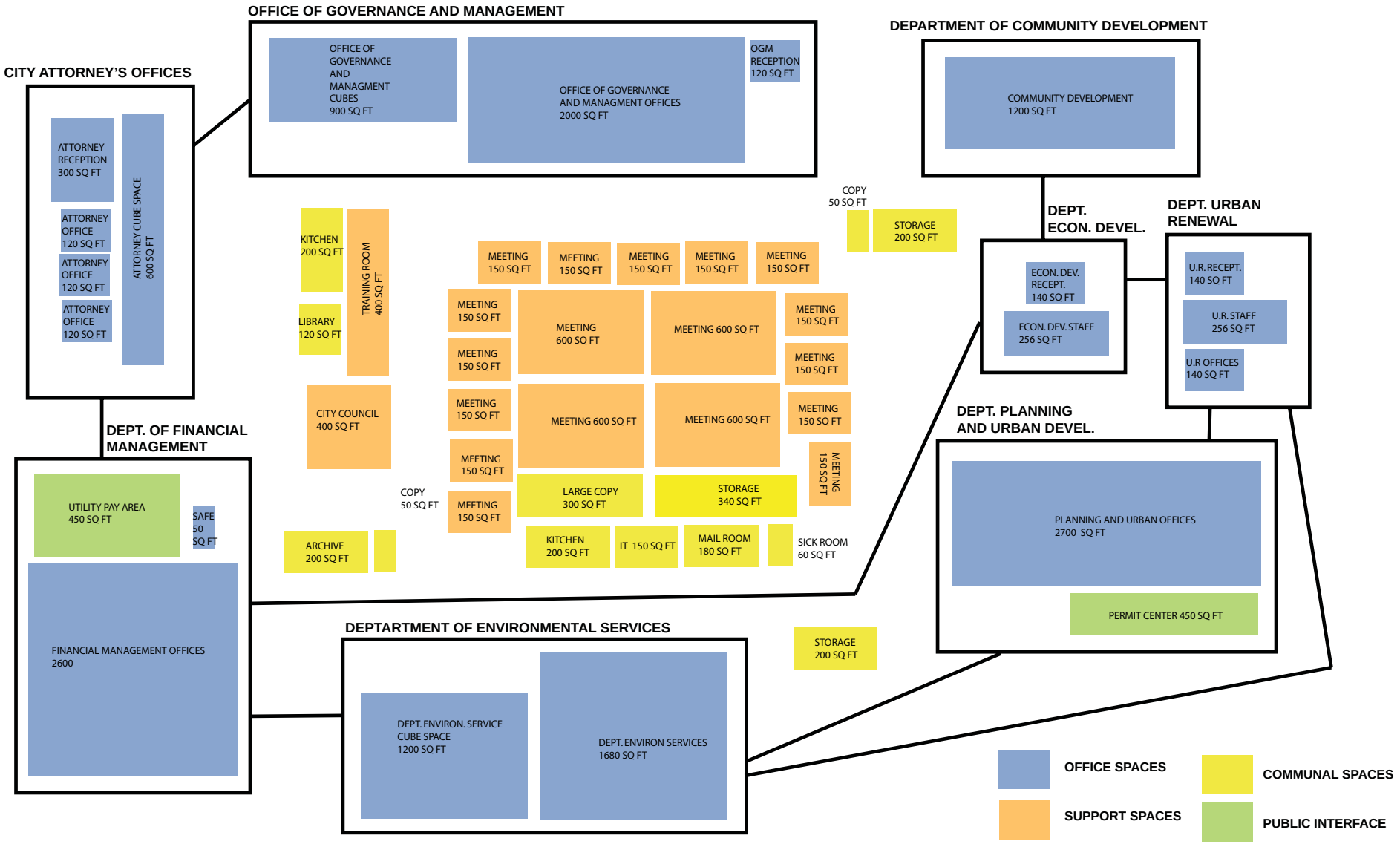
Current City Hall
is designed so that only a few offices access natural light. Our interviewees indicated a strong desire to have access to natural light reach as many desks as possible.



Our Proposal
is to design a lay out where natural light reaches into the cubicle layout and more workers have views of outside.



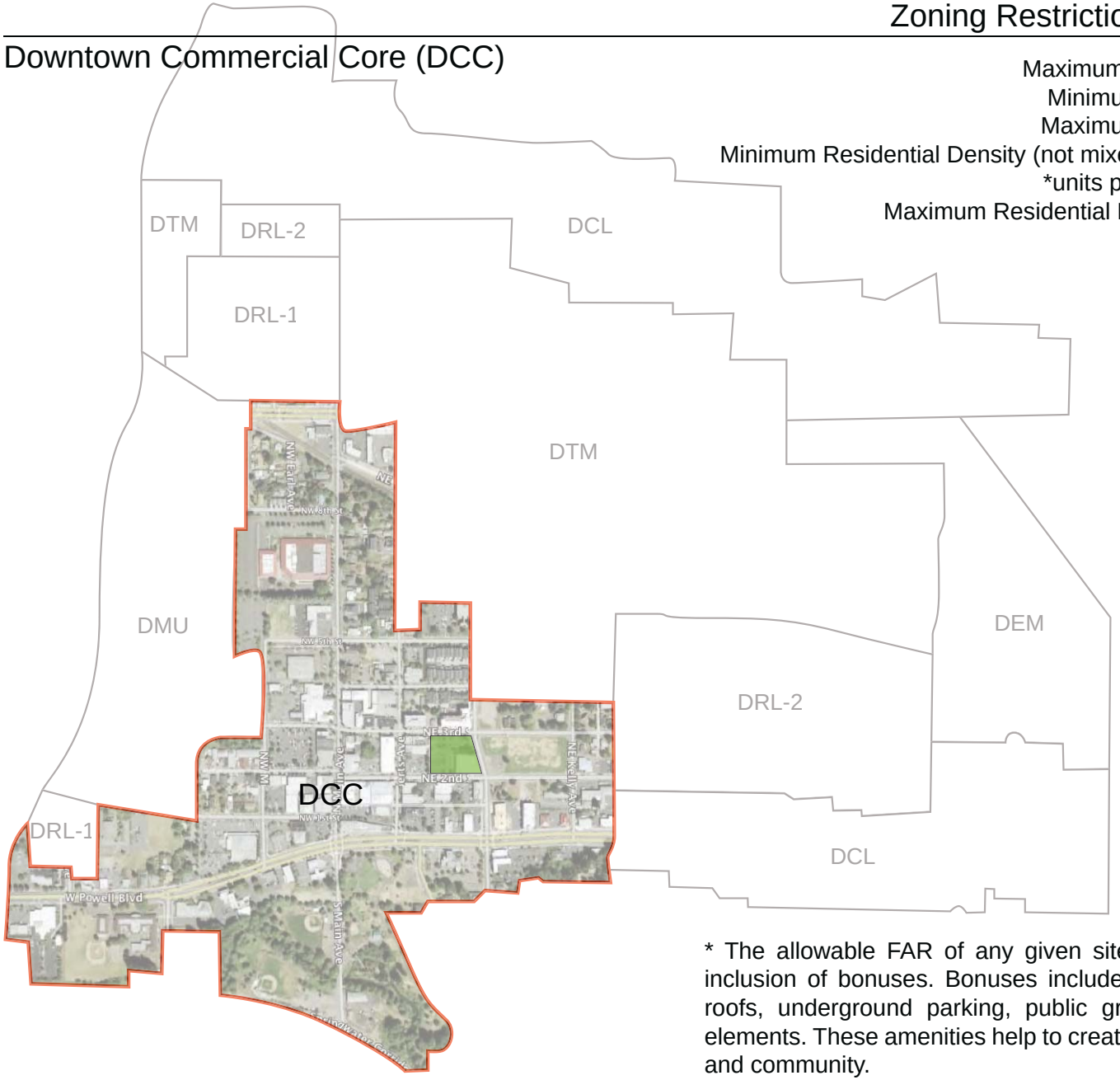
Scaled Relationship Diagram



A1 42 SCI
Sustainable Cities Initiative

Downtown Commercial Core (DCC)

Maximum height	85 feet
Minimum FAR	1
Maximum FAR	3 (5 with bonuses)*
Minimum Residential Density (not mixed use) *units per acre	17
Maximum Residential Density	no maximum



Characteristics

small-scale storefronts
intimate sidewalks
walkable
active
engaging
vibrant

Uses

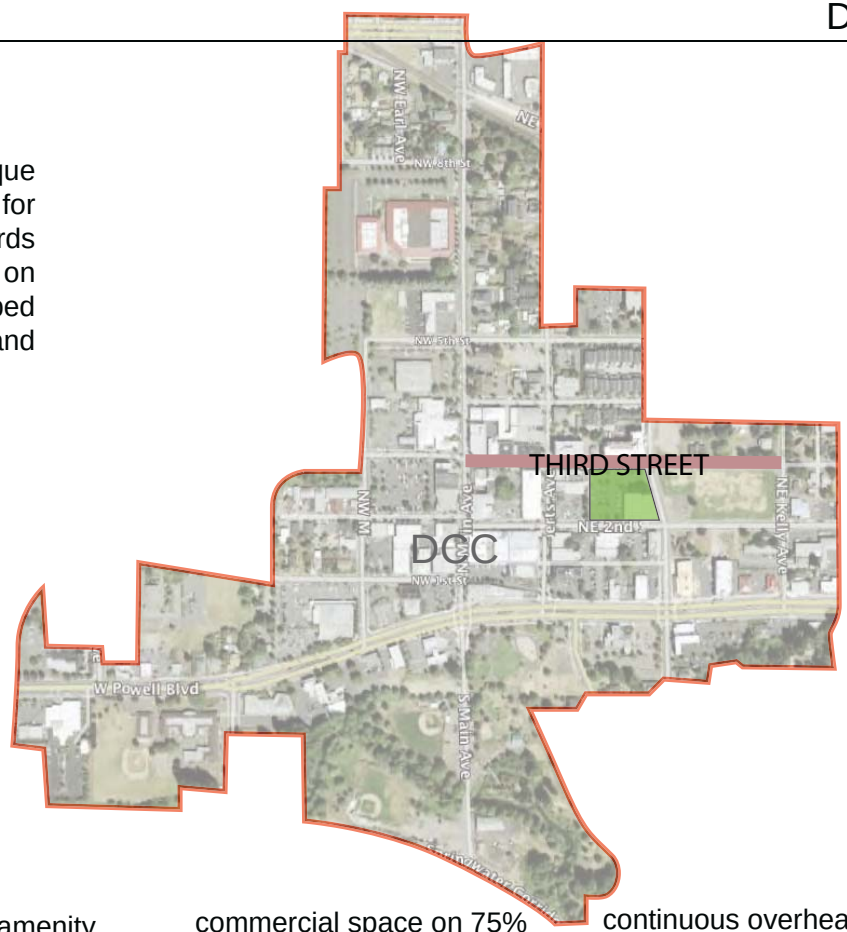
retail
service
office
residential

* The allowable FAR of any given site can be increased with the inclusion of bonuses. Bonuses include design elements like green roofs, underground parking, public green space and exterior art elements. These amenities help to create a livable urban environment and community.

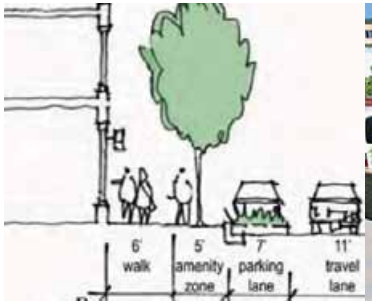
Third Street Standards

Third Street is considered to be a unique street type as it passes by the potential site for the new City Hall. There are design standards that are to be met when designing buildings on these streets. These standards were developed with the intention of creating a lively, active, and walkable street.

Elements like a four-foot amenity zone add character to the street and provide people with a place to pause and sit. Requiring that 75% of the ground floor is commercial space helps to bring life to the street during the day. Providing overhead weather protection allows streets to stay active, even in Oregon winters.



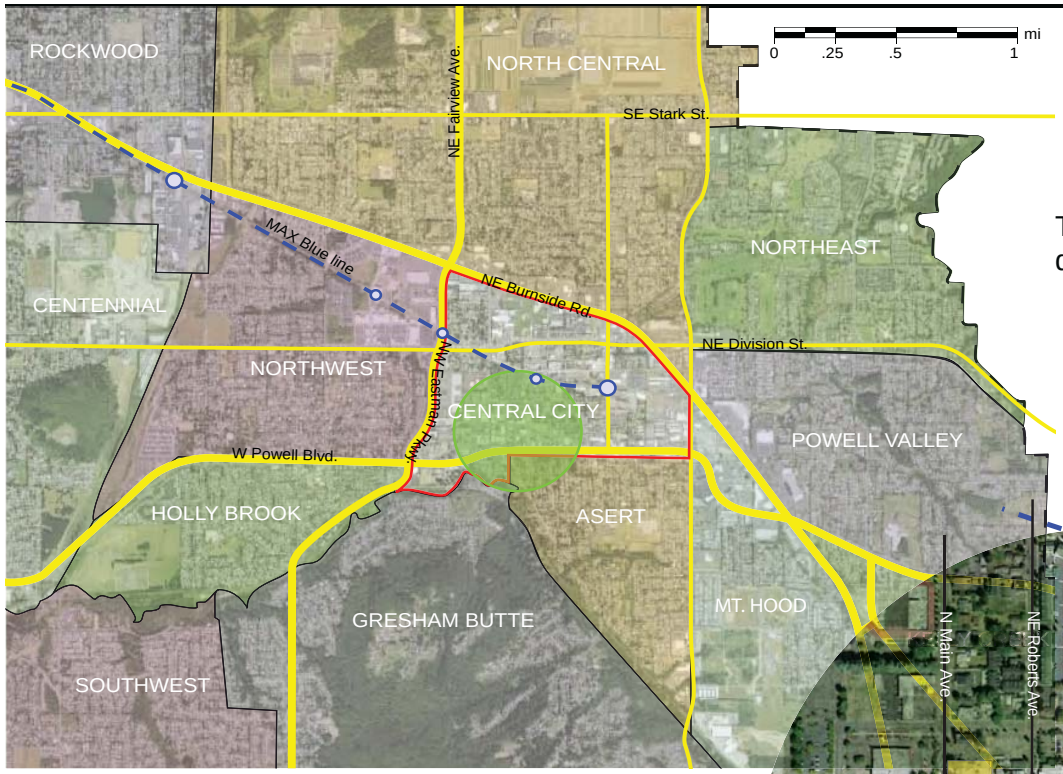
A pedestrian walk that is 6 feet wide



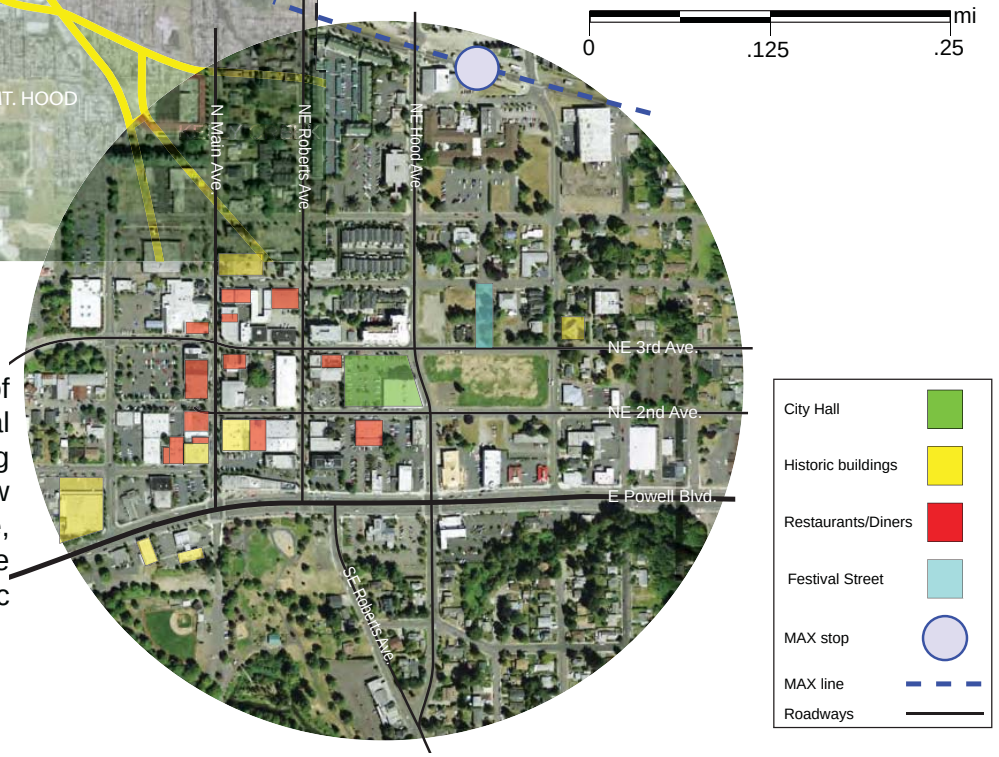
four-foot amenity zone

commercial space on 75% of the ground floor

continuous overhead weather protection



The new City Hall site is located in the Central City district of Gresham.



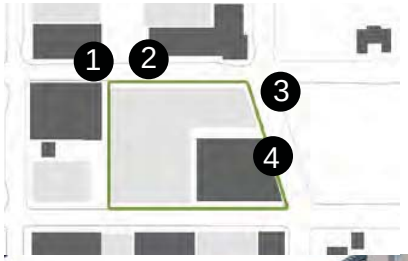
1/4 Mile Radius

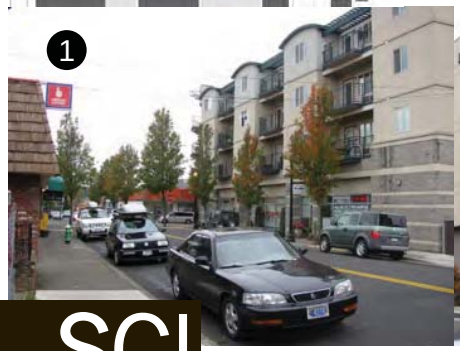
The site is located in the historic downtown of Gresham, Oregon within a 1/4 mile of a MAX stop, several restaurants and historic buildings. With the new zoning design standards in place, the area surrounding this new location of Gresham City Hall will become an active, lively, walkable district. Directly east of City Hall will be the Gresham Center for the Arts, and a public plaza, a terrific cultural amenity to a growing downtown.

Existing Uses

The majority of uses are, commercial with a few restaurants. Most of the residential development in the area is located to the north of the site. Currently there is a lot of surface parking adjacent to the site as well.

A few of the site conditions we addressed in our design were creating a civic face along the park, continuing the commercial street edge and preserving pedestrian access through the center of the block at the west end of our site.



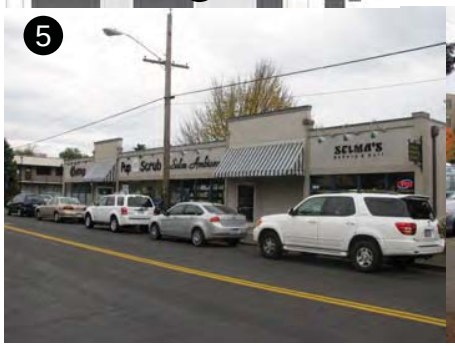


Planned Future Development

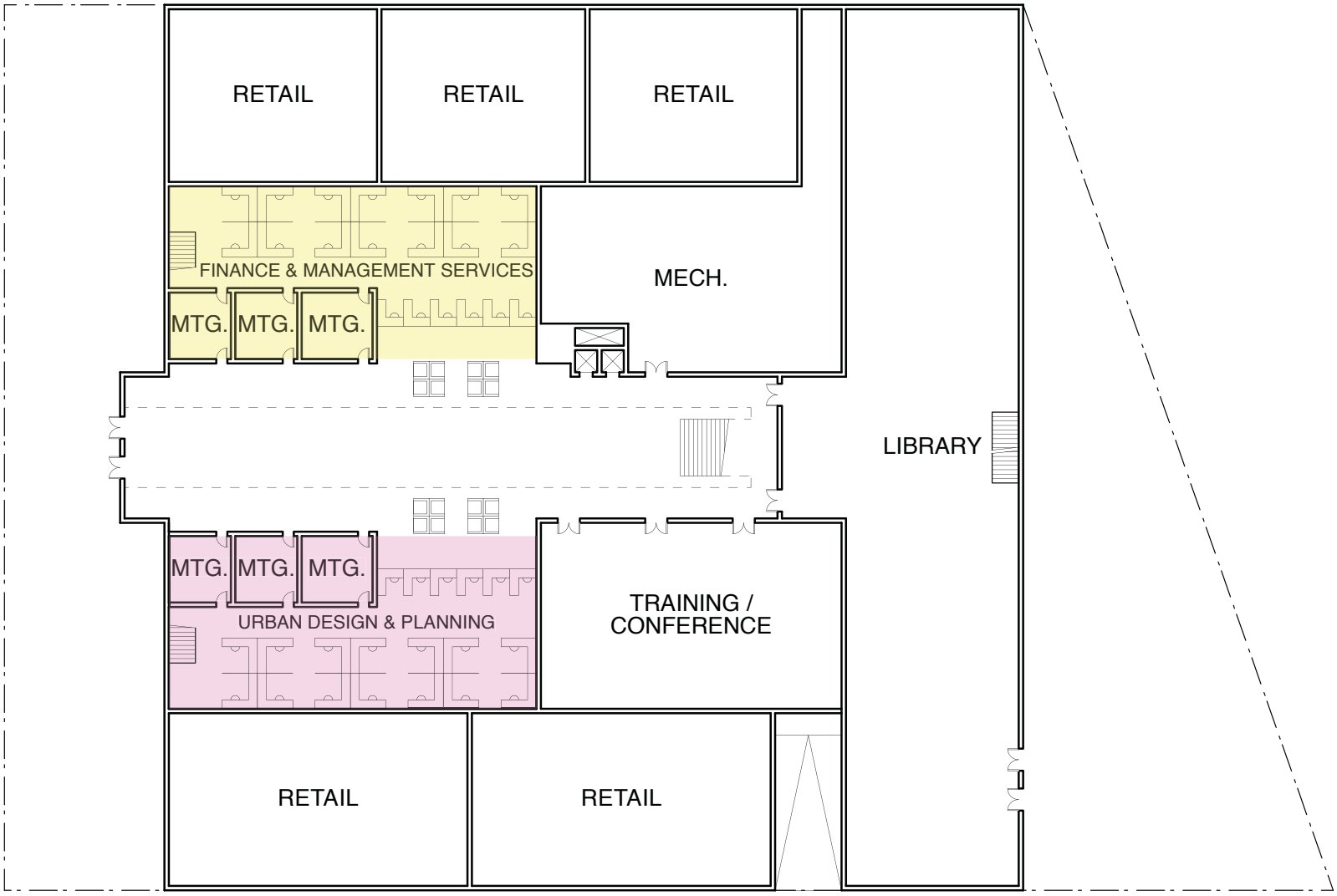
Gresham's city plan includes creative infill within the city center as well as more residential development to the north and around the proposed festival street. To the east of the site is the location of the new Gresham Center for the Arts and a public plaza.

City Hall will have a positive impact on the surrounding businesses. People coming to City Hall on business are likely to wander around the shops and restaurants nearby. Along with the planned development in the area, the new City Hall will bring more people to the district to shop, eat, and experience all that Gresham has to offer.

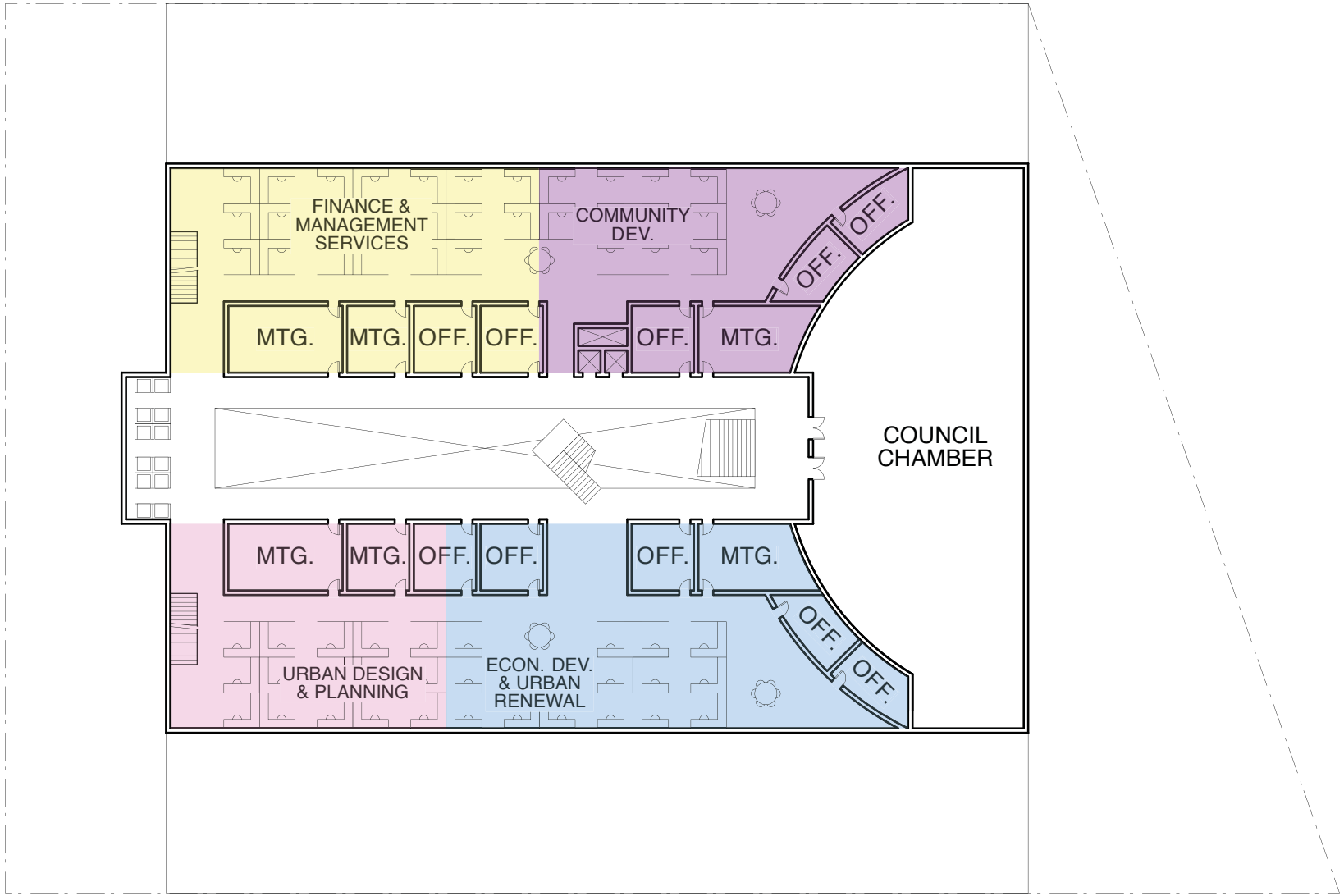
Planned Future Development
City Hall Site
Festival Street
Existing Development
3rd Street Development



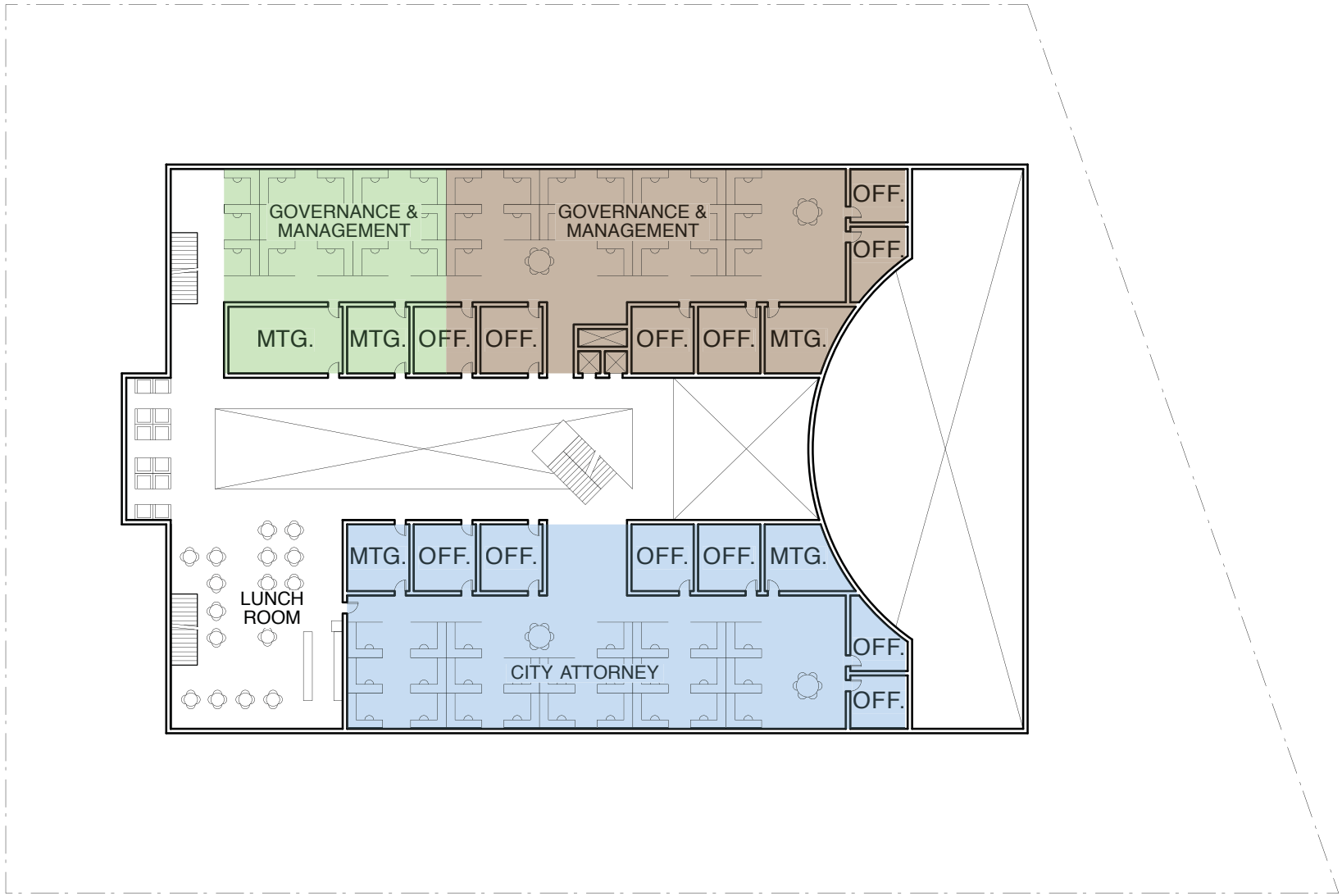
Floor Plan _ First Floor



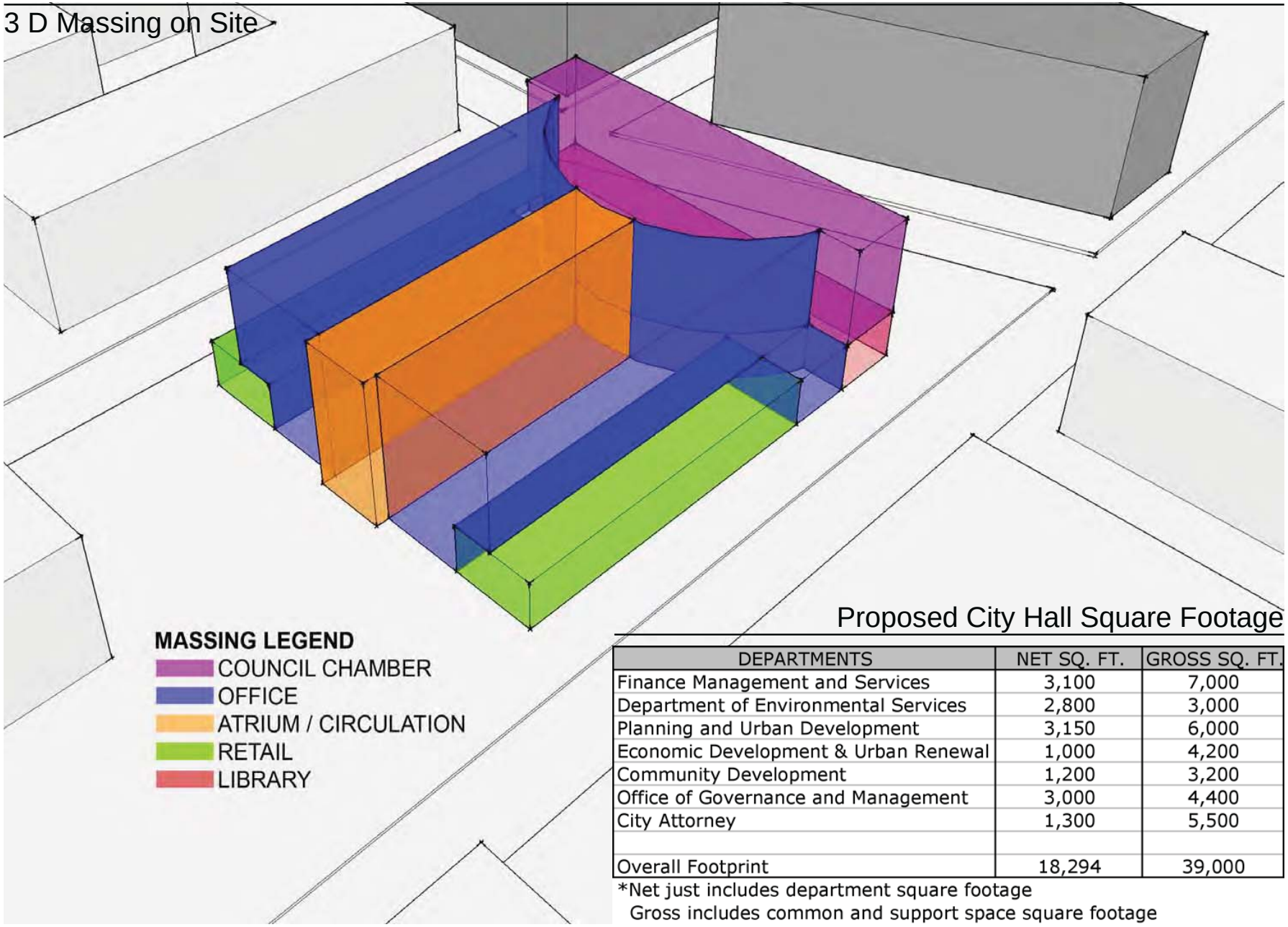
Floor Plan _ Second Floor



Floor Plan _ Third Floor



3 D Massing on Site



Proposed City Hall Square Footage

DEPARTMENTS	NET SQ. FT.	GROSS SQ. FT.
Finance Management and Services	3,100	7,000
Department of Environmental Services	2,800	3,000
Planning and Urban Development	3,150	6,000
Economic Development & Urban Renewal	1,000	4,200
Community Development	1,200	3,200
Office of Governance and Management	3,000	4,400
City Attorney	1,300	5,500
Overall Footprint	18,294	39,000

*Net just includes department square footage
Gross includes common and support space square footage

The City of Gresham has indicated an interest in using its new city hall as an opportunity to set an example of responsible design, construction and work practices for its citizens. At its current location, Gresham City Hall promotes sustainability by providing designated parking spots for electric car charging and carpool vehicles, maintaining a community garden, painting their roof white (for heat island reduction), utilizing the MAX and providing bike parking and shower facilities. As indicated in our interviews with employees of the city, using Max, having a shower facility for cyclists and using natural light and ventilation are all goals for the new facility that are linked to sustainability. Some additional techniques that could be put into practice to help Gresham accomplish their energy use goals in the new location are:

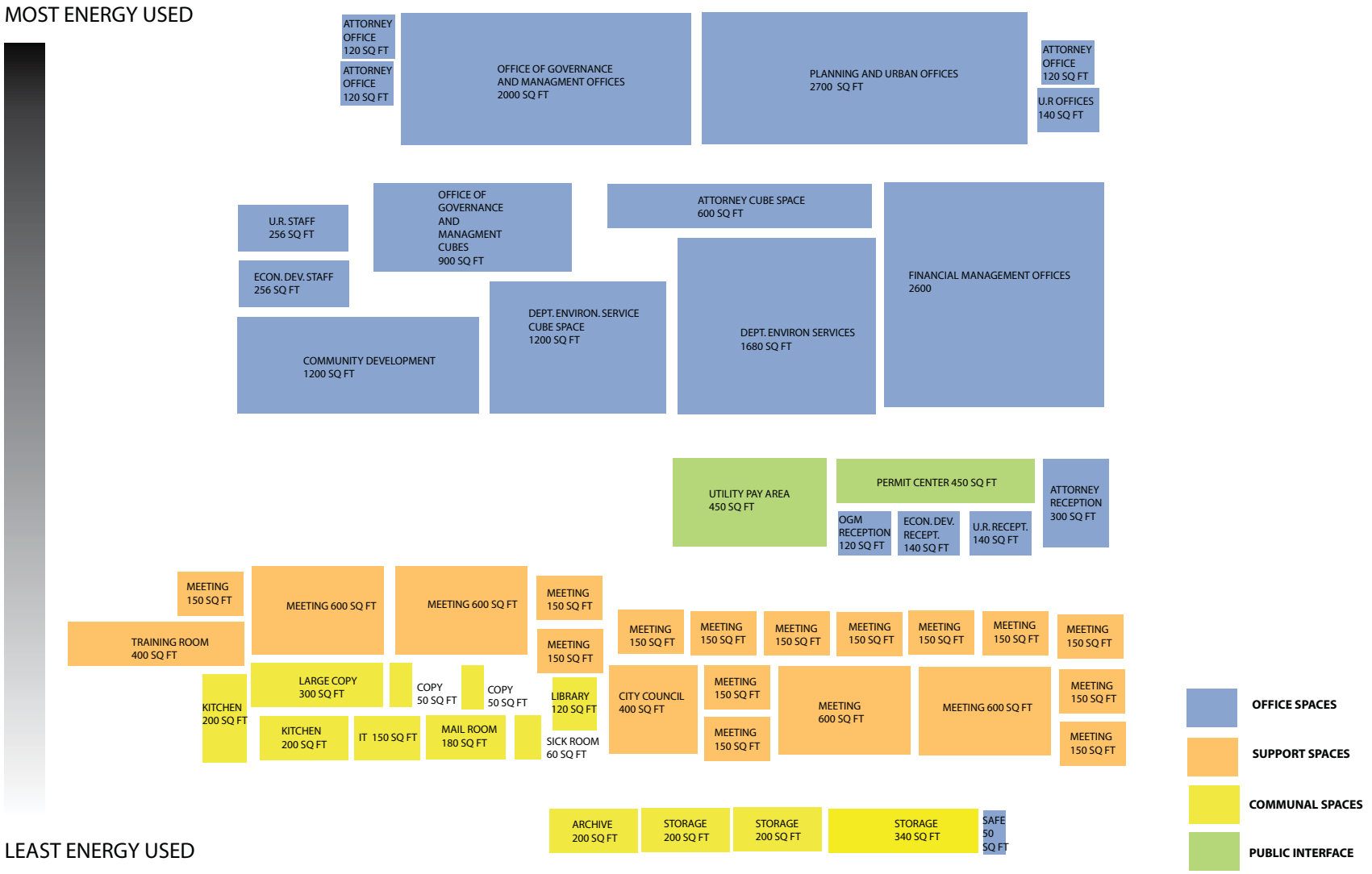
using PV panels
providing sun shading devices on the south commercial façade
orienting work spaces to maximize the use of daylight
minimize glazing on North side to reduce heat loss
installing Green roof for heat retention and reduction of heat island effect
using natural ventilation in unconditioned spaces
promoting the use of task lighting
using high r-value insulation
installing low E glazing

All of these techniques could be used at the proposed downtown site to help the City of Gresham lead by civic example and further the sustainable practices they have already begun.

City Hall Space Needs

ROOM TYPE	ACTIVITES	OCCUPANTS	AREA (sq ft)	HEIGHT	LIGHTING REQ.	SCHEDULE	TEMP. NEEDS
enclosed office	private work/sm. meeting	1-4 ppl	70 @ 11,900	12'	natural/task/overhead	7am-6pm	conditioned
cubicle	private work	1 person	200 @ 16,200	12'	natural/task	7am-6pm	conditioned
sm. conference	private group meetings	2-10 ppl	25 @ 4,500	12'	overhead	7am-6pm	conditioned
lg. conference	public/private meetings	10-50 ppl	10 @ 7,500	12'	flexible overhead	7am-10pm	conditioned
copy room	copy/office tasks	2 ppl	8 @ 2,400	12'	overhead	7am-6pm	conditioned
break/lunch room	lounge/food prep	5-10 ppl	3 @ 1,800	12'	natural/overhead	7am-6pm	conditioned
storage	file, equipment storage	1 person	26 @ 6,600	12'	overhead	7am-10pm	conditioned
bathrooms	bathrms/nursing rm.	10 people	12 @ 2,2800	12'	overhead (vanity)	7am-10pm	conditioned
mechanical	mechanical rm.	0	4 @ 468	12'	overhead	7am-10pm	conditioned
reception	public interface	2 ppl	2 @ 1,141	12'	natural/overhead	7am-6pm	conditioned
atrium	public circulation	50 ppl	1 @ 1,200	48'	natural	7am-10pm	unconditioned
council chamber	public meetings	25-50 ppl	1 @ 7,500	24'	natural/overhead	7am-6pm	conditioned
commercial	bar/restaurant/retail	10-50 ppl	4 @ 10,600	12'	overhead/spotlight	varies	conditioned
library	meeting/study space	50-200 ppl	1 @ 15,000	24'	natural/task/overhead	8am-8pm	conditioned

Energy Grouping



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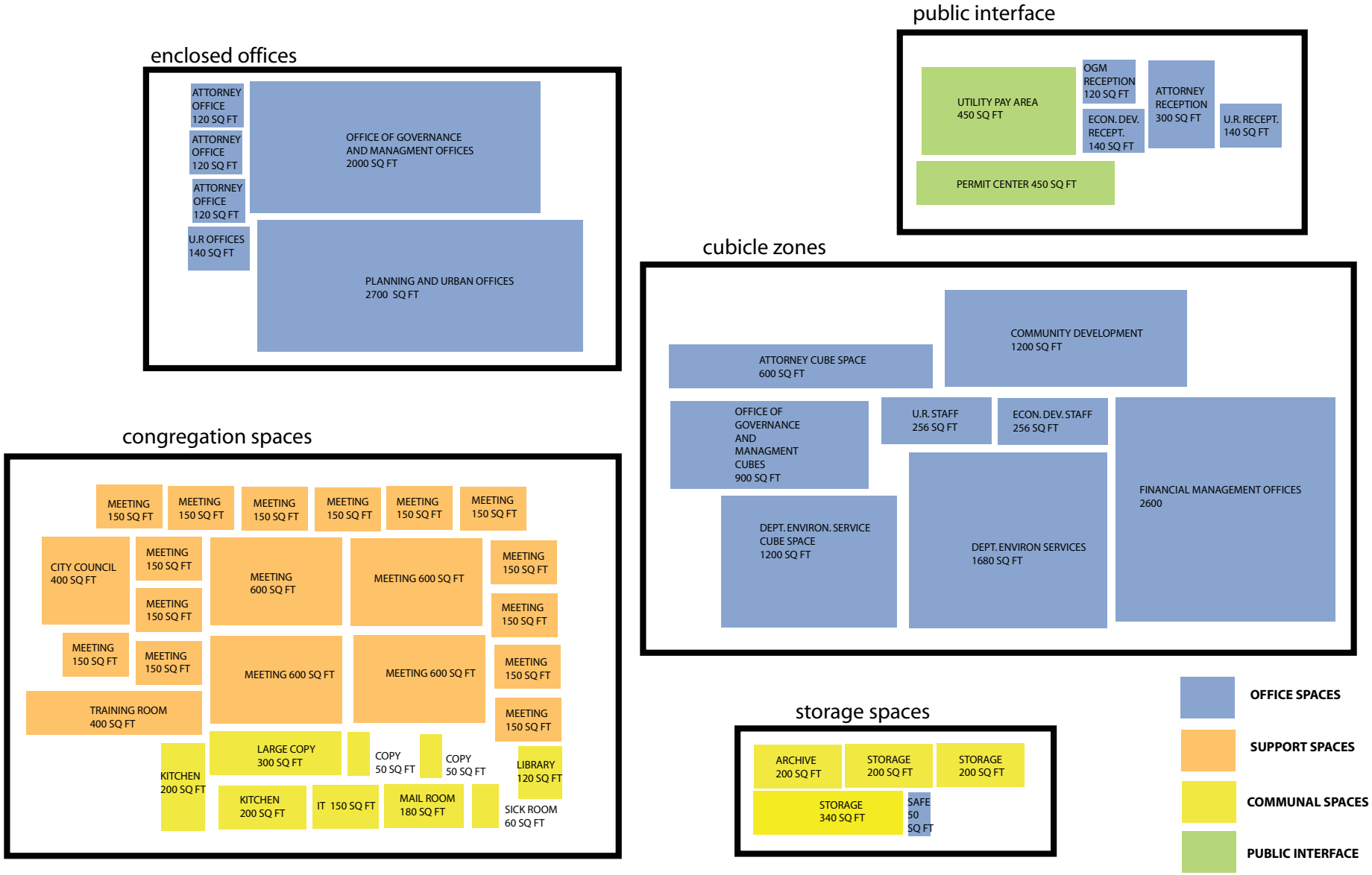
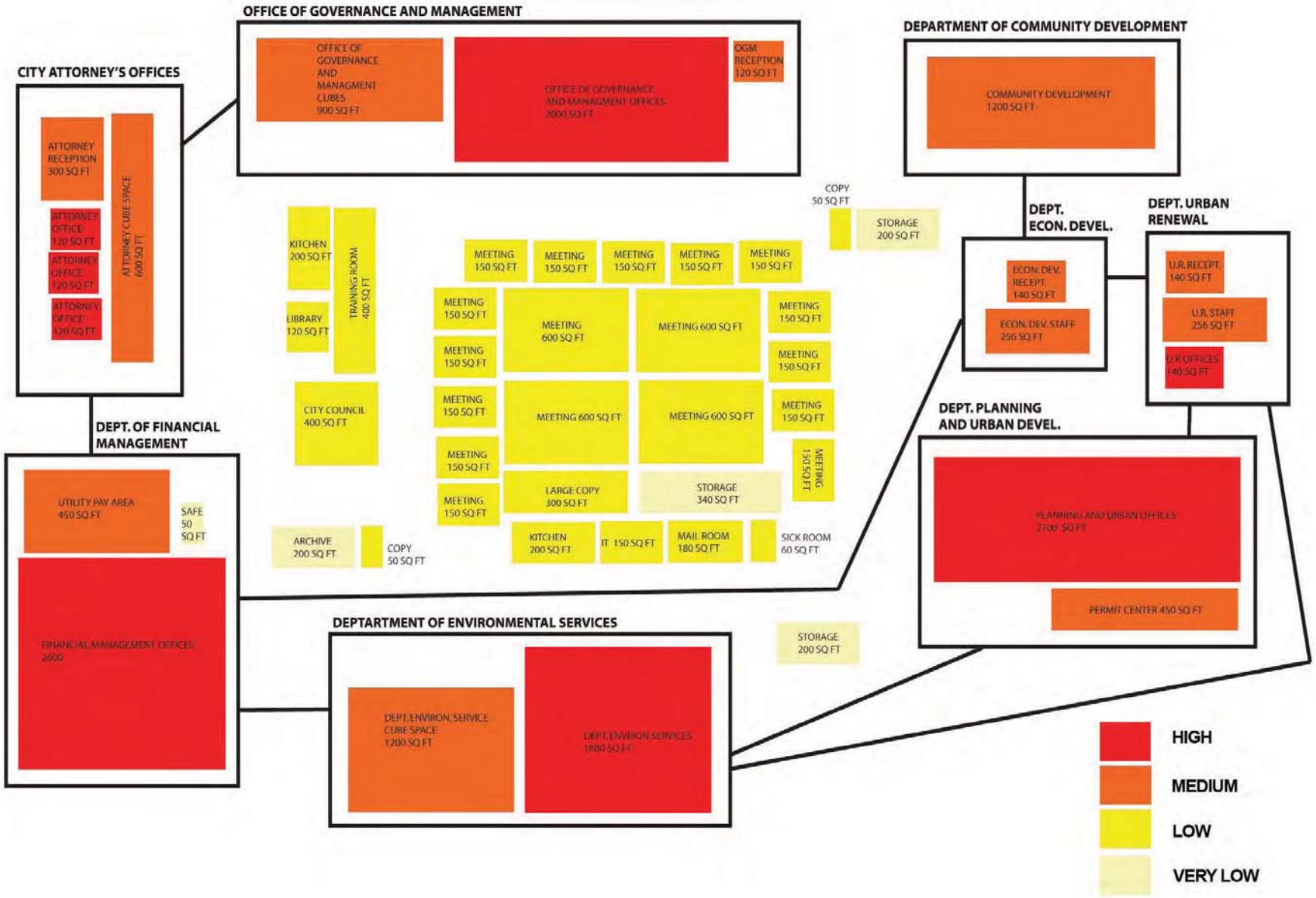
Program Function/Grouping



Energy Use By Adjacency



2030 Challenge

According to the utility bill provided to us, the Gresham City Hall (not including parking, police and fire facilities) spent a total of $160,403 on energy usage (Pacific Power bill + NW Natural bill). By using the Energy Star Target Finder, we calculated that the average annual energy cost for a building of this type is $169,911.

The next benchmark for the 2030 Challenge is to achieve a fossil fuel reduction standard of 70% by 2015. To meet this benchmark, the new Gresham City Hall will need to reduce its average energy cost by 68%, resulting in a total annual energy cost of $50,973.

Target Energy Performance Results (estimated)			
Energy	**Design**	**Target**	**Average Building**
Energy Performance Rating (1-100)	N/A	99	50
Energy Reduction (%)	N/A	70	0
Source Energy Use Intensity (kBtu/Sq. Ft./yr)	N/A	79	264
Site Energy Use Intensity (kBtu/Sq. Ft./yr)	N/A	30	99
Total Annual Source Energy (kBtu)	N/A	7,131,509	23,771,695
Total Annual Site Energy (kBtu)	N/A	2,684,363	8,947,875
Total Annual Energy Cost ($)	N/A	$ 50,973	$ 169,911
Pollution Emissions			
CO2-eq Emissions (metric tons/year)	N/A	270	899
CO2-eq Emissions Reduction (%)	N/A	70%	0%

MIT Design Advisor

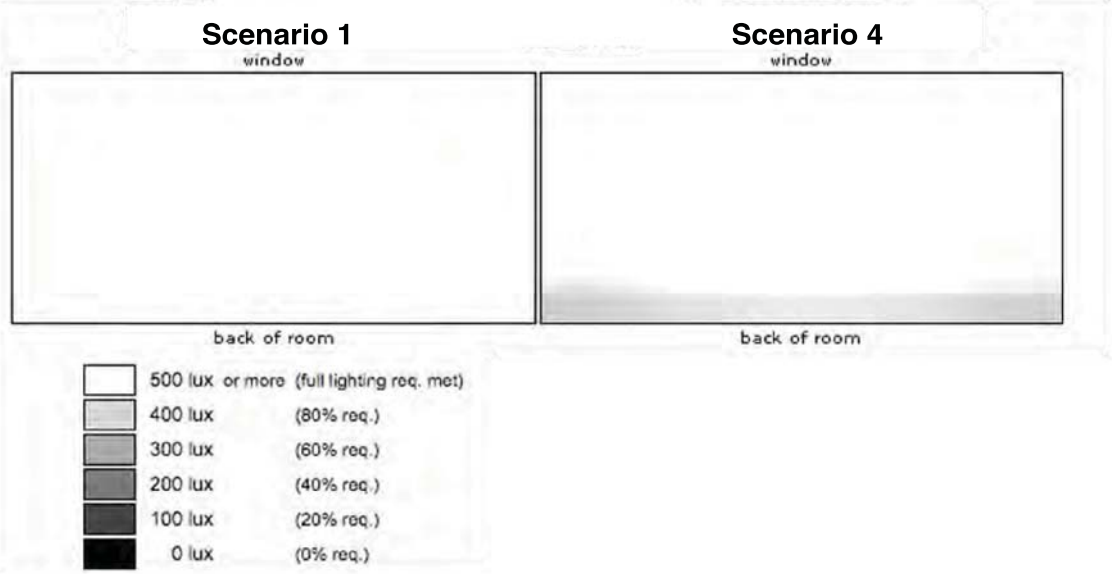
Energy modeling with MIT's online design advisor program revealed a positive relation between insulation and energy consumption. Obviously the better insulated the building, the less heat or cold is required to maintain a comfortable temperature.

One unanticipated result came from the addition of shading. Presumably, by adding shading less energy would be required for cooling, and this is true. However, shading reduces the amount of daylight, causing an increase in lighting demand. The amount of energy saved by reducing cooling is smaller than the amount of energy spent on increased lighting. Shading actually causes a net increase in energy consumption.

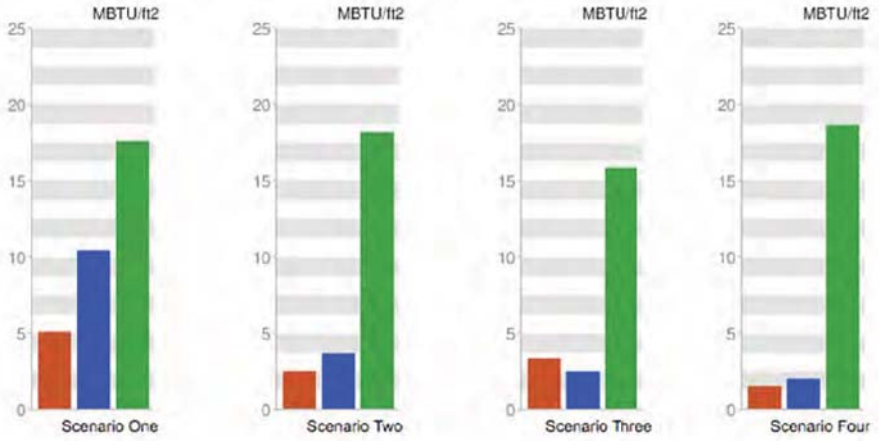
Four design scenarios were considered...
Scenario 1 - Baseline Building - Standard commercial building envelope.
Scenario 2 - Same as base building, with supplemental natural ventilation and improved insulation.
Scenario 3 - Same as scenario 2, but a green roof and dimming lights were added.
Scenario 4 - Same as scenario 3, but with exterior shading devices on south windows.

MIT Design Advisor Analysis

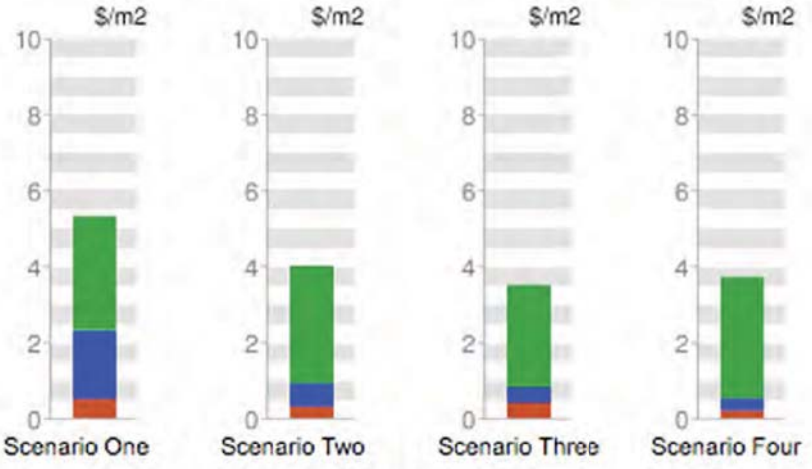
MIT Design Advisor _ Daylighting
Scenario 1 _ Baseline Building
Scenario 2 _ Operable Shading Devices



MIT Design Advisor _ Energy
Scenario 1 _ Baseline Building
Scenario 2 _ Natural Ventilation and Improved Insulation
Scenario 3 _ Green Roof & Independently Dimming Lights
Scenario 4 _ Operable Shading Devices



MIT Design Advisor _ Lifecycle Costing
Scenario 1 _ Baseline Building
Scenario 2 _ Natural Ventilation & Improved Insulation
Scenario 3 _ Green Roof & Independently Dimming Lights
Scenario 4 _ Operable Shading Devices

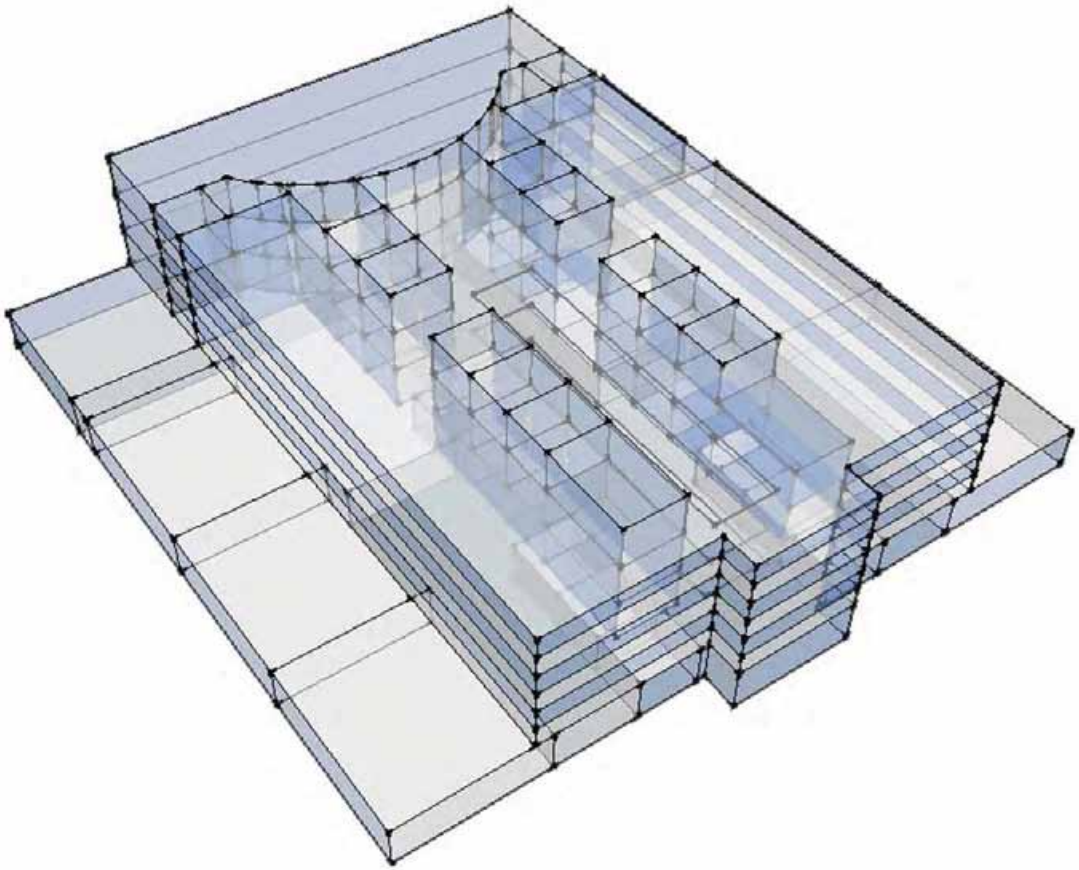


Testing our model for the 2030 Challenge.

Generic building assembilies were used in the test model to establish a baseline.

Heating and cooling was assumed to be a central, natural gas, radiant floor system.

No shading devices or green roofs were included.



Results

Building Energy Use

6,881.97 mBTU/yr (50kBTU/sq.ft)

Building Carbon Emissions

673.9 tons CO2/yr

Design meets 2030 Challenge for current year (target of 56kBTU/sq.ft.)

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Group A2

NW Eastman Parkway & NW 3rd

Jessica Kreitzberg
Ellen Hagen
Mark Schmidt
Sina Meier

"Our proposed Gresham City Hall will be a center for the community and contribute to a vibrant downtown."

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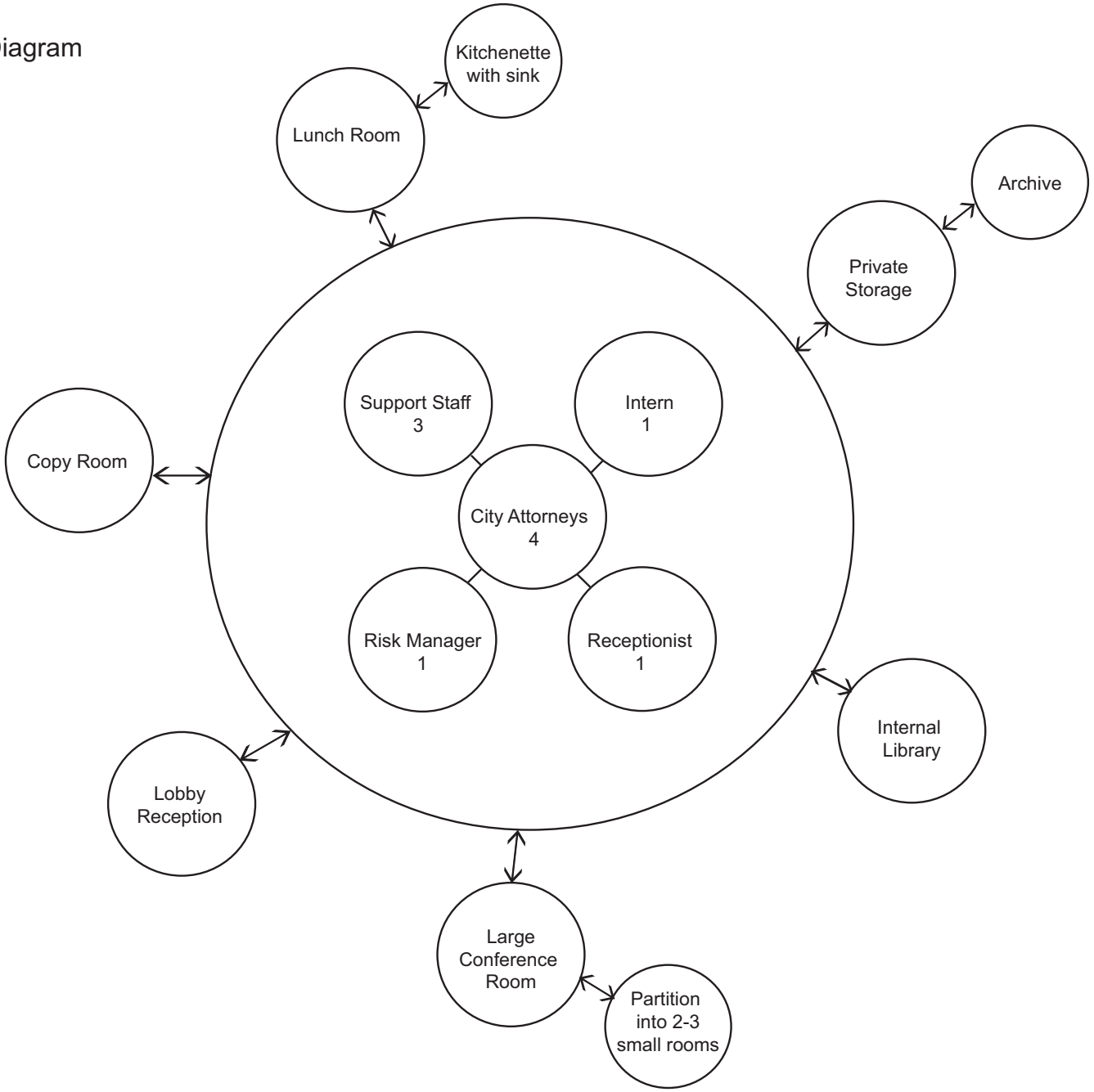
A2

City Attorneys Office
Internal Adjacency Diagram



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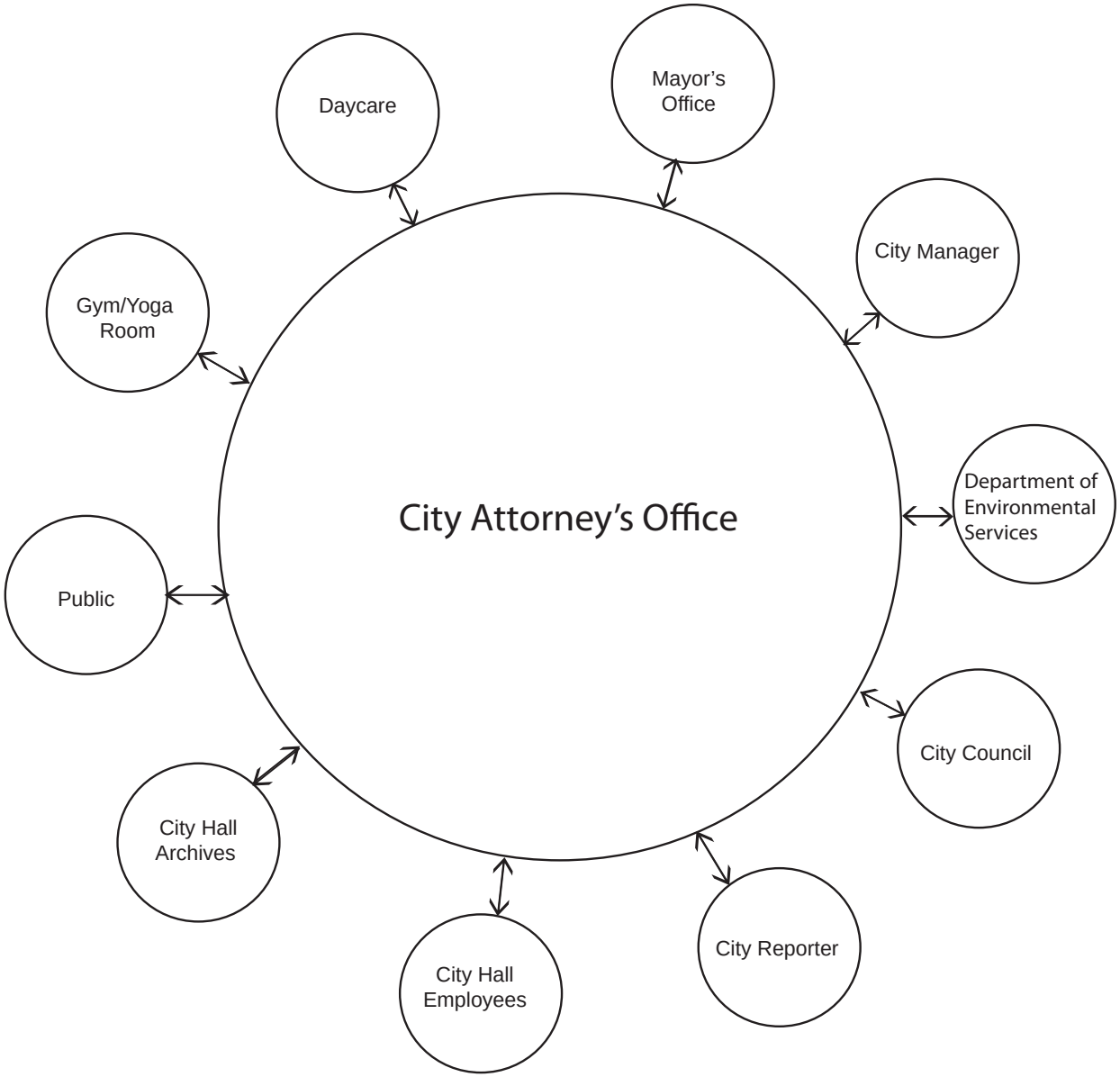
City Attorneys Office
External Adjacency Diagram



Gresham City Hall
City Attorney s Office

Values	Goals	Facts	Needs	Ideas
Human	Accessibility internal and public	Proximity to other departments	Proximity to other departments	ocated on clear circulation path
	Public presence	Public used City Hall	Main entrance presence ear public circulation	nviting main lobby ocated on clear circulation path
	Good Communication			Close to mayor city manager council etc
Environmental	Access to natural light and air	Health and ellness Comfort	eed operable indo s eed more space for storage	ylights atrium ibrary all open to the office
	Privacy	Deal ith confidential documents	Private offices	ome private offices
	torage	ot enough storage	eed more space for storage	Have their o n archive space
Cultural	nteraction Multi purpose Room	Currently ell used space eed funding	eed more conference rooms	arge flexible space ith partitions
	on office related interaction	Don t have itchen or lunch room Eat lunch in office	eed sin and fridge	itchenette ithin their office Yoga and Gym ithin City Hall
Technological	Access to personal computers and internet			ndividual computers
Economic	More efficient spatial layout			
Aesthetic	Clear signage	Confusing signage	arger signage	Clarity in layout
	Good ayfinding	ight and long hall ays	ider and shorter hall ays eeling of openness	ylights in hall ays Atrium space
	Permanence/Historic Presence	Currently in temporary office	se of permanent materials	ric and stone
Safety	Confidentiality	a yers	eed secure place for files	oc accessed filing room
	ecurity for files and staff	Deal ith confidential documents	eed security for employees eed receptionist	Evening and ee end security Hire an assistant/receptionist

City Attorney's Office
Design deas

Human

Public Presence
Entry Procession
ransparency
eating
oft Materials




Environmental

Health and ellness
Daylighting
Operable indo s
ie s
ylights
Open Office Plan
Atrium
ature
Art or




afety

Confidentiality
Partitions
taffed Reception
Private Offices



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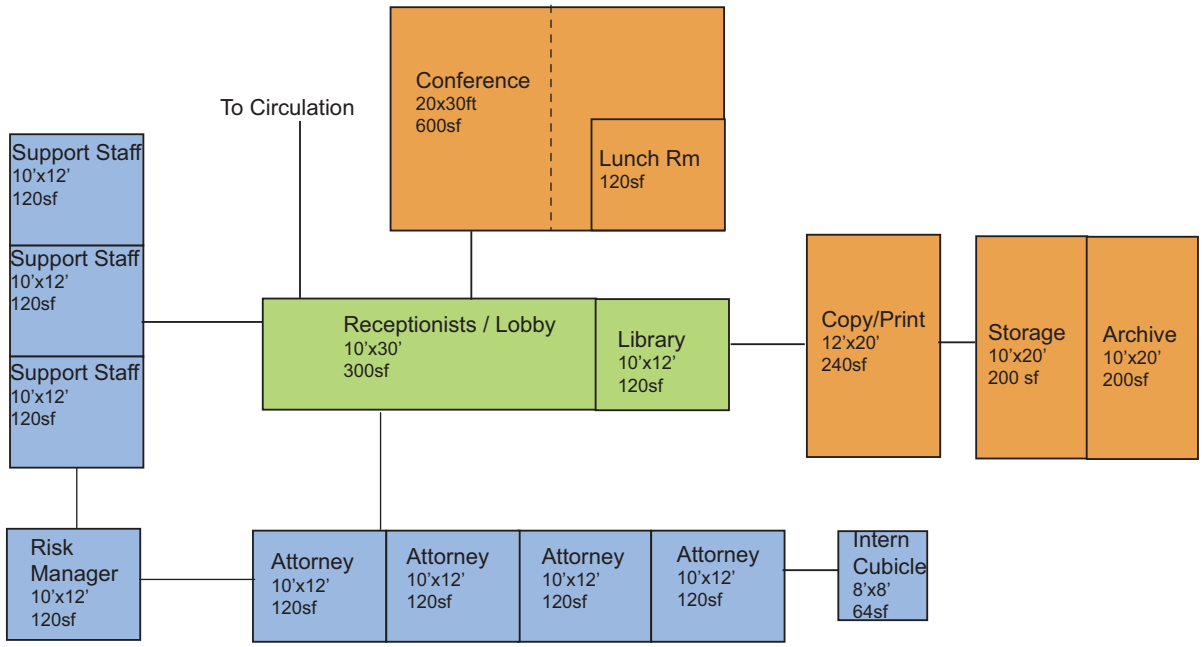
City Attorney's Office

	Existing # of rooms	Future # of rooms	Room Dims Feet	Area SF	Total Exist. SF	Total Future SF	Notes
Common Spaces							
City Attornies Offices	4	4	10x12	120	480	480	
Support Staff Offices	3	3	10x12	120	360	360	
Risk Manager Offices	1	1	10x12	120	120	120	
Reception/Lobby	1	1	10x30	300	300	300	Library could be part of lobby or multipurpose room Lobby needs to be more open w/ circulation around it
Library	1	1	10x12	120	120	120	
Intern Cubicle	1	1	8x8	64	64	64	Temporary
Large Conference Room	1	1	20x30	600	240	600	Large room that can be partitioned into 2-3 smaller spaces
Lunch Rm w/ kitchenette	0	1	10x12	120	0	120	Sink is needed. This space could be a breakroom also.
Storage Rm	0	1	10x20	200	0	200	Currently using empty cubicle(s)
Archive Rm	0	1	10x20	200	0	200	Currently using empty cubicle(s)
Copy/Print Rm	1	1	12x20	240	240	240	
Total					1924	2804	

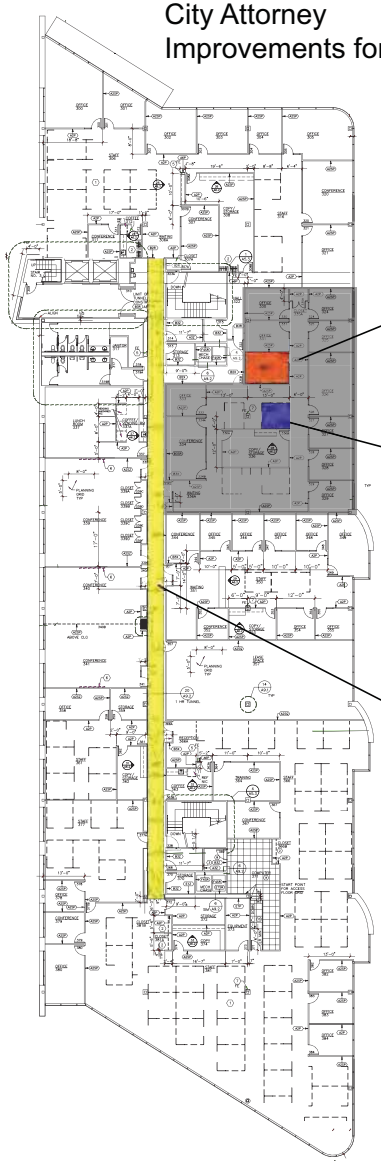
ATTORNEY'S OFFICE SCALED RELATIONSHIP DIAGRAM

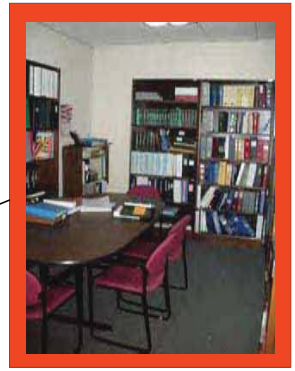


Gresham City Hall Analysis

City Attorney

Improvements for current space





Place library in a more open inviting area

Create a storage room to hold files, books, etc.
that are currently being stored in cubicles

Make hallways larger and introduce daylight

City Hall Common Spaces

Create a more utilized public space
Invite public & Gresham community into City Hall

Create easy to access bike storage
Encourage use of public transit, bikes, etc.

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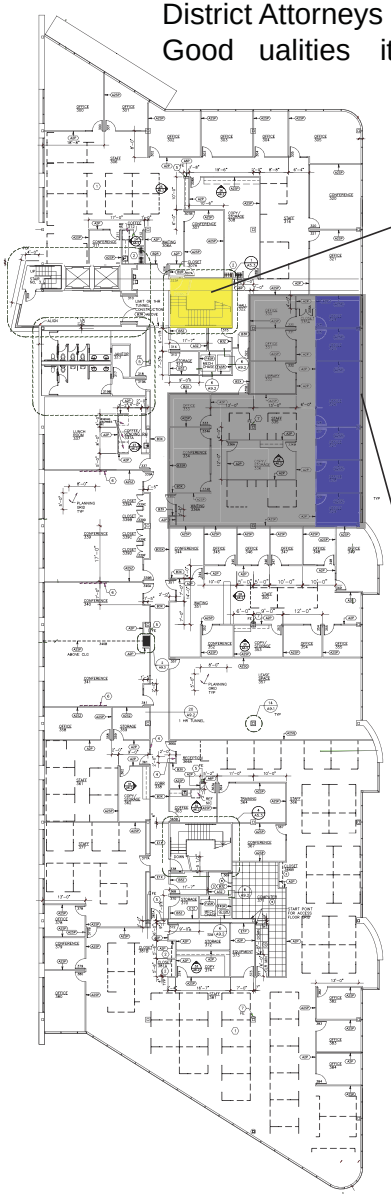
Gresham City Hall Analysis

District Attorneys

Good ualities ith current space



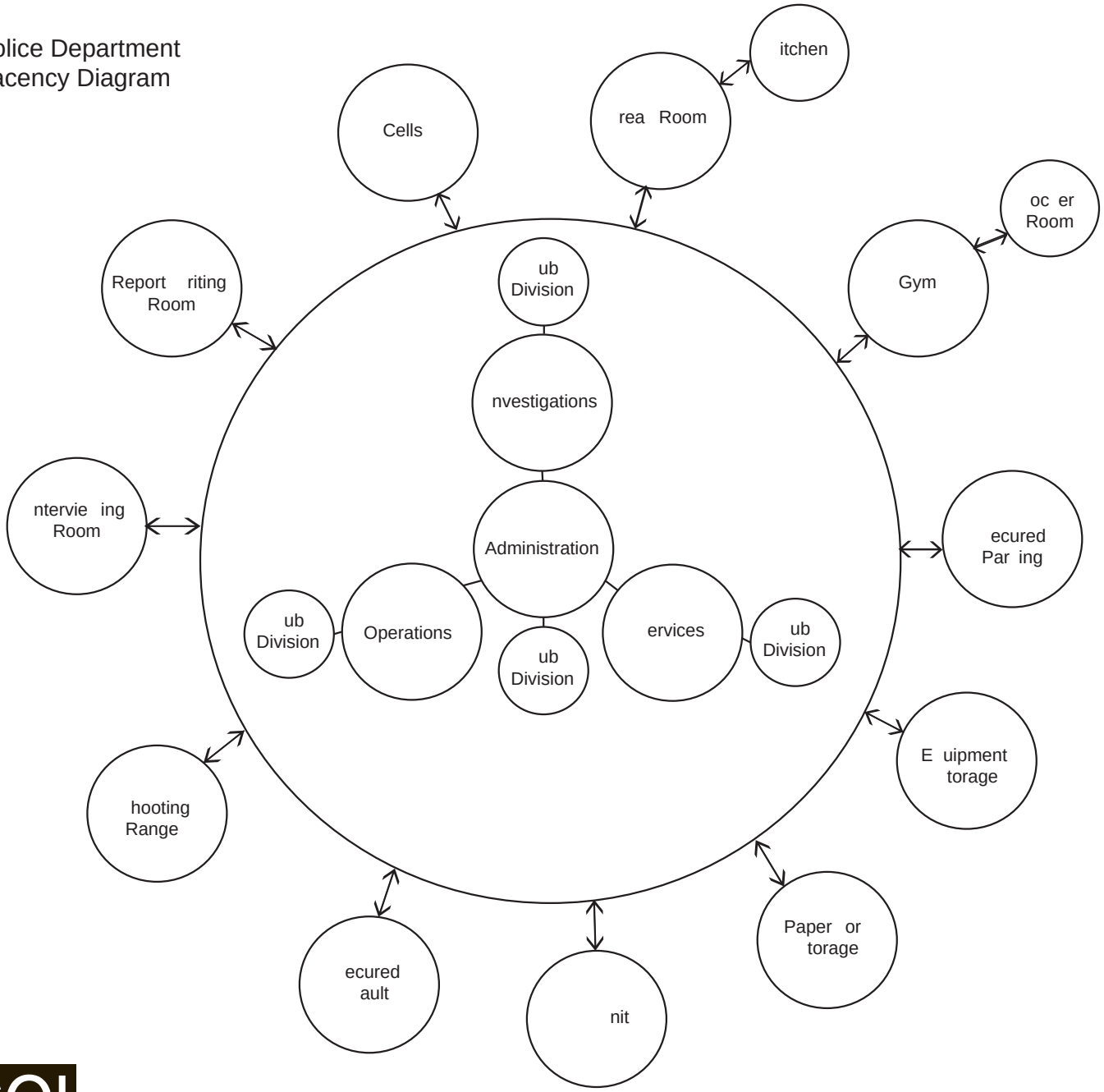
ylights add daylight in stair ells

Maintain large indo s in offices

City Hall Common paces

riendly nviting Reception

Gresham Police Department
nternal Adjacency Diagram



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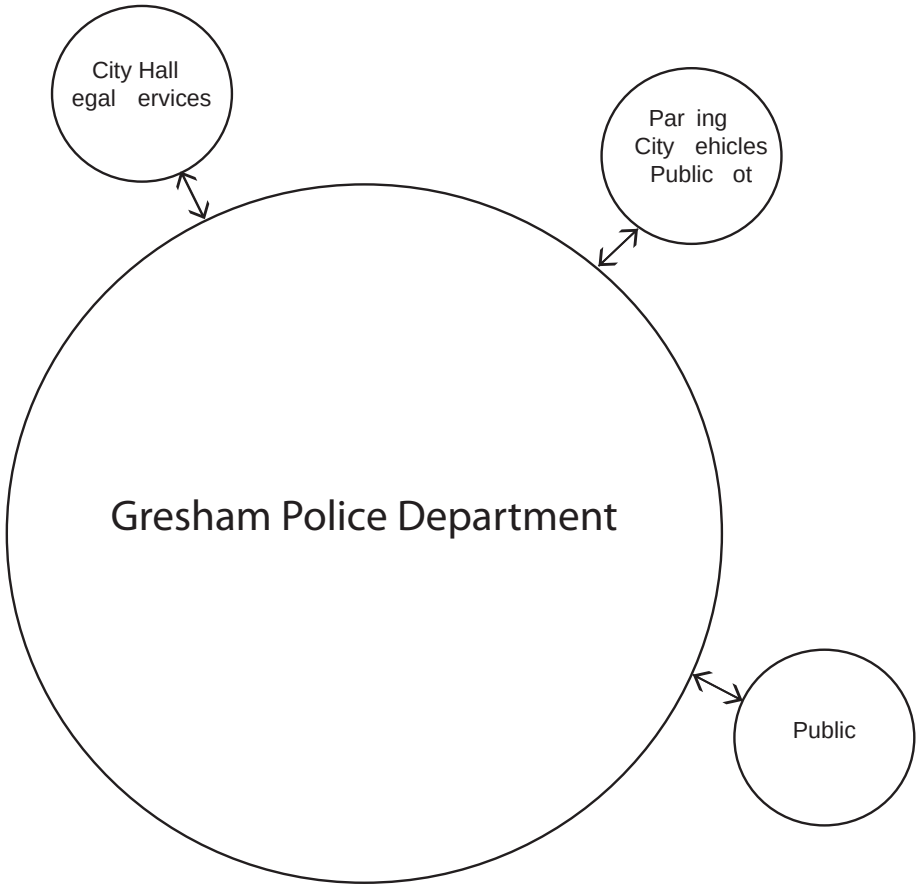
Gresham Police Department
External Adjacency Diagram



Gresham City Hall
Police Department

Values	Goals	Facts	Needs	Ideas
Human	Protect and assist public	Are on call hours a day	eed a hour staffed reception des	Reception des on first floor ervice booth doubles as security for bldg
	eperation of private and public restrooms	Are currently using public restrooms	eed more restrooms ithin each division	eed more private restrooms
Environmental	Privacy	nvestigators need private/confidential offices	eed some private offices	ome private offices
	Paper or torage	hey do not have enough storage eed more funding	eed archive space eed more space in general	arge shared archive space ocal storage ithin departments
	itness	itness and good health is re uired on job	eed or out room	or out room ith adjacent loc er rooms
Cultural **Work Culture**	nteraction non formal	Don t have lunch or brea room Don t have enough space for these rooms	eed brea and lunch room	Multi purpose room for informal interaction
	unctional building that supports or culture	Have a lot of e uipment and gear Don t have enough funding	eed storage for e uipment eed loc er rooms	lexible e uipment storage
Technological				
Economic				
Aesthetic				
Safety	Confidentiality	Deal ith confidential information	eed separate building	e stand alone Police building
	ecurity of building files e uipment personel	ndergoing investigations tore eapons on site Hold people overnight nterrogate people	eed private offices eed secured vault for fire arms eed more cells eed secure intervie space	Private offices for investigators ault in basement More cells More intervie space
	eparate Police building hort response time	eparate building is more secure Emergency response Have emergency vehicles	eed ne separate Police building eed good vehicular access eed secured car lot	e stand alone Police building raffic light that trips ecured par ing lot for police vehicles

Gresham Police Department
Design Ideas

Cultural

Non-formal Interaction

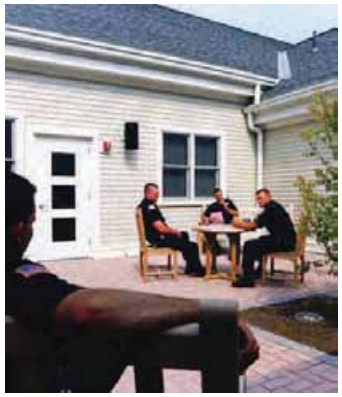
Relaxation

Bonding

Event Space

Community Interaction

Builing and Storage
Support Work Culture



Environmental

Health and Wellness

Fitness

High Ceilings

Atrium

Daylighting

Safety

Confidentiality

Vehicular Access

Public/Private Entrance

Public Interface

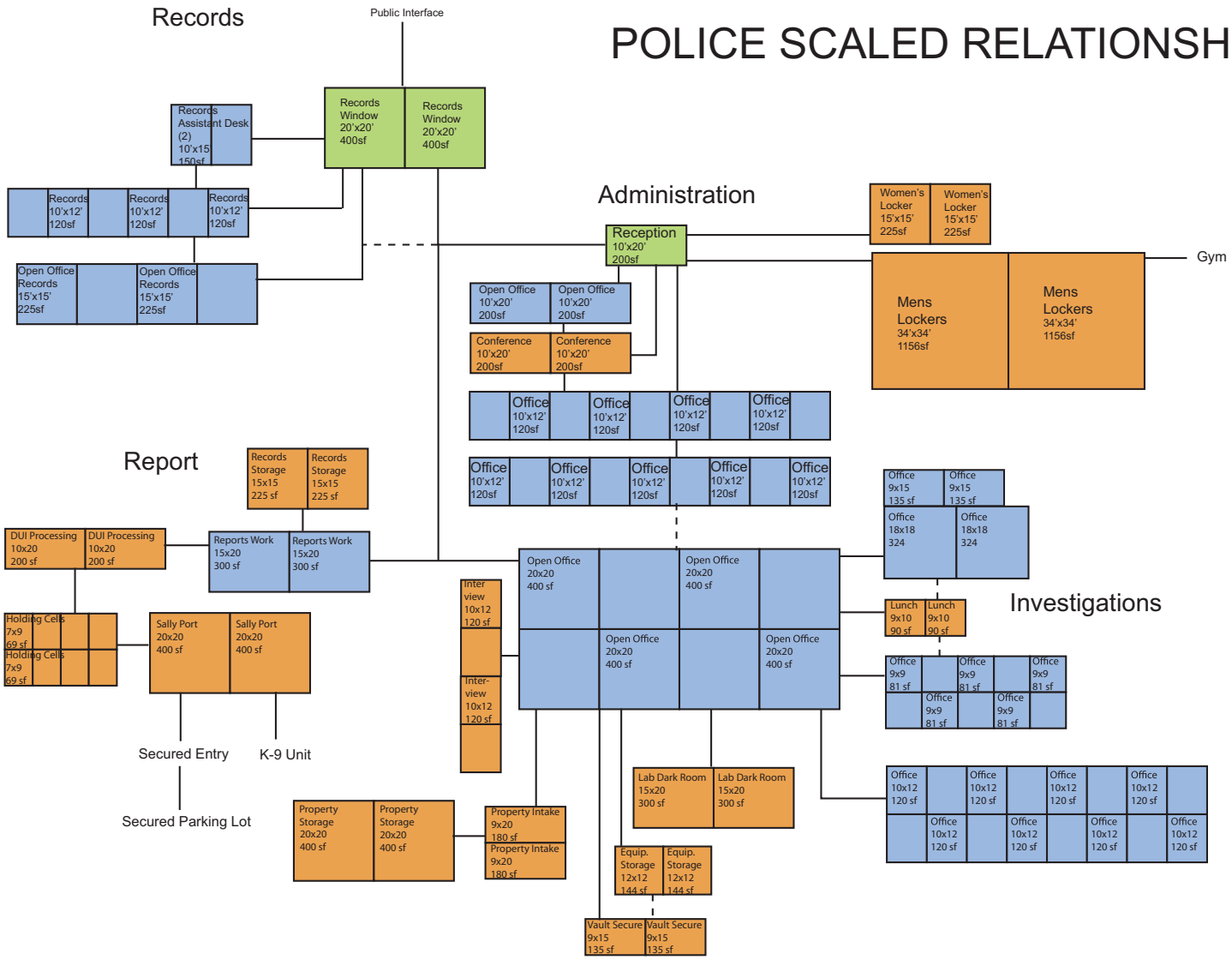
Secured Access

High Windows

Privacy

Gresham Police Department		Existing # of rooms	Future # of rooms	Room Dims Feet	Area SF	Current SF	Future SF
services							
records							
	records window	1	2	20x20	400	400	800
	records office	3	6	10x12	120	360	720
	records assist desk	1	2	10x15	150	150	300
	open office records	2	4	15x15	225	450	900
	records storage	1	2	15x15	225	225	450
reports							
	reports work	1	2	15x20	300	300	600
	dui processing	1	2	10x20	200	200	400
	holding cells	4	8	7x9	63	252	504
	sally port	1	2	20x20	400	400	800
investigations							
	lab dark room	1	2	15x20	300	300	600
	property intake	1	2	9x20	180	180	360
	property storage	1	2	20x20	400	400	800
	equipment storage	1	2	12x12	144	144	288
	office	5	10	9x9	81	405	810
	office	1	2	9x15	135	135	270
	office	8	16	10x12	120	960	1920
	office	1	2	18x18	324	324	648
	vault secure	1	2	9x15	135	135	324
	lunch	1	2	9x10	90	90	180
	open office	4	8	20x20	400	1600	3200
	interview	2	4	10x12	120	240	480
admin							
	office	9	18	10x12	120	1080	2160
	conference	1	2	10X20	200	200	400
	reception	1	1	10x20	200	200	200
	open office	1	2	10x20	200	200	400
	men's lockers	1	2	34x34	1156	1156	2312
	women's lockers	1	2	15x15	225	225	450
total						10711	21276

POLICE SCALED RELATIONSHIP DIAGRAMS



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Gresham City Hall Analysis

Police

Improvements to current space

Introduce more daylight and warmer materials into the spaces

Provide more storage rooms for the large amounts of paperwork that have to be kept on file

Avoid using triangular shapes that create dead corners

Possible Additions to Facility

Provide a gym/work out area

Incorporate a K-9 Unit on site

Provide a shooting Range

Thesis Statement

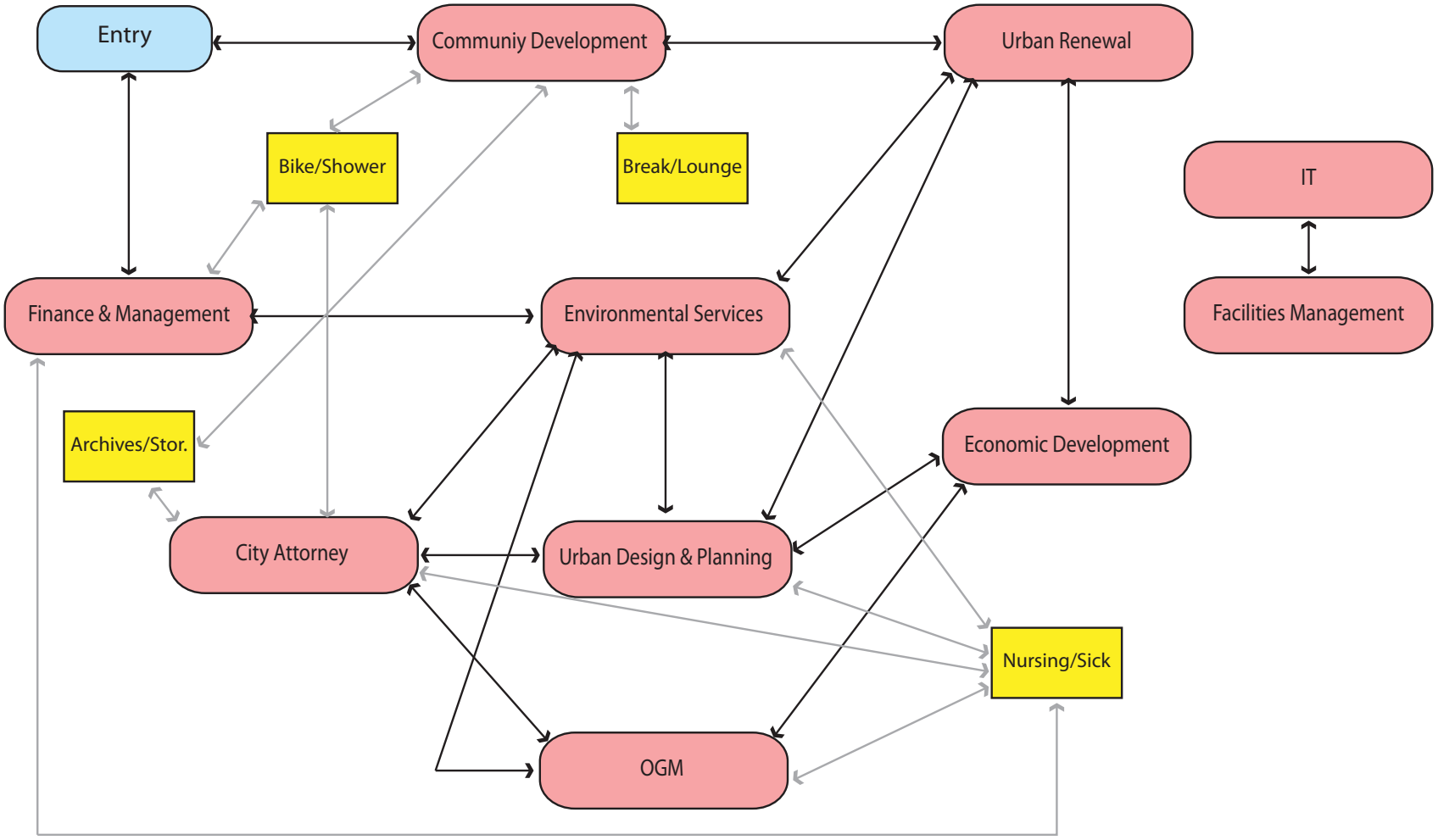
Our proposed Gresham City Hall will be a center for the community and contribute to a vibrant downtown.

Through collaboration with Gresham City Hall employees and staff, the above thesis statement was developed, expressing the needs and goals for a new Gresham City Hall.

Methods of research include:

Department Interviews
Facility Walkthroughs
Quantitative Research
Qualitative Research

City Hall Adjacency Diagram



Community Space Connection

Department Connection

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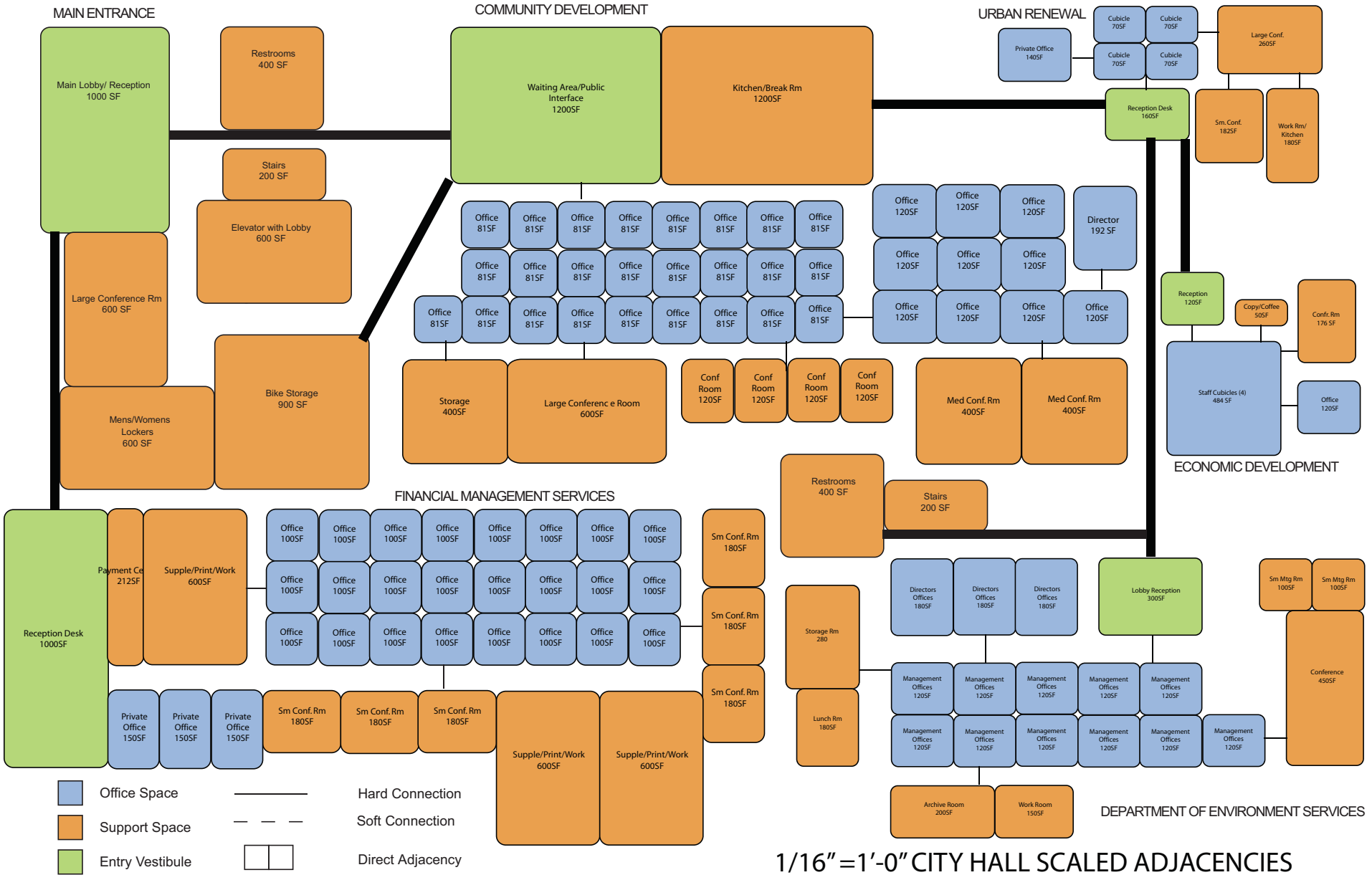
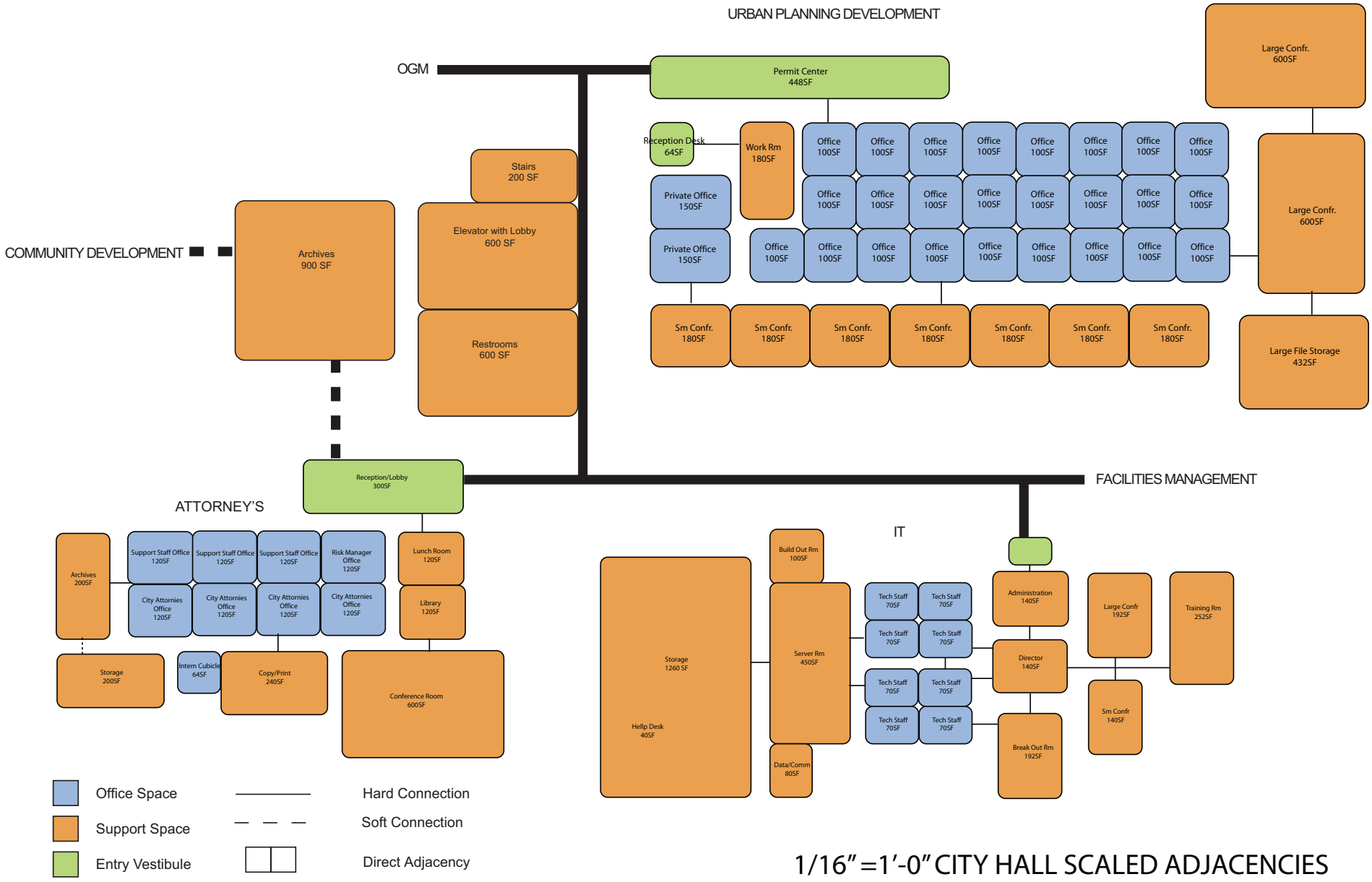


1/16"=1'-0" CITY HALL SCALED ADJACENCIES



1/16"=1'-0" CITY HALL SCALED ADJACENCIES

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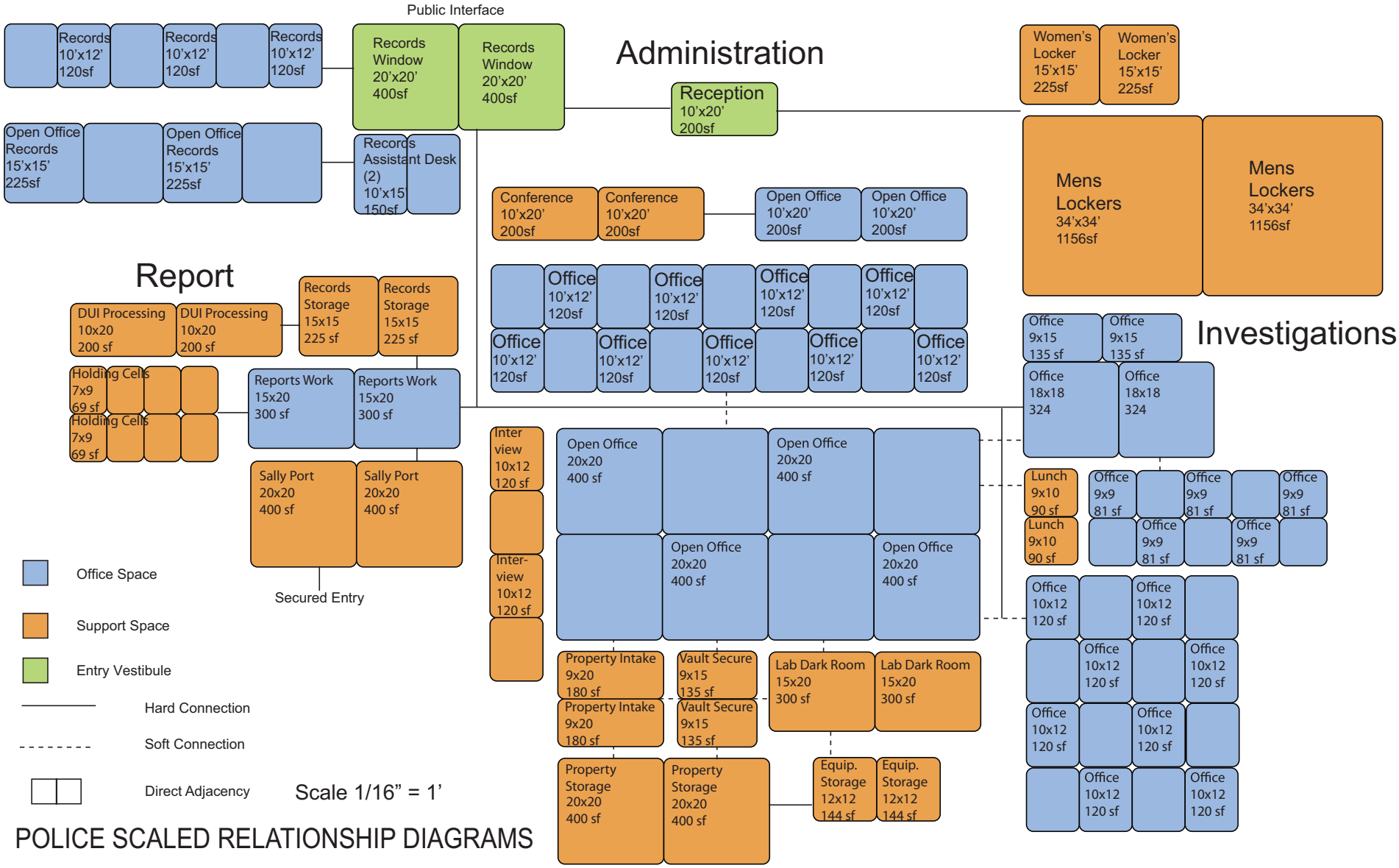
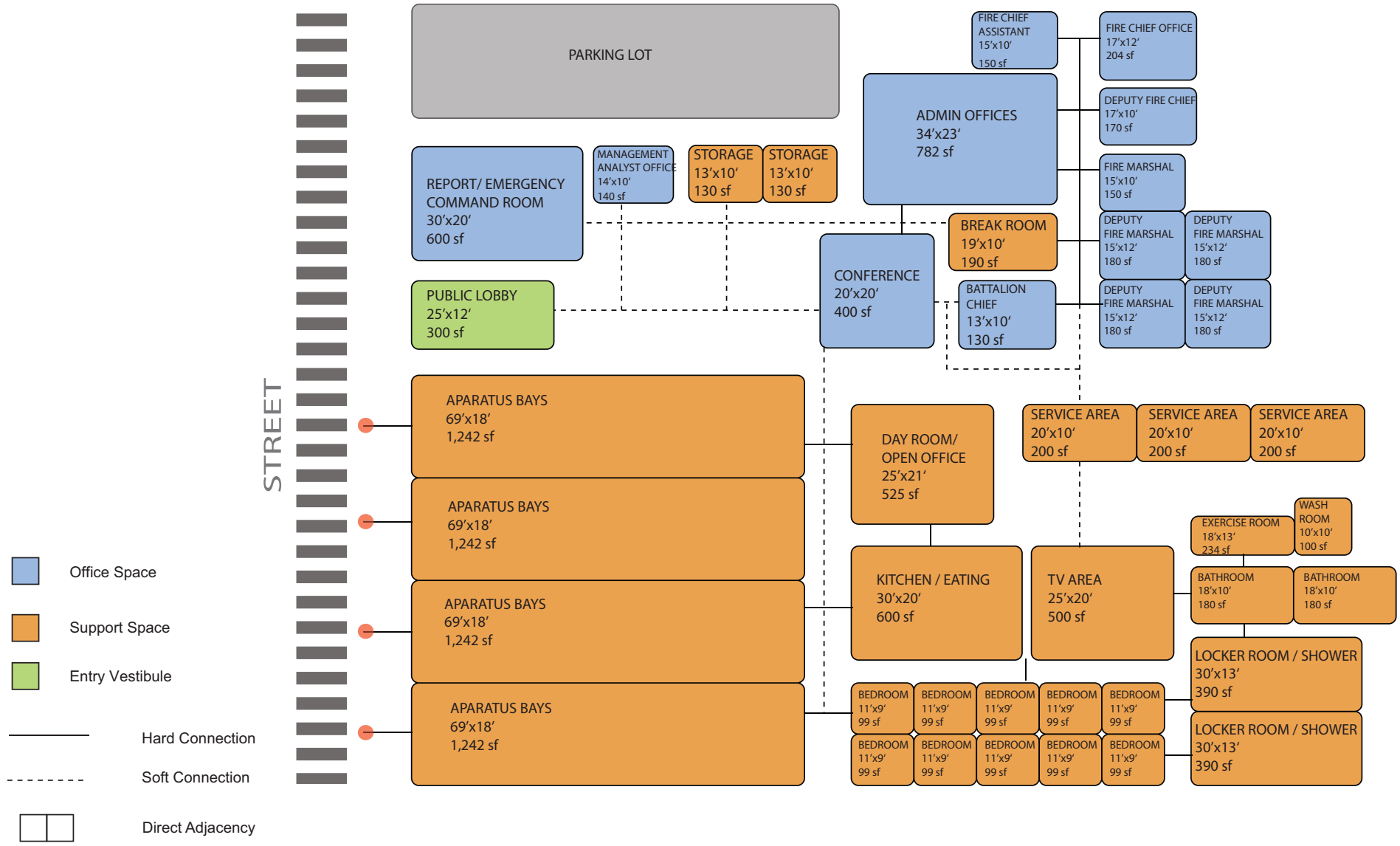


POLICE SCALED RELATIONSHIP DIAGRAMS



FIRE DEPARTMENT SCALED ROOM DIAGRAM

Scale 1/16" = 1'

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Historical City Halls

Ellen Hagen, Sina Meier,
Jessica Kreitzberg, Mark Schmidt

San Francisco City Hall

Los Angeles City Hall

Oakland City Hall

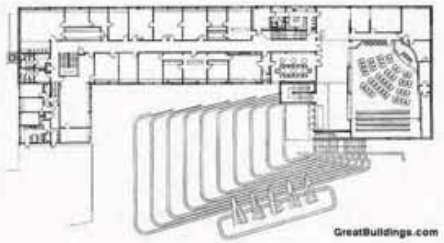
Chicago City Hall

New City Hall Precedents

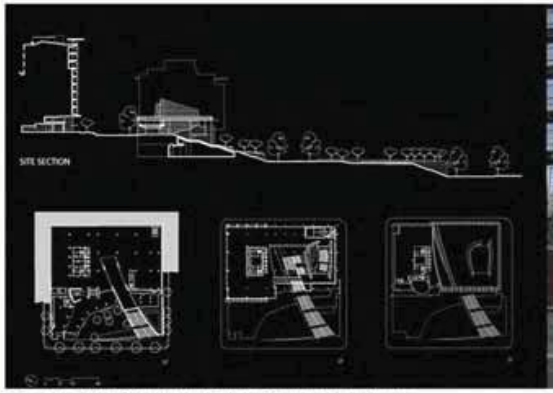
Ellen Hagen, Sina Meier,
Jessica Kreitzberg, Mark Schmidt

Puyallup, WA City Hall - Mithun Architects

Austin, TX City Hall - Antoine Predock Architects



Seinajoki, Finland City Hall - Alvar Aalto



Seattle, WA City Hall - Bohlin Cywinski Jackson

Redmond, WA City Hall - Mulvanny G2

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Purpose Statement

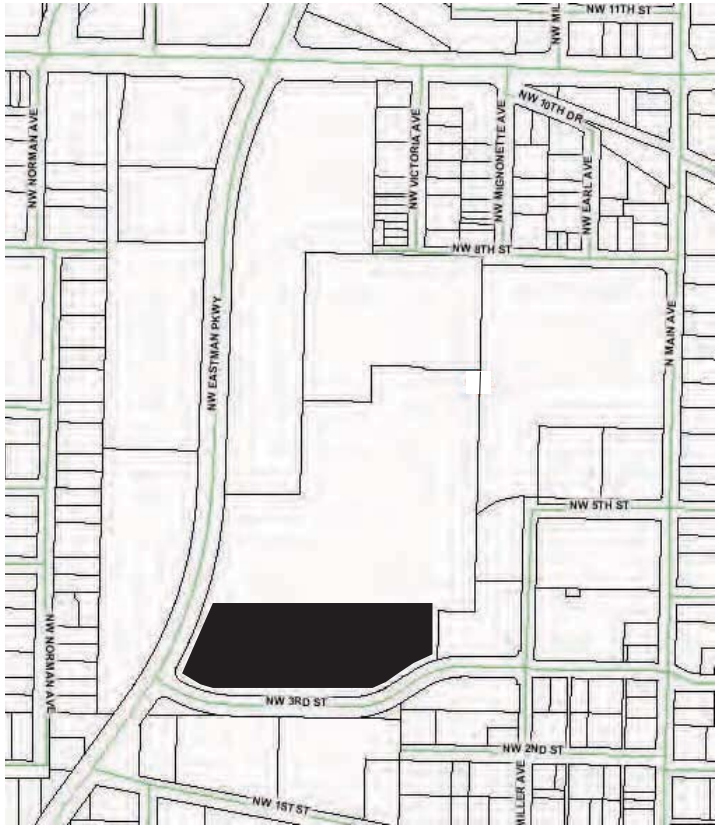
Our proposed Gresham City Hall will be a center for the community and contribute to a vibrant downtown.

Through collaboration with Gresham City Hall employees and staff, the above thesis statement was developed, expressing the needs and goals for a new Gresham City Hall.

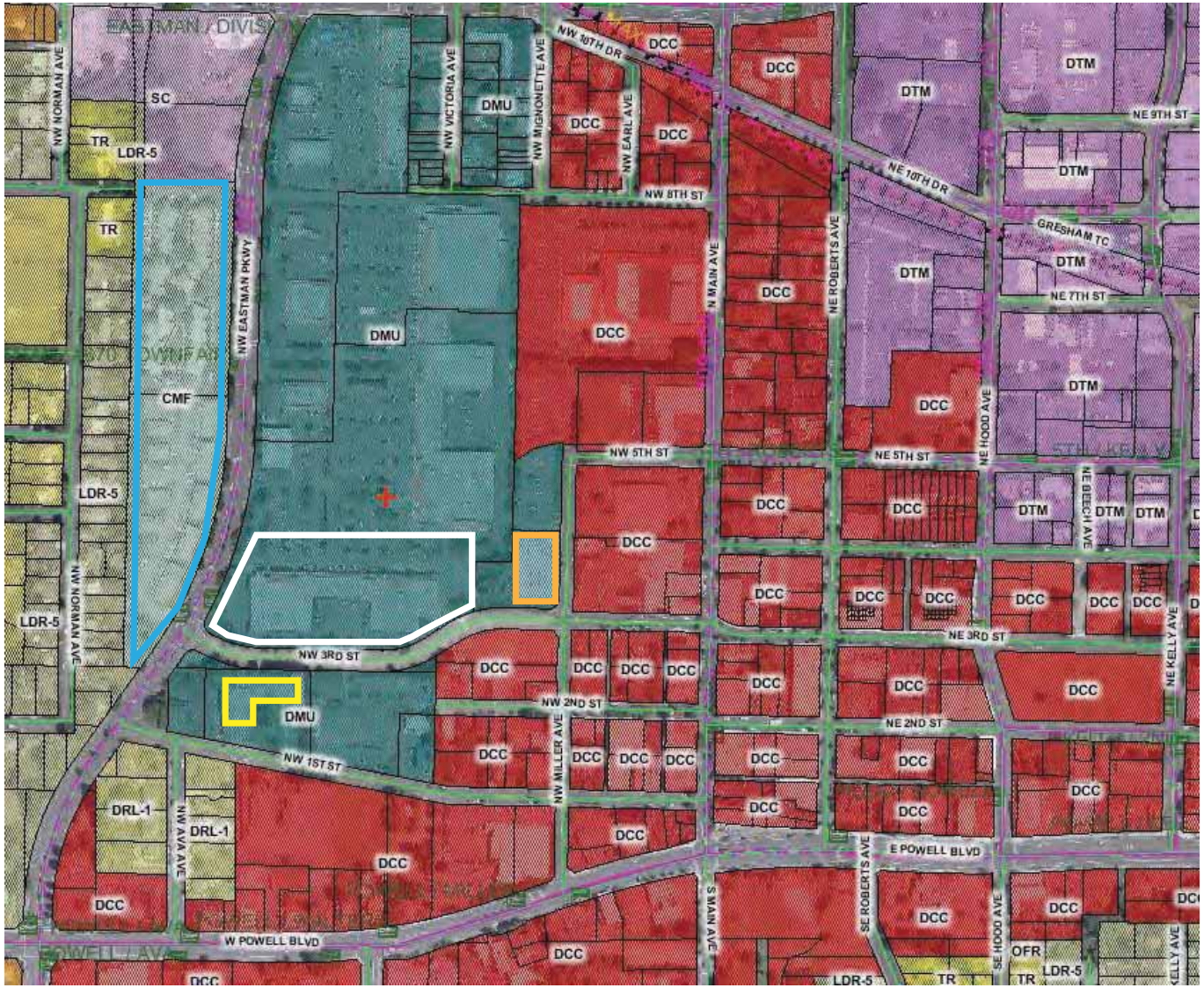
Location: NW Eastman Parkway and NW 3rd Street

Program: City Hall, Police and Fire

Vision:
- Center for the community
- Safe and attractive environment
- Strong presence



Design Considerations for Site



Proposed Site

Important Buildings

- Library
- Church
- Apartments

Zoning Districts

- Downtown Commercial Core
- Downtown Mixed Use
- Corridor Multi-Family
- Downtown Transit Mid-Rise
- Downtown Residential Low-Rise

N

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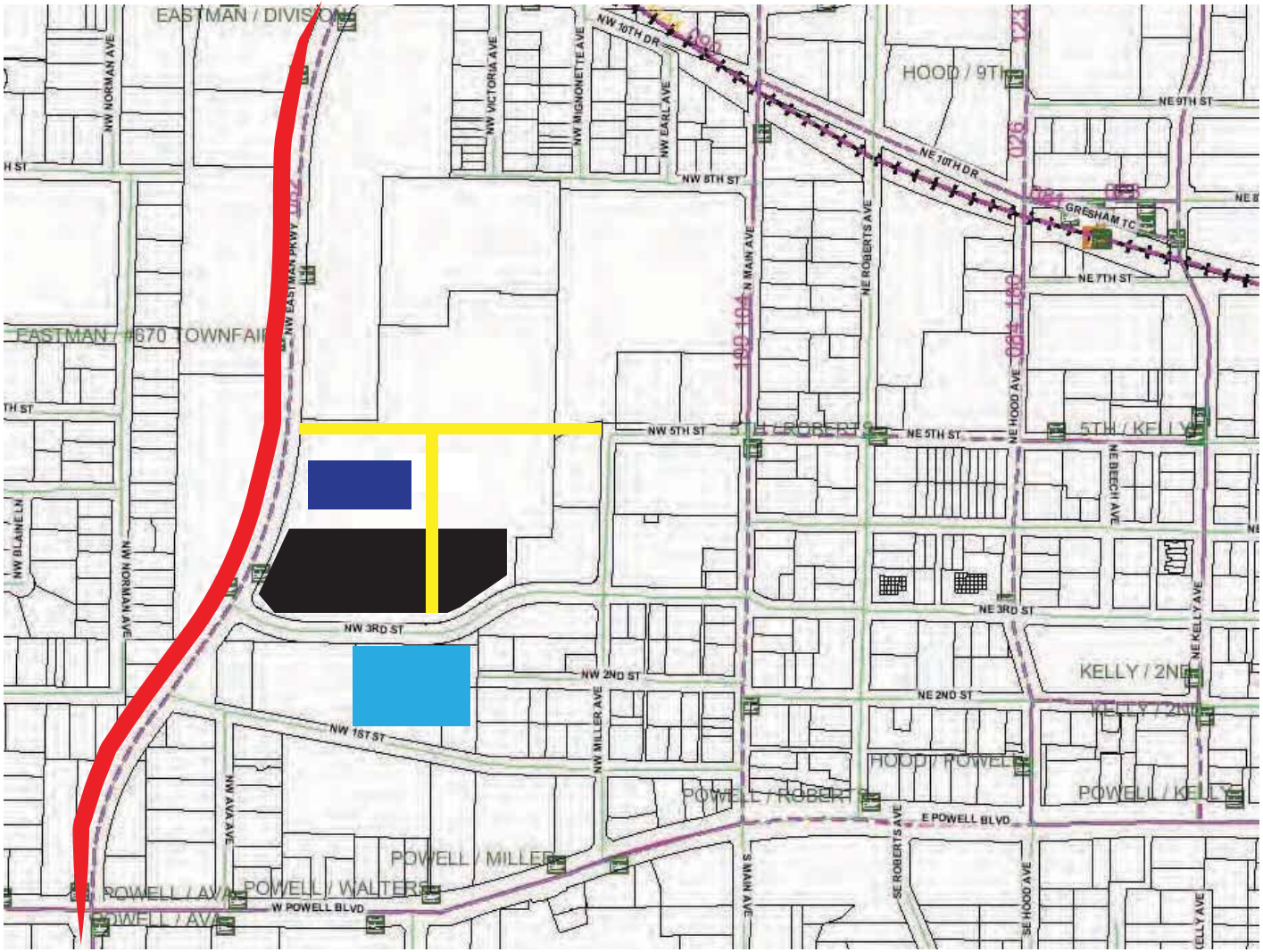
Design Considerations for Site



- Proposed Site
- Bus Routes
- Max Blue Line
- Roads
- Proposed Roads (Downtown Plan)
- Proposed Parking (Downtown Plan)
- Existing Parking
- NW Eastman Parkway (Major Access Rd)

N

Existing Conditions


Existing Building and Parking Lot


NW Eastman Parkway


NW 3rd Street


Apartment Buildings West of Site


Housing South of Site

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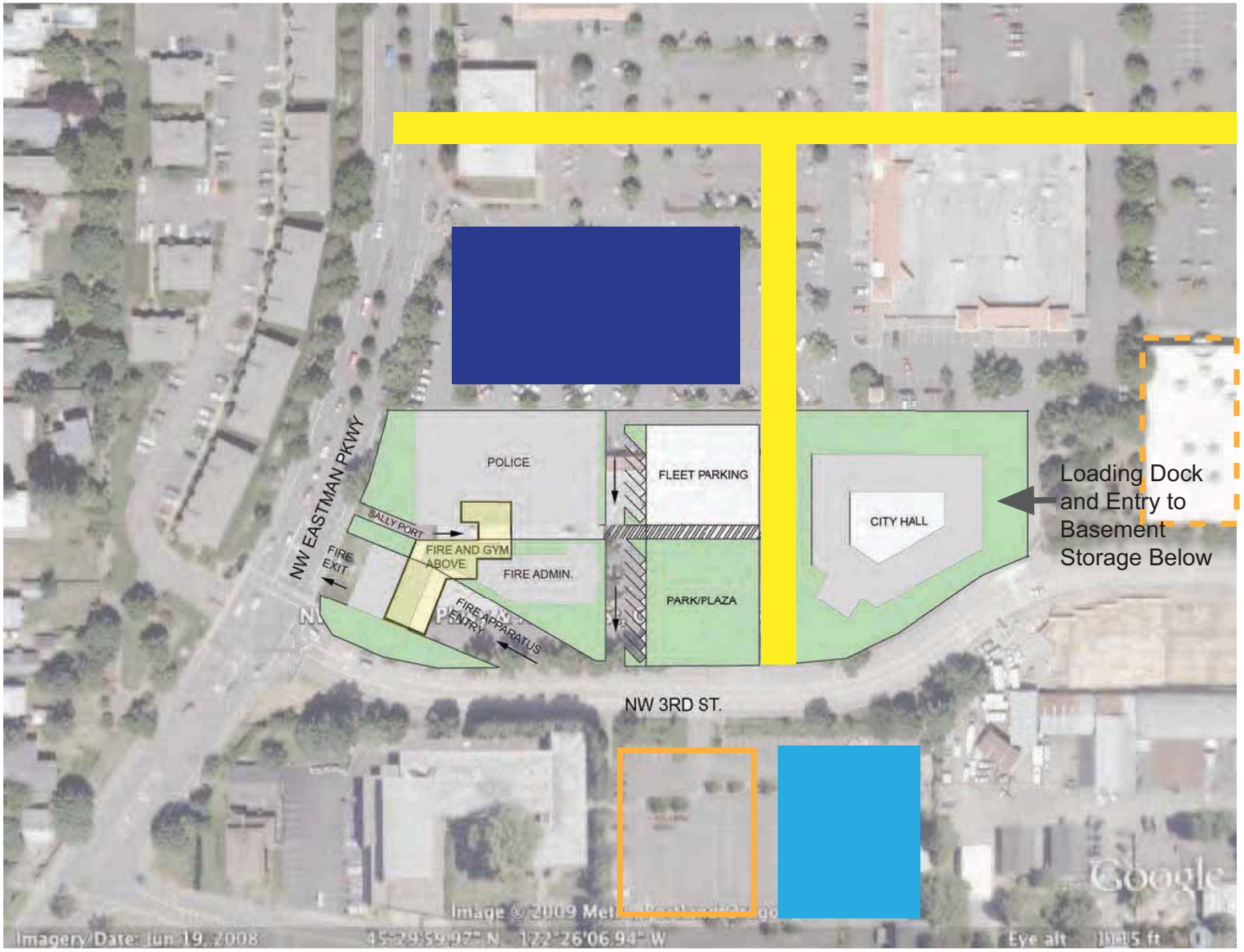
Site Plan



Proposed Roads (Downtown Plan)

Existing Parking

Proposed Parking (Downtown Plan)

Proposed Library

Existing Library

N

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Floor Plans : 1st Floor

Community Development

City Attorney

Ground Floor Retail/Cafe

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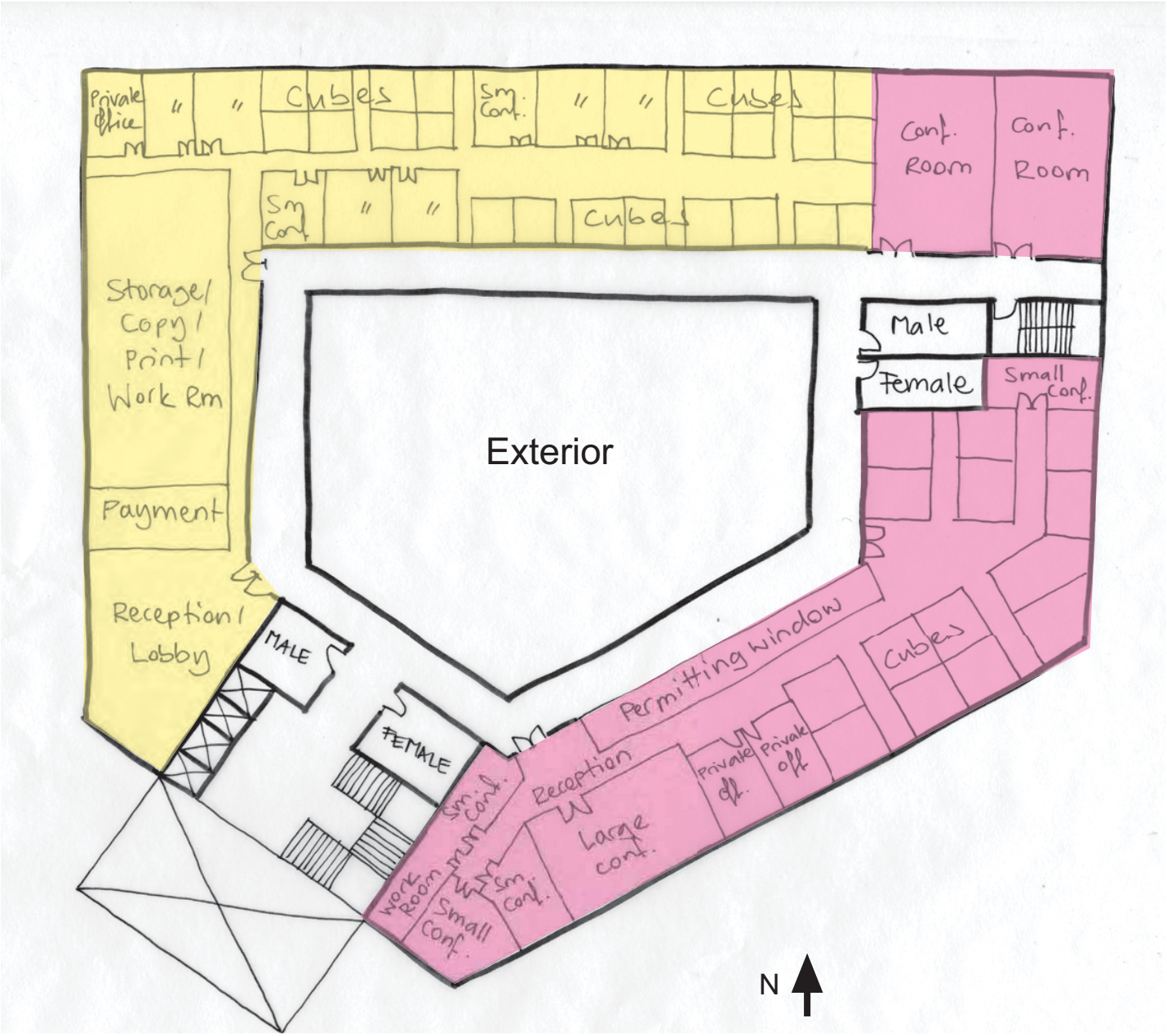
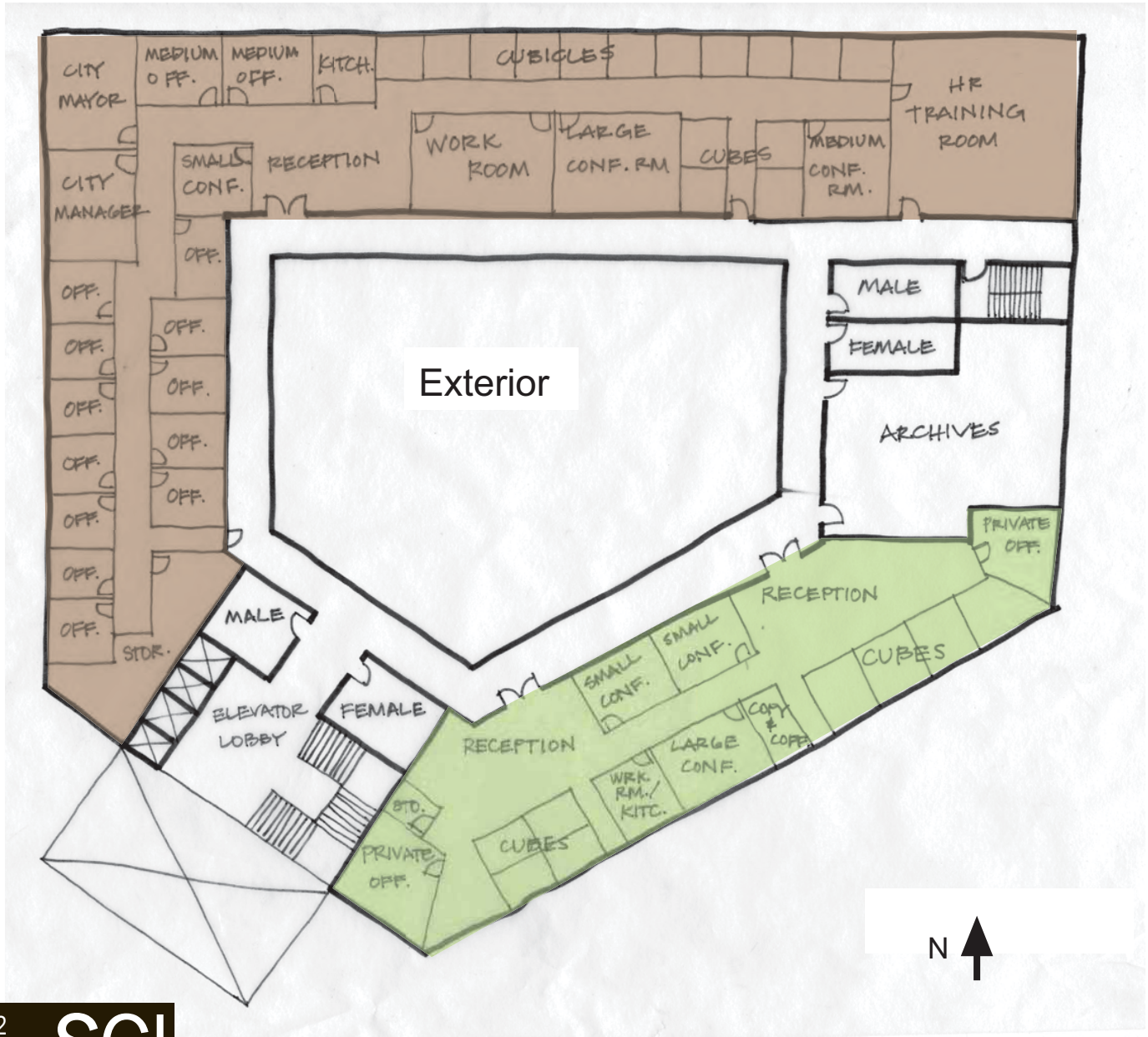
Floor Plans : 2nd Floor



Finance and Management

Urban Planning

Floor Plans : 3rd Floor



Economic Development

Office of Governance and Management

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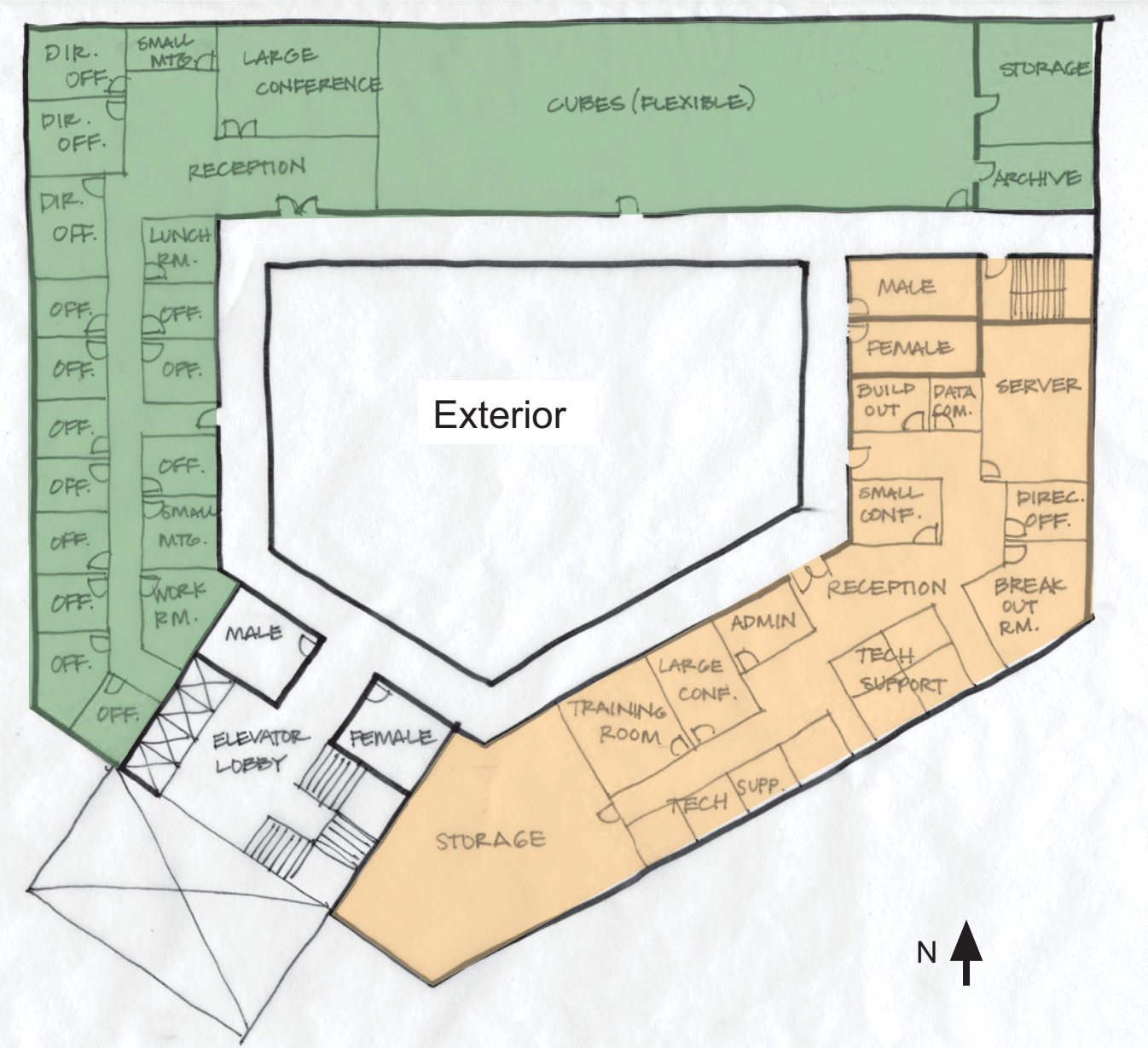
Floor Plans : 4th Floor



Environmental Services

Information Technology

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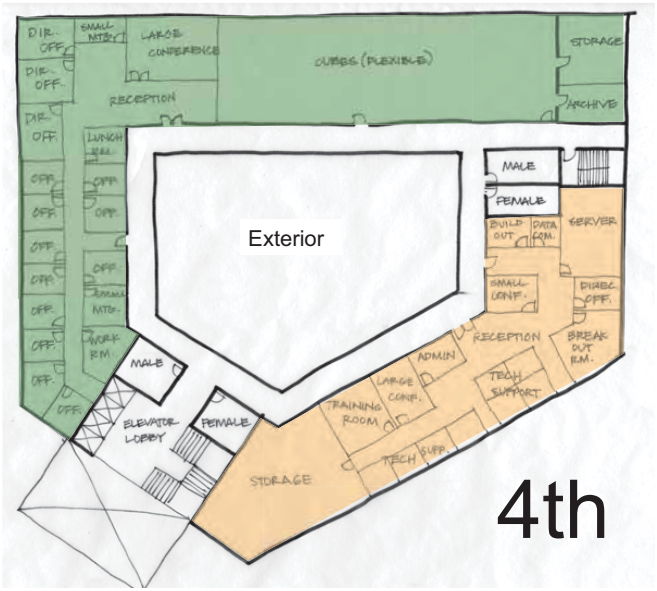
Floor Plans



CD

Attorney

Retail/Cafe

F&MGNT

Planning

ED

OGM

DES

IT

N

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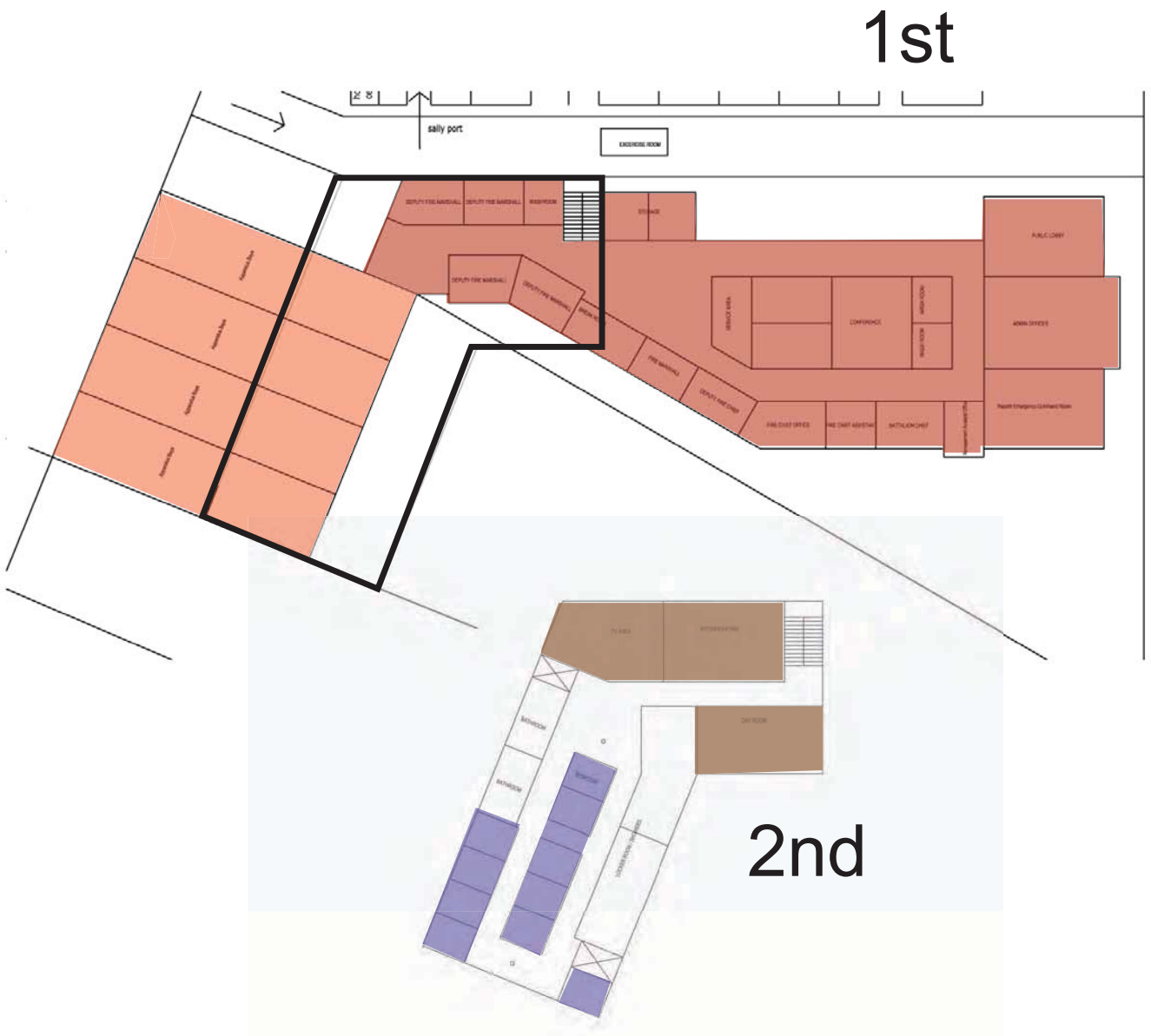
Floor Plans : Fire Department



Apparatus Bay

Administration

Living

Sleeping

N

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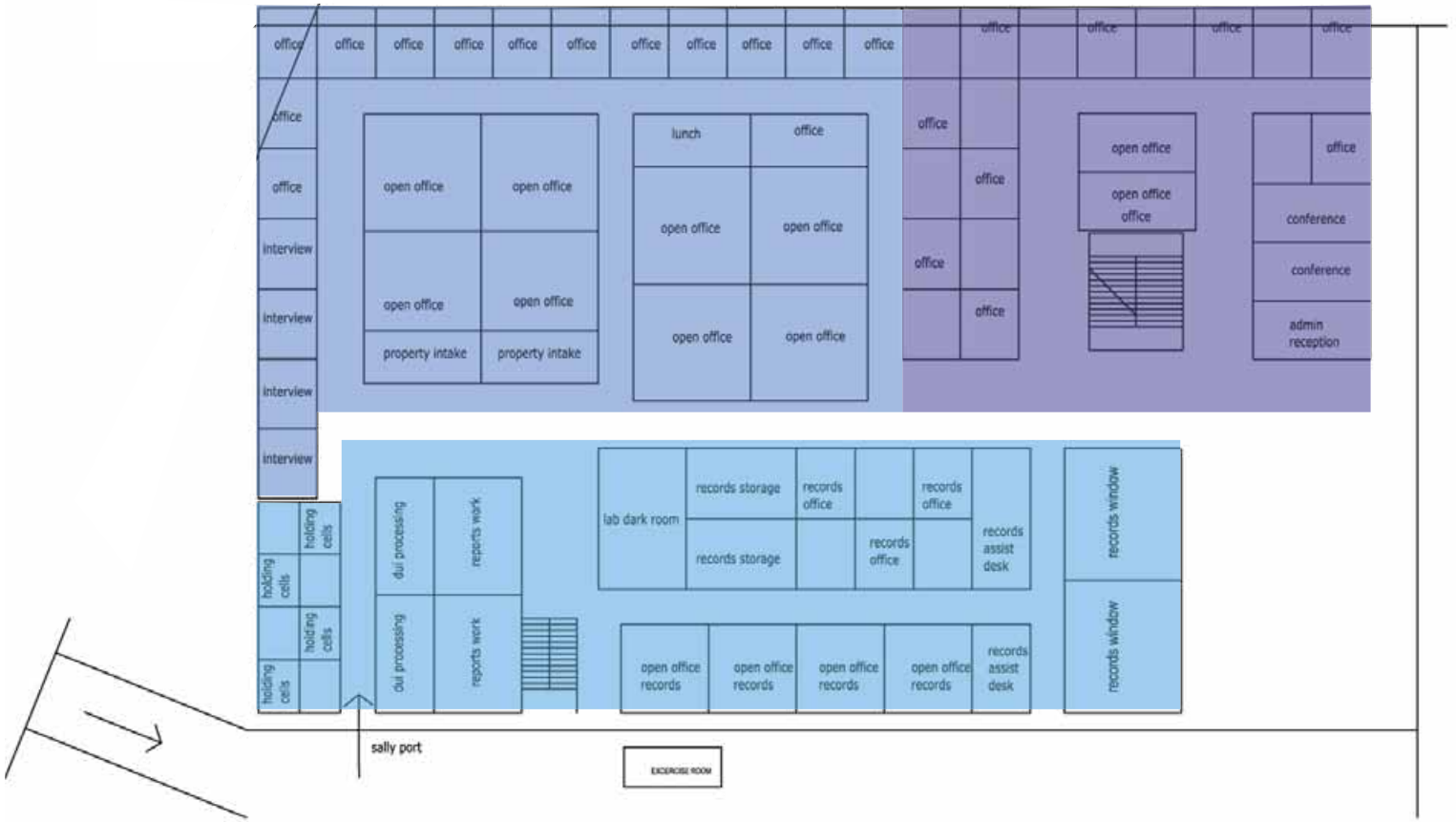
Floor Plans : Police

1st



Investigations

Administration

Operations

N

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Floor Plans : Police

2nd

Investigations

N

Massing Model

Massing Model

Energy Program

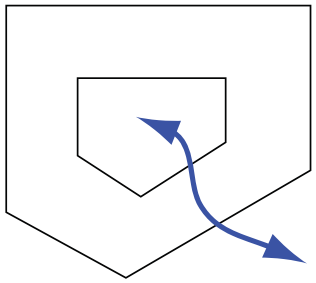
The new Gresham City Hall will be an architectural representation of the emerging sustainable city in Oregon. Gresham has been an example of a city trying to turn itself around and create a livable, sustainable city that Oregon would be proud of. The City Hall should represent Gresham and all that it stands for, which means excellence in sustainability and civic pride. Providing the city employees with a work environment they are comfortable in, enjoy working in, and have pride in is important.

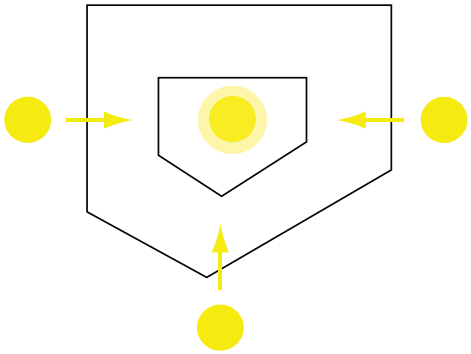
Design Considerations

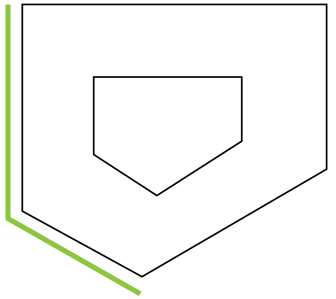
Natural Ventilation: Open Atrium, Operable Windows for Cross-Ventilation, Shallow Building Widths

Daylighting: Open Atrium, Shallow Building Widths with Windows on both Sides, Light Shelves, Reflective Interior Surfaces

Orientation: Shading Devices on South and West Facades







Further Opportunities

Green Roof, Solar Panels, Natural Landscaping for Shading, Water Retention Systems, Bioswales on Site, High Energy Efficiency Products

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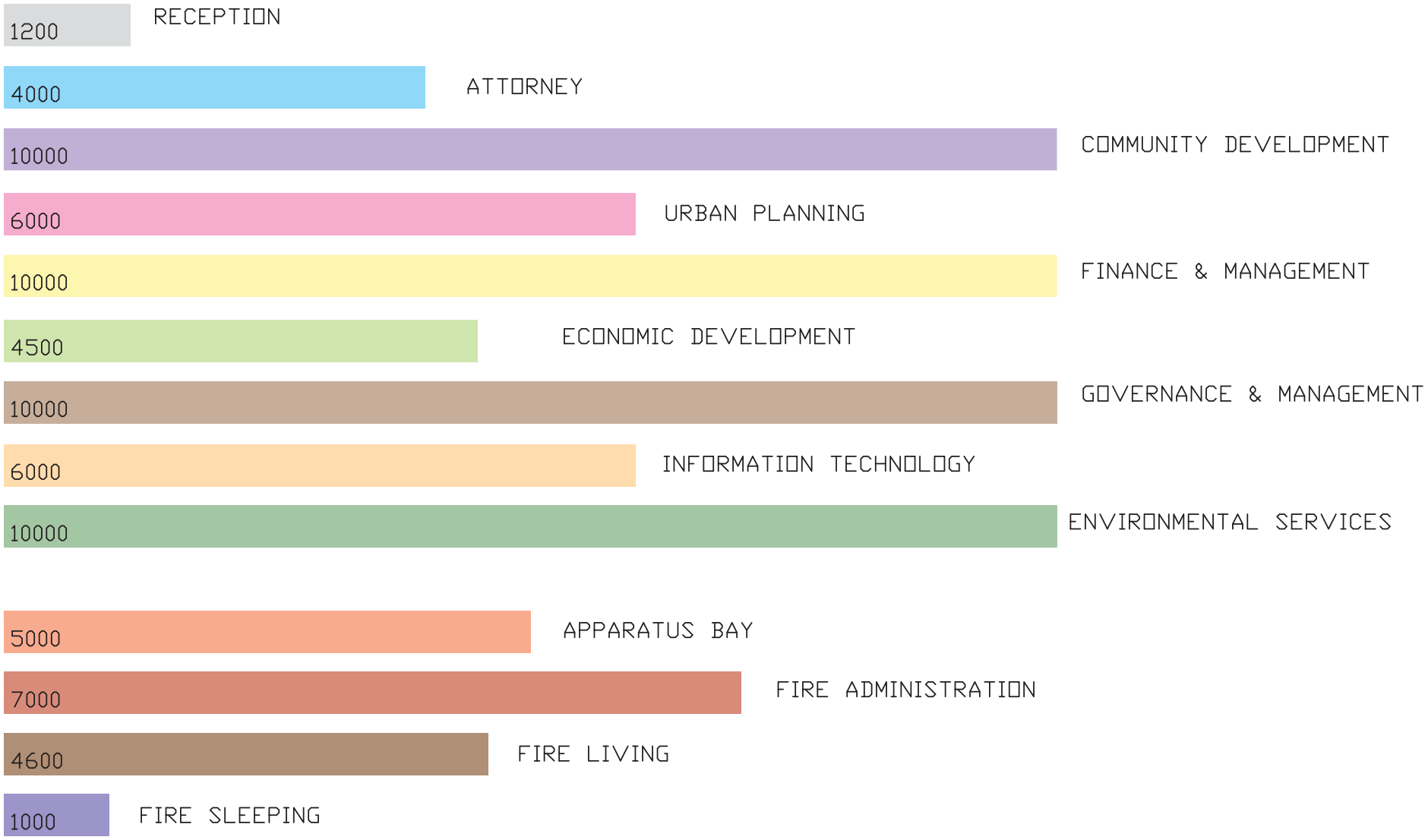
Energy Program : Spatial Needs

Building	Department or Area	Activities	Occupants	Area (SF)	Height	Lighting Req.	Schedule	Temp. (f)
Gresham City Hall	Reception	Walking, Sitting	2	1,200	48'	Ambient	8-5, M-F	68
Gresham City Hall	Urban Planning	Office Work	16	6,000	8'	Task	8-5, M-F	68
Gresham City Hall	Finance and Management	Office Work	31	10,000	8'	Task	8-5, M-F	68
Gresham City Hall	Economic Development	Office Work	9	4,500	8'	Task	8-5, M-F	68
Gresham City Hall	Office of Gov. & Mngmt	Office Work	31	10,000	8'	Task	8-5, M-F	68
Gresham City Hall	Information Technology	Office Work	10	6,000	8'	Task	8-5, M-F	68
Gresham City Hall	Environmental Services	Office Work	17	10,000	8'	Task	8-5, M-F	68
Gresham City Hall	Attorney	Office Work	10	4,000	8'	Task	8-5, M-F	68
Gresham City Hall	Community Development	Office Work	33	10,000	8'	Task	8-5, M-F	68
Fire Station	Aparatus Bay	Walking, Running	NA	5,000	24'	Ware House	24 hrs, 7 days	NA
Fire Station	Administration	Office Work	15	7,000	8'	Task	8-5, M-F	68
Fire Station	Living	Walking, Sitting	10	4,600	8'	Ambient	24 hrs, 7 days	68
Fire Station	Sleeping	Sleeping	10	1000	8'	Incandescent	24 hrs, 7 days	68
Police/Fire	Gym	Working Out	10	1700	14'	Ambient	24 hrs, 7 days	68
Police/Fire	Reception	Walking, Sitting	2	1,800	24'	Ambient	8-5, M-F	68
Police Station	Administration	Office Work	21	6,000	8'	Task	8-5, M-F	68
Police Station	Investigations	Office Work	22	17,000	8'	Task	8-5, M-F	68
Police Station	Operations	Office Work	14	8,000	8'	Task	8-5, M-F	68

Energy Program : Spatial Needs



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Energy Program : MIT Design Advisor

High Efficiency

Setup: Describe the Building You Wish to Simulate

SI Units / IP Units

Getting Started

Building Properties

1. Climate
Region: USA
City: OR - Portland

2. Occupancy and Equipment
Office Building — Lighting control...
Occupancy Schedule: 7:00 AM begins; 6:00 PM ends
Person-density: 0.10 people per m²
Lighting: 500 - office work (US) lux
Equipment: 5.0 office (light) W/m²

3. Ventilation System
Joint Natural Ventilation Cooling and Mechanical Heating — More ventilation options...
Indoor Air Temperature — Max: ºC; Min: ºC
Max Relative Humidity: %
Ventilation Rate — Fresh Air Rate: liters / sec per person; Air Change Rate: roomfuls per hour

4. Thermal Mass
High Mass: exposed concrete slab floor
Low Mass: lightweight or obstructed floor
Zero Mass

5. Building Geometry
Entire Floor (4 facades + core) well-mixed air between zones
Building Orientation: N-S / E-W; NE-SW / SE-NW
Building Dimensions: Side a: 12 m; Side b: 12 m

6. Roof Description
Green Roof
Roof Insulation: Commercial (High Insulation) R-Value: 5 (m2-ºC)/W
Roof Insulation Location: Insulation on bottom of roof slab Floors: 1

Typical Room Properties

7. Room Dimensions
Width: 5 m; Depth: 5 m; Height: 3 m

Window / Primary Facade Orientation: north

8. Window Description
Window Area: 50 % of exterior wall area — Window blind settings... Ventilated window settings...
Select a Window Type: single glazed; double glazed; triple glazed (no blinds); single glazed; double glazed; triple glazed; inside vent.; outside vent. (includes blinds)
Glass Type: low-e
Overhang — Distance: 0 m

9. Wall Description
Wall Insulation: Commercial (High Insulation) Wall R-Value: 5 (m2-ºC)/W

Medium Efficiency

Setup: Describe the Building You Wish to Simulate

SI Units / IP Units

Getting Started

Building Properties

1. Climate
Region: USA
City: OR - Portland

2. Occupancy and Equipment
Office Building — Lighting control...
Occupancy Schedule: 7:00 AM begins; 6:00 PM ends
Person-density: 0.10 people per m²
Lighting: 500 - office work (US) lux
Equipment: 5.0 office (light) W/m²

3. Ventilation System
Natural Ventilation Cooling, Mechanical Heating — More ventilation options...
Indoor Air Temperature — Max: ºC; Min: ºC
Max Relative Humidity: %
Ventilation Rate — Fresh Air Rate: liters / sec per person; Air Change Rate: roomfuls per hour

4. Thermal Mass
High Mass: exposed concrete slab floor
Low Mass: lightweight or obstructed floor
Zero Mass

5. Building Geometry
Entire Floor (4 facades + core) unmixed air between zones
Building Orientation: N-S / E-W; NE-SW / SE-NW
Building Dimensions: Side a: 12 m; Side b: 12 m

6. Roof Description
Modified Bitumen Roof
Roof Insulation: Commercial (Medium Insulation) R-Value: 2 (m2-ºC)/W
Roof Insulation Location: Insulation on bottom of roof slab Floors: 1

Typical Room Properties

7. Room Dimensions
Width: 5 m; Depth: 5 m; Height: 3 m

Window / Primary Facade Orientation: north

8. Window Description
Window Area: 50 % of exterior wall area — Window blind settings... Ventilated window settings...
Select a Window Type: single glazed; double glazed; triple glazed (no blinds); single glazed; double glazed; triple glazed; inside vent.; outside vent. (includes blinds)
Glass Type: high performance
Overhang — Distance: 0 m

9. Wall Description
Wall Insulation: Commercial (Medium Insulation) Wall R-Value: 2 (m2-ºC)/W

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Energy Program : MIT Design Advisor

Current Conditions

Setup: Describe the Building You Wish to Simulate

SI Units IP Units

Getting Started

Building Properties

1. Climate
Region: USA
City: OR - Portland

2. Occupancy and Equipment
Office Building
Lighting control...
Occupancy Schedule:
7:00 AM begins
6:00 PM ends
Person-density: 0.10 people per m^2
Lighting: 500 - office work (US) lux
Equipment: 5.0 officc (light) W/m^2

3. Ventilation System
Mechanical Cooling & Heating
More ventilation options...
Indoor Air Temperature
Max: ℃
Min: ℃
Max Relative Humidity
%
Ventilation Rate
Fresh Air Rate: liters / sec per person
Air Change Rate: roomfuls per hour

4. Thermal Mass
High Mass: exposed concrete slab floor
Low Mass: lightweight or obstructed floor
Zero Mass

5. Building Geometry
Entire Floor (4 facades + core) unmixed air between zones
Building Orientation:
N-S / E-W
NE-SW / SE-NW
Building Dimensions
Side a: 12 m
Side b: 12 m

6. Roof Description
Modified Bitumen Roof
Roof Insulation: Commercial (Low Insulation)
R-Value: 1 (m2-℃)/W
Roof Insulation Location: Insulation on bottom of roof slab
Floors: 1

Typical Room Properties

7. Room Dimensions
Width: 5 m
Depth: 5 m
Height: 3 m
Window / Primary Facade Orientation:
north

8. Window Description
Window Area: 50 % of exterior wall area
Window blind settings...
Ventilated window settings...
Select a Window Type:
single glazed | double glazed | triple glazed | single glazed | double glazed | triple glazed | inside vent. | outside vent.
no blinds | includes blinds
Glass Type: low-e
Overhang
Distance: 0 m

9. Wall Description
Wall Insulation: Commercial (Low Insulation)
Wall R-Value: 1 (m2-℃)/W

Comfort: Thermal Comfort in a Representative Room

The following figures represent the thermal comfort level within a room as a function of the occupant's distance from the window.

too hot — COMFORT — too cold
65% content | 95% content | 65% content

Time of Day: 9 AM

Scenario One: January

Scenario One: June

Scenario Two

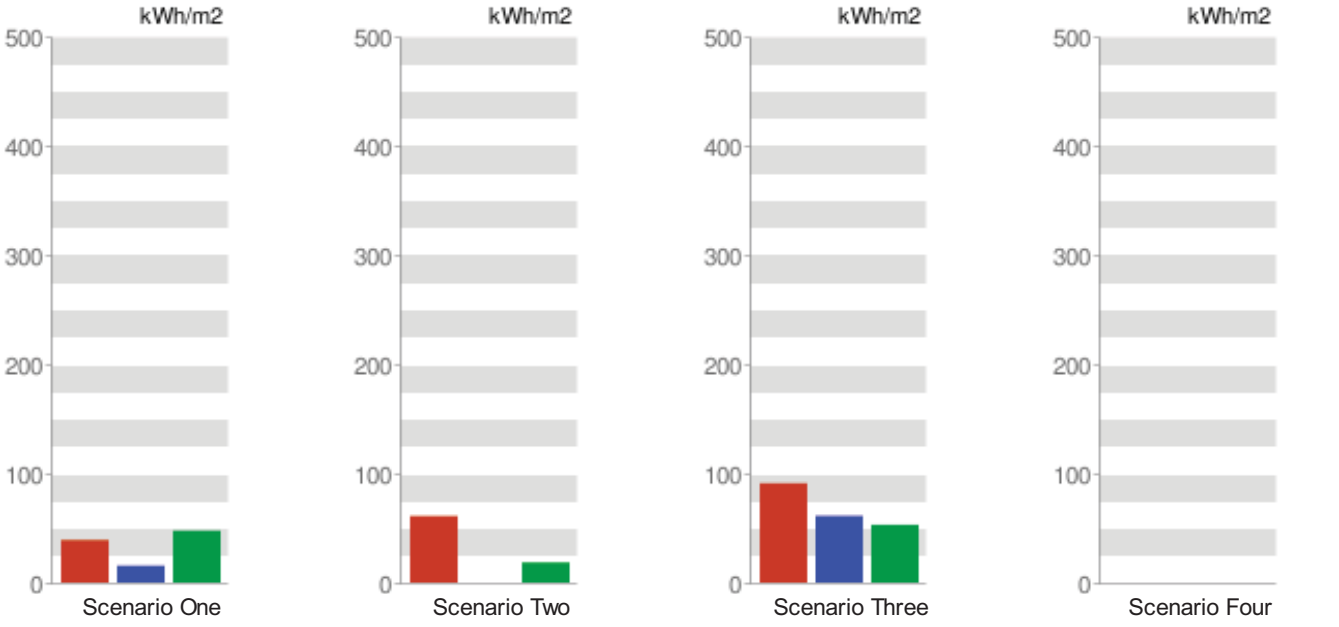
Note: This scenario is naturally ventilated.
For thermal comfort of naturally ventilated buildings, navigate to the "Natural Ventilation" tab on the left.

Scenario Three: January

Scenario Three: June

Energy Program : MIT Design Advisor

Primary Energy: Annual Heating, Cooling, and Lighting (per average floor area)*



Note that the energy shown on this page reflects **Primary Energy Use**, which is the amount of energy contained in the raw fuels (coal, natural gas, nuclear fuel, etc.) that are used to generate the electricity or heat used by the building.

PRIMARY HEATING ENERGY = Heating Load / Thermal Efficiency
PRIMARY COOLING ENERGY= Cooling Load / (Electricity Production Efficiency x Chiller Coefficient of Performance)
PRIMARY LIGHTING ENERGY= Lighting Load / (Electricity Production Efficiency x Lighting Efficiency)

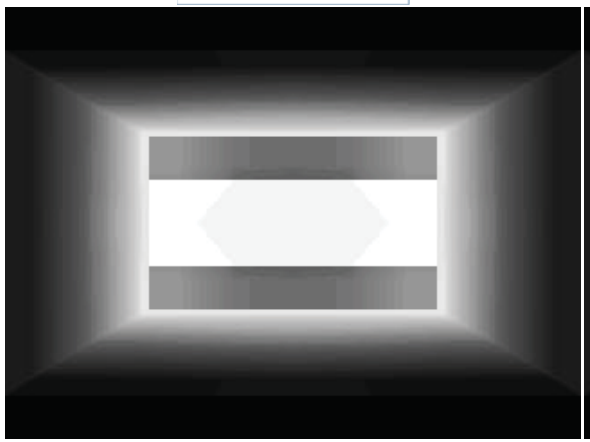
Assumed Efficiencies:
Electricity Production Efficiency = 30%
Fuel to Thermal Efficiency = 100%
Lighting Efficiency = 13.5%
Chiller COP = 3.0

*** average floor area is based on the number of floors in the building.**

Energy Program : MIT Design Advisor

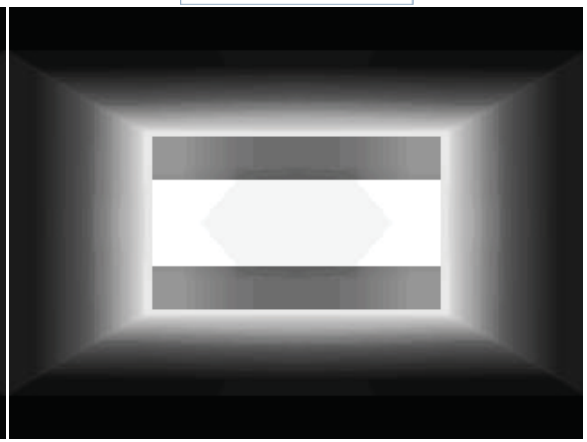
Daylighting: 3D Representation of a Typical Room

Scenario One

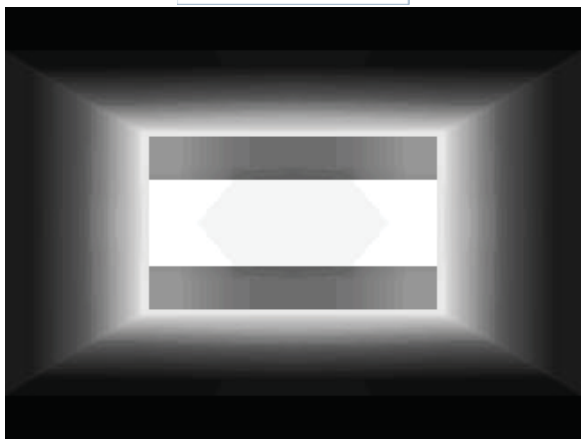


Season: Spring
Time of Day: 9 AM
Blind Angle: No Blinds

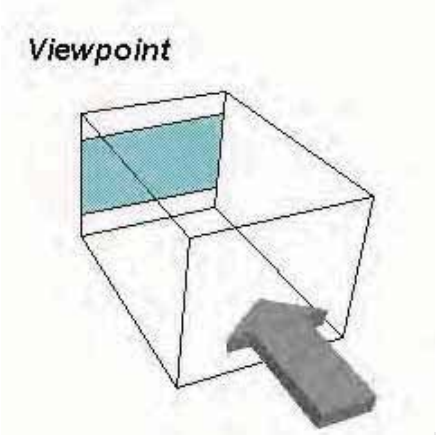
Scenario Two



Scenario Three

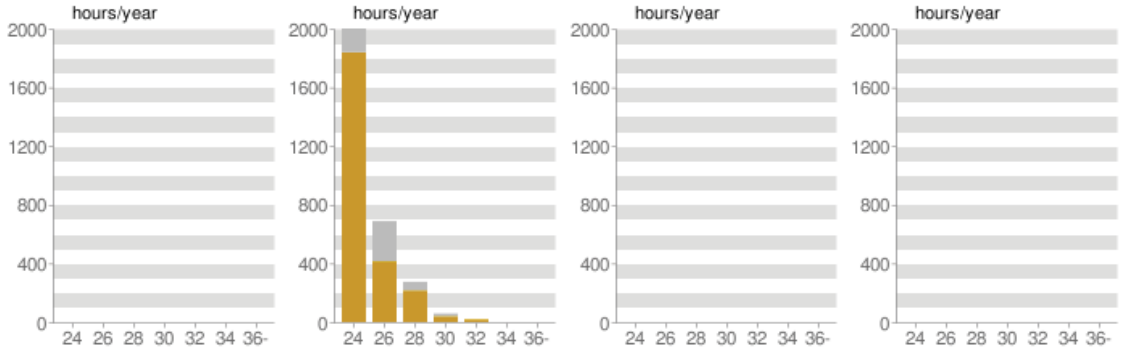


Season: Spring
Time of Day: 9 AM
Blind Angle: No Blinds



Energy Program : MIT Design Advisor

Natural Ventilation: Indoor Air Temperature Histogram



Temperature Units: C

Hours Scale: 2,000

ORANGE
Number of hours per year at the designated indoor air temperature.

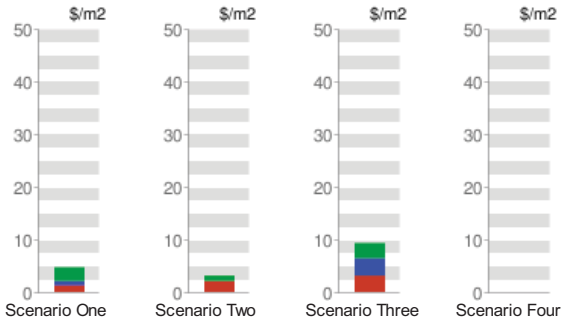
GRAY
Number of hours per year at *or above* the indicated temperature.

Note that the above graphs appear only for purely naturally ventilated scenarios.

If a multi-story building is simulated, the temperatures are taken from the interior floors.

For an analysis of the top floor, simulate the same building as a single-story building.

Life Cycle Figures: Cost of Energy and CO2 Emissions



First Year Energy Cost -- ($ / m2)

Lighting	2.6	1	2.9	0	$/m2
Cooling	0.8	0	3.3	0	$/m2
Heating	1.3	2.1	3.1	0	$/m2
Total	4.7	3.1	9.3	0	$/m2

Lifecycle Energy Cost
First Year Energy Cost
Yearly CO_2 Emissions

Floor Area: square meters
Carbon Dioxide: kilograms
Scale: 50

Cost of Heating	1.00	$ per therm
Cost of Electricity	0.18	$ per kWh
Years of Operation	15	years
Discount Rate	5.0	% per year
CO2 Emission Rate	0.2	kg per kWh

update

Energy Program : IES Analysis

lalala.mit
10/Dec/2009

Contents: Energy & Carbon results | Architecture 2030 Challenge | Climate Energy Index

Energy and Carbon Results

Proposed building energy use	5,627.66MBtu/yr
Proposed building carbon emissions	591.7tons CO_2/yr

Energy breakdown:

Heating	39%
Cooling	0%
Lights	25%
Equipment	37%

The Energy & Carbon results are generated by the IES VE ApacheSim module. ApacheSim is a rigorous building thermal simulation approach that conforms to ANSI / ASHRAE Standard 140.

To find out more go to: www.iesve.com/apachesim

AIA 2030 Challenge - summary

Current design meets 2030 Challenge Target for: **Does not meet current target**

Design Building Energy Use Intensity: (Design EUI = Energy / Building Area)	52	kBTU/ft²
Average Building Energy Use Intensity: (Used to generate 2030 Challenge Targets)	97	kBTU/ft²
Building Type:	Administrative/ Professional and Government Office	

Analysis Details:

Location:Portland, Oregon (45.50N, 122.43W)
Climate File:PortlandTM2.fwt
Calculated:10/Dec/2009 at 12:51
Calculation period:01/Jan - 31/Dec

The AIA 2030 Challenge provides a roadmap of targets for US building projects culminating in being carbon neutral by 2030

Implementation of the Challenge requires the use of targets by building type derived from current building stock benchmarks

Challenge targets for selected building type:

Year	% reduction	kBTU/ft²
Current	50	49
2010	60	41
2015	70	34
2020	80	29
2025	90	29
2030	100	0

For certain building types targets are calculated using Energy Star methodology where energy consumption is not direct % reduction against average

Climate Energy Metric

Climate Energy Metric	24 hour use	2,996.1Btu/yr
	Proposed hours of use	1,004.7Btu/yr
	Using the local fuel mix	0.1 lbCO2/yr

The Climate Energy Index is simple global unitary measure

Due to a very schematic Sketch-up model the data generated from this software might not be accurate. Eventhough not reflected in the above analysis, we are confident that our design will meet the 2030 Design Challange.

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Energy Program : Energy Star Analysis

Target Energy Performance Results (estimated)			
Energy	**Design**	**Target**	**Average Building**
Energy Performance Rating (1-100)	N/A	100	50
Energy Reduction (%)	N/A	70	0
Source Energy Use Intensity (kBtu/Sq. Ft./yr)	N/A	65	217
Site Energy Use Intensity (kBtu/Sq. Ft./yr)	N/A	24	82
Total Annual Source Energy (kBtu)	N/A	3,237,922	10,868,591
Total Annual Site Energy (kBtu)	N/A	1,218,782	4,091,033
Total Annual Energy Cost ($)	N/A	$ 23,143	$ 77,685
Pollution Emissions			
CO2-eq Emissions (metric tons/year)	N/A	122	411
CO2-eq Emissions Reduction (%)	N/A	70%	0%

Facility Information Edit

Gresham City Hall
Gresham, OR 97030
United States

Facility Characteristics Edit	
Space Type	**Gross Floor Area (Sq. Ft.)**
Office	50,000
Total Gross Floor Area	50,000

Estimated Design Energy Edit			
Energy Source	**Units**	**Estimated Total Annual Energy Use**	**Energy Rate ($/Unit)**
Electricity - Grid Purchase	kBtu	N/A	$ 0.022/kBtu
Natural Gas	kBtu	N/A	$ 0.011/kBtu

* The Average Building is equivalent to an EPA Energy Performance Rating of 50.

Source: Data adapted from DOE-EIA. See EPA Technical Description.

According to the Energy Star Analysis Program, the current Gresham City Hall would have to reduce their energy consumption by 70% in order to meet the 2030 Challenge.

Group A3

NW Eastman Parkway

Kelsey Lovett
Adam Newman
Hilary Olson
Stephen Varady

"The relocation of Gresham City Hall will stimulate investment in the surrounding community and spawn urban revitalization through a renewed sense of civic pride."

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A3

FUNCTIONS OF A SUCCESSFUL CITY HALL

- Seamless flow of people and information between departments
- Safe and secure, yet inviting to all
- A gathering place for formal and informal interactions
- Open forum for hearing the thoughts and ideas of residents
- Stimulator of local investment and urban renewal
- Leader in sustainable design and business practices
- Provider of support/information for aspiring entrepreneurs
- Lasting symbol of civic pride

EXISITING BUILDING ANALYSIS

Features to retain:

- Proximity to Police + Fire headquarters
- Accessibility to MAX line
- Safe, secure workplace
- Large, flexible meeting area
- Ample bicycle storage + shower facilities
- Electric car charging station
- Coffee shop
- Community garden

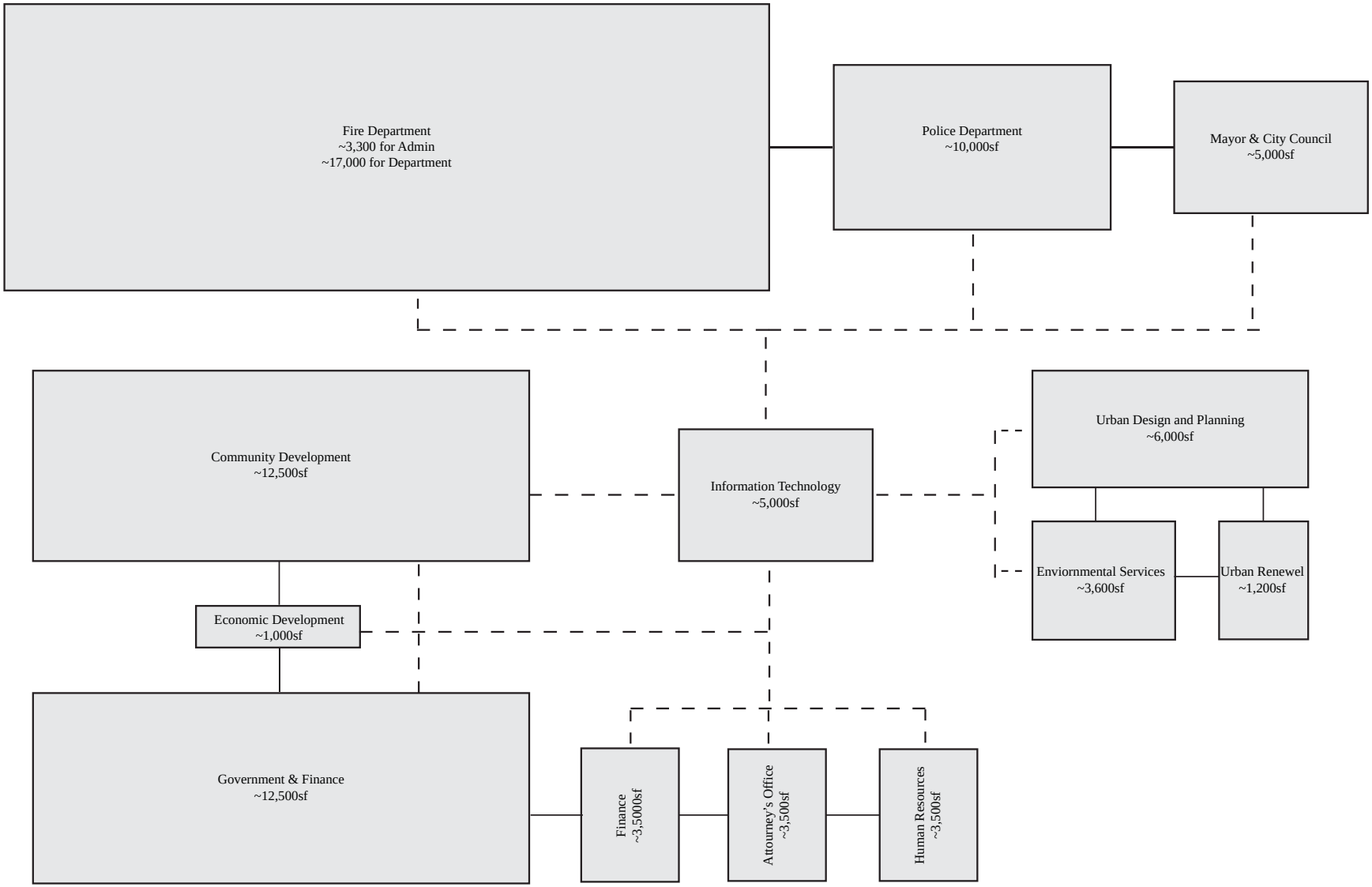
Room for improvement:

- Improve confidentiality of meeting rooms
- Separate lobbies for the police + fire department
- Develop intuitive wayfinding
- More efficient placement of program elements
- Provide various sizes of meeting rooms
- Incorporate area for employee relaxation during breaks
- Give Gresham City Hall an institutional aesthetic
- Easier access to the vehicle pool
- Create stronger connection to downtown Gresham and surrounding communities

VALUE BASED ANALYSIS

Values	Goals	Facts	Needs	Ideas
Human	Private spaces for conversation Accommodate personal and private needs	Cubes are not sound proof There are some things during your day that need to be done in private	Meeting areas with floor to ceiling walls. Nursing stalls	Small multi-use conference space A women's lounge within the restroom facility for nursing and other personal needs
Environmental	Low impact building footprint. Easy access within departments and with outside business partner. Flexible spaces.	Buildings take up a lot of energy and produce a lot of pollution Large building under new construction uses a lot of energy Departments evolve over time	Adaptable spaces Location in proximity to other business associates	Use green technology Solar energy Rainwater collection Natural lighting Furniture on wheels
Cultural	Create a creative, peaceful workspace and embrace diversity. Potential for community uses (fire)	Staff comes from diverse backgrounds, spaces are used by the community	cultural R.E.S.P.E.C.T.	Strong civic identity
Technological	To meet the needs of the departments. Adaptation to advancing technologies.	Rapidly growing industry - in constant state of morphosis	Proper archiving New computers Digital communications	Investing in green energy harvesting technologies East West building orientation
Temporal	Longevity of facility	New city halls are not built all the time. This is a unique opportunity to design a civic facility	The building needs to last a long time, financially and to increase civic pride	Socio-sustainability Create a building that is beautiful and people are proud of
Economic	Spend wisely	Low budget Tax payers like to see their money spent wisely	Create an entire civic complex.	
Aesthetic	Powerful Civic Building Inviting and functional spaces Easy wayfinding	Limited Federal budget for new construction Many people need access to shared drawings Narrow halls and monotony causes confusion	Durability of materials Clear spatial organization Arrival spaces that distinquish areas within the building	A leader in sustainable design Large and eyecatching singage Welcoming reception areas throughout Department with their own distint identity
Safety	Healthy work environment with good air and light quality Building security for files and personnel	ADA accessibility guidelines People working within close proximity to one another all day every day can spread germs easily Confidential information throughout	Secure storage Inside and outside security cameras to monitor building premises	Universal accessibility Security checkpoints into confidential storage rooms (limited access) Security personnel to watch cameras and the entrance(s)/exit(s) to the facility

ADJACENCY DIAGRAM



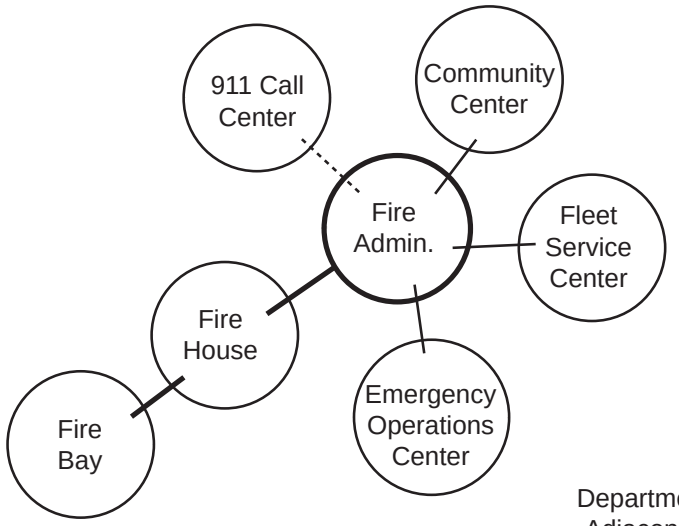
DESIGN IDEAS

- Small multi-use conference space
- A women's lounge within the restroom facility for nursing and other personal needs
- Use green technology
- Solar energy
- Rainwater collection
- Natural lighting
- Furniture on wheels
- Strong civic identity
- Investing in green energy harvesting technologies
- East West building orientation
- Socio-sustainability
- Create a building that is beautiful and people are proud of
- A leader in sustainable design
- Large and eyecatching singage
- Welcoming reception areas throughout
- Department with their own distint identity
- Universal accessibility
- Security checkpoints into confidential storage rooms (limited access)
- Security personnel to watch cameras and the entrance(s)/exit(s) to the facility

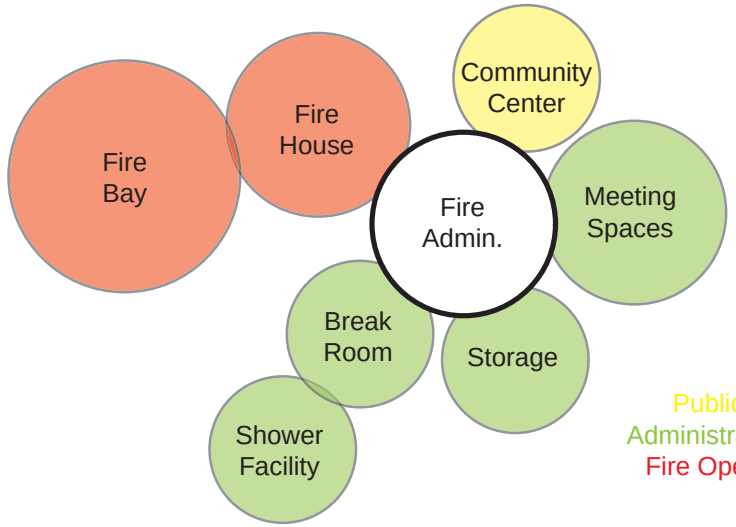
Values	Goals	Facts	Needs	Ideas
Human	Strong connection between Administration and Fire Fighters	Admin. plays an important role in the station and needs to have direct connection with the fire fighters	Close proximity of work areas Admin. not to be in a separate building. sound mitigation between fire admin/station	Natural light and air Access to outdoor space Admin. and Fire in same building but with separation
Environmental	Peaceful, Comfortable and Quiet	Fire fighting and related jobs are stressful Constant communication between departments	Closed off personal spaces Few distractions Good natural light	Separation between vehicle maintenance/fire training and sleeping quarters
Cultural	Fire Station seen/used as a Community Center	The fire station is a safe haven for those in need Unused space can be used for community activities Tax payer like to see their money well spent	Multiple-use areas A comfortable and inviting public entry	Entry with a strong civic identity
Technological	Technology needs to be accessible by all users	2-Way radio systems are a key technology used by everyone, everyday 911 dispatch accessibility	Everyone needs access to radio system at their desk	Organize office to accommo-date personal space with computers and radio
Temporal				
Economic	Use the taxpayers money in an efficient and useful manner	Government funded buildings need to not waste any money or have excess amenities	Durable building materials	Create a place of civic pride increasing physical longevity and saving money
Aesthetic	Inviting and functional building	Taxpayer's $ Fire Stations should look like fire stations so the public can know where they are	Durable building materials	Create a place of civic pride increasing physical longevity and saving money
Safety	Safety of Admin. and Fire Fighters is a key goal	Their job is dangerous so they need to have a safe work environment when not out in the field	Sleep and physical wellness	To create a welcoming, homelike professional setting in the station

Gresham Fire Department - Administration

Neighborhood Adjacencies

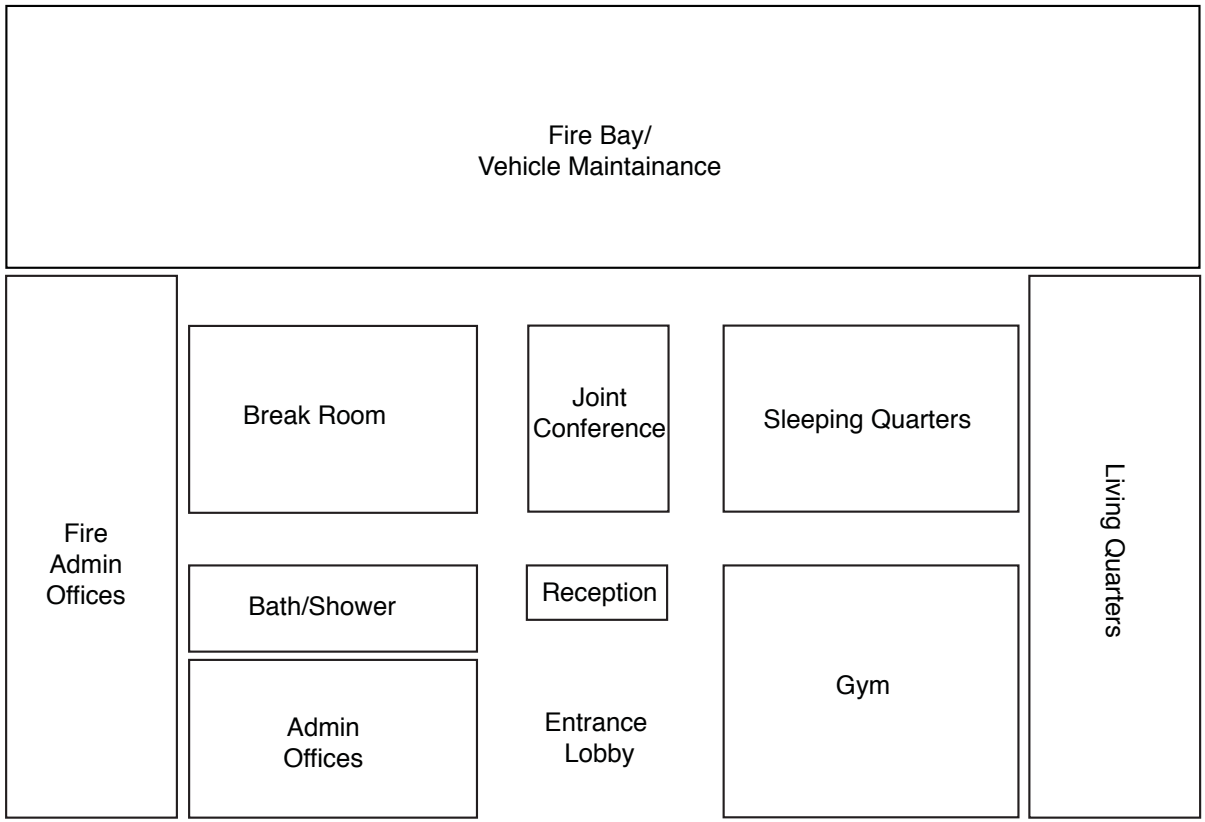


Departmental Adjacencies



Departmental Needs

Fire Department Plan

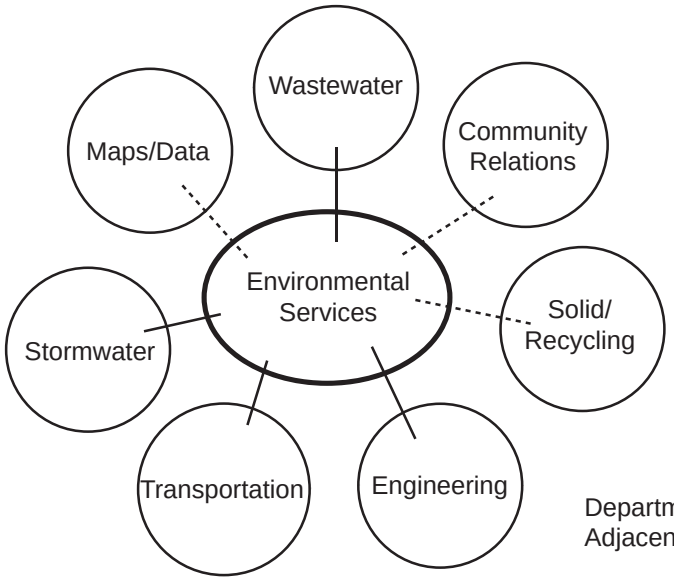


	# of Rooms	SF	Dimensions
Fire Department (Admin)			
Offices	5	120	10x12
Open office space	1	400	20x20
Break room	1	180	12x15
Small meeting Room	1	100	10x10
Multi-use rooms/emergency op.	1	1500	30x50
Laundry room	1	48	6x8
Locker room with showers	2	192	12x16
Bathroom	2	48	6x8

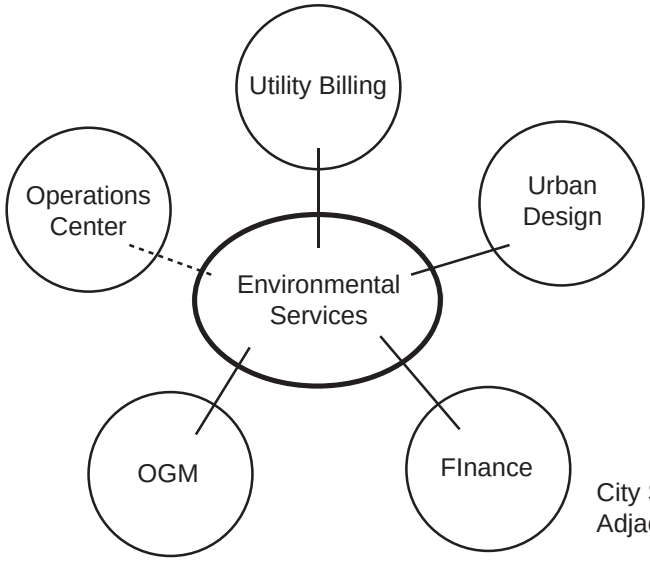
Department of Environmental Services

Values	Goals	Facts	Needs	Ideas
Human	Comfortable environment Space to have private conversations	Cubes are not sound-proof Extra amenities are expensive	Meeting areas with floor to ceiling walls A place to decompress	Small, walled off conference space to hold private conversations within each department, with comfortable chairs
Environmental	Easy access to co-workers within the department and people who work in offices outside city hall	Many people leave the office to conduct business and use fleet cars Employees work in “work groups”	Quick and easy transportation or connection to other related buildings Flexible space to accommodate changing work group sizes	Computer organized fleet vehicle system, use bicycles, Cube walls on wheels for easy manipulation
Cultural				
Technological	Green/sustainable building	New building - oportunity to work with new materials and new design of space	Use materials best fit Keep footprint small Better bike storage Capitalize on solar gains/ natural ventilation	East-West bldg. orientation Multi-use spaces Employee locker room/bike storage
Temporal	Adaptable space for future growth	Gresham is growing quickly city hall staff is increasing	Large open spaces that can sub-divide and change form over time	Few permanent divisions in the building External structural system
Economic	Balance swank with tax $	Tax payers like to see their tax dollars benefiting the community	Accommodate the needs of employees without spending a fortune	Multi-functional spaces, reducing the need for more rooms Inexpensive, durable materials
Aesthetic	Inviting spaces Tidy, organized work spaces	Many different people need access to documents & drawings	Clear, simple organizational system	Centrally located drawing storage, clearly organized

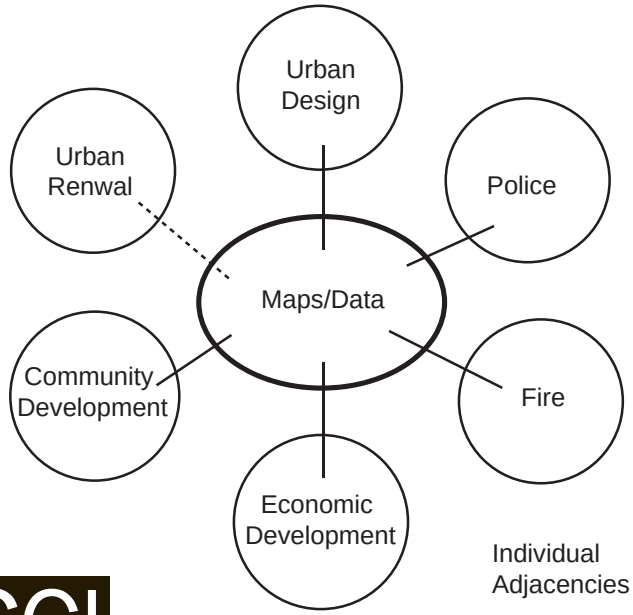
Department of Environmental Services



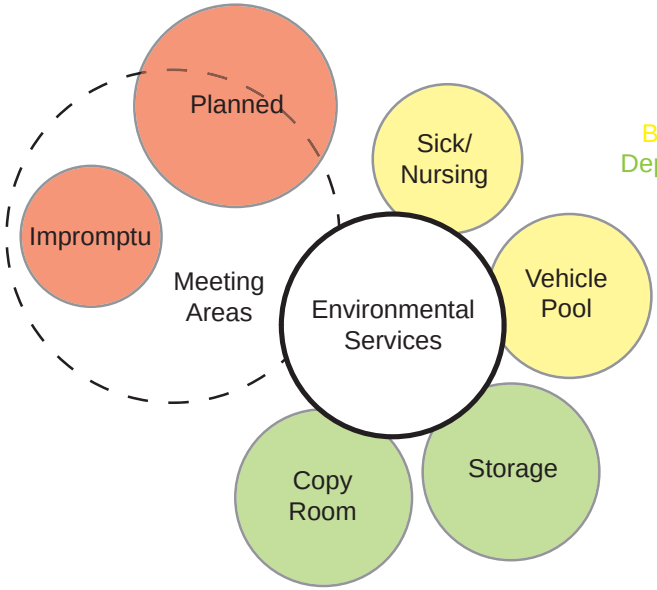
Departmental Adjacencies



City Services Adjacencies



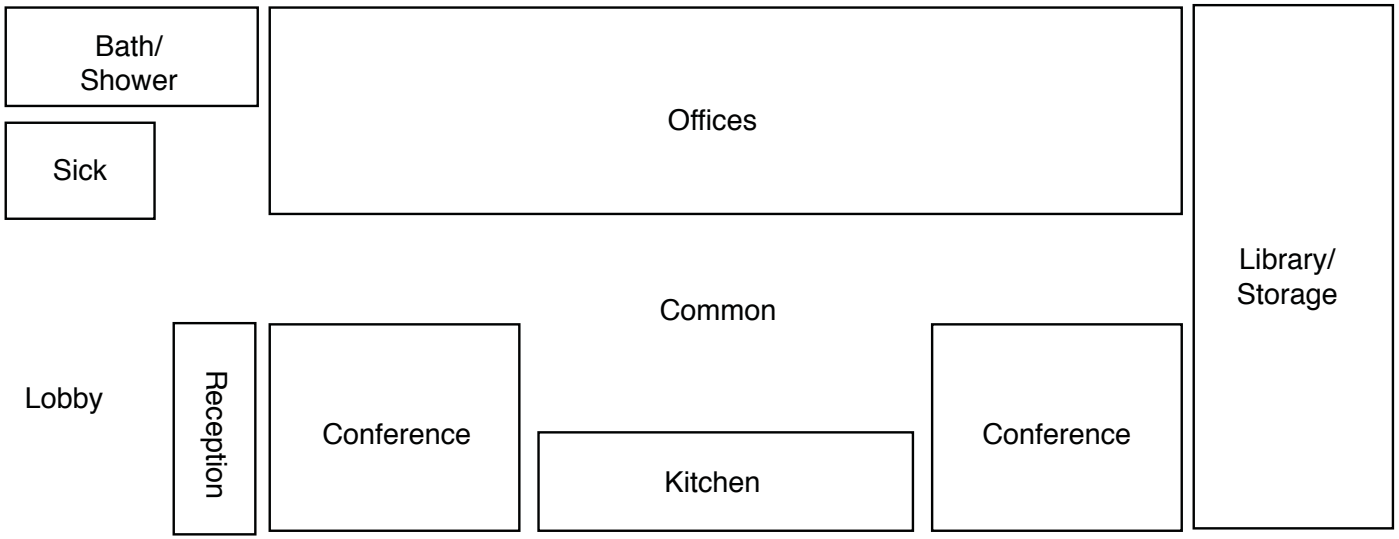
Individual Adjacencies



Floor Amenities
Building Amenities
Department Amenities

A3 122 SCI
Sustainable Cities Initiative

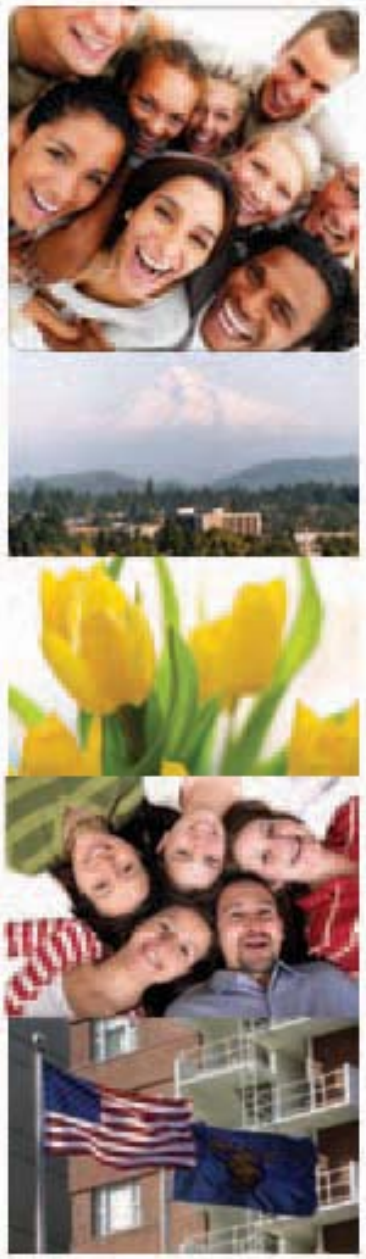
Department of Enviornmental Services Plan



Environmental Services	# of Rooms	SF	Dimensions	total
Management offices	11	120	10 x 12	1320
Director offices	3	180	12 x 15	540
Employee Offices	24	120	10 x 12	2880
Cubicles	8	64	8 x 8	512
Lobby/Reception	1	300	15 x 20	300
Copy/Print Room	1	150	10 x 15	150
Archive Room	1	200	10 x 20	200
Storage Room	1	280	14 x 20	280
Conference Rooms	1	450	15 x 30	450
Small Meeting Rooms	2	100	10 x 10	200
Restroom	1	48	6 x 8	48
Lunchroom/Kitchenette	1	180	12 x 15	180
				7060

Purpose

The relocation of City Hall in Gresham will stimulate private investment in the surrounding community and spawn urban revitalization through a renewed sense of civic pride.



Precedent Buildings

Train Signal Box, Basel, Switzerland

Seattle City Hall

Turku City Library

Portland City Hall

Gresham History

1852 - James Powell, Jackson Powell and Dr. John Parker Powell move to Oregon
Settled in "Powell Valley" - what is now the Gresham's downtown core.
This site was used as a resting point by many pioneers

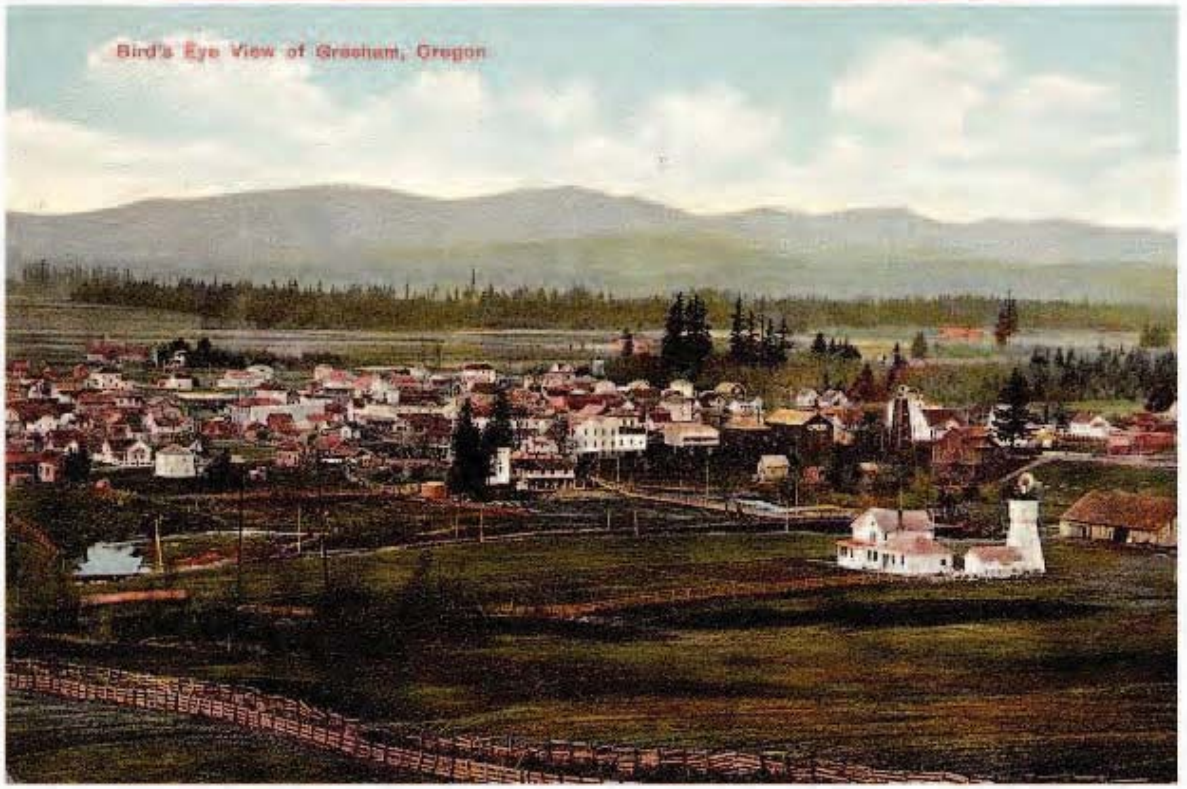
May 15th, 1884 a post office was established, in order to extablish a postal code to formally become a city. The post office was named after Walter Quinton Gresham, United States Postmaster General, and the city formerly known as "campground," was now known as Gresham

Gresham History

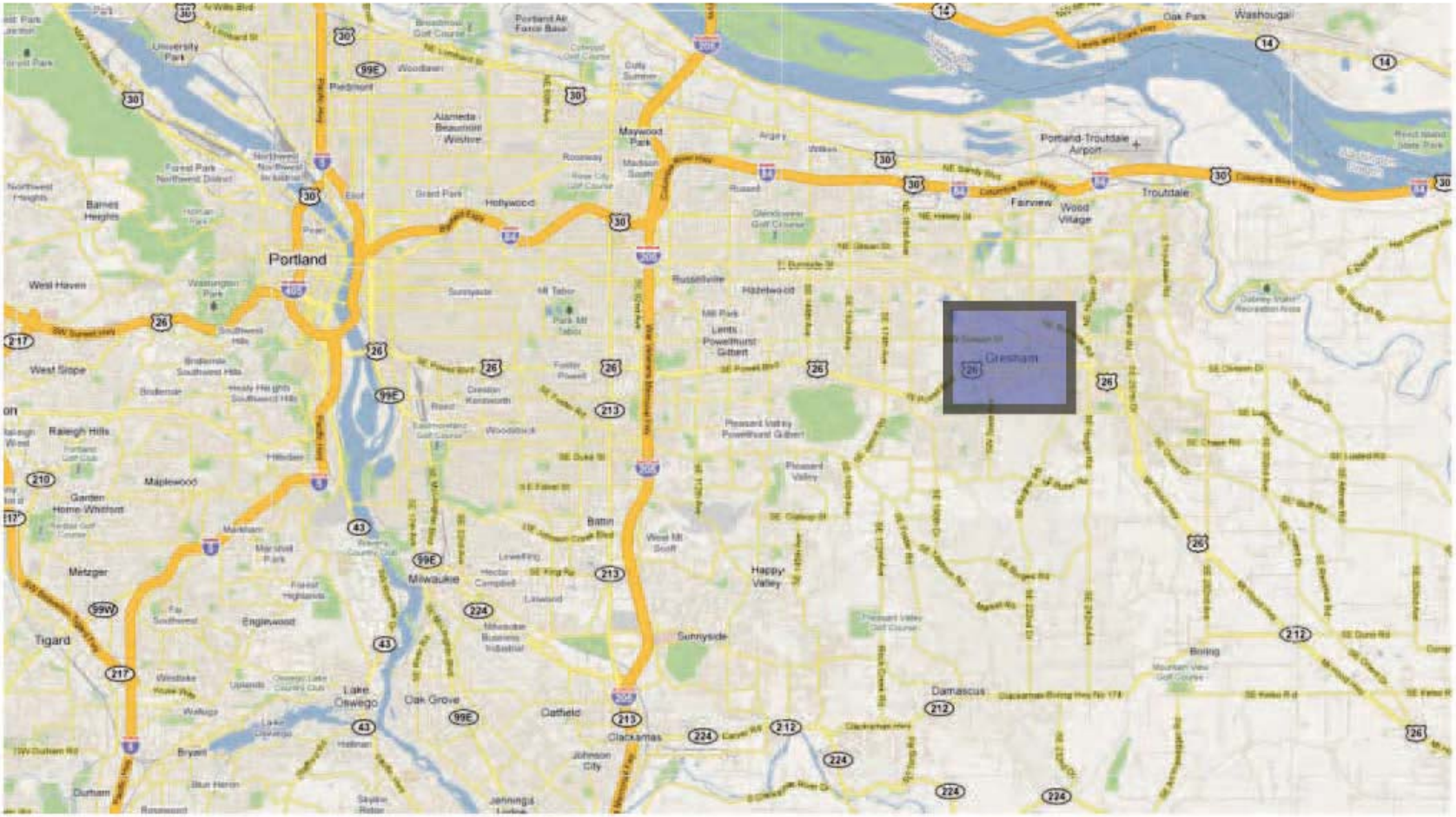
1905 - The Municipality of Gresham was incorporated
Lewis & Clark Exposition.
Gresham Population - 365.

Interurban streetcar service to Gresham
36-mile line was opened east from Sellwood and Mt. Scott to Gresham, Boring, Estacada and Cazadero. This helped bring people out to Gresham, increasing Gresham's population.

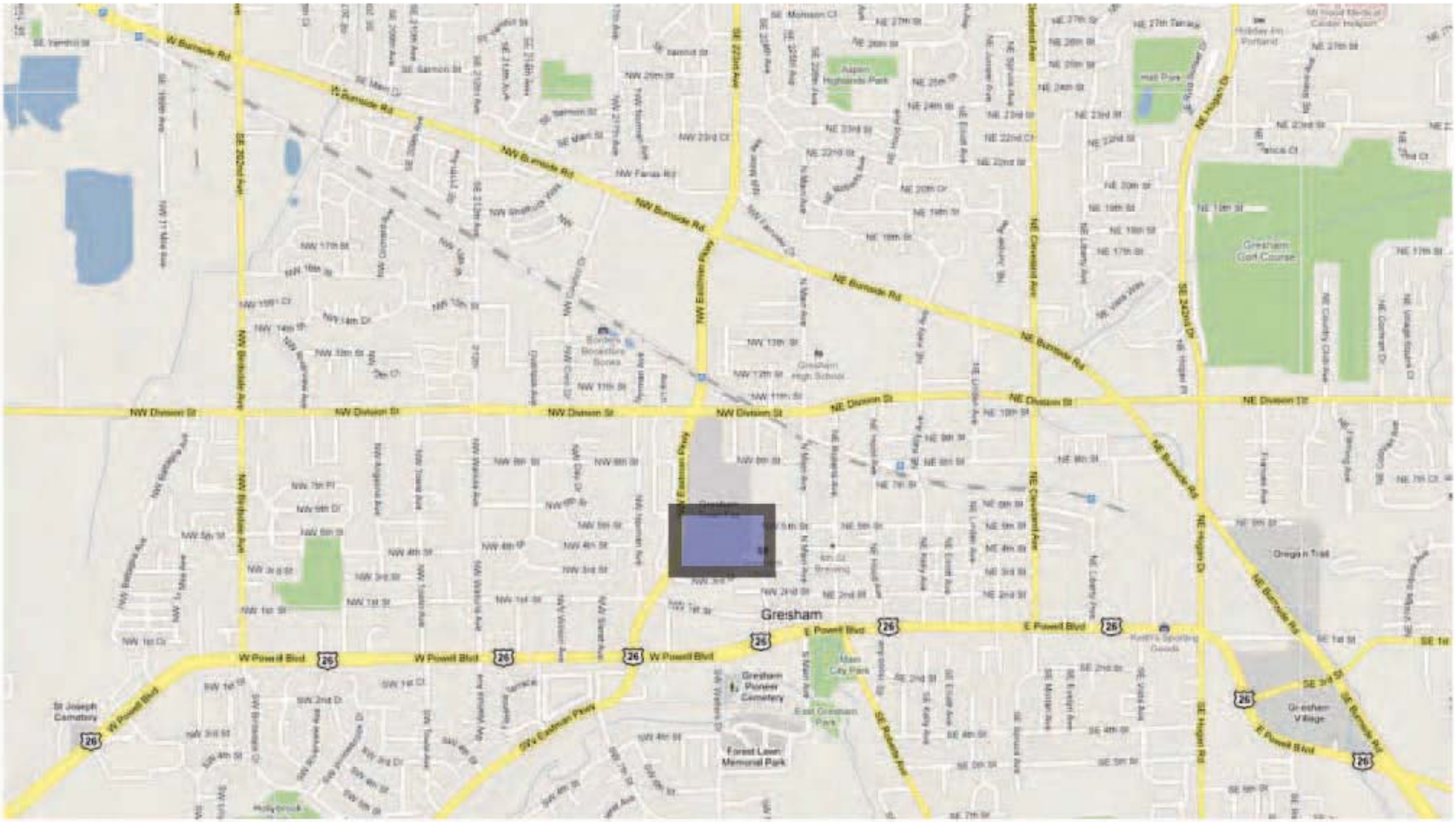
The once berry-growers town of the 1950s, with a population of 3,000, is now the 4th largest city in Oregon



Gresham, surrounding cities, and freeways



Site with surrounding roads



Entry points to the site

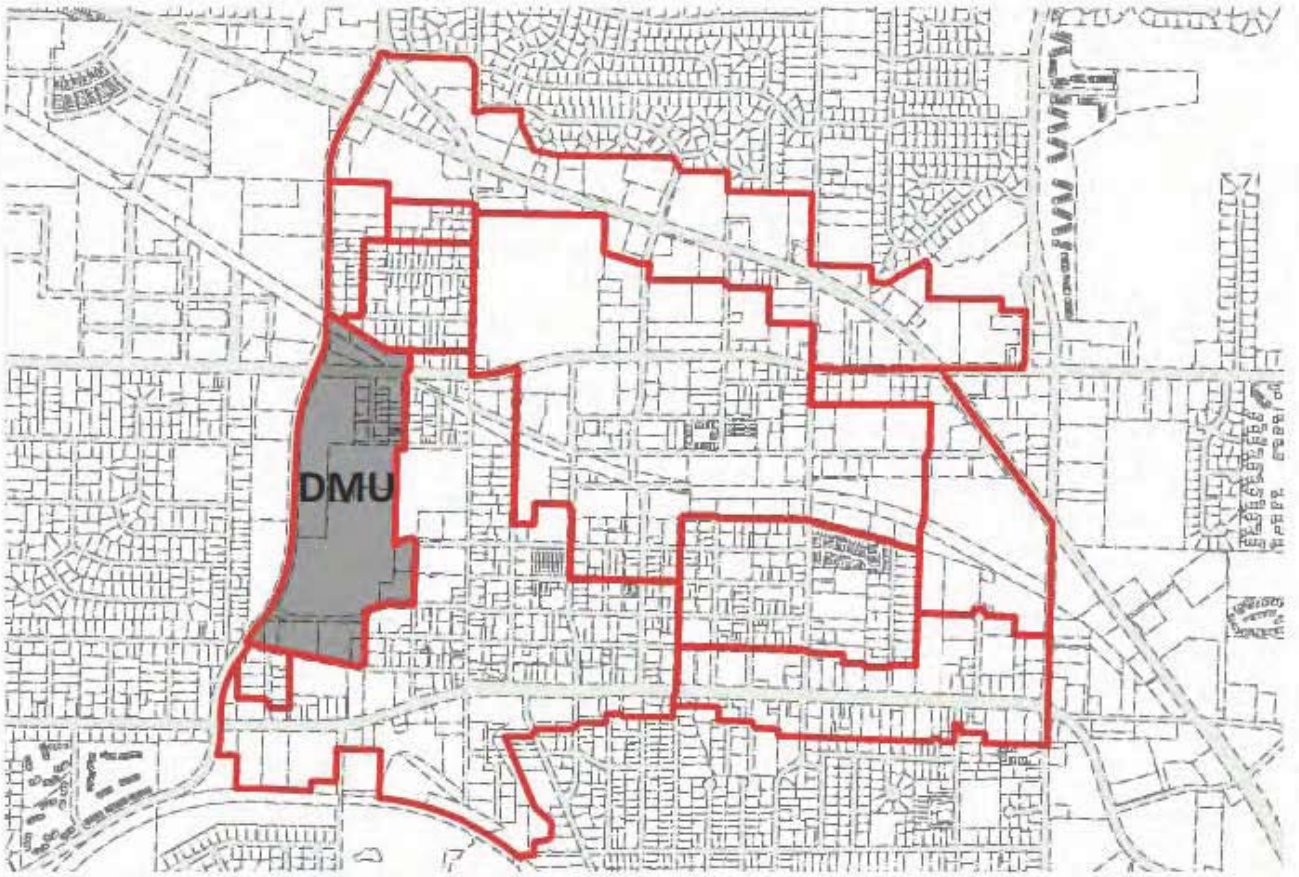
Downtown Mixed-Use

Encourage pedestrian safety, access and connections

Create vibrant mixed-use spaces

Create appropriate transitions in height, bulk and scale between buildings and along edges

Gateways should promote visual connections to significant landmarks



Bioswales Being Utilized on Site

There is an attempt to create a large bioswale at the north end of the site. This is a feature that should be used throughout the site. This is great because with this much existing blacktop, the runoff will then have some chance for filtration.

Nearby Uses Around the Site

Apartment complex across NE Eastman Parkway
Gresham Foursquare Church
St. Henry Catholic Church
JoAnn Fabric and Crafts
Ross Dress 4 Less
Many restaurants and bars SE of site in the downtown area
Medical facilities
Gresham Station shopping center

Looking At Existing Site from Outer Edge

N

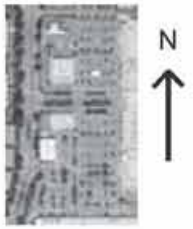
Looking South onto Site

Looking East onto Site

Looking North onto Site

Looking West onto Site

Looking out from Existing Site from Exterior Edge



Looking North from Site

Looking West from Site

Looking South from Site

Looking East from Site

How the Development May Impact Surrounding Areas

Negatives

- Increase in traffic

Positives

- Community pride
- City rejuvenation
- Less strip malls and more local business
- Overall city beautification
- City growth and prosperity

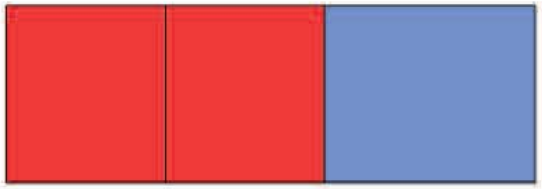
Design Considerations for Building

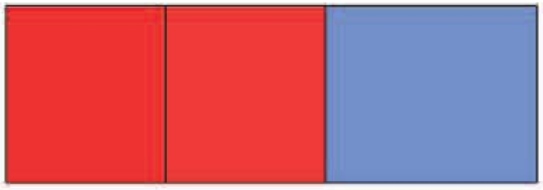
- Simplicity of floor plan and layout
- Natural light in as many spaces as possible
- Communal “common” area for all departments
- Low building height to increase natural light and passive ventilation
- Large floor area to accommodate growth & change
- Important departmental adjacencies

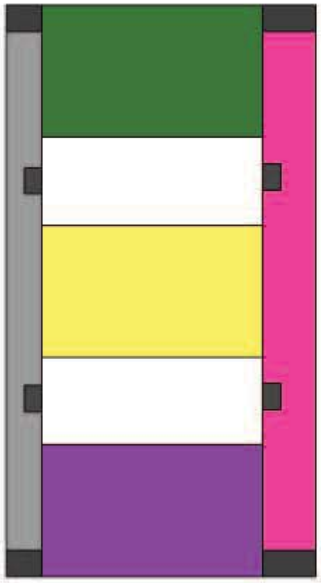
Preliminary Room Area Chart

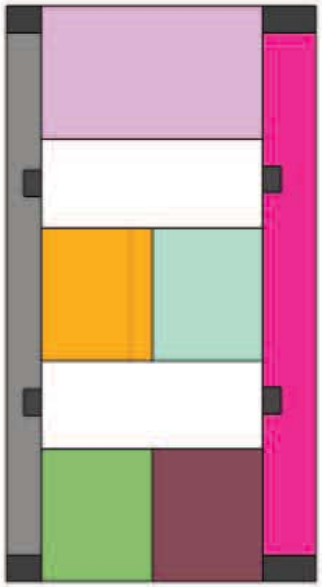
No. Room	(SF x 1.15 for Storage/Circulation)	Total NSF
1 Financial Mgmt	12650 x 1.15 =	~15,000
2 City's Attorney	3000 x 1.15 =	~3,500
3 Police Department	22000 x 1.15 =	~25,000
4 Environmental Services	3000 x 1.15 =	~3,500
5 Fire Admin	3000 x 1.15 =	~3,500
6 Fire Department	18000 x 1.15 =	~20,700
7 Econ Dev	1000 x 1.15 =	~1,150
8 IT	5000 x 1.15 =	~6,000
9 Urban Renewal	1200 x 1.15 =	~1,380
10 Comm Dev	12000 x 1.15 =	~14,000

Building Floor Plans







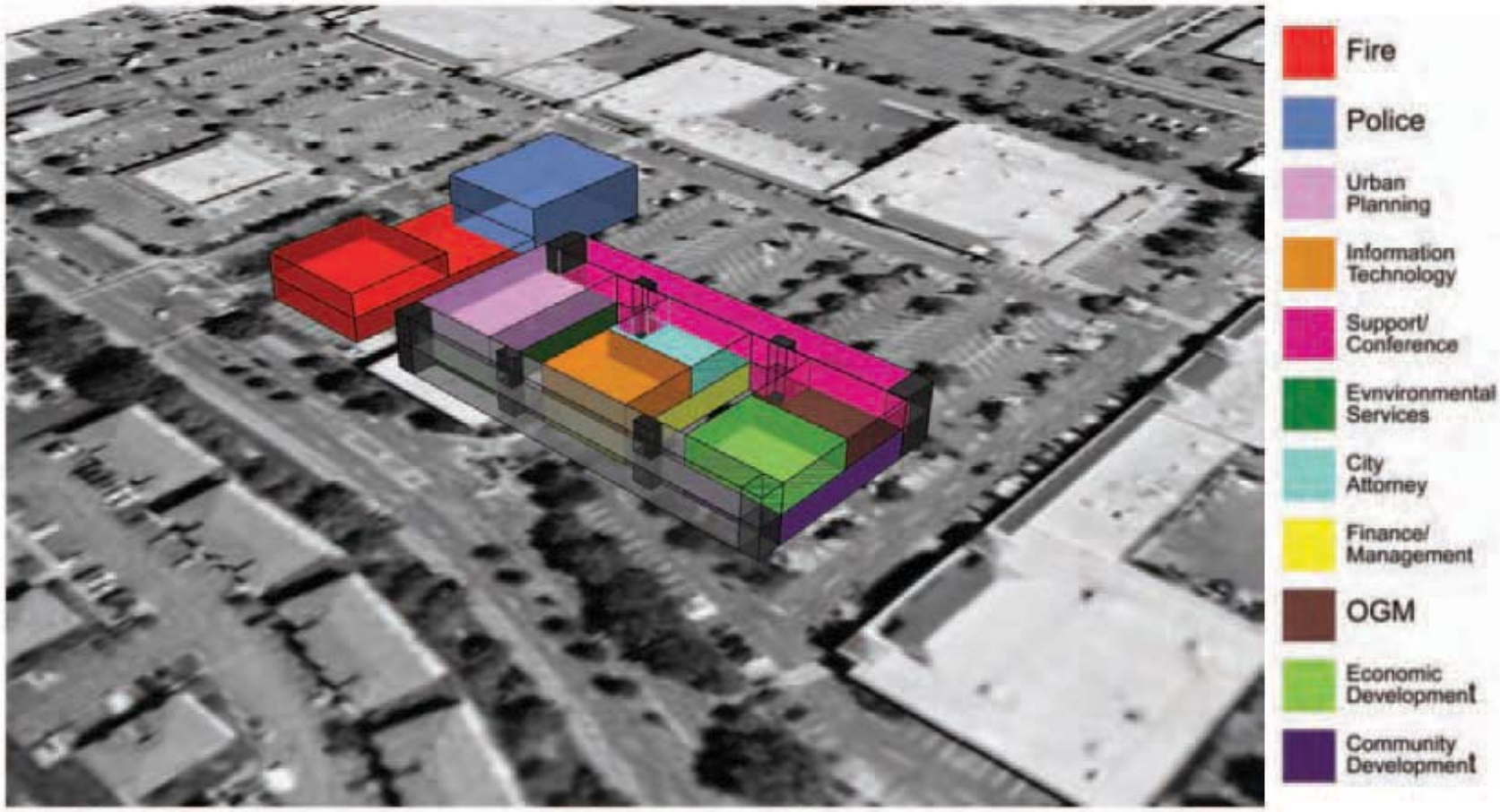


Floor 1

Floor 2

- Fire
- Police
- Urban Planning
- Information Technology
- Support/ Conference
- Evnvironmental Services
- City Attorney
- Finance/ Management
- OGM
- Economic Development
- Community Development

Aerial Site Plan



Max Line Adjacency to Building

The closest MAX Line stop is about 0.35 miles away from the new City Hall site.

Close proximity allows for alternate modes of transportation; like biking or walking.

Since NW Eastman Parkway is a main thoroughfare, there is possibility of a streetcar line being placed along this route.

This extension of a streetcar line would connect to Gresham's historical roots; linking Gresham to Portland.

Bus Circulation to Building

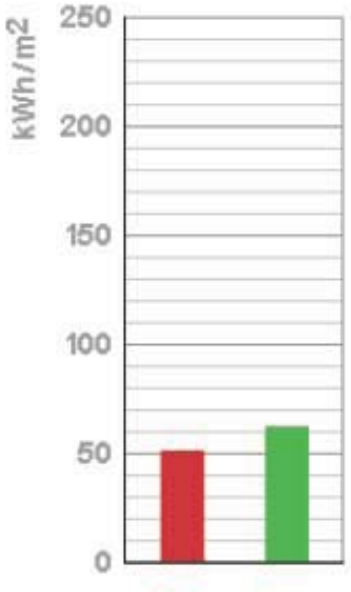
Bike and Pedestrian Circulation to the Building

MIT Design Advisor

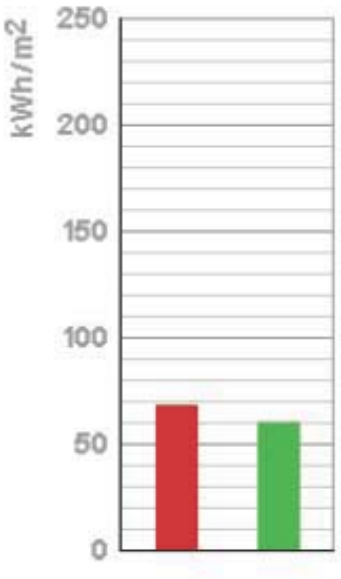
Heating Energy
Lighting Energy

Building
Location OR - Portland
Building length, side A 53 m
Building length, side B 99 m
Simulation Type
Simulation Type four_sided_mixed

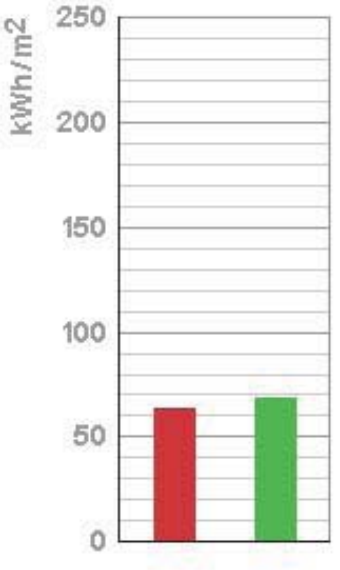
Occupancy
Type Office Building
Occupancy Load 0.25 people per m2
Lighting Requirements 500 lux
Equipment Load 5.00 W/m2



Scenario 1 *Representative Room*
Orientation south
Thermal Mass
Thermal Mass low
Overhang
Overhang Depth 1 m
Roof
Roof Type green roof
Insulation R-Value: 10 m2-K/W
Insulation Location: bottom



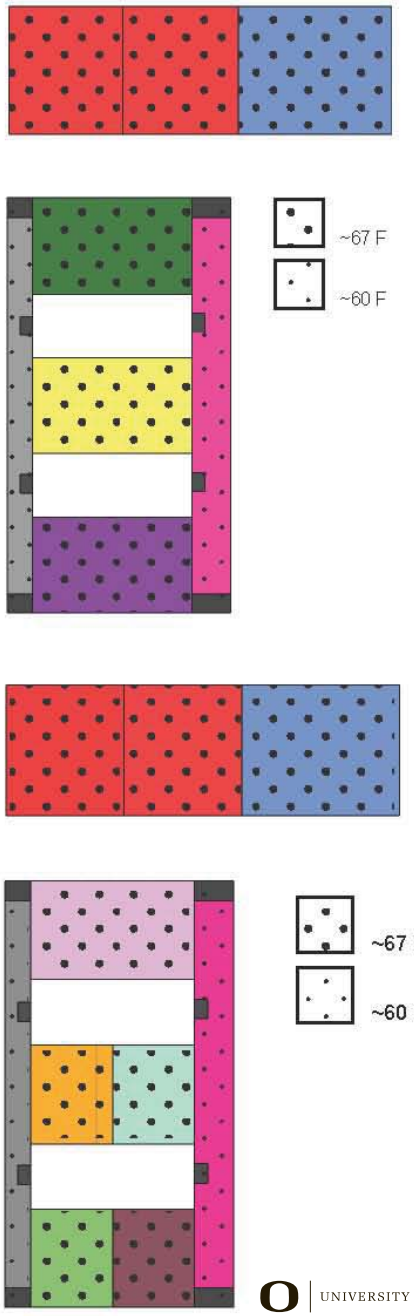
Scenario 2 *Representative Room*
Orientation west
Thermal Mass
Thermal Mass low
Overhang
Overhang Depth 2 m
Roof
Roof Type cool roof
Insulation R-Value: 2 m2-K/W
Insulation Location: bottom



Scenario 3 *Representative Room*
Orientation west
Thermal Mass
Thermal Mass high
Overhang
Overhang Depth 2 m
Roof
Roof Type green roof
Insulation R-Value: 20 m2-K/W
Insulation Location: bottom

Departmental Environmental Needs

a. 2-story building design prevents light blockage for future neighbors
b. Every department has 2 facades completely exposed to natural light
c. 2 interior courtyards allow natural light, ventilation, and common manipulative space
d. Every department has 2 access points to horizontal/vertical circulation
e. 22' floor-to-ceiling height (excluding utilities) ensures a breathable, airy environment
f. Every department space will average about 67 degrees
g. Every circulation space will average about 60 degrees.



2030 Challenge

The current Gresham City Hall does not meet the 2030 Challenge. They need an additional 10% of savings to meet the 2010 requirement, then need to bump up the savings by 1% per year to stay on track. The new building should strive to reach at least 2020 or 2025 requirements, requiring 20% to 25% more in energy savings over the current building.

Target Energy Performance Results (estimated)

Energy	Design	Target	Average Building
Energy Performance Rating (1-100)	50	60	50
Energy Reduction (%)	1	10	0
Source Energy Use Intensity (kBtu/Sq. Ft./yr)	241	217	242
Site Energy Use Intensity (kBtu/Sq. Ft./yr)	72	65	72
Total Annual Source Energy (kBtu)	21,666,546	19,499,131	21,778,220
Total Annual Site Energy (kBtu)	6,486,990	5,838,063	6,520,425
Total Annual Energy Cost ($)	$ 133,086	$ 119,773	$ 133,772
Pollution Emissions			
CO2-eq Emissions (metric tons/year)	782	704	786
CO2-eq Emissions Reduction (%)	1%	10%	0%

Facility Information Edit

Gresham City Hall
Gresham, OR 97030
United States

Facility Characteristics Edit

Space Type	Gross Floor Area (Sq. Ft.)
Office	90,000
Total Gross Floor Area	90,000

Estimated Design Energy Edit

Energy Source	Units	Estimated Total Annual Energy Use	Energy Rate ($/Unit)
Electricity - Grid Purchase	kWh	1,901,228	$ 0.070/kWh

Source: Data adapted from DOE-EIA. See EPA Technical Description.

* The Average Building is equivalent to an EPA Energy Performance Rating of 50.

Group B4

Division & 10th

Megan Coyle
Arron Frease
Tim Harkin
Brianne Johnson
Craig Riegelnegg

"Gresham city hall will have a strong civic identity and responsibly drive future development within the city."

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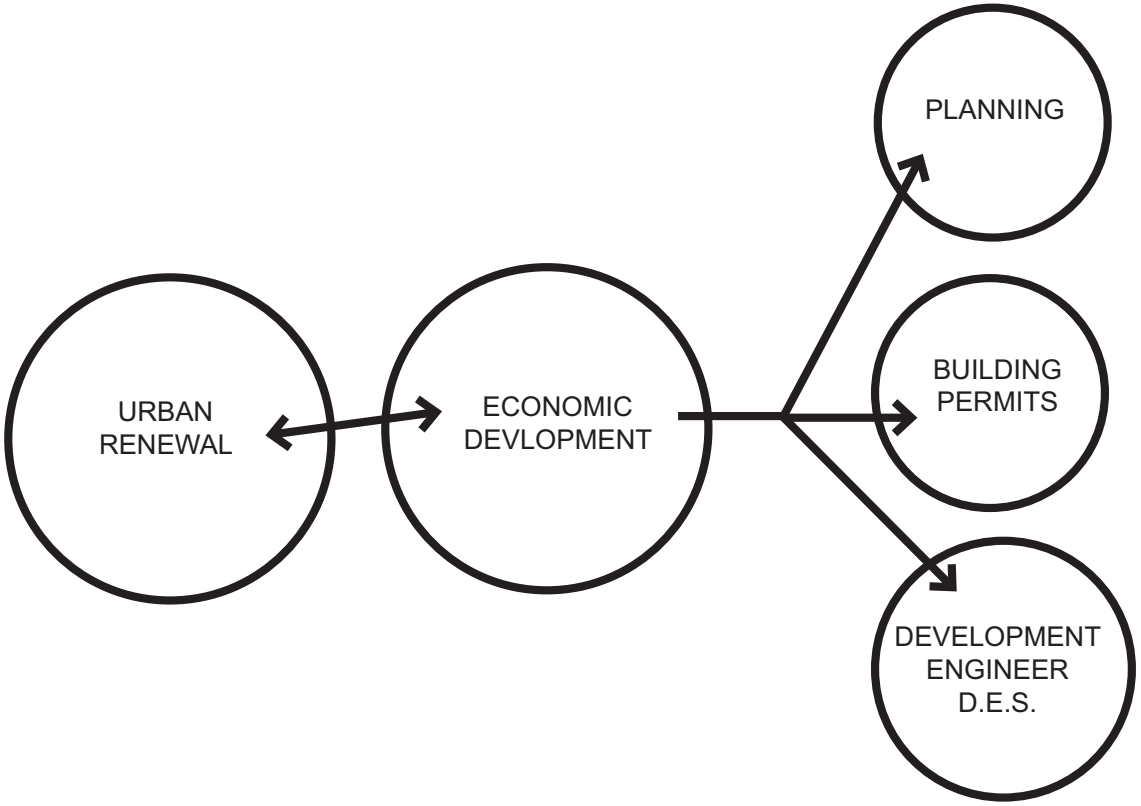
B4

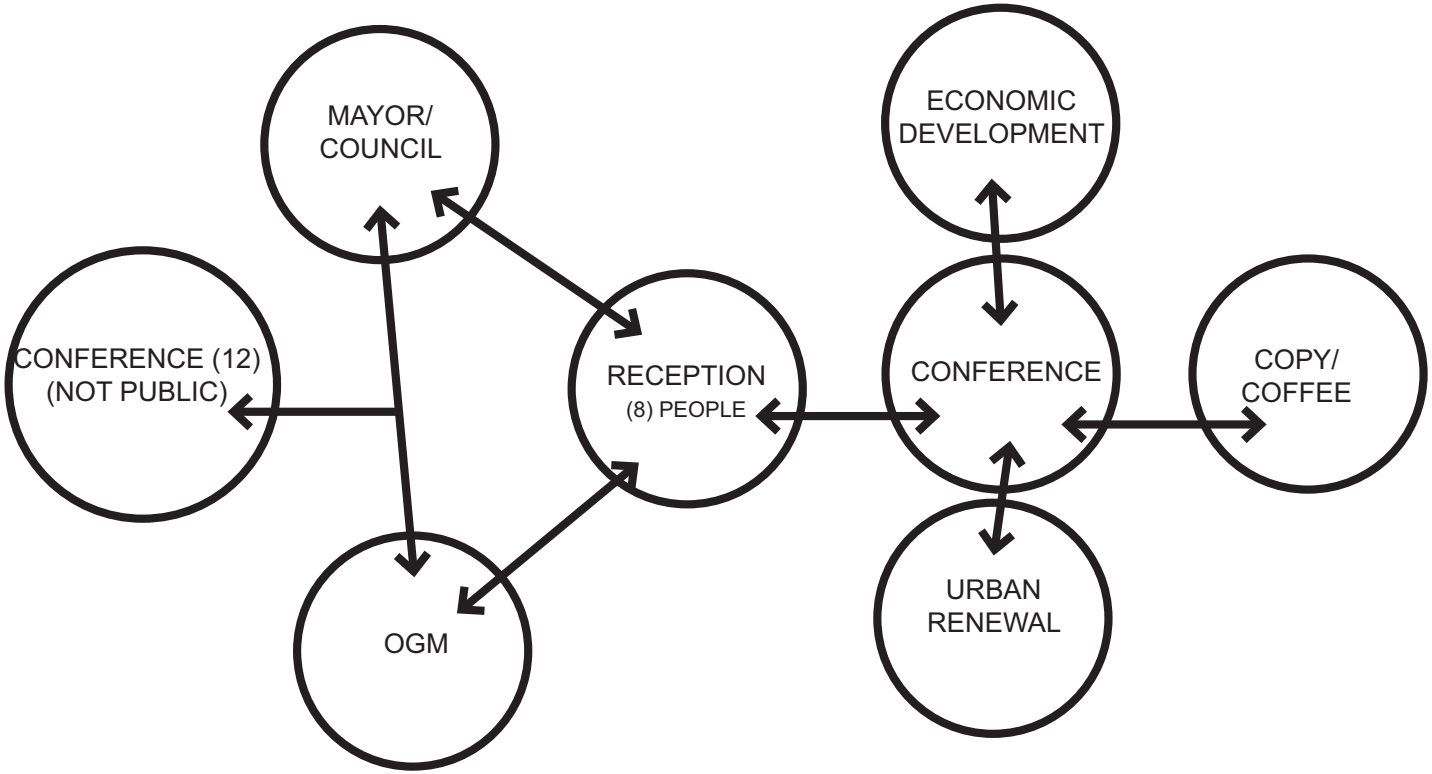
Economic Development

Values	Goals	Facts	Needs	Ideas
Human				
	Interation with other departments	-Work closely with other departments	-Adjacency to other departments and common areas in which to meet	-Share space with Urban Renewal
	Comfort in the work environment	-They do not have control over their work environment	-Comfortable environment in order to get more work done	-HVAC controls in each office
Technological				
	Work more efficiently using technology	-Use technology on a daily basis	-Plug power control	-Place plugs near workspaces with easy accessibility
Safety				
	Protect confidential information	-No designated, secure storage -No designated, secure conference room	-Access to secure storage fairly frequently -Separate, confidential conference room in order to handle private information	-Lock on storage area -Keep out of public realm -Provide separate, secure conference room
Temporal				
	Efficiency in managing spaces	-Conference rooms are double booked regularly as there is no central booking	-Central system for consistency throughout city hall to manage booking	-Online system to sign out conference rooms

Economic Development



Economic Development



GRESHAM CITY DEPARTMENT OF ECONOMIC DEVELOPMENT PLAN AREAS- CURRENT FUTURE

	EXISTING	FUTURE	ROOM DIMS	TYP. AREA	TOTAL CURRENT	TOTAL FUTURE	NOTES
	no. of rooms	no. of rooms	feet	SF	SF	SF	
Office	1	1	10' x 12'	130	130	125	
Conference Room	0	1	16' x 11'	160	160*	180	*shared space (UR)
Staff Cubicles	1	1	22' x 21'	462	462	462	4 occupants
Copy/Coffee Room	0	1	5' x 10'	50	0	50	
Reception	1	1		120*	120*	135*	*shared space (UR)
Total				922	872	1,052	

Fire Department

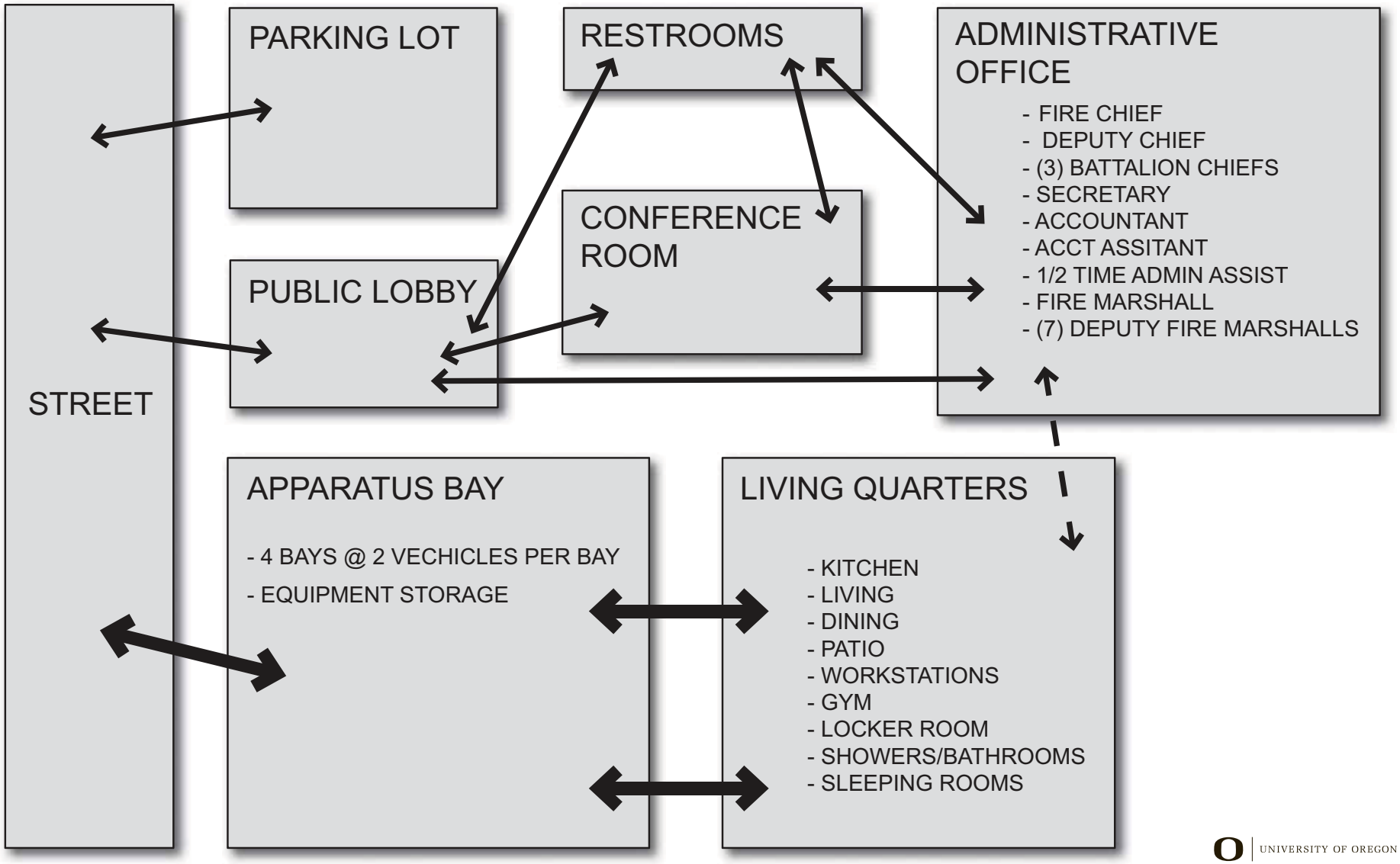
Values	Goals	Facts	Needs	Ideas
Human				
	Efficient layout of built space	- Existing triangular layout produces inefficient space & dissatisfaction among occupants - Public/Private not well defined	- Maximize usable space through planning - Plan which clearly delineates public/ admin/ apparatus bays/ living quarters	- Primarily rectilinear plan - Create dedicated community conference room accessible to the public
	Provide gender specific facilities	- Currently minimal space dedicated to female firefighters	- Dedicated locker room/bathrooms - Facilities of comparable quality for both genders	- Construct 2 sets of gender specific locker room/ bathroom facilities
	Secure separation of public/administrative space	- Current facility shares lobby with police station - Lobby not currently secure - Confusing building organization	- Clear organization and way finding - Dedicated facilities	- Transparent division directly between lobby & public - Group like functions together w/ circulation around them
Technological				
	Clear & unified organization of space and equipment	- Currently firefighter equipment is distributed haphazardly	- Consolidated space allowing for all special requirements - Smaller storage divisions for specific uses	- Open section in apparatus bay with subdivided storage cabinets and ventilation - Archive for paperwork - Proper ventilation
Temporal				
	Provide for increased capacity	- Storms + weather emergencies, shift changes require more personnel on site - Economic improvements will increase staff	- Spare generator to account for electrical/data - Expandable space - More showers	- Have certain spaces be adaptable during times of crisis - Provide more showers per bathroom
	Improve emergency response time	- Emergency response requires 5-minute response time - Current facility too far from right of way	- Fast route to apparatus bays from living quarters - Close proximity to main driving route	- Place building on site adjacent to main arterial - Avoid placing building next to light rail stop - Overdesign for systems

Fire Department

Economic				
	Durability of Facilities	- Firefighting lifestyle produces heavy wear on a building - Residential grade equipment is insufficient - Tennis balls on chairs/boot scuffs on floors	- Low maintenance materials that last as long as possible under heavy use conditions	- Concrete flooring - Commercial grade appliances & finishes
Aesthetic				
	Create presence/identity of building public	- Fire department wants a recognizable presence without suggesting exorbitant spending - Building will be visible to the public	- Appearance that is agreeable to the public - Community space	- Historically evocative materials - Downplay expense of materials
	Home-like atmosphere	- Firefighters spend a 24-hr shift in the living quarters every 3 days	- Flexible lounge space - Cooking, laundry, sleeping quarters - Exterior gathering space	- Scale spaces to domestic-style use - Open plan within communal spaces - Natural light & ventilation

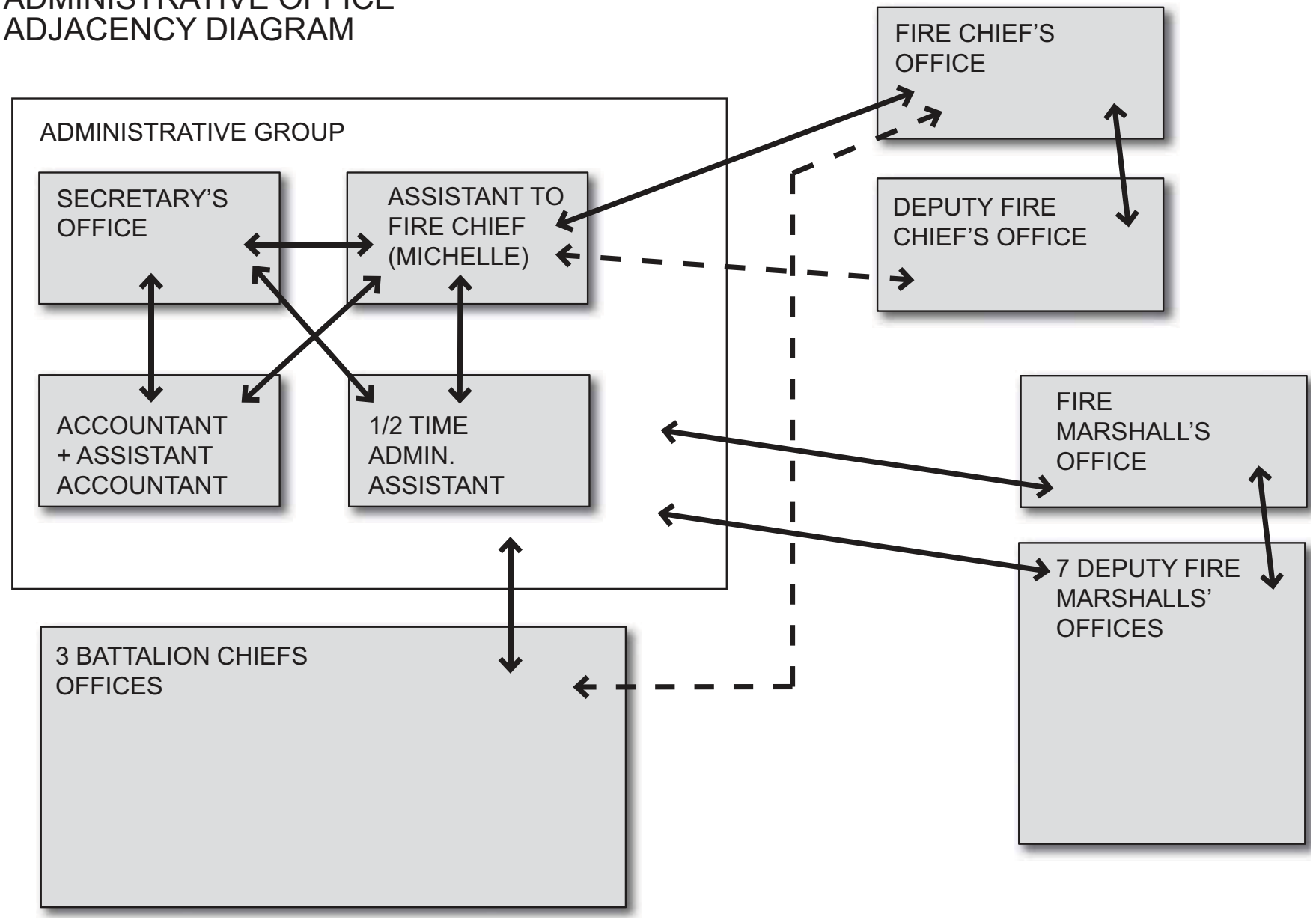
Fire Department

OVERALL ADJACENCY DIAGRAM



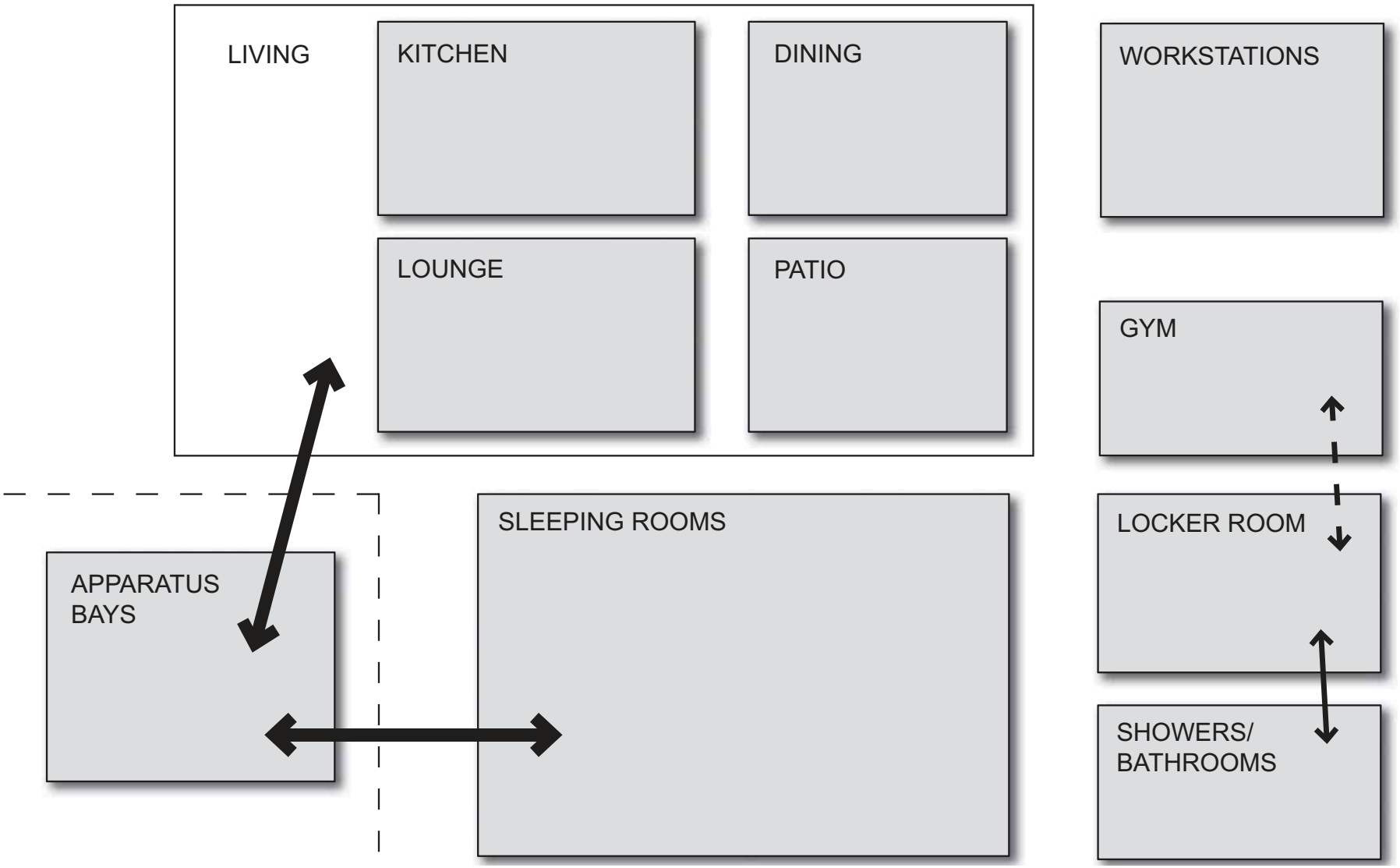
Fire Department

ADMINISTRATIVE OFFICE ADJACENCY DIAGRAM



Fire Department

LIVING QUARTERS
ADJACENCY DIAGRAM



GRESHAM CITY FIRE DEPARTMENT PLAN AREAS- CURRENT FUTURE

	EXISTING	FUTURE	ROOM DIMS	TYP. AREA	TOTAL CURRENT	TOTAL FUTURE	NOTES
	no. of rooms	no. of rooms	feet	SF	SF	SF	
Fire Reception Area	1	0	34'x 23'	782	782	0	
Public Lobby	0	1	25'x12'	300	0	300	
Admin. Offices	0	1	34'x 23'	782	0	782	
Admin. Reception & Work Area	1	0	25' x 20'	500	500	0	
Fire Chief's Office	1	1	17'x 12'	204	204	204	
Fire Chief's Assistant	0	1	15'x 10'	150	0	150	
Fire Marshal Office	1	1	15'x 10'	150	150	150	
Deputy Fire Chief Office	1	1	17'x 10'	170	170	170	
Battalion Chief Office	1	1	17'x 12'	204	204	400	
Deputy Fire Marshal Office	4	4	15'x 12'	180	720	720	
Storage	4	2	13'x 10'	130	520	520	Admin. & General
Break Room	1	1	19'x 10'	190	190	190	
Management Analyst Office	1	1	14 x 10'	140	140	140	
Conference Room	1	1	20'x20'	400	400	400	Flexible space, public use?
Service Area	3	3	20'x 10'	200	600	600	
Wash Room	1	1	10'x 10'	100	100	100	
Apparatus Bays (double width)	3	4	69'x 18'	1,242	3,726	4,968	
Exercise Room	1	1	18'x 13'	234	234	700	
Day Room/ Open Office Area	1	1	25'x 21'	525	525	525	
TV Area	1	1	25'x 20'	500	500	500	
Kitchen/ Eating Area	1	1	30'x 20'	600	600	800	Pantry space & comm. fridge
Office	1	0	12'x 10'	120	120	0	
Report/ Emergency Command Room	0	1	30'x 20'	600	0	600	Flexible space
Bedroom	8	10	11'x 9'	99	792	990	
Locker Room/ Showers	1	2	30'x 13'	390	390	780	
Bathroom	2	2	18'x 10'	180	360	360	
Subtotal					11,927	15,049	
Circulation 15% of total					1,789	2,257	
Total					13,716	17,306	

EXISTING BUILDING ANALYSIS:

-BUILDING NOT PROMINENTLY LOCATED, ENTRY HARD TO FIND

-WAYFINDING IS DIFFICULT THROUGHOUT THE BUILDING

-LONG, BLANK CORRIDORS ARE UNINSPIRING

-PUBLIC AND PRIVATE SPACE NOT CLEARLY DEFINED

-FLEET VEHICLES ARE TOO FAR AWAY

-NOT ALL SPACE IS USED EFFICIENTLY

-SKYLIGHTS ENHANCE STAIRWELLS

-NEAR MAX LINE

-PROXIMITY TO OTHER LOCAL GOVERNMENT FUNCTIONS

GOALS FOR CITY HALL:

-ACCESS TO NATURAL LIGHT

-ACCESS TO FRESH AIR

-AESTHETICALLY PLEASING COMMON SPACES

-ENCOURAGE CREATIVITY

-BETTER CONNECTION TO THE PUBLIC

-ACCESSIBILITY

-KEEP DEPARTMENTS TOGETHER

-SECURITY & SAFETY

-ENCOURAGE HEALTHY LIFESTYLE

DESIGN GOALS:

-LOCATE THE CITY HALL IN A PLACE OF PROMINANCE

-RESPOND TO SITE AND CLIMATIC CONDITIONS

-APPLY THE SAME DEVELOPMENT GOALS FOR DOWNTOWN GRESHAM TO THE CITY HALL

Civic Presence
Positive Work Environment
Physical Interaction Among People









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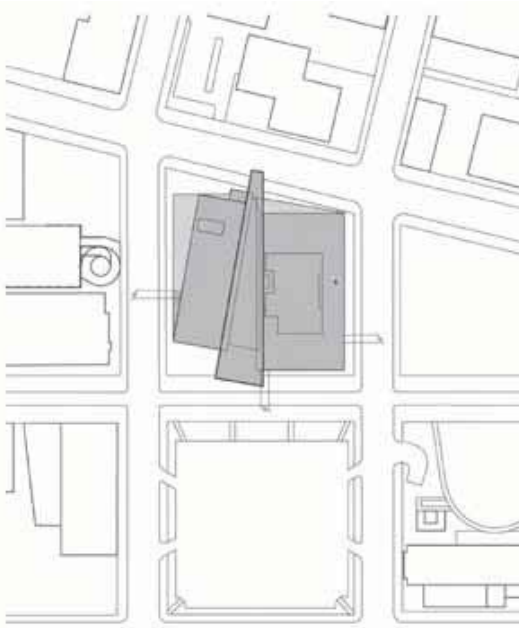
Buildings | Neighborhoods | Regions | Architecture | Planning | Landscape | Policy

BUILDING PRECEDENT:
Minneapolis Central Library
Pelli Clarke Pelli Architects



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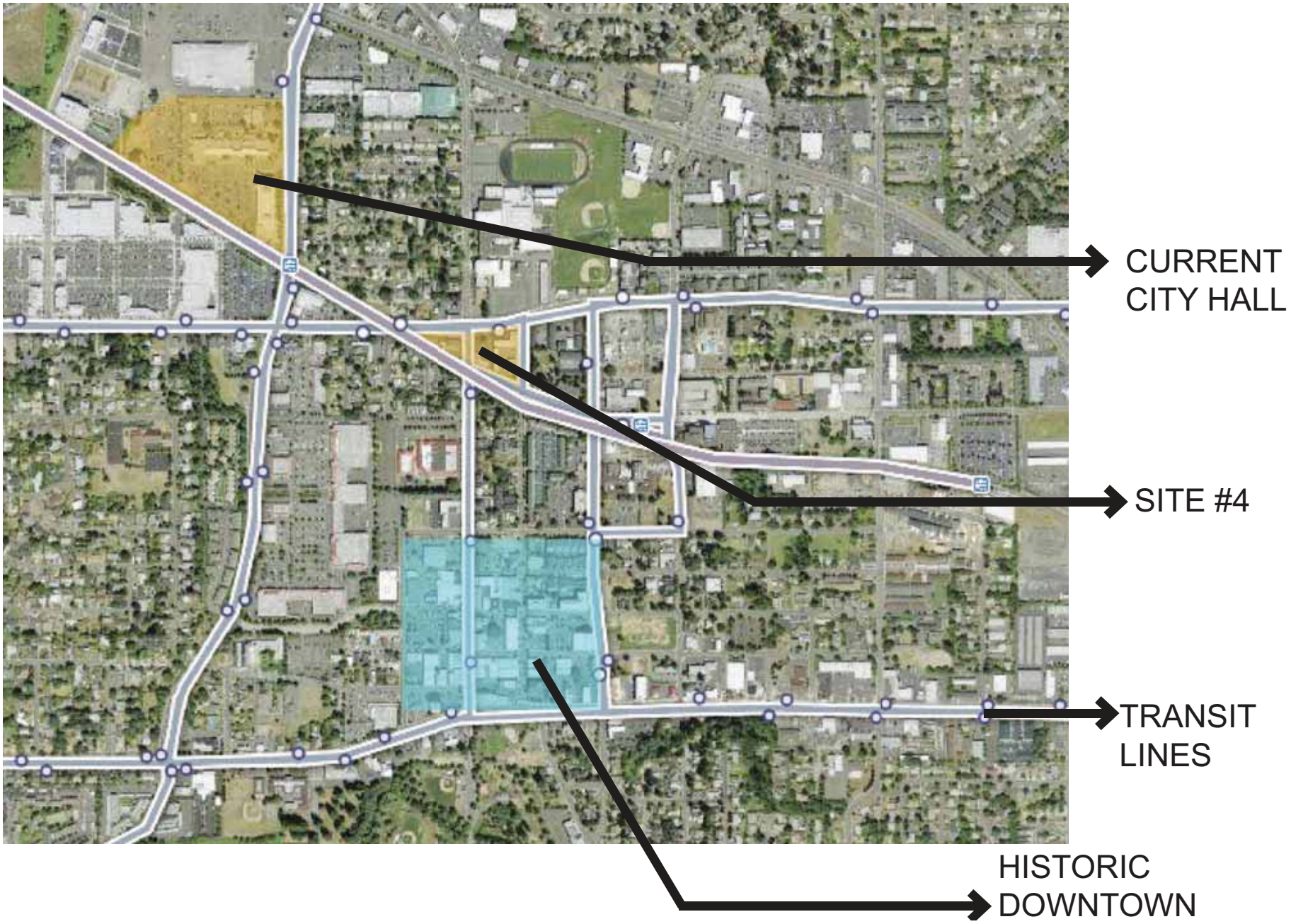
162
SCI
Sustainable Cities Initiative

Connection to Surroundings



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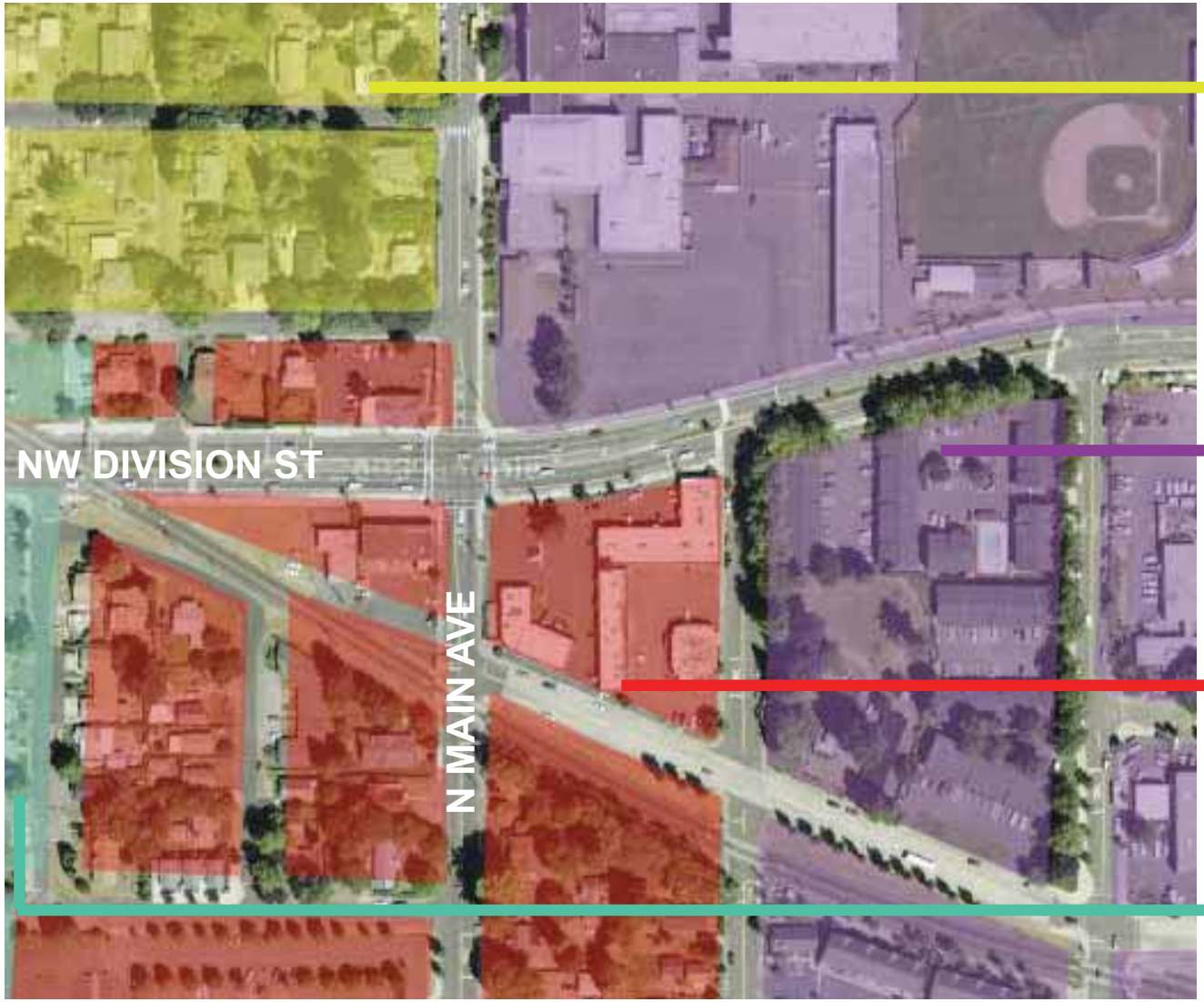
164 SCI
Sustainable Cities Initiative



ZONING ANALYSIS: SITE 4

DRL-1:
-single family homes/ duplexes
-distinct neighborhoods
-walkable

DTM:
-near transit
-commercial
-promote transit use

DCC:
-small scale
-walkable
-mix of old and new

DMU:
-mix of uses
-connection between pedestrians & vehicles

Site #4

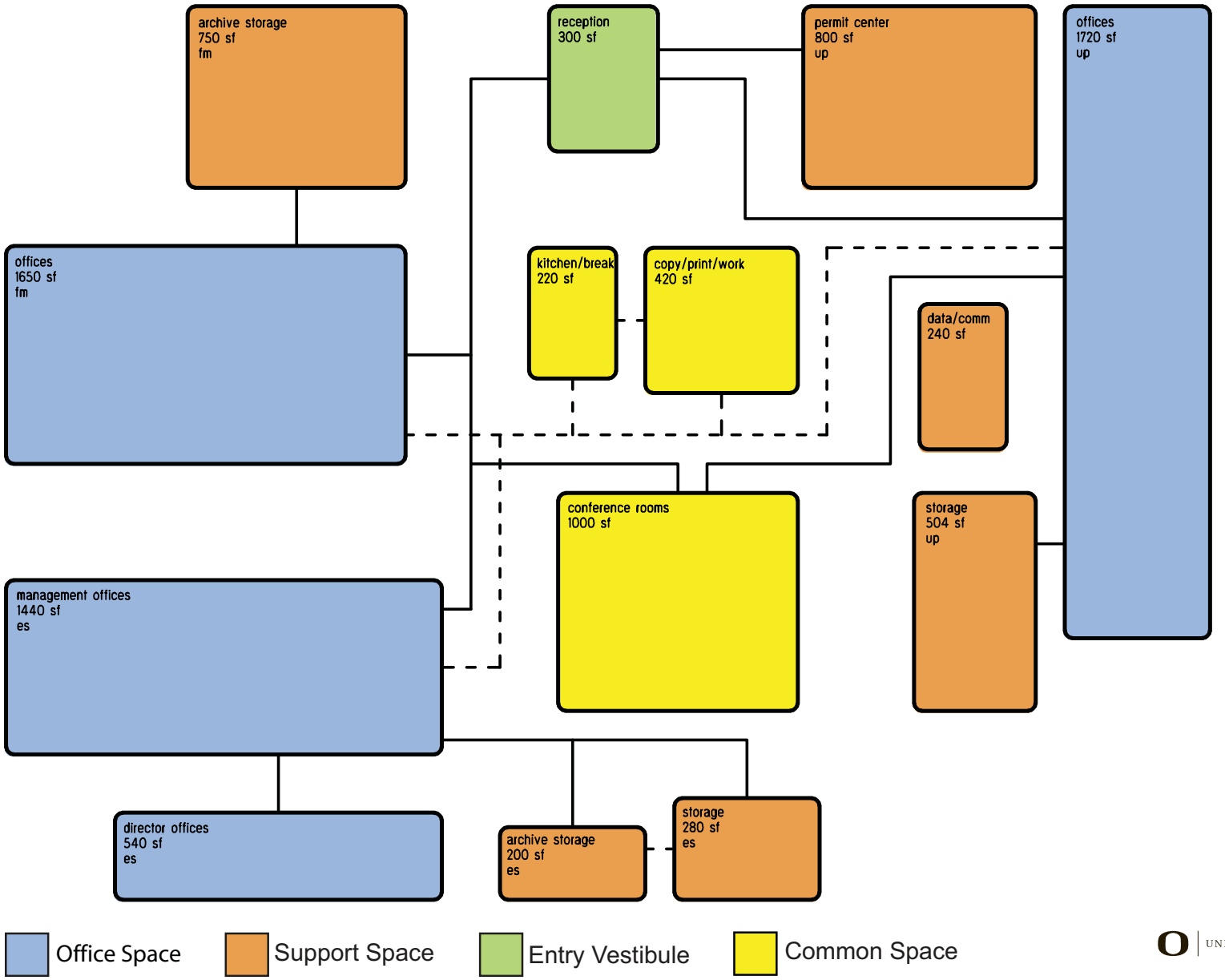
B4 166 SCI
Sustainable Cities Initiative

Site Context

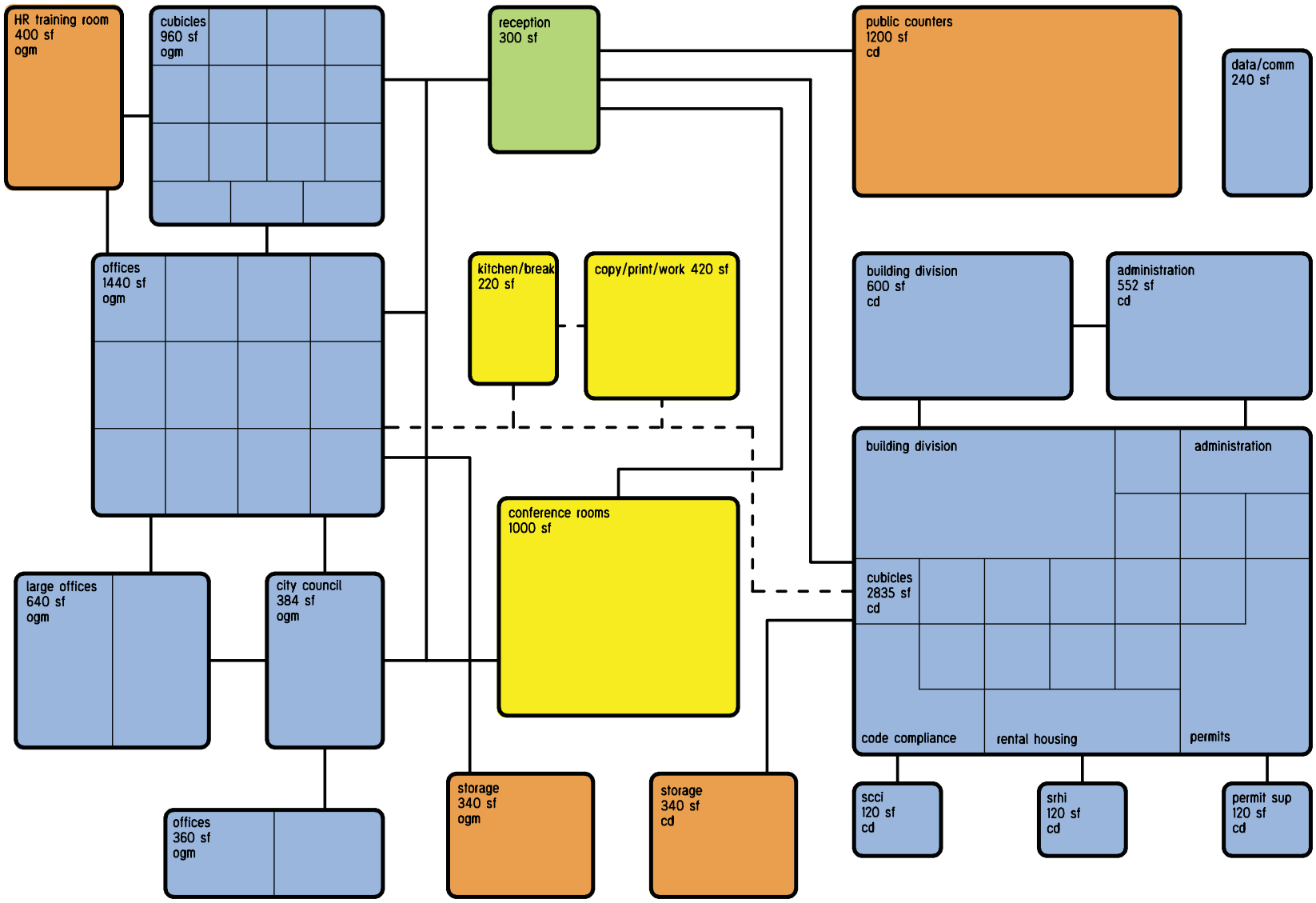
Site Context

B4 168 SCI
Sustainable Cities Initiative

FINANCE AND MANAGEMENT / URBAN PLANNING / ENVIRONMENTAL SERVICES
FIRST FLOOR



OFFICE OF GOVERNANCE AND MANAGEMENT / COMMUNITY DEVELOPMENT
SECOND FLOOR



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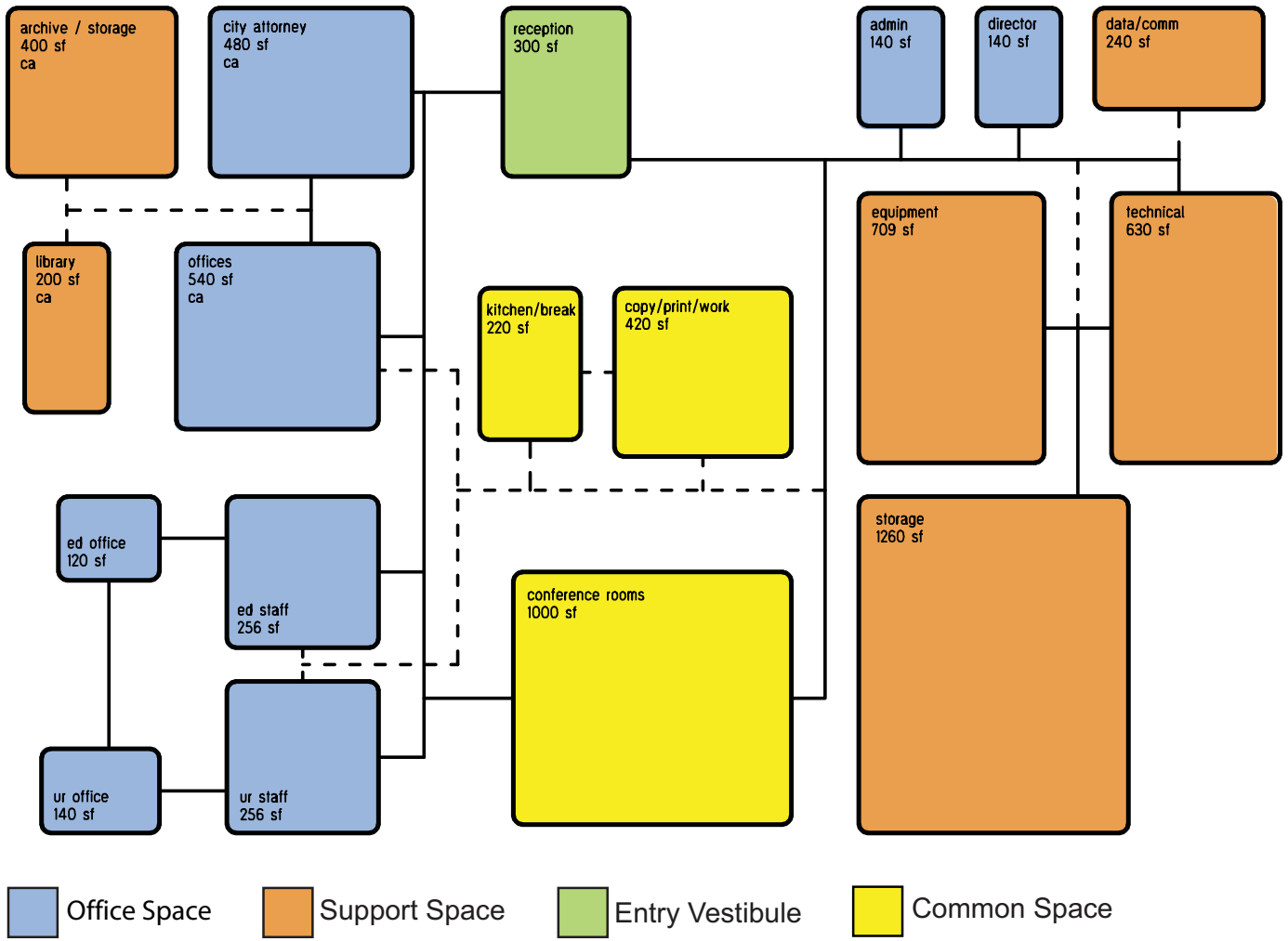
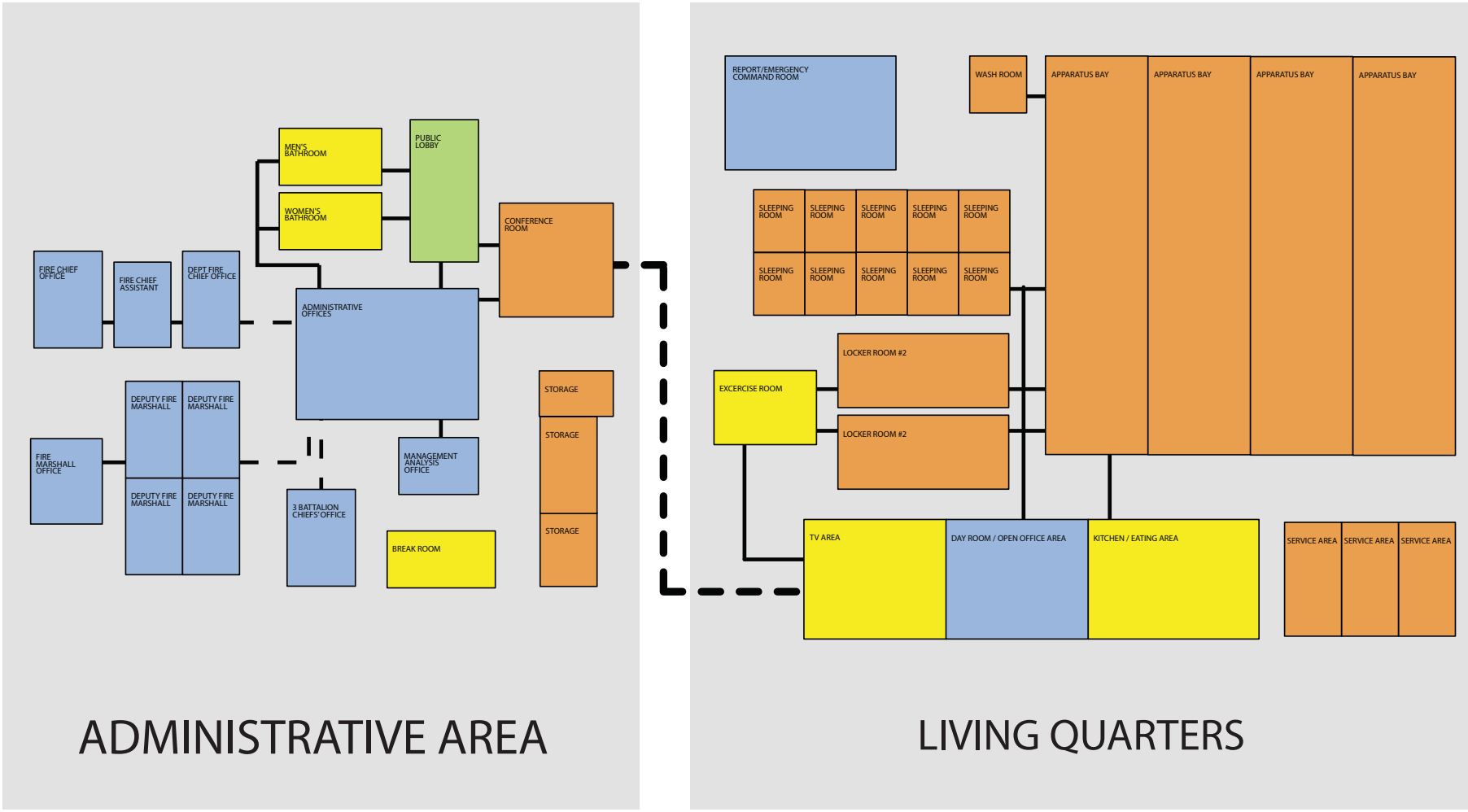
Office Space | Support Space | Entry Vestibule | Common Space

ECONOMIC DEVELOPMENT / URBAN RENEWAL / INFORMATION TECHNOLOGY / CITY ATTORNEY
THIRD FLOOR



FIRE DEPARTMENT



B4
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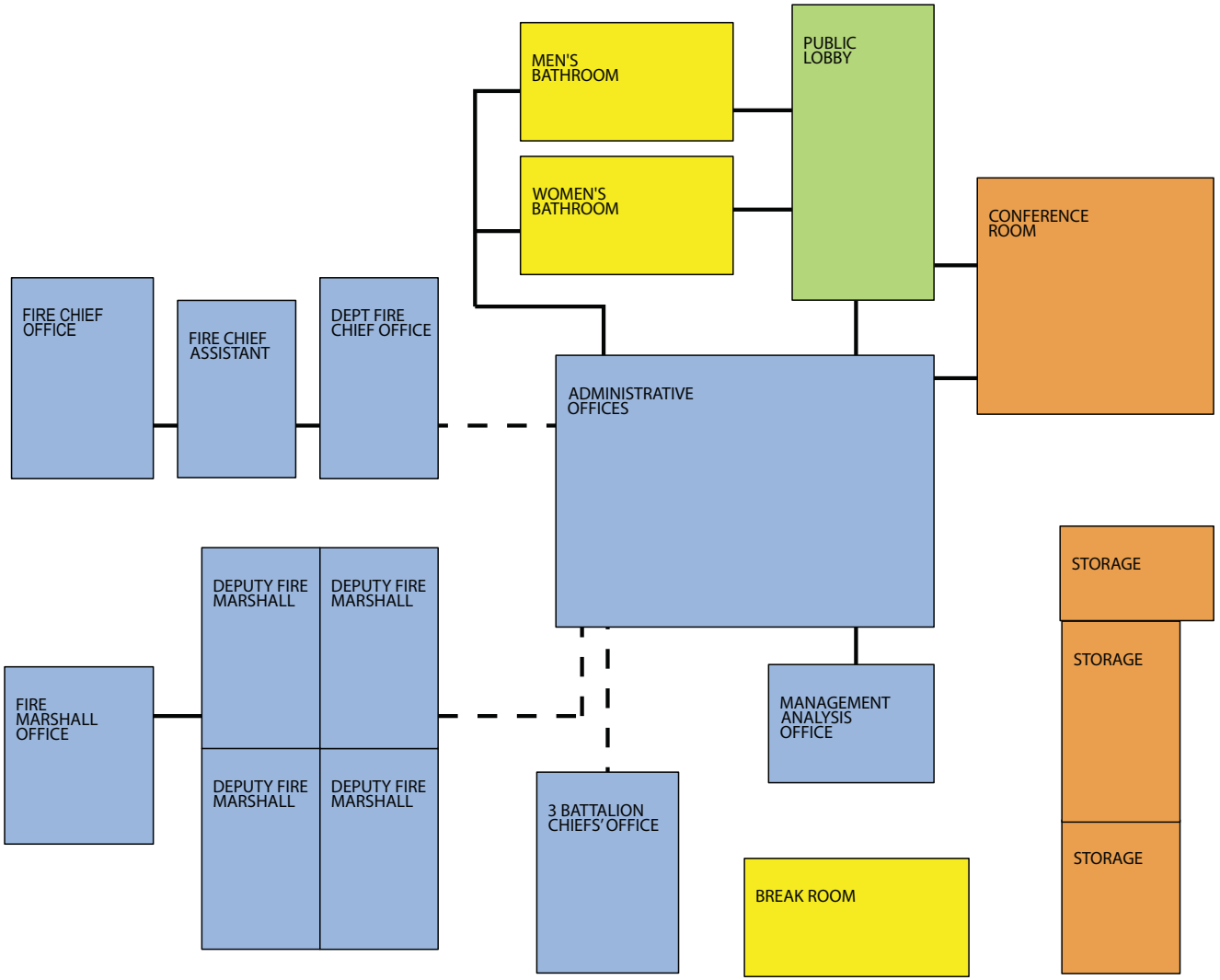
SCI
Sustainable Cities Initiative

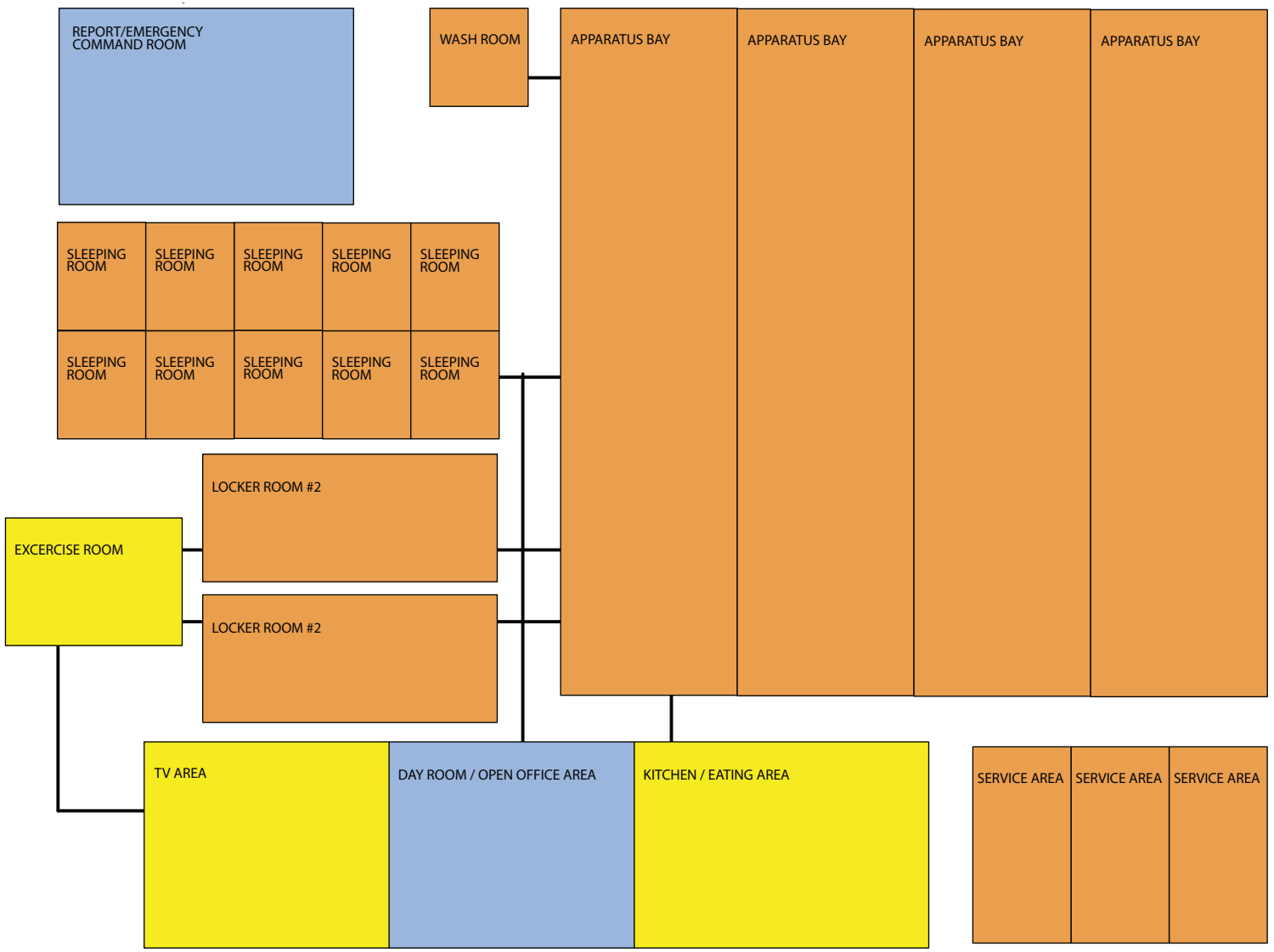
Office Space
Support Space
Entry Vestibule
Common Space

FIRE DEPARTMENT:
ADMINISTRATIVE AREA



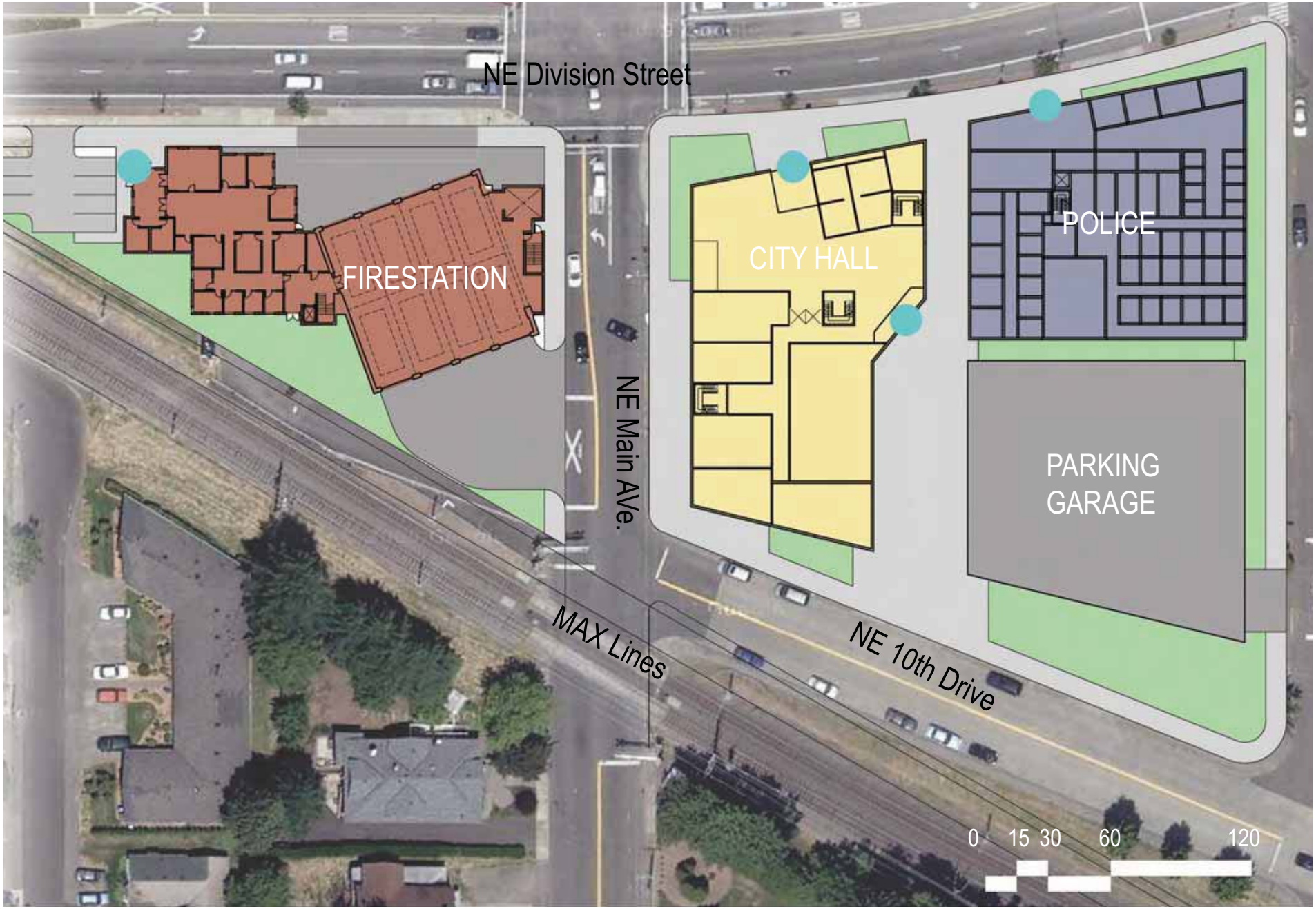
Office Space | Support Space | Entry Vestibule | Common Space

FIRE DEPARTMENT:
LIVING AREA



B4 174 SCI
Sustainable Cities Initiative

Office Space | Support Space | Entry Vestibule | Common Space



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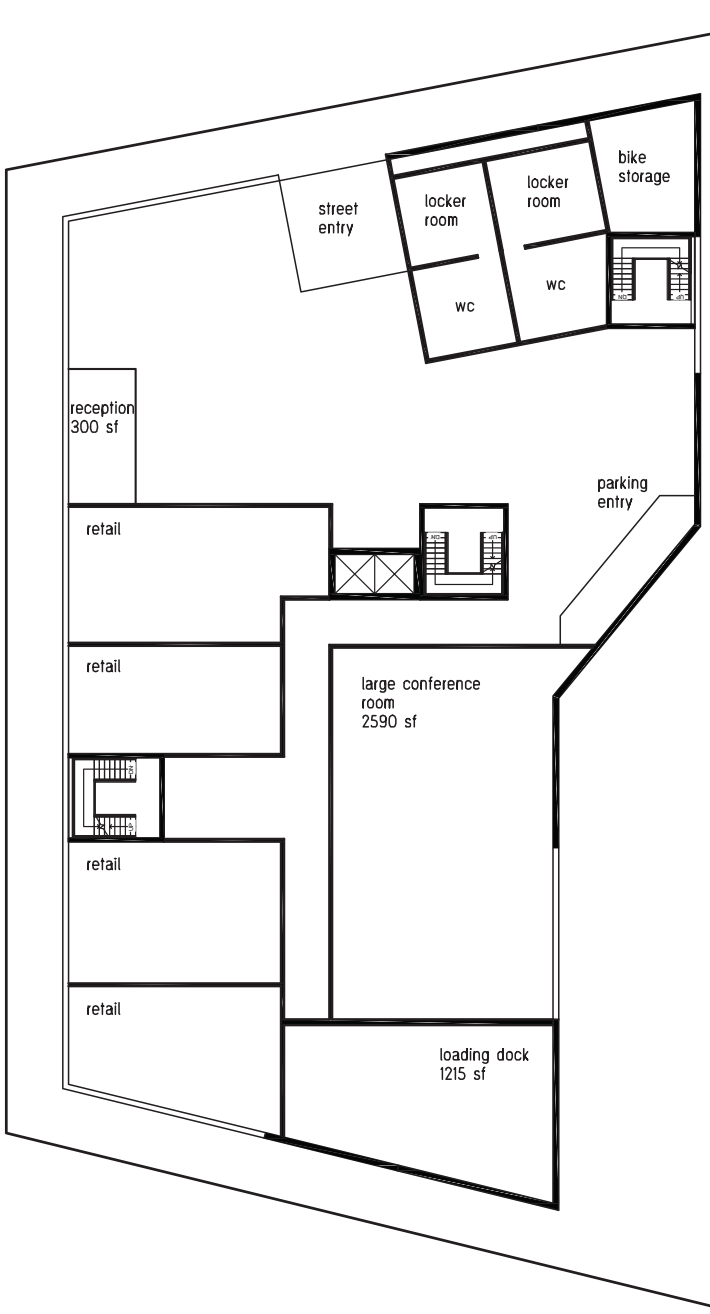
Buildings | Neighborhoods | Regions | Architecture | Planning | Landscape | Policy

police

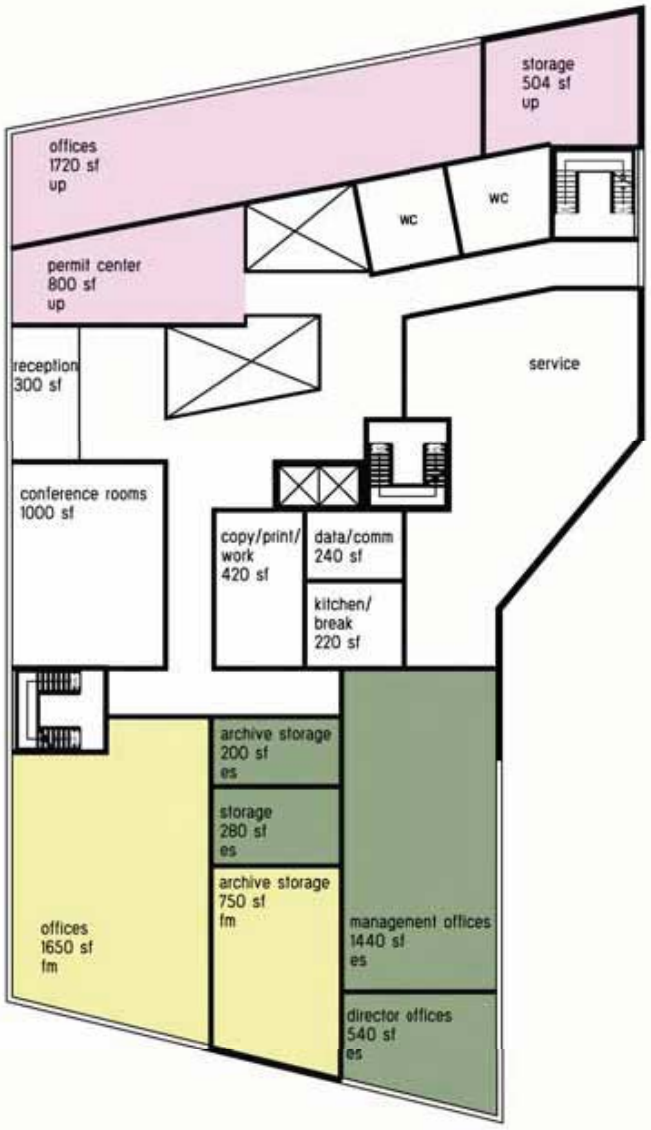
GROUND FLOOR PLAN



parking garage

SCALE: 1/32 in = 1 ft

SCI
Sustainable Cities Initiative



2ND FLOOR PLAN

Urban Planning

Finance and Management

Environmental Services

SCALE: 1/32 in = 1 ft

3RD FLOOR PLAN

Community Development

Office of Governance and Management

SCALE: 1/32 in = 1 ft

5 ft 25 ft

10 ft 50 ft

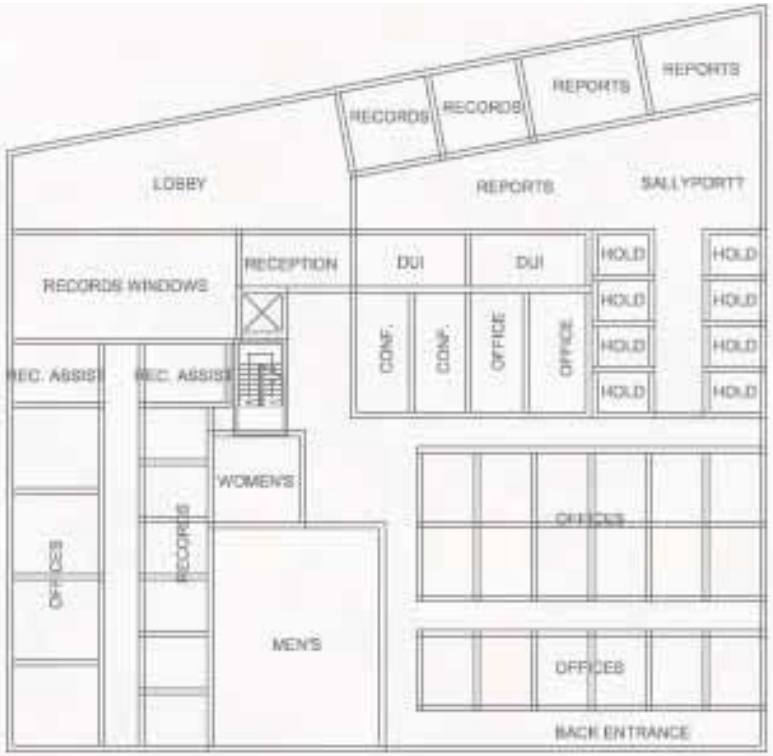
4TH FLOOR PLAN

Information Technology

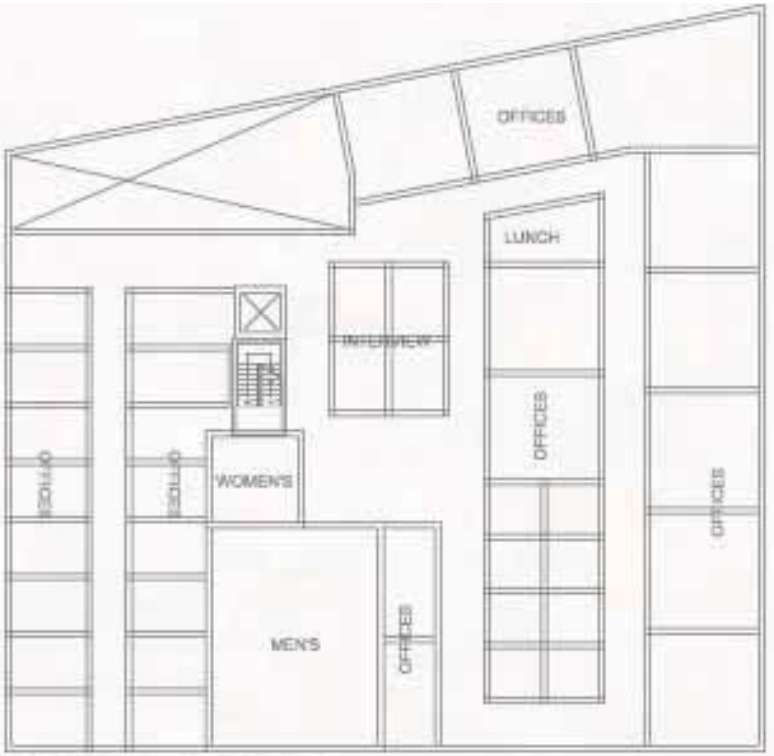
City Attorney

Economic Development/Urban Renewal

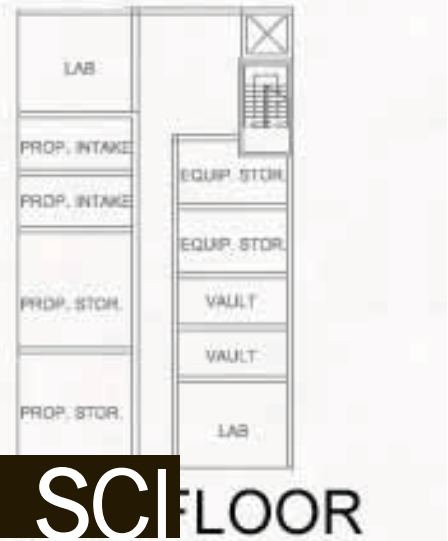
SCALE: 1/32 in = 1 ft



1ST FLOOR

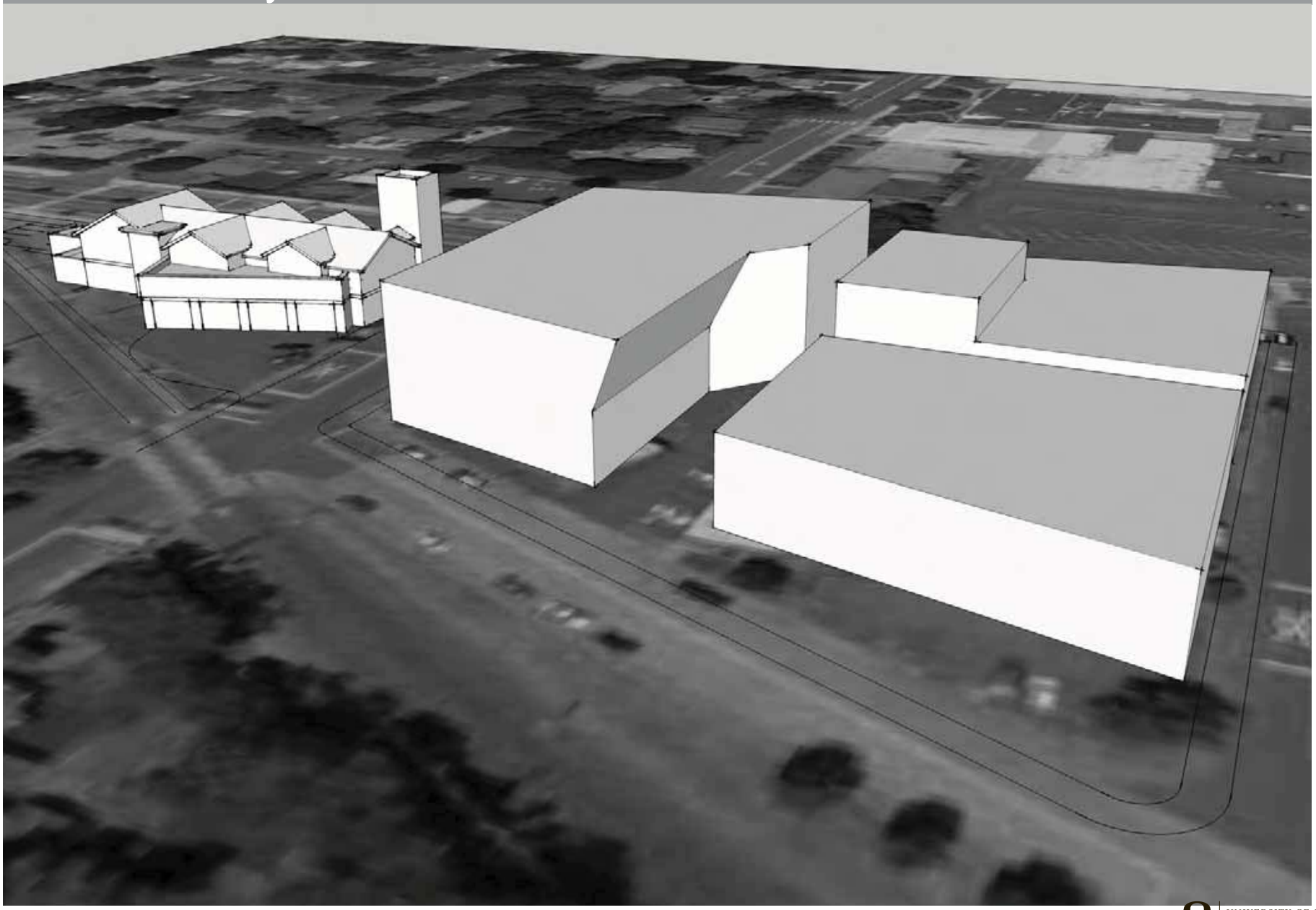


2ND FLOOR

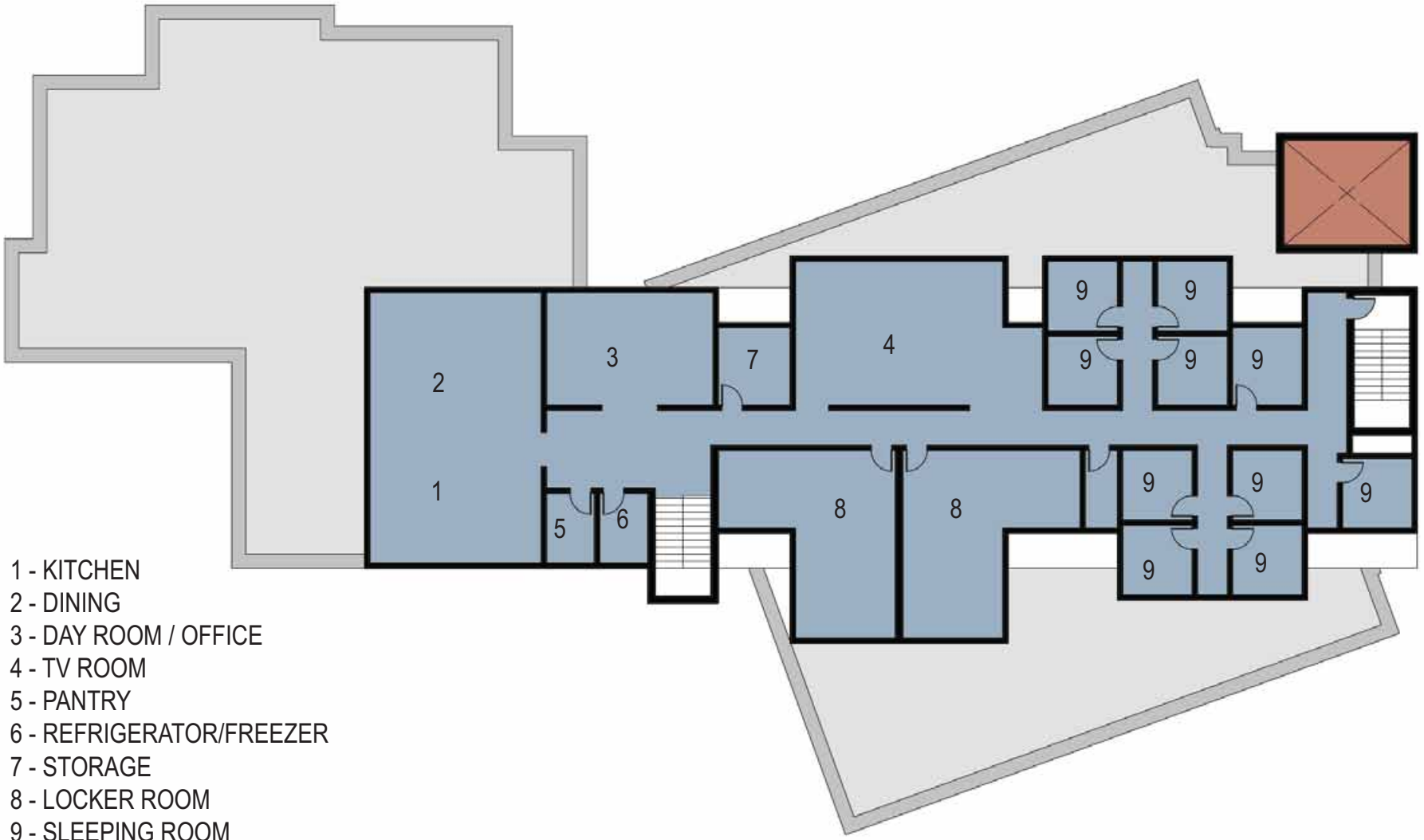


FLOOR

POLICE STATION PLANS



1 - LOBBY
2 - CONFERENCE
3 - RESTROOM
4 - OPEN OFFICE
5 - ASSISTANT TO FIRE CHIEF
6 - FIRE CHIEF
7 - DEPUTY FIRE CHIEF
8 - BATTALION CHIEF
9 - FIRE MARSHALL
10 - DEPUTY FIRE MARSHALL
11 - REPORT / COMMAND CENTER
12 - STORAGE
13 - BREAK ROOM
14 - APPARATUS BAY
15 - TRAINING TOWER



1 - KITCHEN
2 - DINING
3 - DAY ROOM / OFFICE
4 - TV ROOM
5 - PANTRY
6 - REFRIGERATOR/FREEZER
7 - STORAGE
8 - LOCKER ROOM
9 - SLEEPING ROOM

0 5 10 20 40

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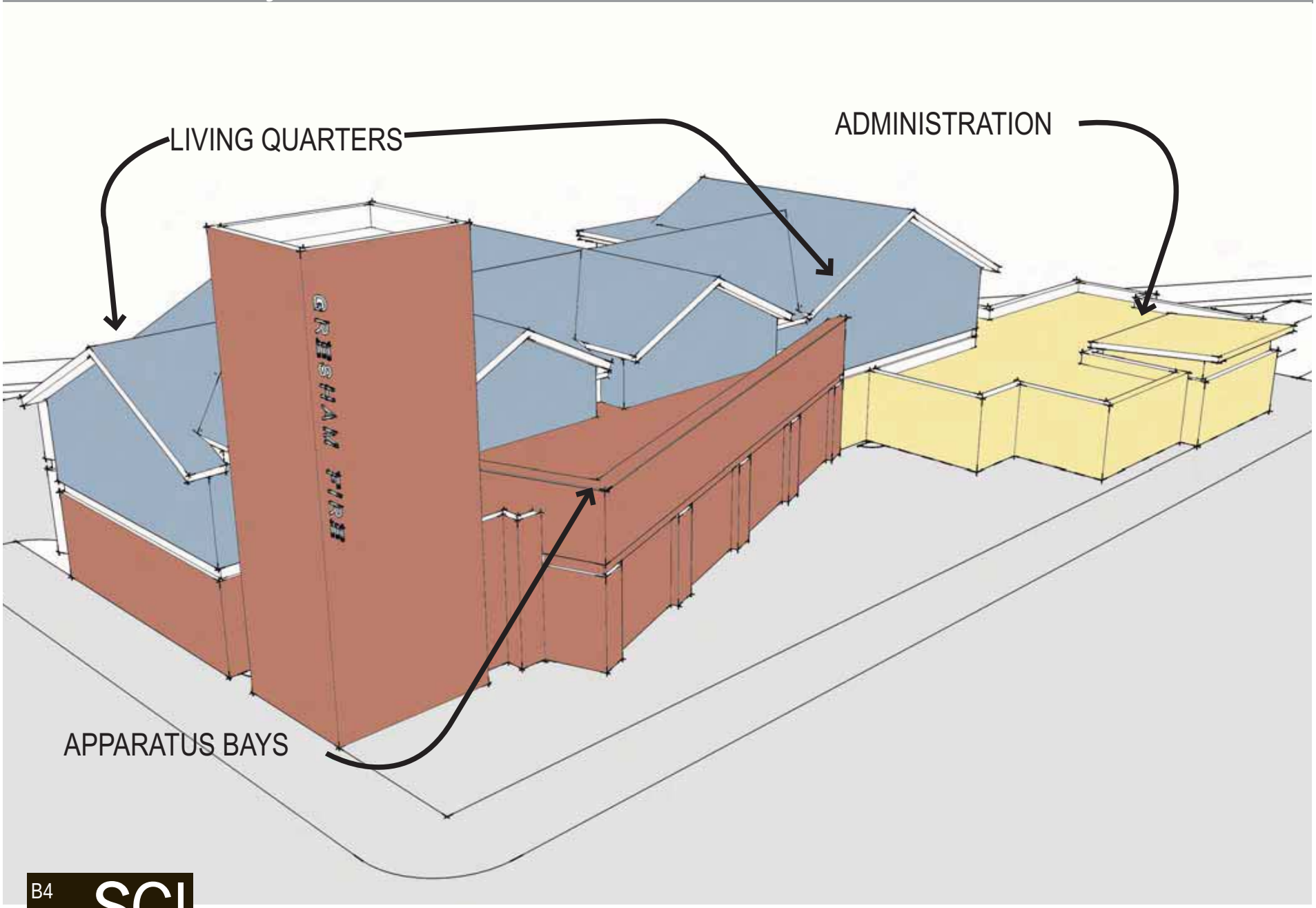

LIVING QUARTERS
ADMINISTRATION
APPARATUS BAYS

Energy Program

Gresham City Hall acts as a public face to the City of Gresham. Thus, the building should act as a catalyst for change and improvement. One place that the new city hall can encourage change is in energy usage. Emphasizing sustainable practices, Gresham has the opportunity to set a standard for other building projects in the area. By adhering to certain standards and calculating energy usage, Gresham City Hall would act as a benchmark and would encourage other buildings to set sustainability goals.

Currently, there are many sustainability standards to help evaluate energy consumption. The 2030 Challenge is a call for buildings to reduce their energy usage by 50% of the area's average consumption. The existing Gresham City Hall, in order to meet the 2030 Challenge, would need to reduce its energy consumption by 55%, as the city hall currently uses $160, 403.29 per year on energy, which is more than an average building in the area. This can be seen in the Figure 1 Energy Start Target Finder Chart, as the Target and Average Building annual energy costs are lower than the current city hall. Our proposed design does not yet meet the 2030 Challenge either, but through more development of the building envelope and mechanical systems it could reach the target (Figure 5).

Target Energy Performance Results (estimated)			
Energy	**Design**	**Target**	**Average Building**
Energy Performance Rating (1-100)	N/A	93	50
Energy Reduction (%)	N/A	50	0
Source Energy Use Intensity (kBtu/Sq. Ft./yr)	N/A	121	241
Site Energy Use Intensity (kBtu/Sq. Ft./yr)	N/A	45	91
Total Annual Source Energy (kBtu)	N/A	10,051,077	20,102,155
Total Annual Site Energy (kBtu)	N/A	3,783,314	7,566,628
Total Annual Energy Cost ($)	N/A	$ 71,841	$ 143,683
Pollution Emissions			
CO2-eq Emissions (metric tons/year)	N/A	380	761
CO2-eq Emissions Reduction (%)	N/A	50%	0%

Figure 1

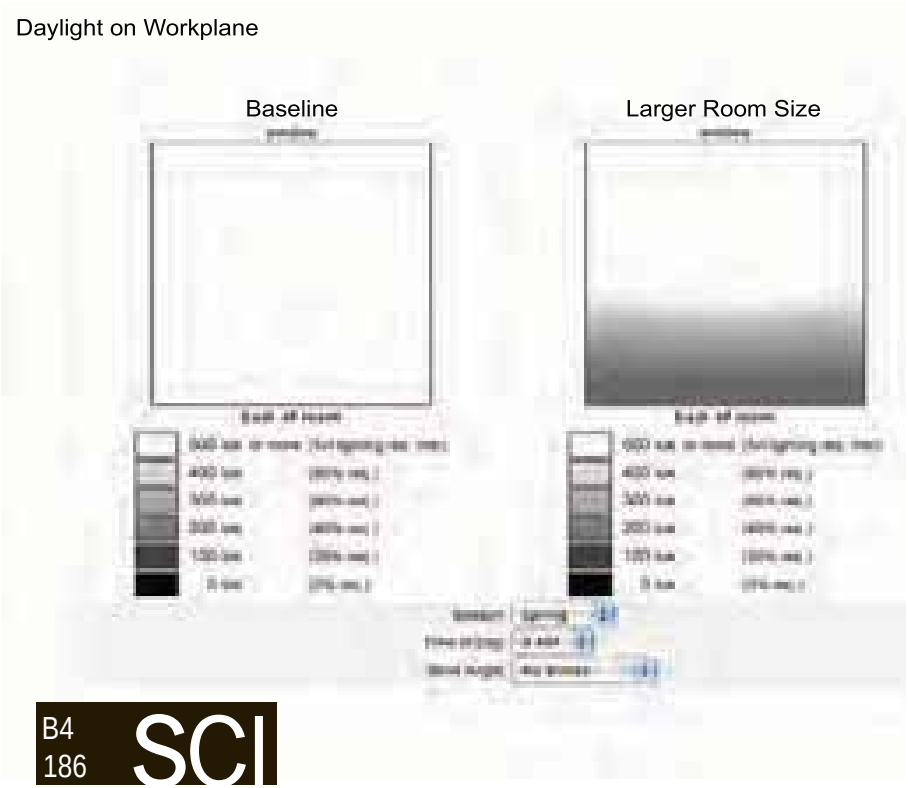
In general terms, energy consumption for Gresham City Hall is equivalent to an office building the same size. During business hours lights and air temperatures need to be controlled. After hours, the loads are lessened, as employees are not there. Many Gresham City Hall employees feel they need a comfortable work environment in order to be successful. Also, being an image of the city to the public, the employees want the city hall to uphold their views. This leads to needing energy efficient facilities that provide a sustainable, more comfortable work environment.

There are many strategies for keeping energy use low while still creating a comfortable work environment. Due to site restrictions, the proposed building is elongated in a north-south direction. By using low-e glass and blinds, light and heat gain can be controlled by the user, creating a more comfortable work environment. In studying annual energy usage, the primary way to save energy would be to use a joint natural ventilation cooling and mechanical heating instead of a conventional mechanical heating and cooling system (Figure 2: Maximum Efficiency compared

Figure 2

to the Baseline). Simply changing the orientation from a primary western exposure to a southern exposure only lessened the need for lighting a small amount (Figure 3). By placing workspaces near windows, employees have access to natural light throughout the day. To optimize natural daylight, the depth of the floor plates should be small, no more than 50 feet, so that daylight can reach the center of the space (Figure 4). Keeping workspaces near windows can also give more control to one's personal climate, as windows can be opened at certain times of day to provide natural ventilation.

A more sustainable city hall not only creates a more productive work environment for the employees, but also encourages other local businesses to adopt sustainable practices. Sustainable cities are important to the future of our natural environment and thus our world. Therefore, making Gresham City Hall a sustainable catalyst will help not only the residents of Gresham but also the environment.



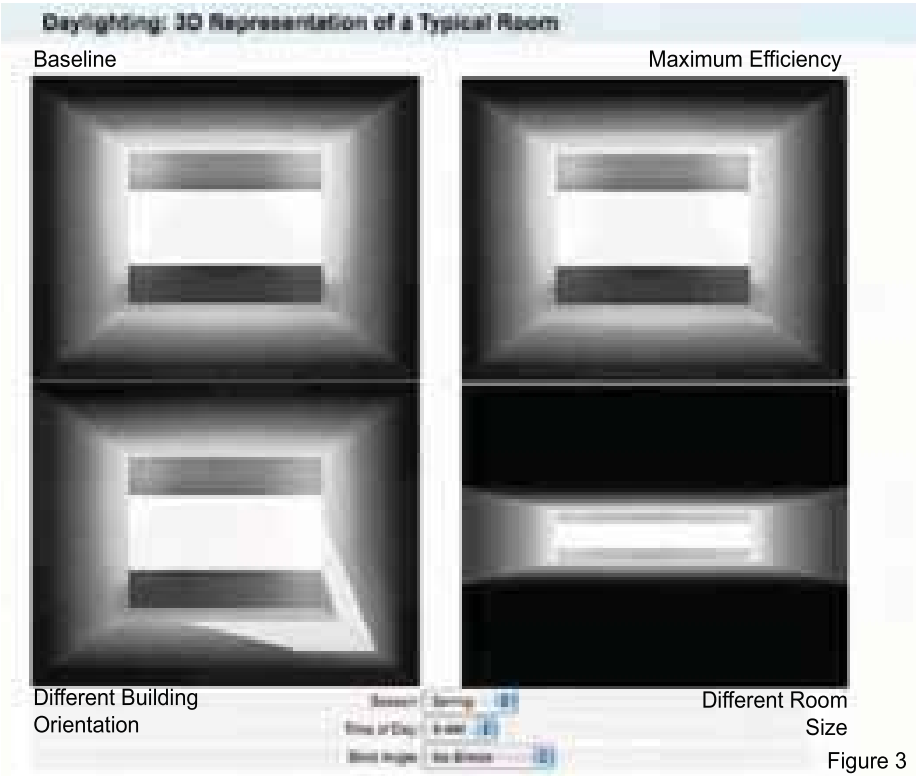


Figure 3

Figure 5

INTEGRATED ENVIRONMENTAL SOLUTIONS

energy.mit
09/Dec/2009

Contents: Energy & Carbon results | Architecture 2030 Challenge | Climate Energy Index

Energy and Carbon Results

Proposed building energy use	3,462.48 MBtu/yr
Proposed building carbon emissions	455.4 tons CO_2/yr

Energy breakdown:

Heating	5%
Cooling	6%
Lights	26%
Equipment	61%

The Energy & Carbon results are generated by the IES VE ApacheSim module. ApacheSim is a rigorous building thermal simulation approach that conforms to ANSI / ASHRAE Standard 140.

To find out more go to www.iesve.com/apachesim

AIA 2030 Challenge - summary

Current design meets 2030 Challenge Target for:	Does not meet current target
Design Building Energy Use Intensity: (Design EUI = Energy / Building Area)	47 kBTU/ft²
Average Building Energy Use Intensity: (Used to generate 2030 Challenge Targets)	66 kBTU/ft²
Building Type:	Administrative/ Professional and Government Office

Analysis Details:

Location: Portland, Oregon (45.58N, 122.58W)
Climate File: PortlandTM2.fwt
Calculated: 09/Dec/2009 at 16:33
Calculation period: 01/Jan - 31/Dec

The AIA 2030 Challenge provides a roadmap of targets for US building projects culminating in being carbon neutral by 2030.

Implementation of the Challenge requires the use of targets by building type derived from current building stock benchmarks.

Challenge targets for selected building type:

Year	% reductio n	kBTU/ ft²
Current	50	33
2010	60	27
2015	70	23
2020	80	20
2025	90	20
2030	100	0

For certain building types targets are calculated using Energy Star methodology where energy consumption is not direct % reduction against average.

Climate Energy Metric

Climate Energy Metric	24 hour use	2,996.1 Btu/yr
	Proposed hours of use	1,004.7 Btu/yr
	Using the local fuel mix	0.1 lbCO2/yr

Building simulation results can be compared with the Index to provide a simple measure of performance in the context of global climate.

Building Area Allocations

Fire Dept. Total	21880 sf
Apparatus Bays	8085 sf
Administration	5865 sf
Living Quarters	6430 sf
Gym / Exercise	1500 sf
Police Dept. Total	35135 sf
City Hall Total	67500 sf
Public / Retail / Service	27286 sf
Common Dept. Space	5820 sf
Finance and Management	2400 sf
Urban Planning	3264 sf
Environmental Services	2460 sf
Office of Governance and Management	4524 sf
Community Development	5547 sf
Economic Dev./Urban Renewal	772 sf
Information Technology	2879 sf
City Attorney	1620 sf

Group B5

7th & Hood

Andrew Harmon
Kris Celtnieks
Elisabeta Curea
Jon DeLeonardo

“Greshamn, Oregon’s New City Hall will act as a catalyst for the urban renewal of downtown Gresham and will contribute to Gresham’s emerging identity.”

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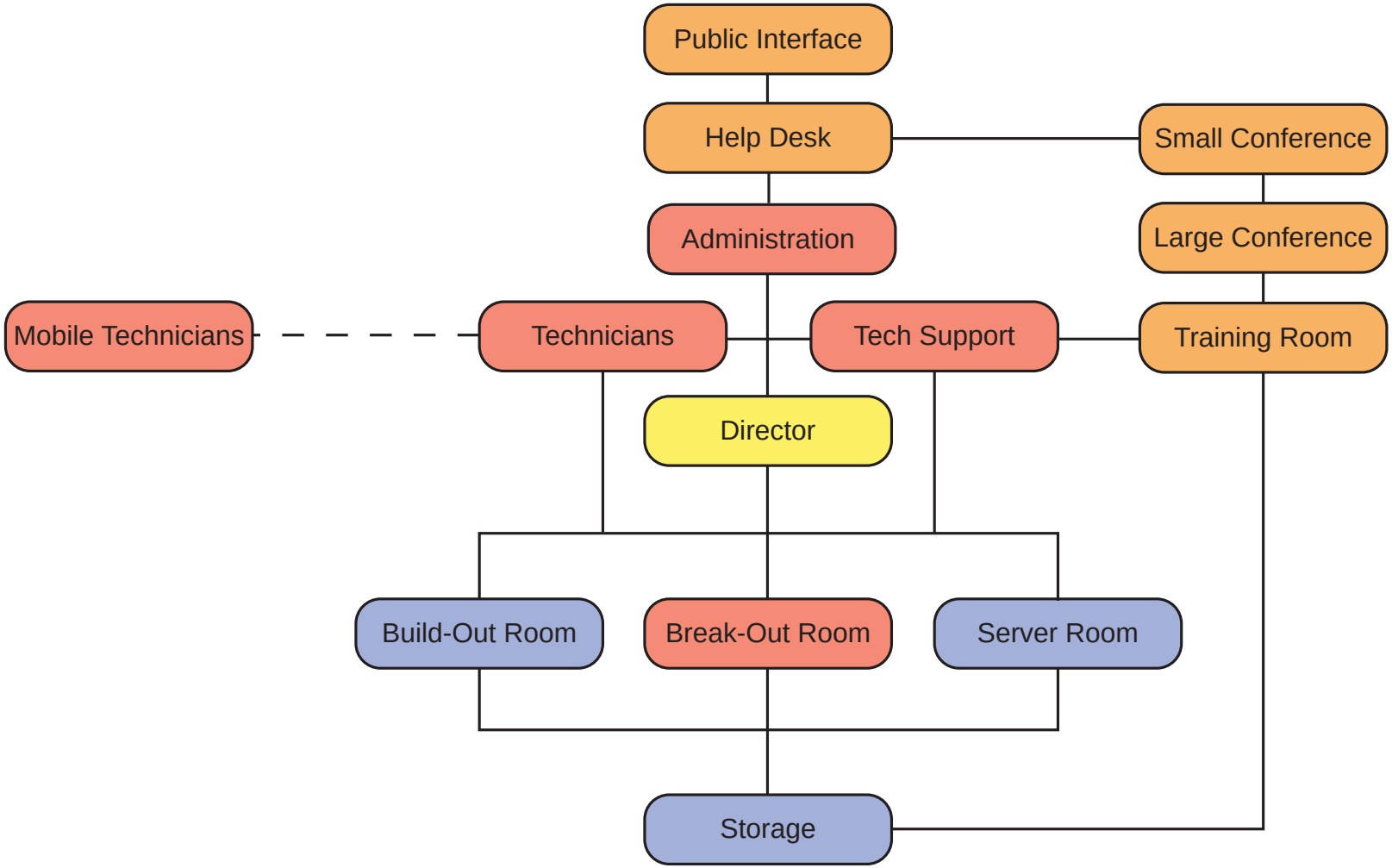
Adjacency Diagrams	220
SITE ANALYSIS	
N Hood Ave & 7th St	203
DESIGN PROPOSAL	210
ENERGY ANALYSIS	218

B5

Department of Information Technology

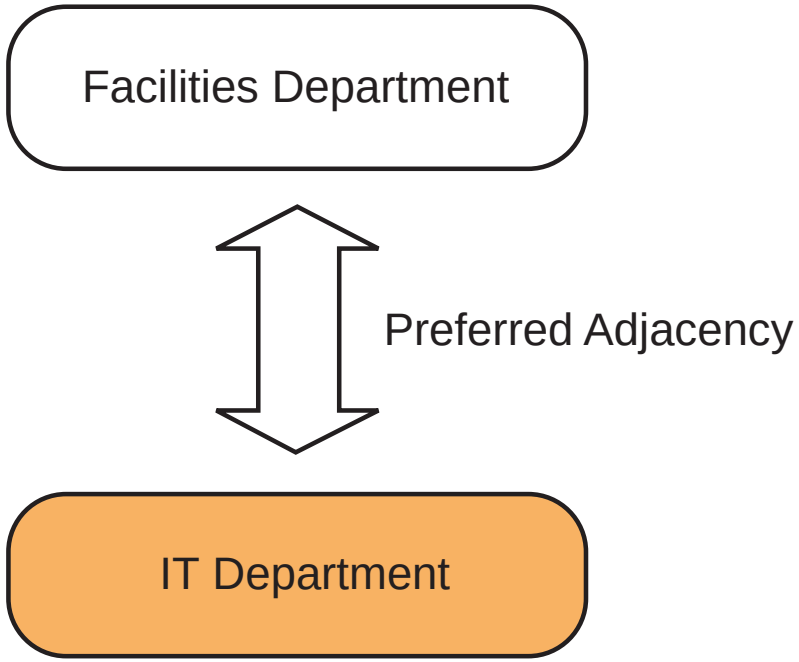
VALUES	GOALS	FACTS	NEEDS	IDEAS
HUMAN				
ENVIR.				
CULTURAL				
TECH	Improved technological operation throughout the departments	Wiring contracted out 6 Comm. closets dispersed 5 two ton residential AC units to support server room	Wireless technology 10 ton commercial AC units	Placing AC on top floor with access to dedicated units or bottom floor. Provide central space to house their main router
TEMPORAL				
ECONOMIC				
AESTHETIC				
SAFETY	Improved security/ privacy	Open office space currently shared with other departments	IT Department to be its own entity	Central location for the IT Dept. Front Help Desk
RIGOR				

Department of Information Technology



B5 192 SCI
Sustainable Cities Initiative

Department of Information Technology



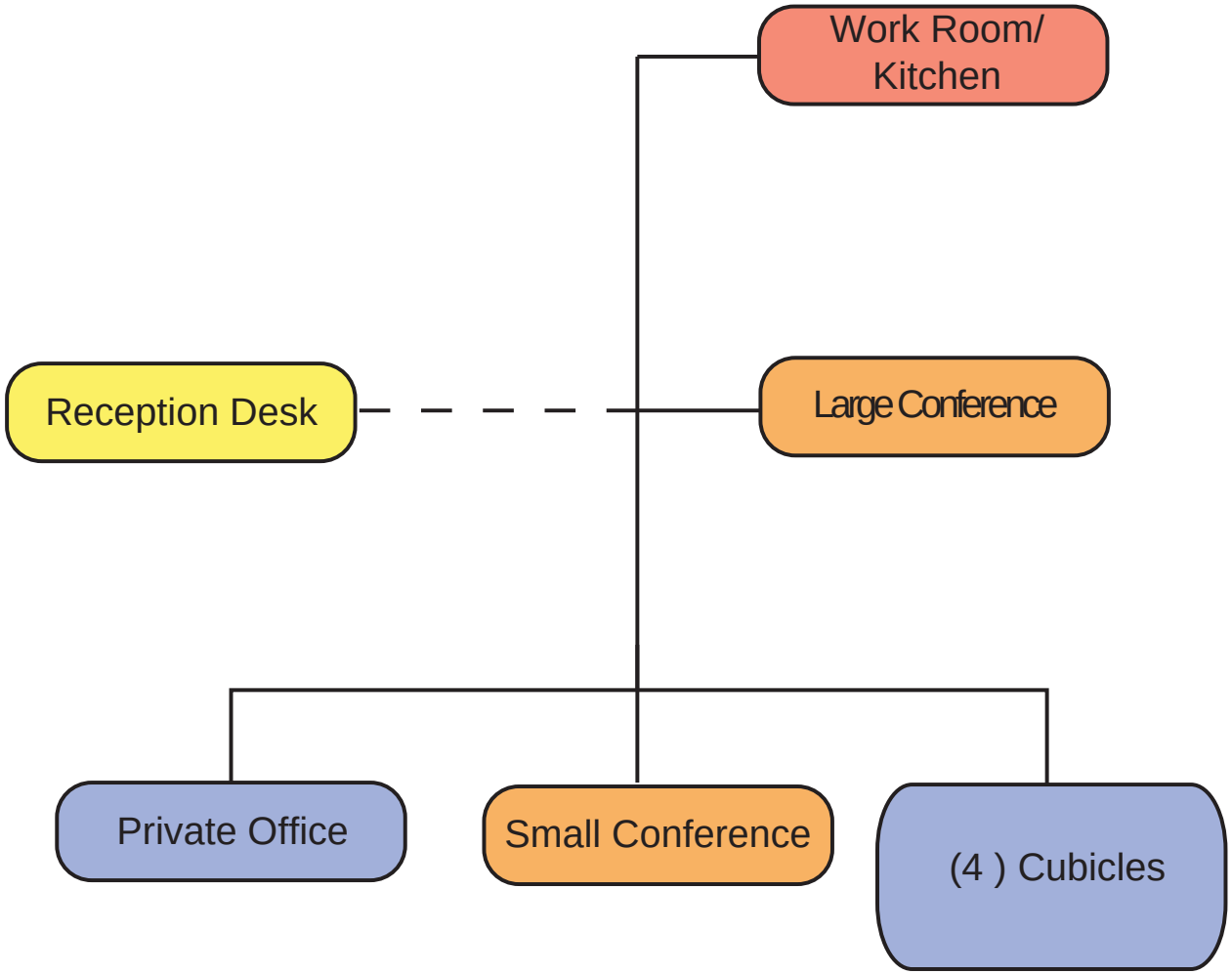
Department of Information Technology

	Existing	Future	Room Dims	Area	Total current	Total Future	
	# of rooms	# of rooms	Feet	SF	SF	SF	
IT							
data/comm room	6	6	8x10	2 per flr 80 sq ft each	480 total	480 sq ft total	doesn't include video surveillance
small conf.	1	1	10x14	140 sq. ft.	140 sq. ft.	140 sq. ft.	
large conf.	1	1	12x16	192 sq. ft.	192 sq. ft.	192 sq. ft.	
training room	1	1	21x12	250 sq. ft	250 sq. ft.	250 sq. ft.	
server room	1	1	30x15	417 sq. ft.	417 sq. ft.	417 sq. ft.	
public interface	1	1	10x15	150 sq. ft.	150 sq. ft.	150 sq. ft.	
help desk	1	1	5x8	40 sq. ft.	40 sq. ft.	40 sq. ft.	
administration	1	1	10x14	140 sq. ft.	140 sq. ft.	140 sq. ft.	
tech support staff	5	5	5 cubes @ 70 sq. ft.	350 sq. ft.	350 sq. ft.	350 sq. ft.	
storage	1	1		1260 sq. ft.	1260 sq. ft.	1260 sq. ft	room dims vary (currently mixed with facilities)
break out room	1	1	12x16	192 sq. ft.	192 sq. ft.	192 sq. ft.	
director	1	1	10x14	140 sq. ft.	140 sq. ft.	140 sq. ft.	
technicians	4	4	4 cubes @ 70 sq. ft.	280 sq. ft.	280 sq. ft.	280 sq. ft.	
build out room	1	1	10x10	100 sq. ft.	100 sq. ft.	100 sq. ft.	
						total= 4,131 sq. ft.	
Urban Renewal							
work room/kitchen	1	1	10x18	180 sq. ft.	180 sq. ft.	180 sq. ft.	
large conf.	1	1	20x13	260 sq. ft.	260 sq. ft.	260 sq. ft.	
staff	4	4	4 cubes @ 70 sq. ft.	280 sq. ft.	280 sq. ft.	280 sq. ft.	
small conf.	1	1	13x14	182 sq. ft.	182 sq. ft.	182 sq. ft.	
private office	1	1	10x14	140 sq. ft.	140 sq. ft.	140 sq. ft.	
reception desk	1	1	16x10	160 sq. ft.	160 sq. ft.	160 sq. ft.	
						total = 1,202 sq. ft.	

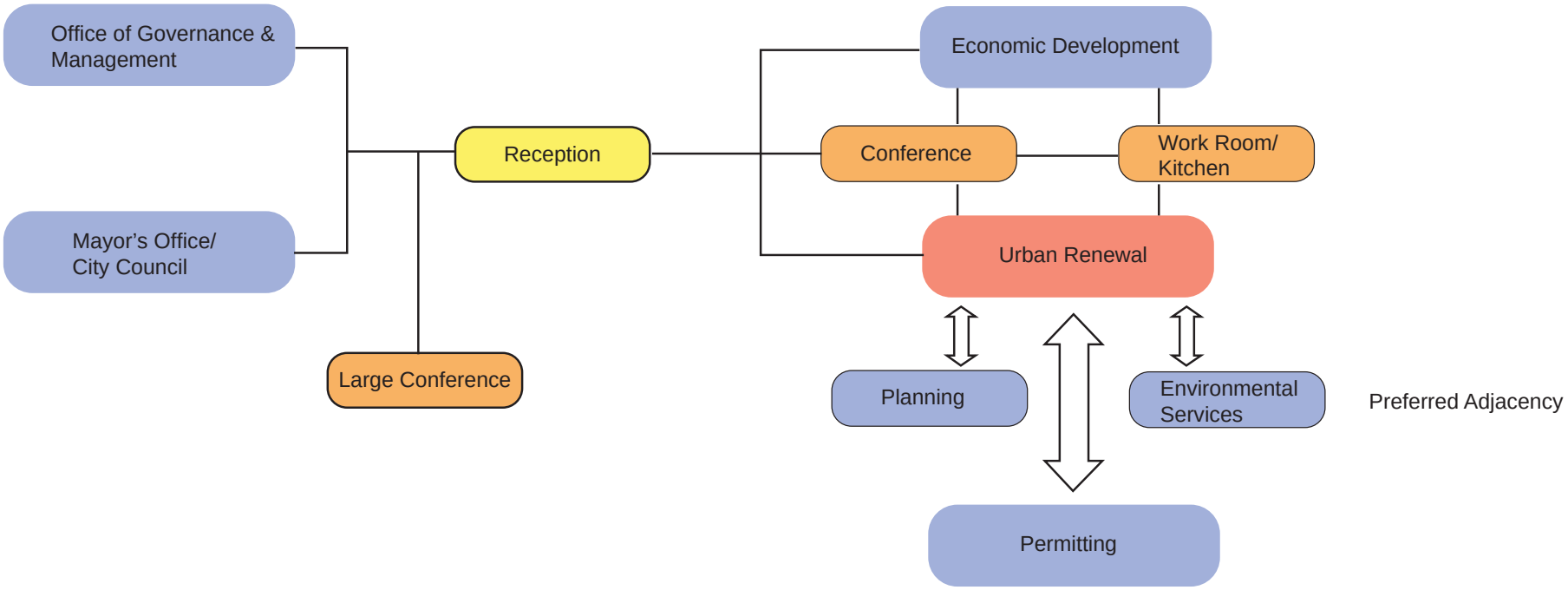
Department of Urban Renewal

VALUES	GOALS	FACTS	NEEDS	IDEAS
HUMAN	Accessability	Currently located outside downtown	Improved public interface Downtown location	Plan space to encourage human interaction
ENVIR.	Health and wellbeing in the workspace	Most access by elevator Inoperable windows	Light and airy spaces Walkable distances to services	Central stairway Overall building orientation to benefit from daylight
CULTURAL				
TECH TEMPORAL				
ECONOMIC				
AESTHETIC				
SAFETY				
RIGOR				

Department of Urban Renewal



Department of Urban Renewal



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						total = 1,202 sq. ft.	

PURPOSE/INTENT

Gresham, Oregon's New City Hall will act as a catalyst for the urban renewal of downtown Gresham and will contribute to Gresham's emerging identity.

LOCATION

We propose to locate the new city hall on the south west corner of site 3 along Hood Ave. and 5th St.

IDENTITY

We propose to locate the prominent entry facade for the new City Hall at the south along 5th street to create a civic presence within the city context.

PROGRAM CONTENTS - SITE 3

1. PURPOSE/INTENT

2. DESIGN CONSIDERATIONS FOR THE SITE

- Current development located on the site
- Images, maps, and pictures
- Zoning and Planning information
- Site access/circulation

3. SITE CONTEXT

- Site history
- How will the development impact neighbors/community'
- Site plan

4. BUILDING DESIGN CONSIDERATIONS

- Floor plan diagrams
- Building massing diagrams

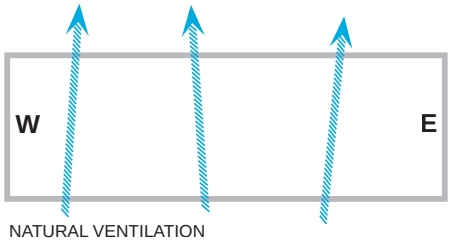
5. PROJECT REQUIREMENTS

- Space organization chart
- Schematic floor plans
- 3d digital model
- Energy conservation analysis

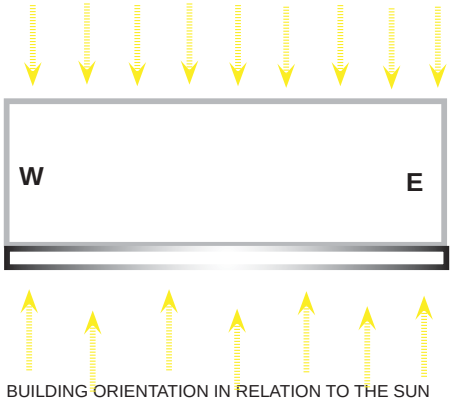
DESIGN PRINCIPLES

2. ENVIRONMENTAL CONSIDERATIONS - PROGRAM AROUND DAYLIGHT

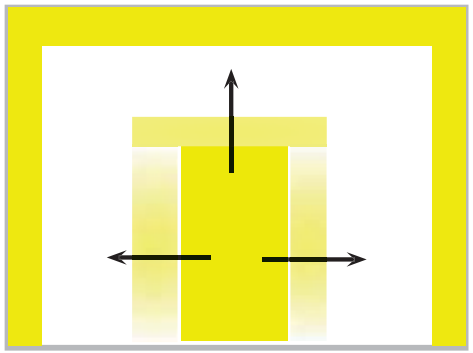
IN A TYPICAL BUILDING, LIGHTING ACCOUNTS FOR 20-40 PERCENT OF ENERGY CONSUMPTION. LIGHTING LOADS CAN BE REDUCED BY ALLOWING MORE NATURAL LIGHT TO PENETRATE THE INTERIOR OF THE BUILDING. THE FINANCIAL SAVINGS COULD BE CONSIDERABLE AND THE HEALT BENEFITS TREMENDOUS.



NATURAL VENTILATION



BUILDING ORIENTATION IN RELATION TO THE SUN

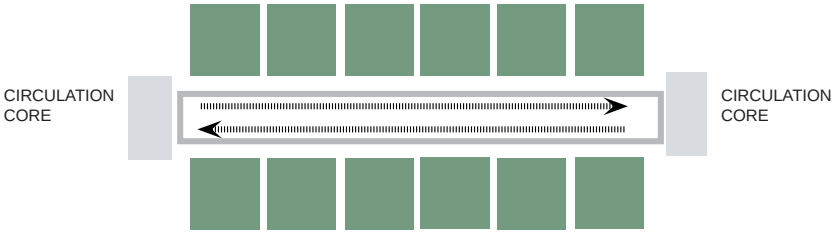


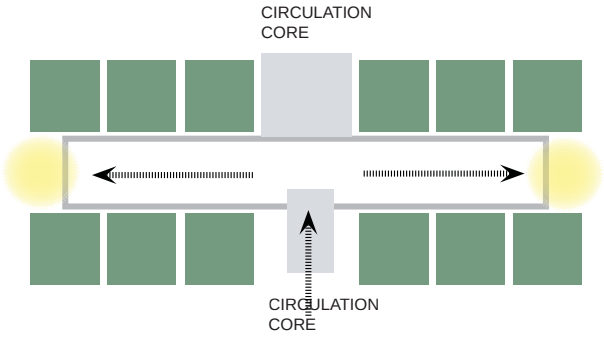
WHILE THE OFFICES ARE ORGANIZED AROUND THE OUTSIDE PERIMETER OF THE BUILDING TO, DAYLIGHT CAN ALSO BE BROUGHT INTO THE HEART OF THE BUILDING THRU THE USE OF ATRIUMS AND SKYLIGHTS

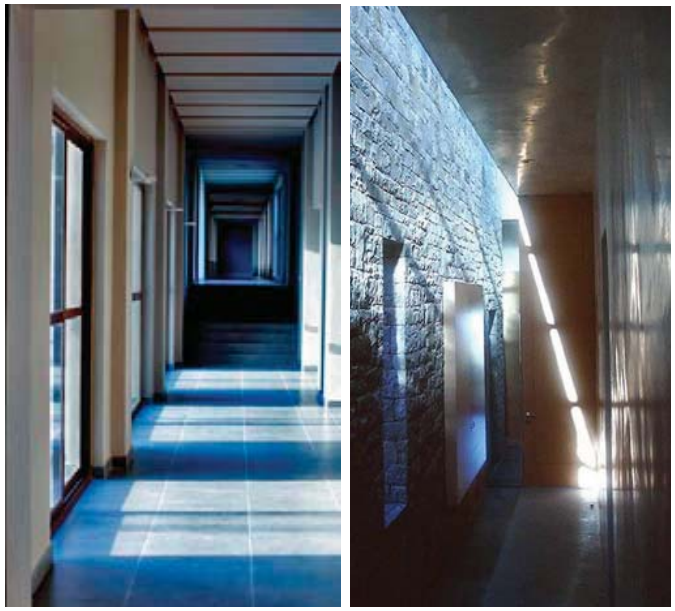
DESIGN PRINCIPLES

3. INSPIRATIONAL INTERIORS

UTILIZE SHORT CORRIDORS THAT ARE BROKEN DOWN BY CIRCULATION AND COMMON SPACES. USE COLOR AND TEXTURE TO CREATE INTERESTING EDGES AS WELL AS “DESTINATION” POINTS. INFILTRATE NATURAL LIGHT INTO CORRIDORS WHENEVER POSSIBLE.







DESIGN PRINCIPLES

4. DISTINCT URBAN SPACES

UTILIZE ART TO ACTIVELY ENGAGE THE EXTERIOR SPACES OF THE BUILDING. FORM EXTERIOR URBAN SPACES FOR BUILDING OCCUPANTS AND PEOPLE WHO MAY BE SIMPLY PASSING BY.







B5 202 SCI
Sustainable Cities Initiative

DESIGN CONSIDERATIONS FOR THE SITE

CURRENT BUILDING LOCATED AT THE SITE:

OUR SITE IS CURRENTLY OCCUPIED BY GRESHAM REHAB AND SPECIALTY CARE. THEY ARE A FOR PROFIT CORPORATION WHICH PROVIDES TREATMENT FOR DRUG AND ALCOHOL ADDICTIONS. THEY ARE ALSO A CORPORATE FRANCHISE FORM OF TREATMENT CENTER. INHABITANTS ARE GENERALLY PLACED INTO THE PROGRAM BY DOCTORS AND THE DURATION OF STAY RANGES FROM 6 MONTHS TO ONE YEAR.

BUILDING/SITE CONTAINS:

TREATMENT/HOSPITAL PROGRAM
88 BEDS
56 RESIDENTS
24 FTE'S

BUILDING DETAILS:

TYPICAL TYPE V CONSTRUCTION TYPICAL OF THIS AREA
BUILT AND CERTIFIED AS A CARE FACILITY IN 1989
SLAB ON GRADE
100 SURFACE PARKING SPACES (ROUGHLY)

SITE LOCATION:

OUR SITE IS LOCATED ALONG A MAX TRANSIT PLATFORM EAST OF THE CURRENT CITY HALL. ITS BOUNDED BY KELLY AVE., HOOD AVE., 5TH ST, AND 7TH ST.

DESIGN CONSIDERATIONS FOR THE SITE

ZONING AND PLANNING:

MAX HEIGHT: 85 FEET

85’

DCC - DOWNTOWN COMMERCIAL CORE:

THE DCC IS THE CITY’S LONG-STANDING CENTER AND FEATURES UNIQUE LOCAL BUSINESSES, SMALL-SCALE STOREFRONTS, AND INTIMATE SIDEWALKS.

MAX HEIGHT: 50 FEET

50’

DRL-2: DOWNTOWN RESIDENTIAL LOW-RISE:

THIS MIXED-USE SUB DISTRICT WILL ALLOW A GRADUAL TRANSFORMATION INTO MORE VARIED AND FULL-SERVICE RESIDENTIAL NEIGHBORHOODS THAT CAN TAKE ADVANTAGE OF THEIR PROXIMITY TO TRANSIT AND NEARBY SHOPPING AND JOB CENTERS.

MAX HEIGHT: 85 FEET

85’

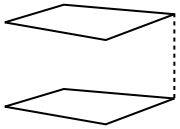
DTM: DOWNTOWN TRANSIT MID-RISE:

IT SUPPORTS THE CREATION OF EMPLOYMENT USES WITHIN DOWNTOWN SO THOSE WHO LIVE OUTSIDE HAVE OPPORTUNITIES AND EASY ACCESS TO WORK DOWNTOWN.

DESIGN CONSIDERATIONS FOR THE SITE

ZONING AND PLANNING:

MAX HEIGHT: 85 FEET



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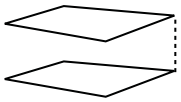

50’

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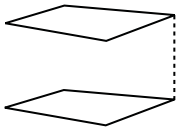

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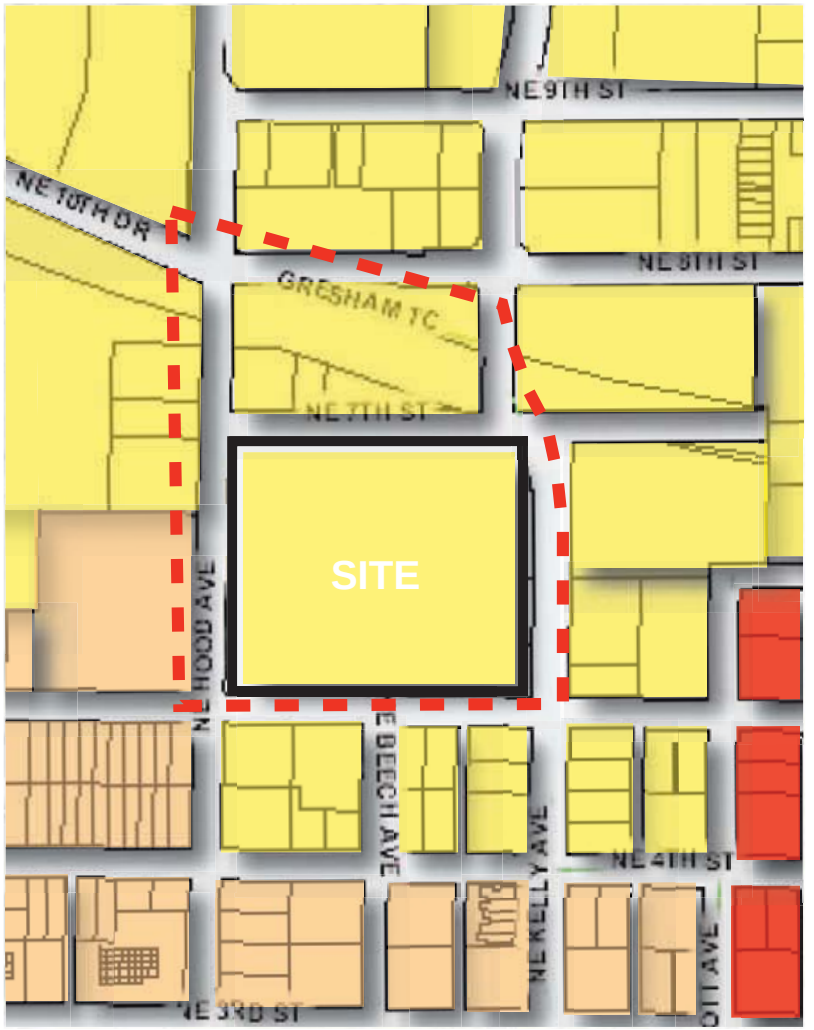


DESIGN CONSIDERATIONS FOR THE SITE

SITE LOCATION:

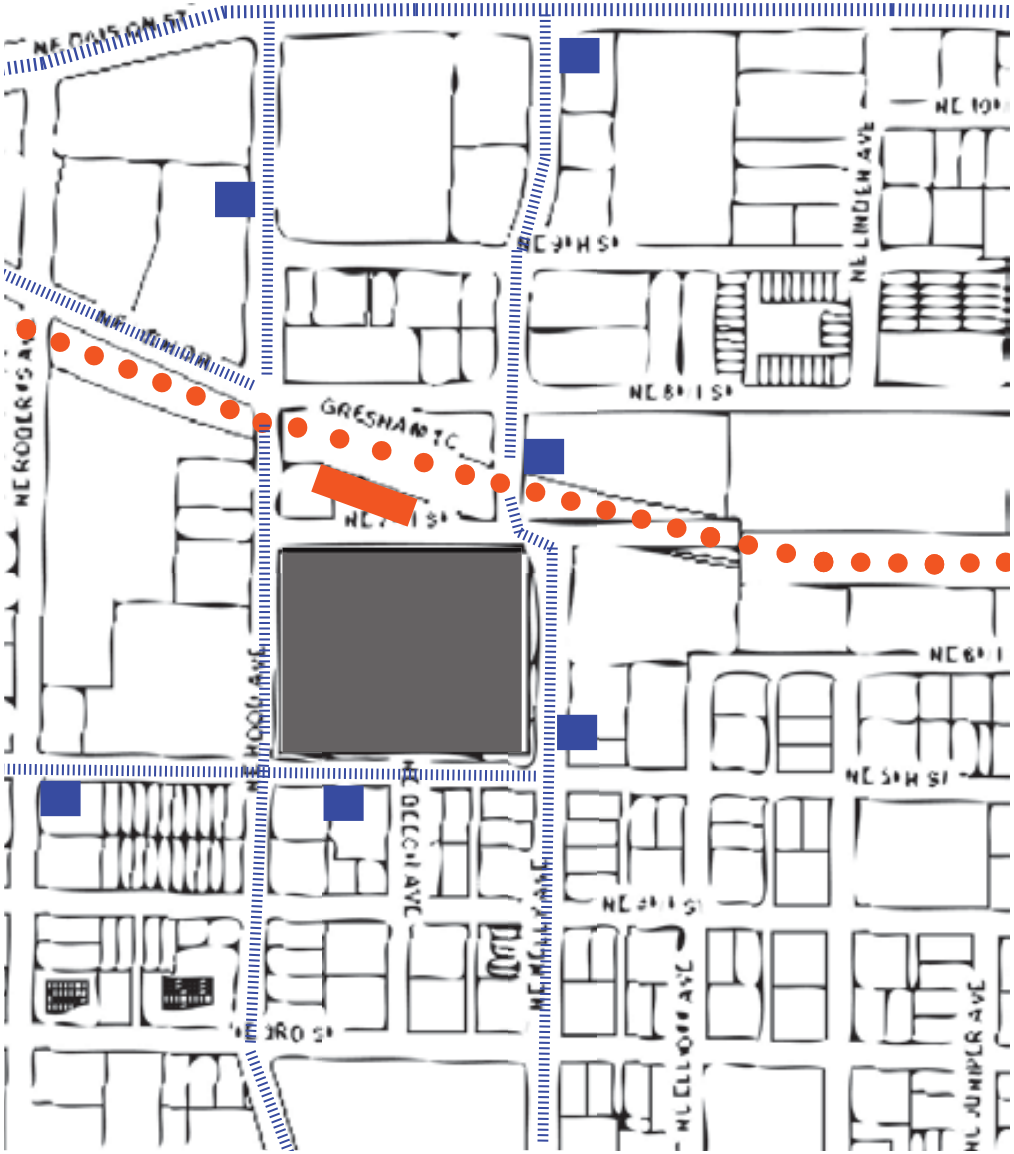
INFRASTRUCTURE AND CONNECTIONS ENCLOSE OUR SITE ON ALL FOUR SIDES.

MAIN ELEMENTS:

CENTRAL BUS LINES

A MAX PLATFORM (SIMILAR TO THE EXISTING SITE)

MANY BUS STOPS IN THE AREA



DESIGN CONSIDERATIONS FOR THE SITE

SINGLE FAMILY HOMES:

THESE STRUCTURE ARE LOCATED MOSTLY TO THE SOUTH OF OUR SITE. THEY PROVIDE A DISTINCT SCALE IN COMPARISON TO THE LARGER STRUCTURES, SURFACE PARKING, AND MULTIFAMILY DEVELOPMENT NEARBY.

VACANT COMMERCIAL:

VACANT COMMERCIAL BUILDINGS ARE SCATTERED AROUND THE SITE TO THE EAST AND WEST. IN SOME CASES THESE STRUCTURES CREATE AREAS OF INACTIVITY AND AWKWARD DEAD END STREETS AND BUSINESS PARKS.

TOWNHOUSES:

NEWER TOWNHOUSES ARE LOCATED AT THE NORTH END OF THE SITE. THEY ARE TYPICALLY COMPOSED OF 2-3 FLOORS, ON STREET PARKING, AND SIMPLE WOOD FRAME CONSTRUCTION. MANY APPEAR TO BE NEWER CONSTRUCTION AND MEET THE BARE MINIMUM REQUIREMENTS FOR CONSTRUCTION, HOUSING, AND CODE.

STRIP RETAIL:

STRIP RETAIL COMPOSES THE GROUND FLOOR OF NEARLY ALL ADJACENT FACADES WITH THE EXCEPTION OF THE SINGLE FAMILY HOUSING STOCK LOCATED NEAR BY. THIS RETAIL IS GENERALLY COMBINED WITH SURFACE PARKING AN A MANER SUITABLE FOR LOW DENSITY RETAIL SITUATIONS.

NEWER CONDO DEVELOPMENT:

SOME NEWER STRUCTURES OCCUPY THE NORTH END OF THE SITE THAT ARE MORE SOPHISTICATED IN TERMS OF CONSTRUCTION, DESIGN, AND URBAN RESPONSE. THESE STRUCTURES ARE TYPICALLY COMPRISED OF A TYPE 2B BASE OR PLINTH FOLLOWED BY 5 FLOORS OF TYPE 5 WOOD CONSTRUCTION. THIS DEVELOPMENT IS TYPICALLY REFERRED TO AS 5 OVER 1.

typical single family homes

vacant commercial

SOV centric townhouse

newer condo developments

strip facades and surface parking

DESIGN CONSIDERATIONS FOR THE SITE

SINGLE FAMILY HOMES:

THESE STRUCTURE ARE LOCATED MOSTLY TO THE SOUTH OF OUR SITE. THEY PROVIDE A DISTINCT SCALE IN COMPARISON TO THE LARGER STRUCTURES, SURFACE PARKING, AND MULTIFAMILY DEVELOPMENT NEARBY.

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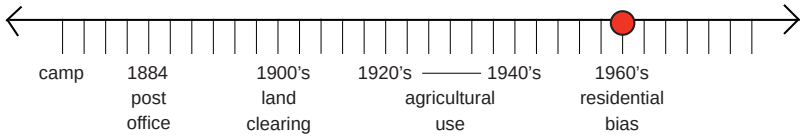
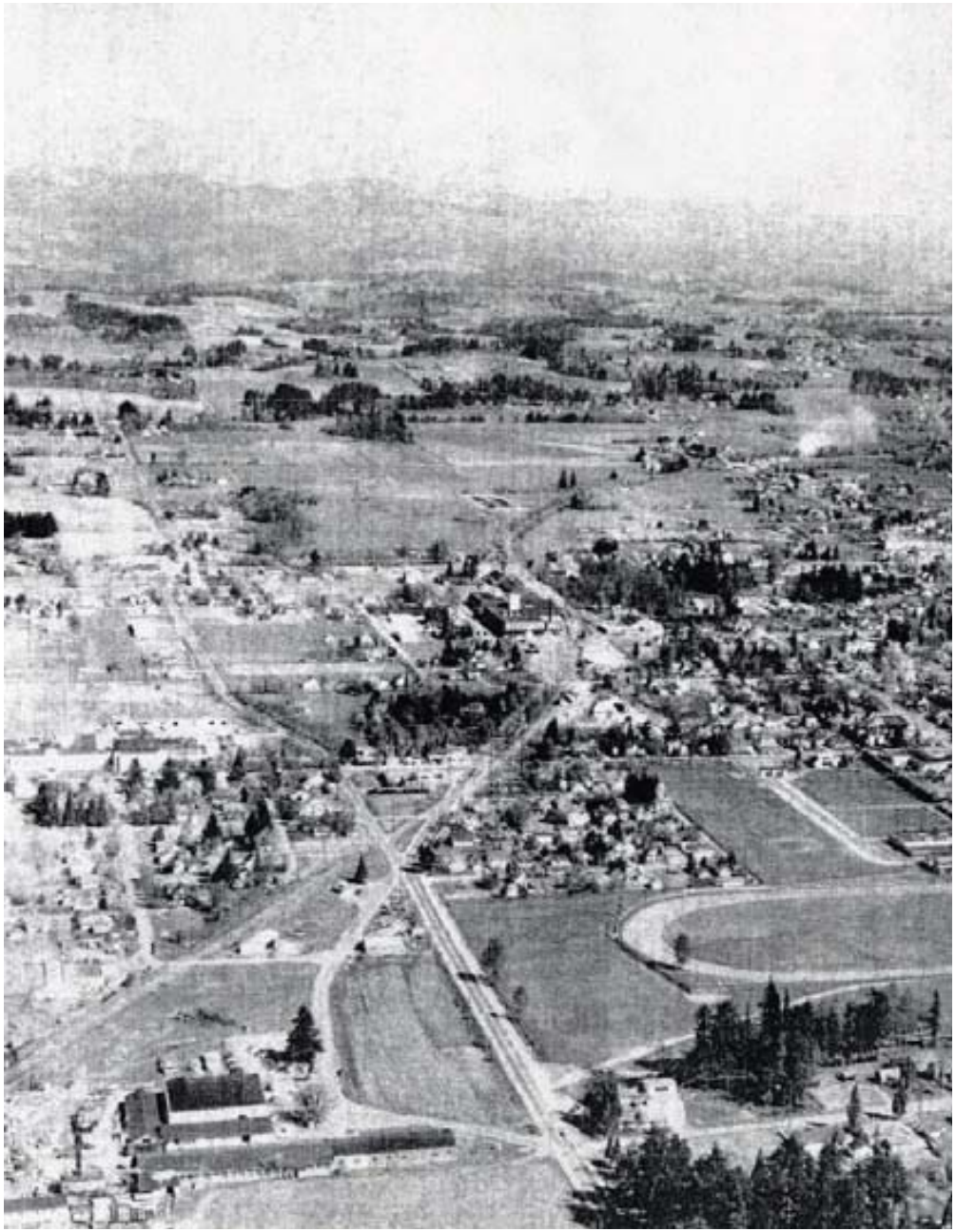
SITE CONTEXT

GRESHAM HISTORY:

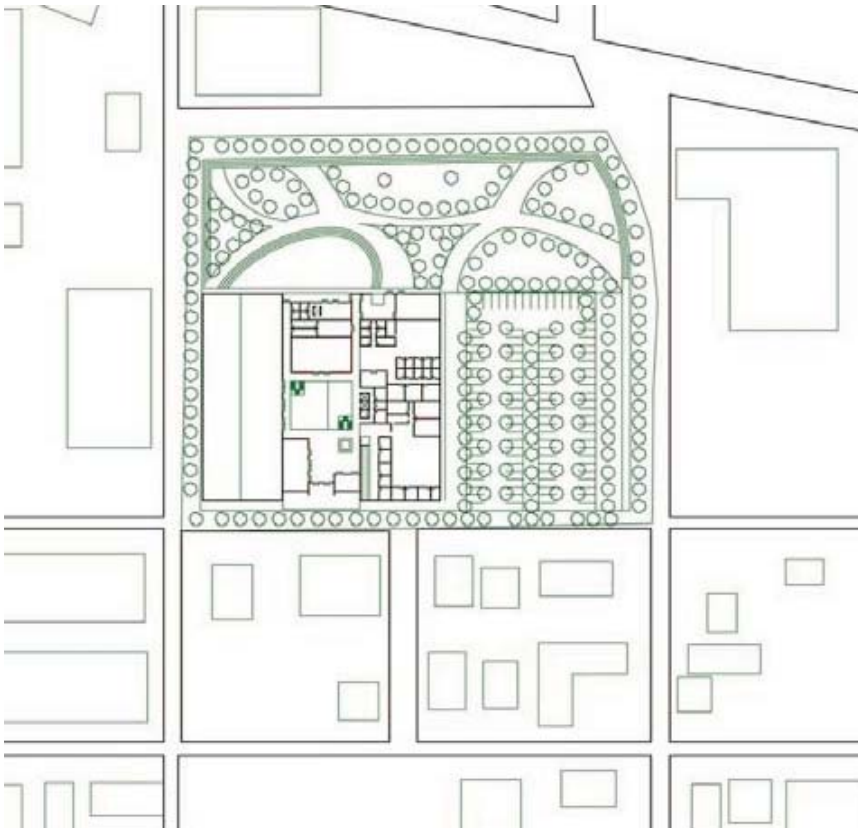
THE TOWN GRESHAM WAS NAMED FOR A FAMOUS CIVIL WAR GENERAL NAMED WALTER QUINTON GRESHAM. A POST OFFICE WAS ESTABLISHED IN 1884 AND THE STORE OWNER CHOSE THIS NAME. BEFORE 1884 IT WAS A HEAVILY WOODED AREA THAT SERVED AS A CAMPGROUND OF SORTS FOR PEOPLE TO STOP AND COMPOSE THEMSELVES BEFORE GOING TO PORTLAND. THROUGHOUT THE EARLY TO MID 1900'S MUCH OF THE LANDSCAPE WAS CLEARED AND CONVERTED TO AGRICULTURAL FARM LAND. IN RECENT TIME THESE FARMLANDS HAVE BEEN INCREASINGLY DEVELOPED INTO LOW DENSITY HOUSING

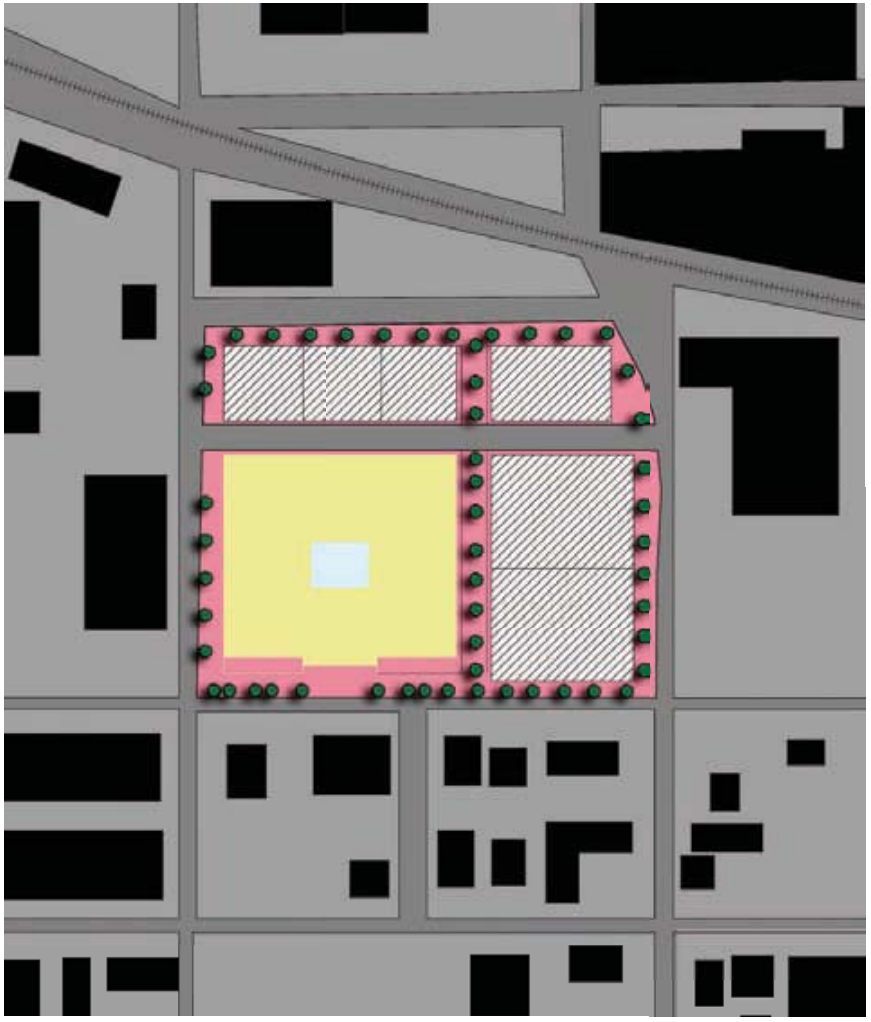




SITE PLAN

PHASED SITE PLAN:



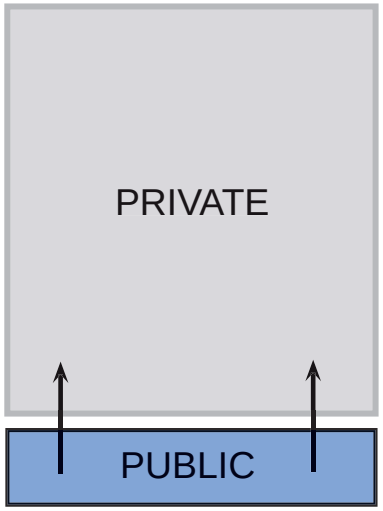


B5 210 SCI
Sustainable Cities Initiative

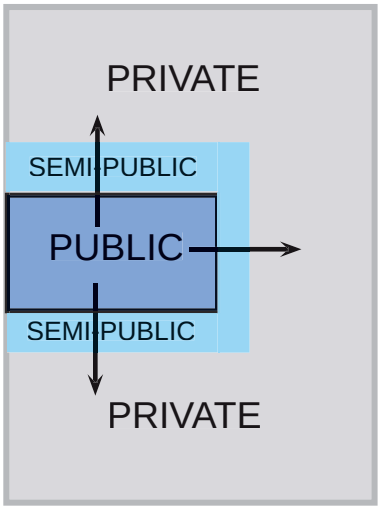
BUILDING DESIGN CONSIDERATIONS

PLAN DIAGRAMS:

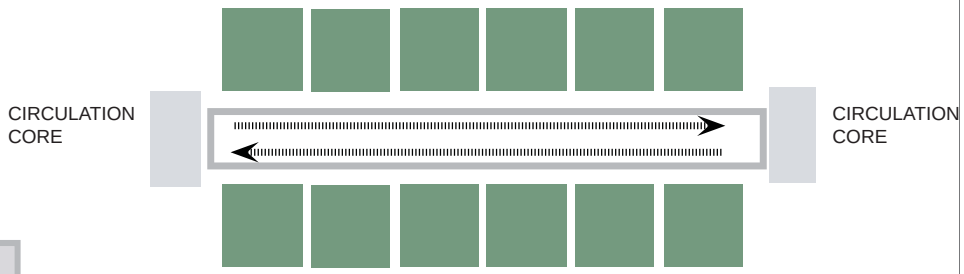
UTILIZE SHORT CORRIDORS THAT ARE BROKEN DOWN BY CIRCULATION AND COMMON SPACES. USE COLOR AND TEXTURE TO CREATE INTERESTING EDGES AS WELL AS "DESTINATION" POINTS. INFILTRATE NATURAL LIGHT INTO CORRIDORS WHENEVER POSSIBLE.

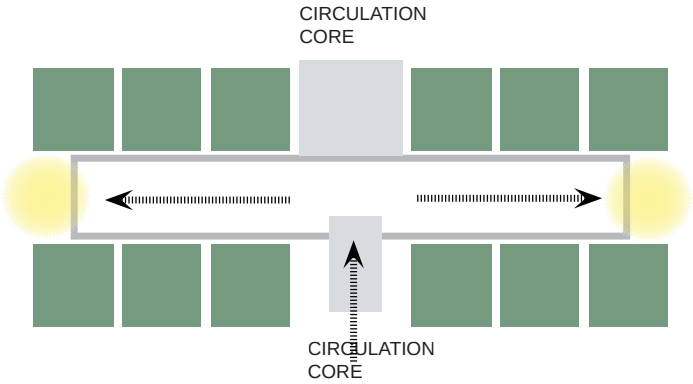


EXISTING



PROPOSED



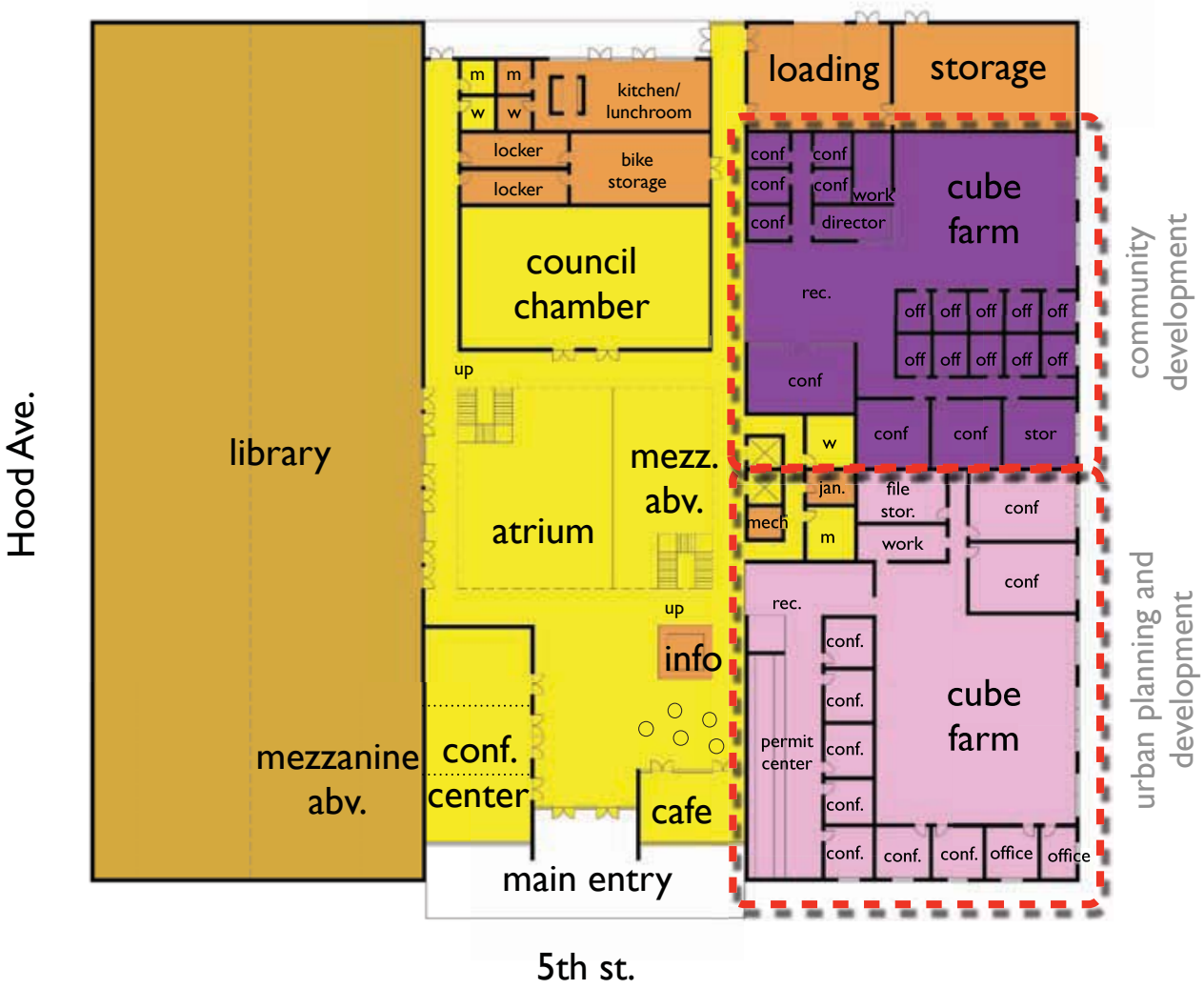


PROJECT REQUIREMENTS

FLOOR PLAN LEVEL 1

Department (R/G/B)

- Information Technology (258/198/68)
- Finance and Management (242/252/68)
- Community Development (146/6/173)
- Environmental Services (5/16/49)
- Economic Development/Urban Renewal (77/224/66)
- Office of Governance and Management (160/108/77)
- Urban Planning (252/180/241)
- City Attorney (68/252/242)
- Fire Department (253/58/49)
- Police Department (110/137/182)



first floor plan 0' 5' 15' 30'

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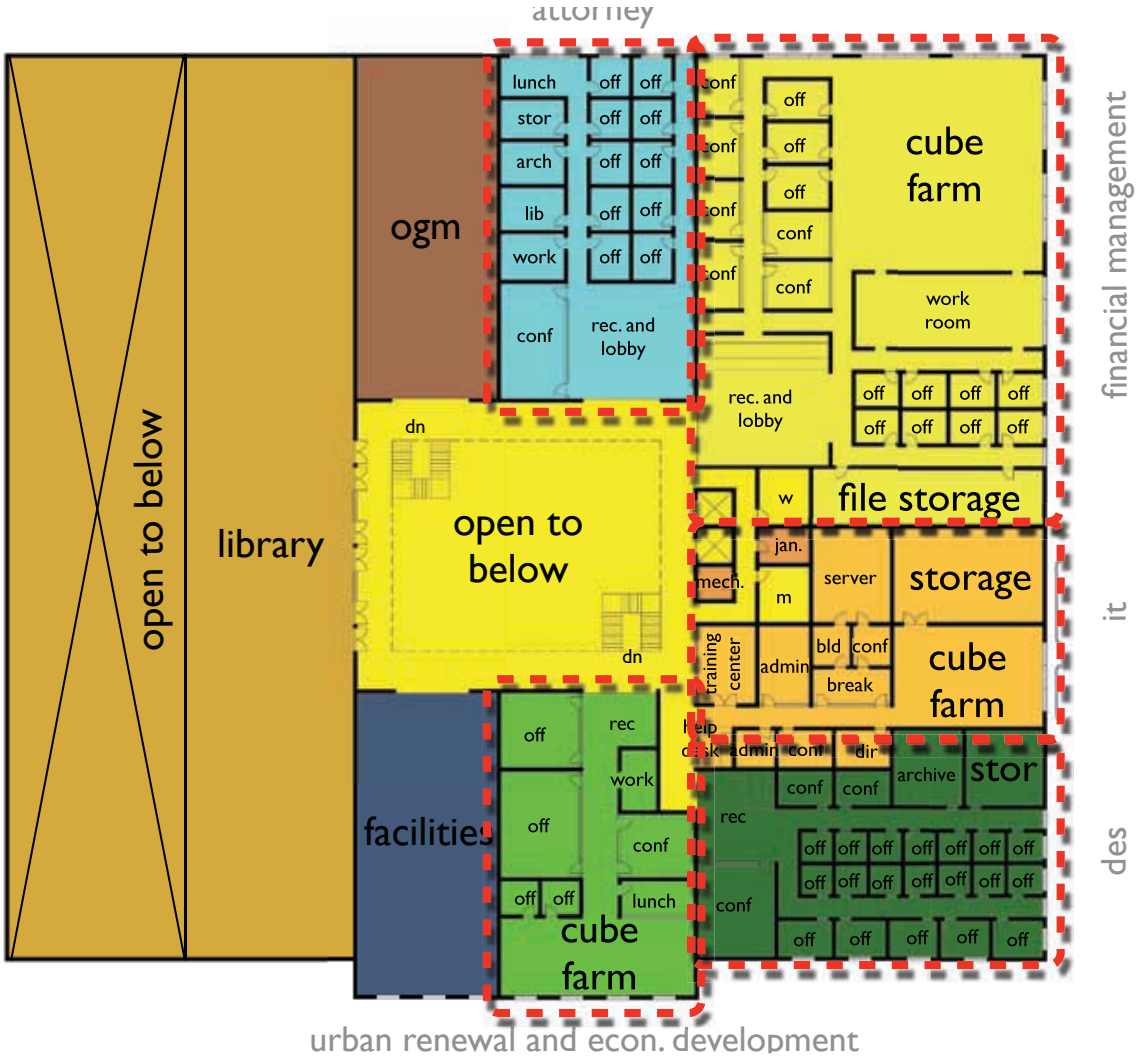
PROJECT REQUIREMENTS

FLOOR PLAN LEVEL 2

Department (R/G/B)

- Information Technology (258/198/68)
- Finance and Management (242/252/68)
- Community Development (146/6/173)
- Environmental Services (5/16/49)
- Economic Development/Urban Renewal (77/224/66)
- Office of Governance and Management (160/108/77)
- Urban Planning (252/180/241)
- City Attorney (68/252/242)
- Fire Department (253/58/49)
- Police Department (110/137/182)



second floor plan 0' 5' 15' 30'

PROJECT REQUIREMENTS

3D DIGITAL MODEL:

AXONS AND SITE CONTEXT.

building in context

front door

back door

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PROJECT REQUIREMENTS

3D DIGITAL MODEL:

BUILDING ELEVATION

PROJECT REQUIREMENTS

3D DIGITAL MODEL:

ENTRY PERSPECTIVES.

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PROJECT REQUIREMENTS

3D DIGITAL MODEL:

ENTRY PERSPECTIVES.

"IF A BUILDING DESIGN IS OPTIMIZED TO TAKE ADVANTAGE OF IT'S INTERACTION WITH THE CLIMATE AND USE PATTERNS, BOTH IT'S TOTAL AND PEAK ENERGY USE CAN BE SUBSTANTIALLY DECREASED, REDUCING FIRST COST AND OPERATING COSTS"
G.Z.BROWN

ENERGY CONSERVATION STRATEGIES THROUGH ARCHITECTURE

Day Lighting

-45% Window-to-wall ratio provides for maximum lighting and minimal heat loss
-Deep window punches to block direct light during cooling seasons
-Atrium Courtyard
    -Allows for major circulation spaces to be lit naturally throughout the day
    -Areas around the atrium also receive natural light

Passive Heating & Cooling

-High thermal mass in walls, ceilings, & floors
-Operable windows for ventilation & cooling
-Operable atrium for stack ventilation

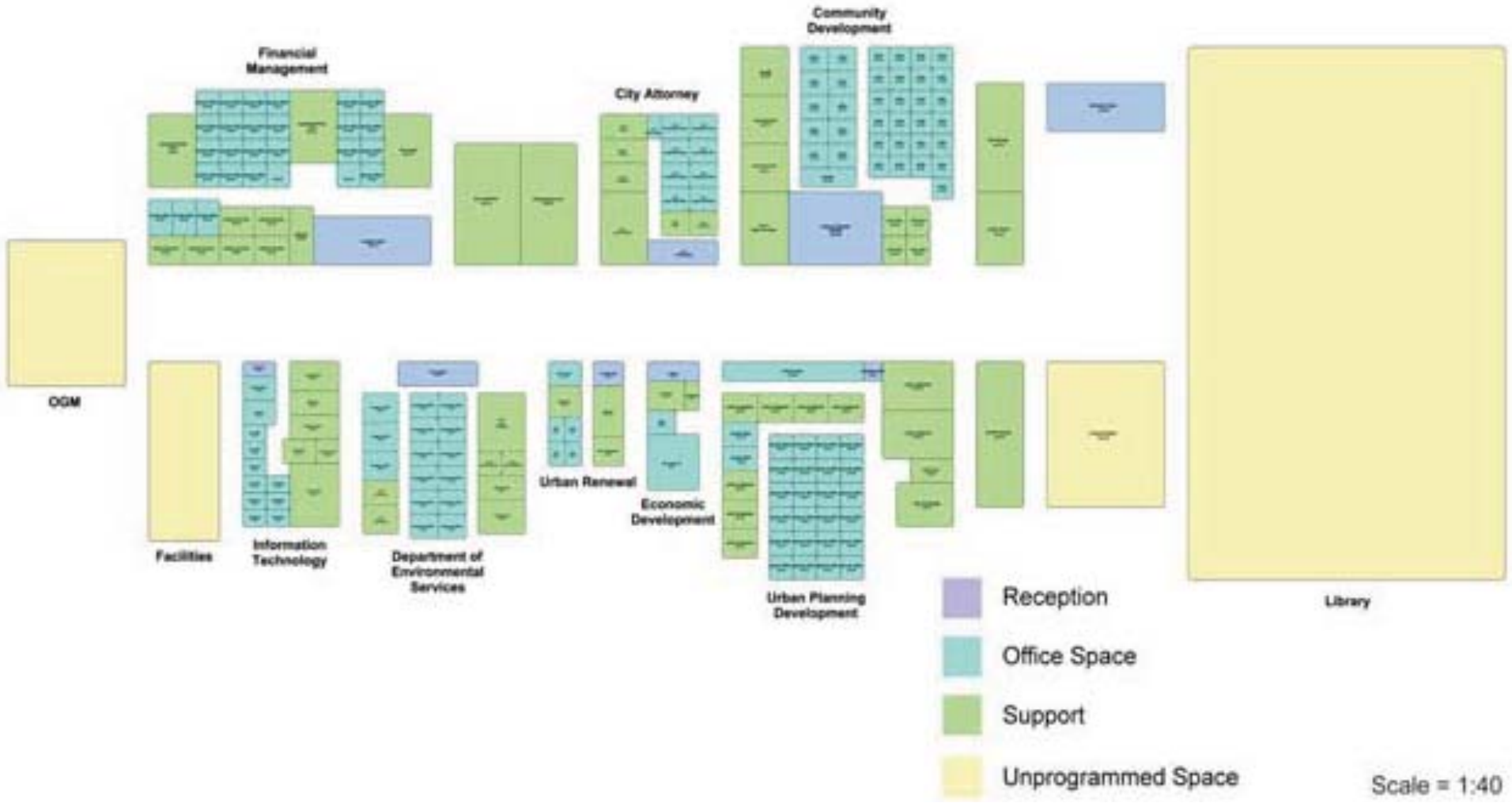
Site Planning

-Location on southwest corner of site
-Allows for maximum southern exposure
-Small footprint used to maximize density on the site

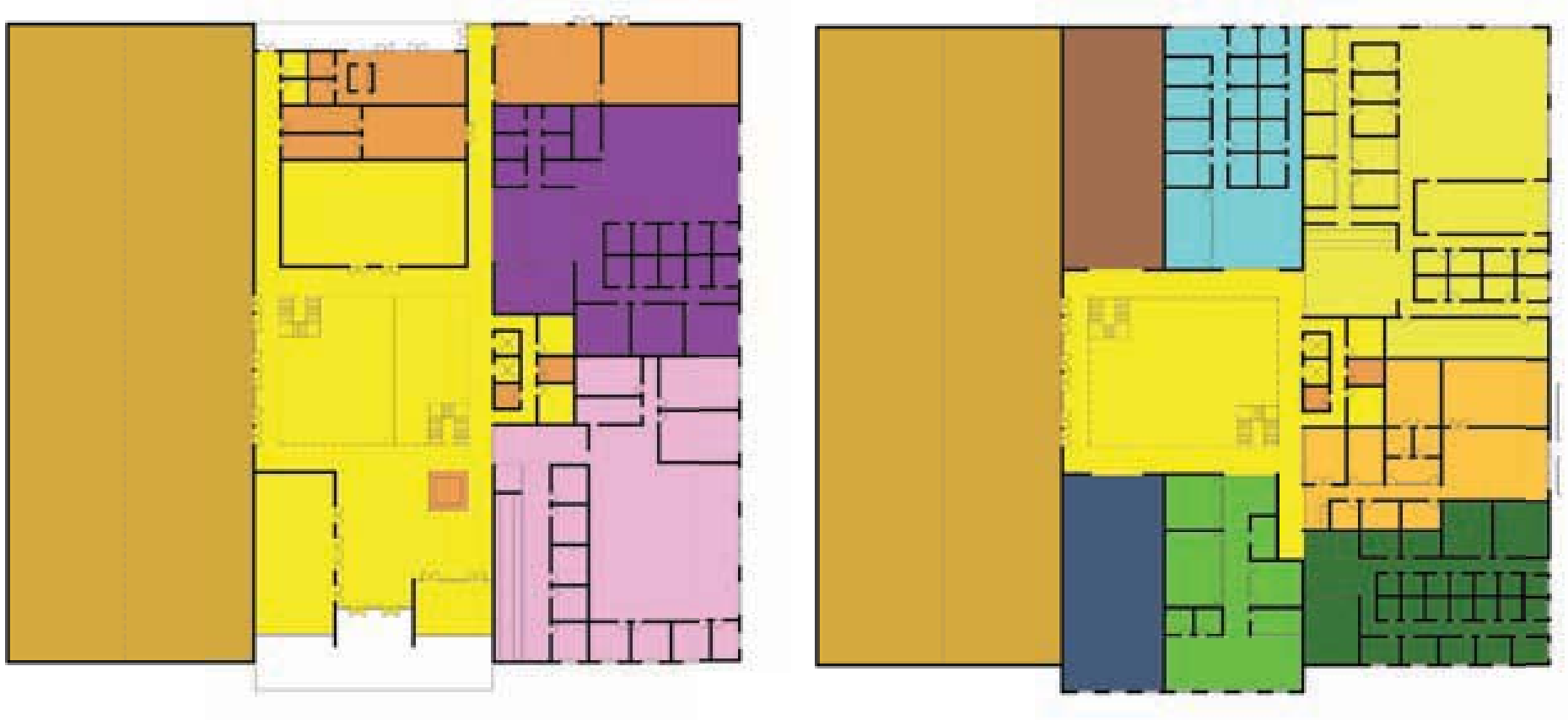
SPACE DEFINING NEEDS BY DEPARTMENT

DEPARTMENT	ACTIVITIES IN SPACE	OCCUPANTS	AREA	HEIGHT	LIGHTING REQUIREMENTS	SCHEDULE	TEMPERATURE NEEDS
URBAN RENEWAL	LIGHT TO MEDIUM OFFICE WORK	6	1200 SF	12’	TASK LIGHTING	8AM-5PM	68-78 F
ECONOMIC DEVELOPMENT	LIGHT TO MEDIUM OFFICE WORK	6	1000 SF	12’	TASK LIGHTING	8AM-5PM	68-78 F
CITY ATTORNEY	LIGHT TO MEDIUM OFFICE WORK	10	2800 SF	12’	TASK LIGHTING	8AM-5PM	68-78 F
DEPARTMENT OF ENVIRONMENTAL SERVICES	LIGHT TO MEDIUM OFFICE WORK	17	2000 SF	12’	TASK LIGHTING	8AM-5PM	68-78 F
FACILITIES	LIGHT TO MEDIUM OFFICE WORK	12	2000 SF	12’	TASK LIGHTING	24 HR ON CALL	68-78 F
FINANCIAL MANAGEMENT	LIGHT TO MEDIUM OFFICE WORK	30	10,530 SF	12’	TASK LIGHTING	8AM-5PM	68-78 F
URBAN PLANNING	LIGHT TO MEDIUM OFFICE WORK	35	5700 SF	12’	TASK LIGHTING	8AM-5PM	68-78 F
COMMUNITY DEVELOPMENT	LIGHT TO MEDIUM OFFICE WORK	40	12,500 SF	12’	TASK LIGHTING	8AM-5PM	68-78 F
INFORMATION TECHNOLOGIES	LIGHT TO MEDIUM OFFICE WORK	12	4000 SF	12’	TASK LIGHTING	24 HR ON CALL	INDEPENDENT CONTROL NEEDED

ADJACENCY DIAGRAMS BY THEIR FUNCIONAL NEEDS



DEPARTMENT LOCATIONS BY THEIR FUNCTIONAL NEEDS



INFORMATION TECHNOLOGY

ECONOMIC DEVELOPMENT URBAN RENEWAL

COMMUNITY DEVELOPMENT

URBAN PLANNING

FINANCE AND MANAGEMENT

OFFICE OF GOVERNANCE AND MANAGEMENT

ENVIRONMENTAL SCIENCES

CITY ATTORNEY

ENERGY ZONES

ZONE 1
CONTAINS MAJOR SPACES OF OCCUPANCY THROUGHOUT THE DAY

ZONE 2
CONTAINS THE MAIN CIRCULATION AND ATRIUM AREA

ZONE 3
LIBRARY

ZONE 4
PUBLIC SPACES

ZONE 5
STORAGE AND LOCKER ROOM AREAS

ZONE 6
MECHANCIAL AREAS

ZONE 7
COUNCIL CHAMBER AND MEETING SPACES

ZONE 8
REST ROOMS

ZONE 9
SERVER ROOM

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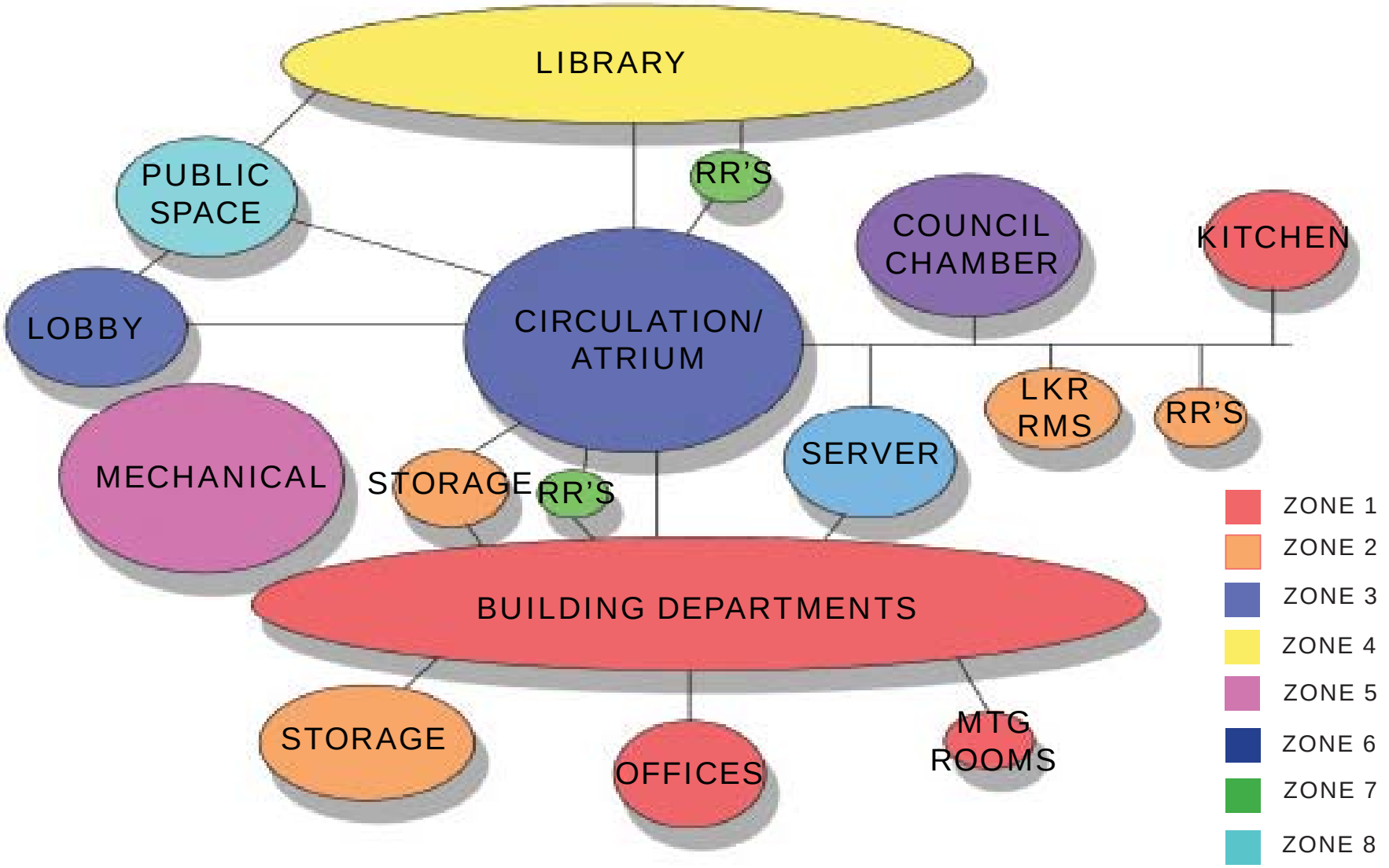
ENERGY ZONE ADJANCINCIES



ENERGY ZONE PLAN ADJACINCIES AND STACKING

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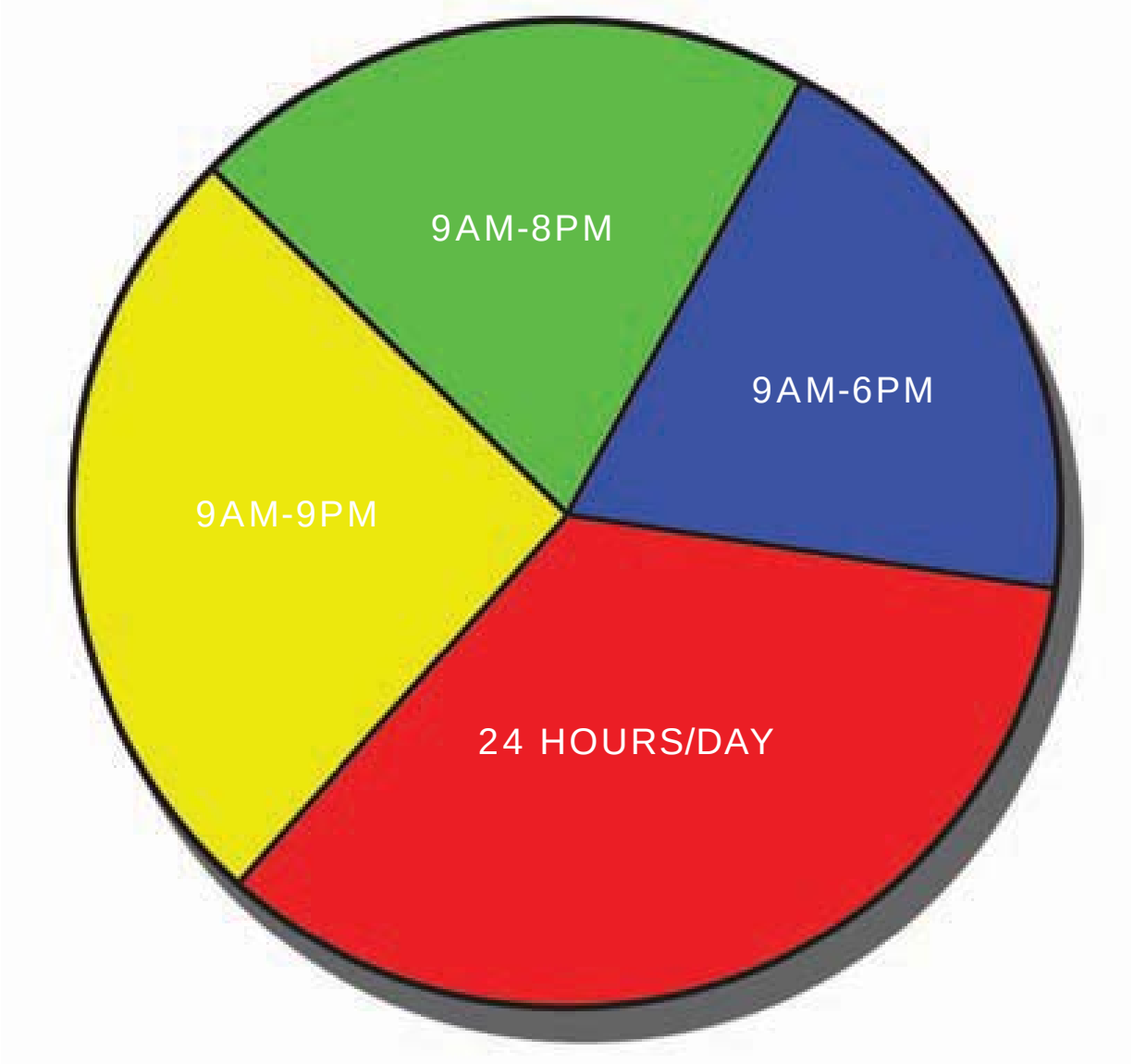
SCHEDULING NEEDS BY DEPARTMENT USE



FACILITIES & I.T.

LIBRARY

PUBLIC SPACE

URBAN PLANNING
COMMUNITY DEVELOPMENT
ENVIRONMENTAL SERVICES
ECONOMIC DEVELOPMENT
URBAN RENEWAL
OFFICE OF GOVERNANCE
FINANCE AND MANAGEMENT
CITY ATTORNEY

ENERGY STAR BUILDING CALCULATIONS

CURRENT BUILDING ESTIMATES

Target Energy Performance Results (estimated)			
Energy	**Design**	**Target**	**Average Building**
Energy Performance Rating (1-100)	59	50	50
Energy Reduction (%)	10	0	0
Source Energy Use Intensity (kBtu/Sq. Ft./yr)	197	218	218
Site Energy Use Intensity (kBtu/Sq. Ft./yr)	59	65	65
Total Annual Source Energy (kBtu)	30,313,573	33,504,951	33,504,951
Total Annual Site Energy (kBtu)	9,075,920	10,031,422	10,031,422
Total Annual Energy Cost ($)	$ 133,000	$ 147,002	$ 147,002
Pollution Emissions			
CO2-eq Emissions (metric tons/year)	1,095	1,210	1,210
CO2-eq Emissions Reduction (%)	10%	0%	0%

Facility Information Edit

Gresham City Hall
Gresham, OR 97030
United States

Facility Characteristics Edit	
Space Type	**Gross Floor Area (Sq. Ft.)**
Office	154,022
Total Gross Floor Area	154,022

Estimated Design Energy Edit			
Energy Source	**Units**	**Estimated Total Annual Energy Use**	**Energy Rate ($/Unit)**
Electricity - Grid Purchase	kWh	2,660,000	$ 0.050/kWh

Source: Data adapted from DOE-EIA. See EPA Technical Description.

* The Average Building is equivalent to an EPA Energy Performance Rating of 50.

WHILE THE CURRENT BUILDING IS HIGHER THEN THE AVERAGE BUILDING IT IS FAR FROM THE TARGET OF 100 SET BY THE 2030 CHALLENGE

NEW BUILDING ESTIMATES

Target Energy Performance Results (estimated)

Energy	Design	Target	Average Building
Energy Performance Rating (1-100)	100	100	50
Energy Reduction (%)	97	70	0
Source Energy Use Intensity (kBtu/Sq. Ft./yr)	5	56	187
Site Energy Use Intensity (kBtu/Sq. Ft./yr)	1	17	56
Total Annual Source Energy (kBtu)	763,537	8,588,031	28,627,064
Total Annual Site Energy (kBtu)	226,604	2,571,267	8,630,867
Total Annual Energy Cost ($)	$ 3,350	$ 37,680	$ 126,478
Pollution Emissions			
CO2-eq Emissions (metric tons/year)	28	309	1,038
CO2-eq Emissions Reduction (%)	97%	70%	0%

Facility Information Edit

Gresham City Hall
Gresham, OR 97030
United States

Facility Characteristics Edit

Space Type	Gross Floor Area (Sq. Ft.)
Office	154,000
Total Gross Floor Area	154,000

Estimated Design Energy Edit

Energy Source	Units	Estimated Total Annual Energy Use	Energy Rate ($/Unit)
Electricity - Grid Purchase	kWh	67,000	$ 0.050/kWh

Source: Data adapted from DOE-EIA. See EPA Technical Description.

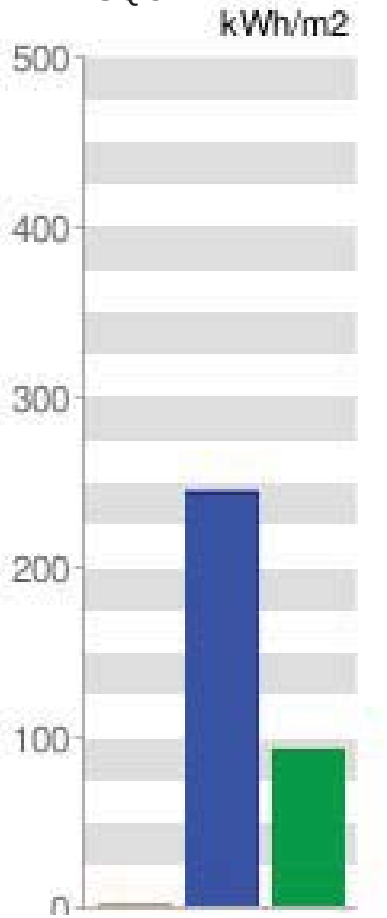
* The Average Building is equivalent to an EPA Energy Performance Rating of 50.

WITH THE ENERGY CONSERVATION STRATEGIES USED IT IS ESTMATED THAT THE BUILDING WILL MEET THE 2030 CHALLENGE AND DECREASE ENERGY USE BY 50%

MIT DESIGN ADVISOR TEST RESULTS

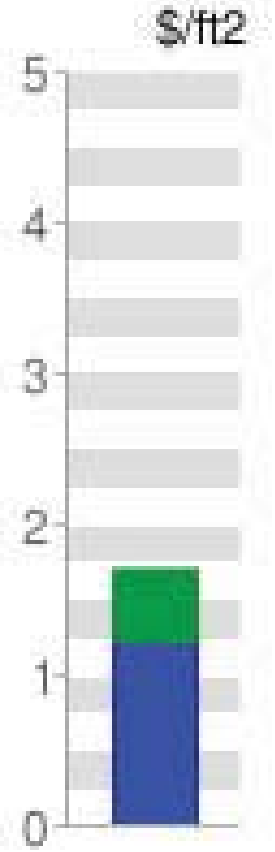
SCENARIO ONE BASED OFF OF CURRENT BUILDING DESIGN

ENERGY USE PER SQUARE METER



HEATING
COOLING
LIGHTING

1ST YEAR ENERGY COST/SQUARE FOOT



HEATING
COOLING
LIGHTING

-50% W-W RATIO

-R-17 WALLS

-R-17 ROOF

-DOUBLE GLAZED GREEN WINDOWS

-LOW MASS WALLS

-NO WINDOW SHADES

-LIGHTS DIM TOGETHER

-MECHANICAL HEATING AND COOLING

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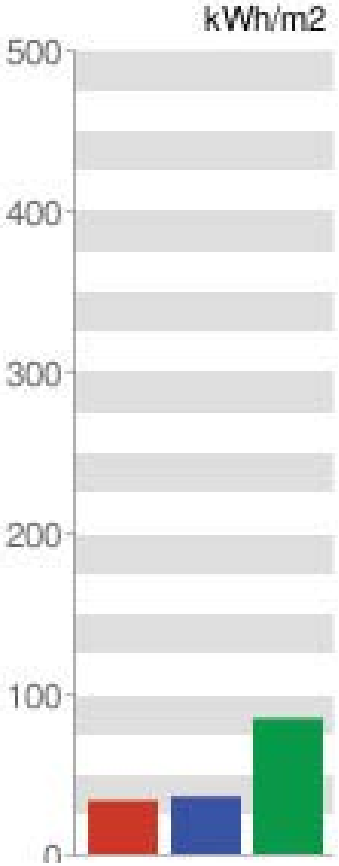
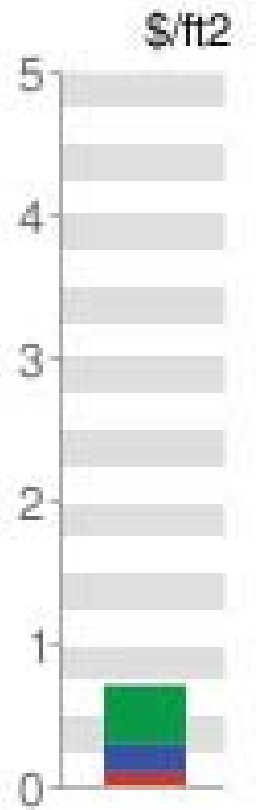
SCENARIO TWO

ENERGY USE PER SQUARE METER



HEATING
COOLING
LIGHTING

1ST YEAR ENERGY COST/SQUARE FOOT



HEATING
COOLING
LIGHTING

-50% W-W RATIO

-R-28 WALLS

-R-28 ROOF

-TRIPLE GLAZED HIGH PERFORMANCE WINDOWS

-HIGH MASS WALLS

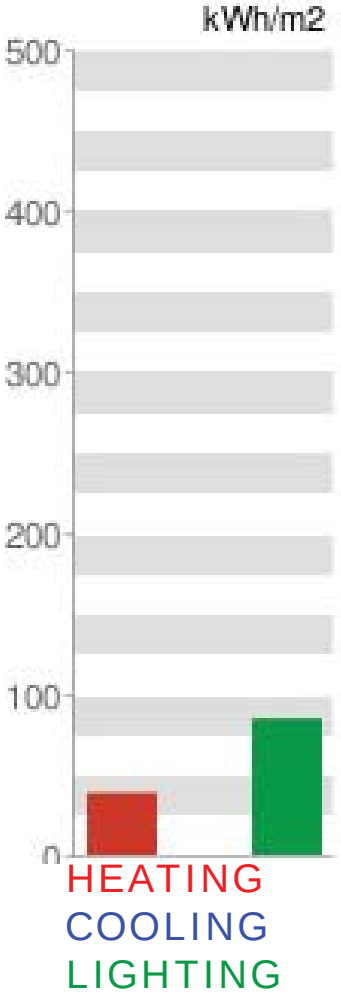
-1' WINDOW PUNCHES

-LIGHTS DIM SEPERATELY

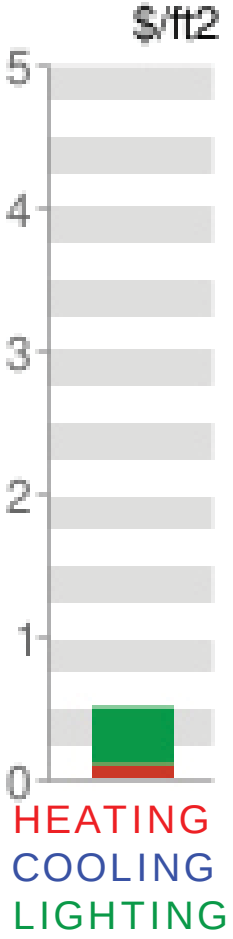
-JOINT MECHANICAL AND NATURAL VENTILATION

SCENARIO THREE

ENERGY USE PER SQUARE METER



1ST YEAR ENERGY COST/SQUARE FOOT



-50% W-W RATIO

-R-60 WALLS

-R-60 ROOF

-TRIPLE GLAZED HIGH PERFORMANCE WINDOWS

-HIGH MASS WALLS

-3’ WINDOW SHADES

-LIGHTS DIM SEPERATELY

-NATURAL COOLING AND MECHANICAL HEATING

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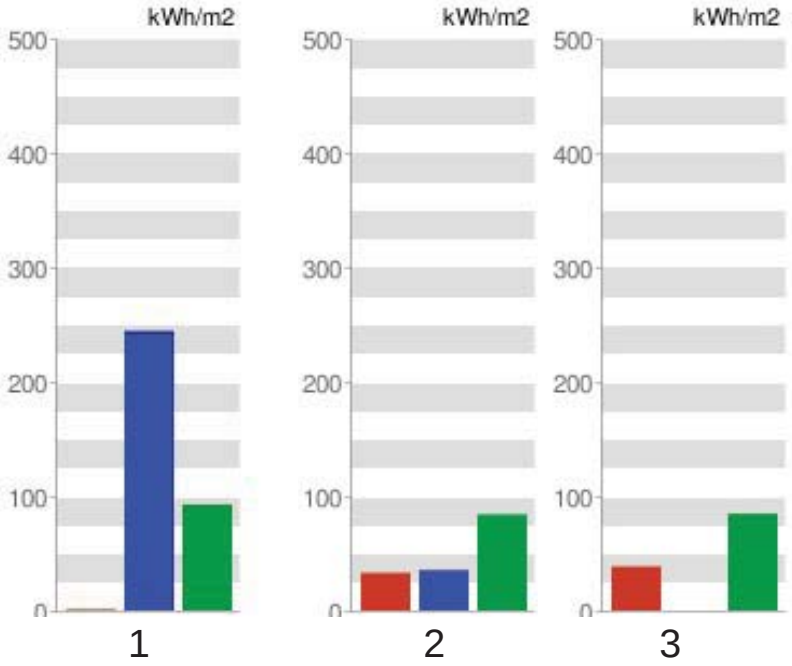
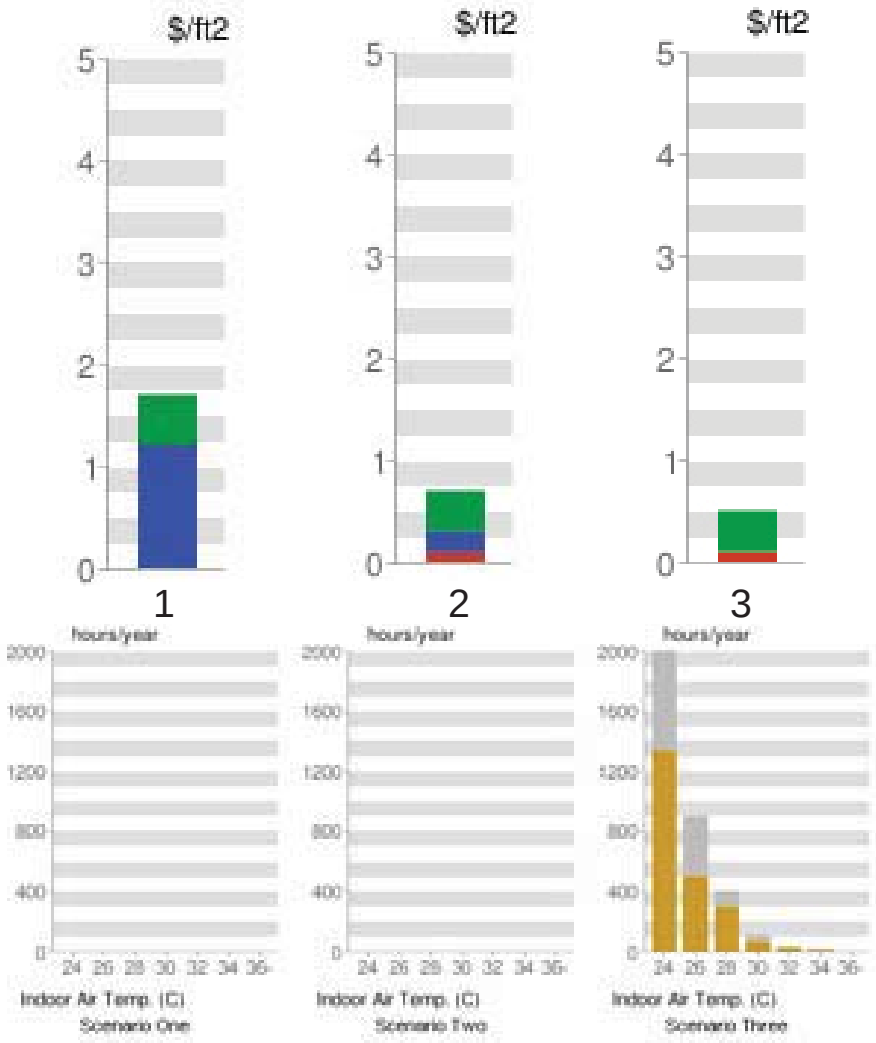
RESULTS COMPARED

ENERGY USE PER SQUARE METER



HEATING
COOLING
LIGHTING

1ST YEAR ENERGY COST/SQUARE FOOT



INDOOR AIR TEMPERATURE FROM NATURAL VENTILATION

UNIVERSITY OF OREGON

Buildings | Neighborhoods | Regions | Architecture | Planning | Landscape | Policy

IES VE-WARE 2030 CHALLENGE RESULTS

09/Dec/2009
Contents:
Energy & Carbon results
Architecture 2030 Challenge
Climate Energy Index

Energy and Carbon Results
Proposed building energy use 6,160.71 MBtu/yr

Proposed building carbon emissions 744.7 tons CO2/yr

Energy breakdown:

Heating	18%
Cooling	0%
Lights	32%
Equipment	50%

AIA 2030 Challenge - summary

Current design meets 2030 Challenge Target for: Current!

Design Building Energy Use Intensity:

39 kBTU/ft2
(Design EUI = Energy / Building Area)

Average Building Energy Use Intensity:

82 kBTU/ft2
(Used to generate 2030 Challenge Targets)

Building Type:

Administrative/Professional and Government Office

Analysis Details:

The Climate Energy Index is simple global unitary measure of energy required to maintain air at ASHRAE 55: 1981 comfort conditions. The Index is solely dependant on the climate data.
Building simulation results can be compared with the Index to provide a simple measure of performance in the context of global climate

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Location:
Portland, Oregon

(45.58N, 122.58W)

Climate File: PortlandTM2.fwt

Calculated: 09/Dec/2009 at 16:22

Calculation period: 01/Jan - 31/Dec

The AIA 2030 Challenge provides a roadmap of targets for US building projects culminating in being carbon neutral by 2030
Implementation of the Challenge requires the use of targets by building type derived from current building stock benchmarks

Challenge targets for selected building type:

Year	%reduction	kBTU/ft2
Current	50	42
2010	60	34
2015	70	29
2020	80	25
2025	90	25
2030	100	0

For certain building types targets are calculated using Energy Star methodology where energy consumption is not direct % reduction against average

Climate Energy Metric

24 hour use	2,996.1Btu/yr
Proposed hours of use	1,004.7 Btu/yr
Using the local fuel mix	0.1lbCO2/yr

The new Gresham City Hall will act as an urban catalyst for the Gresham Downtown area. A civic building needs to be a precedent in the area for energy conservation. Energy conservation was a major focus for the entire programming process.

Conservation led us to help make many of our programmatic decisions in the building, especially when locating all of the different inhabitants of the building. Locating the different users in the correct areas of the building will help the building to use the least amount of energy.

The orientation of the building on the site was an important concern. The building is located on the southwest corner of our site to take advantage of the sunlight during the peak work hours of the day. Because of this orientation the building is also orientated to take advantage of passive heating during the cooler winter months to minimize heat loss. This building will be one of the taller buildings in the direct vicinity so there will be no hazards of other buildings blocking the sun and wind at its location.

The circulation system used provides a major source of the energy conservation in the building. The main circulation area for the building is located around a large atrium space. This atrium receives ample amounts of daylight throughout the entire day, lighting all areas at different times of the day. By focusing our major areas of circulation around this atrium there is a decreased need for artificial lighting in the major circulation areas. Not only does this cut down on the lighting of this area, but the spaces adjacent to the atrium area will also receive most of the lighting needs from this central atrium space. Because of this, it also decreases the distance between the windows on the exterior side to the atrium side, so the entire building can be lit naturally instead of artificially.

Cross ventilation will be easily accomplished by slimming the building down with a single loaded corridor along the atrium and utilizing operable windows. Using operable windows will also take advantage of night time cooling during the hot summer months as well. Not only does the orientation and planned spaces take advantage of passive lighting, heating, and cooling strategies, but the materials used for the building will as well.

By cladding our building in brick and using a thick masonry wall we have increased the thermal mass of the building. Doing this has helped us cool the building in the summer by soaking up the heat in the daytime and cooling it at night, and doing the opposite in the winter time to help heat the building.

Group B6

3rd & Hood

Ted Mitchner
Alex Toevs
Adrian Chan
Brett Holverstott

"A successful Gresham City Hall will translate the unique identity and history of Gresham in to civic architecture that inspires, welcomes, and strenghens downtown."

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B6

Existing Building Analysis

*Dreary and unwelcoming exterior, does not present the image of a city hall

*Poor use of space (Daylight access in storage room but not mail/process work room)

*Long corridors in upper levels

*Inefficient building layout. Plan need to be reversed to function and serve the public more efficiently

*Lack of open, central, gathering space

*More visual access to the outside would help employees mark the time of day

*Empty, unused concrete plaza

*Long winding, confusing access to large conference center

*8am-5pm building on weekdays and deserted on weeknights and weekends

Needs Analysis - OGM

Gresham City Hall Office of Governance and Management Areas					
	Future No. of rooms	Room Type	Room Dims Feet	Typical area SF	Total future SF
Offices					
Mayors Office	1	Office	16x20	320	320
City Manager's Office	1	Office	16x20	320	320
City Councilor's Workroom	1	Office	16x24	384	384
Assistant to the Mayor	1	Office	12x10	120	120
Director of Human Resources & Community Services	1	Office	12x10	120	120
Senior Personnel Analyst – Training	2	Office	12x10	120	240
Personnel Analyst	1	Office	12x10	120	120
Communications Manager	1	Office	12x15	180	180
Program Technician – Communications, askGresham	1	Office	12x10	120	120
Community Services Manager – Volunteers, Neighborhoods	1	Office	12x10	120	120
Emergency Management Coordinator	1	Office	12x10	120	120
CERT Program Coordinator	1	Office	12x10	120	120
Mediation Specialist	1	Office	12x10	120	120
Council Coordinator	1	Office	12x10	120	120
Executive Director – Rockwood-West Gresham Urban Renewal Ag	1	Office	12x10	120	120
City Recorder Management Analyst Program Technician	1	Office	12x15	180	180
Subtotal					2044
Circulation 40% of total					*700*
Total					**2744**
Cubes					
AmeriCorp Neighborhood Safety Team Coordinator	1	Cube	9x9	81	81
Community Relations Administration	1	Cube	9x9	81	81
Administrative Assistant II	1	Cube	9x9	81	81
Administrative Assistant III	1	Cube	9x9	81	81
Expansion cubes	10	Cube	9x9	810	810
Subtotal					1134
Circulation 40% of total					486
Total					**1620**
Common Spaces					
Conference rooms - medium (10-14)	2		22x17	374	748
Conference room - large (25)	1		16x25	400	400
HR training room - (60)	1		25x40	1000	1000
Work Room	1		16x25	400	400
Kitchen/Break room	2		12x10	120	240
Waiting area	1		12x10	120	120
Subtotal					2908
Circulation 40% of total					406
Total					**3314**

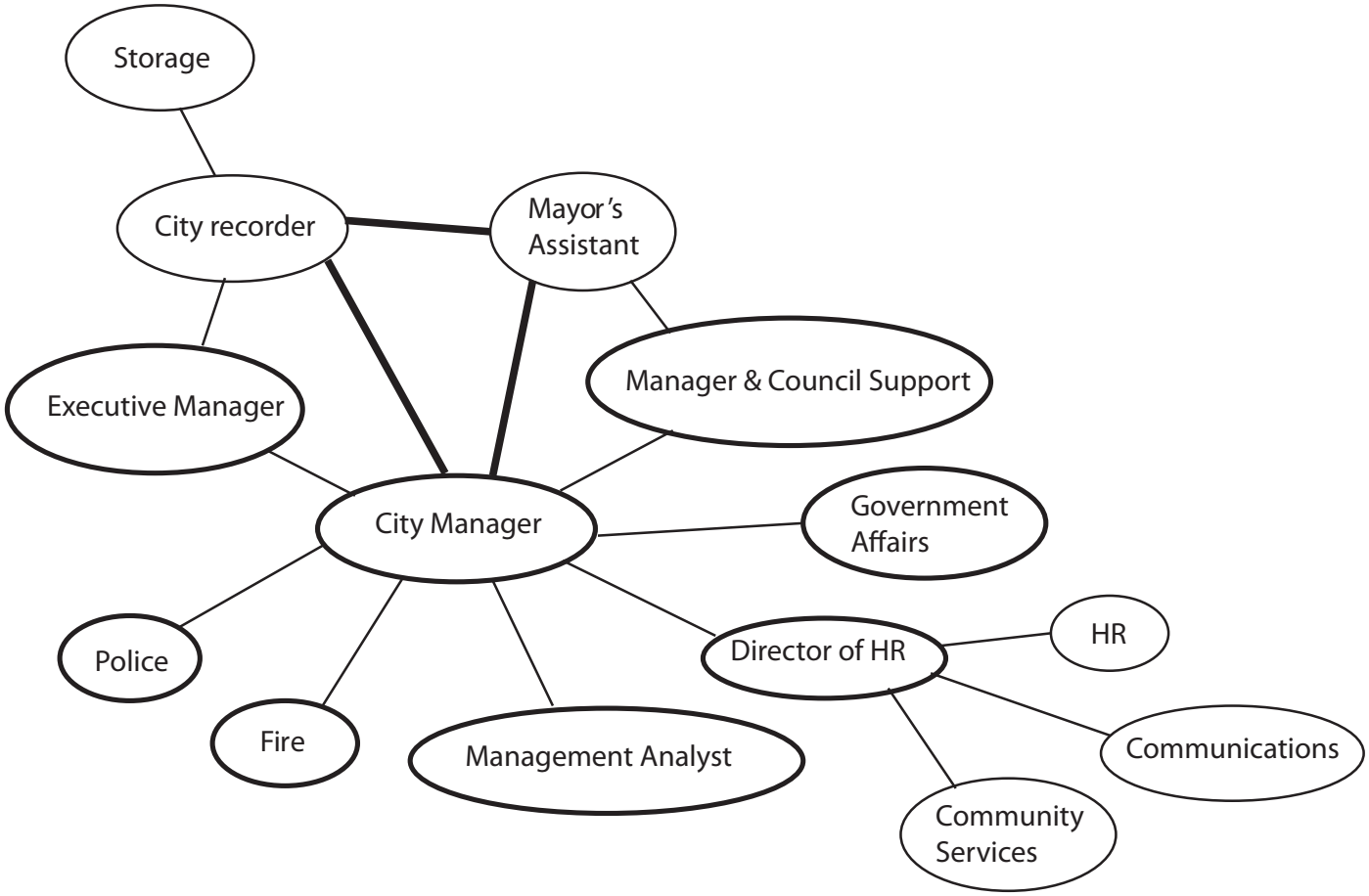
Needs Analysis - OGM

	GOALS	FACTS	NEEDS	IDEAS
HUMAN	Childcare	Employees have small children	Care for 40 0-5 tots	Childcare center
	Accessible Food and Drink	Employees like easily accessible coffee and food	Coffee or Deli to serve employees	Bring in existing downtown buisnes as tenant
ENVIRONMENTAL	x			
CULTURAL	Public access	Current location removed from public	Better accessibility	Located off atrium
TECH			Kitchenette w/ DW and purified water	
		Only one copier and the City Council places high demand on it	Second copier for City Council	
			Coffee station for City Council	
TEMPORAL	Anticipate future growth	Current economic conditions have temp. reduced the OGM workforce	Space to add 10 cubes	Create flexible space
ECONOMIC	x			
AESTHETIC	To reflect city identity			Waiting area displays
SAFETY	Re-usable dishware to reduce landfill impact	Paper plates currently used	Meet sanitary standards for re-usable dishes	Kitchenette Dishwasher

Adjecency Diagrams - OGM

Office of Management and Governance

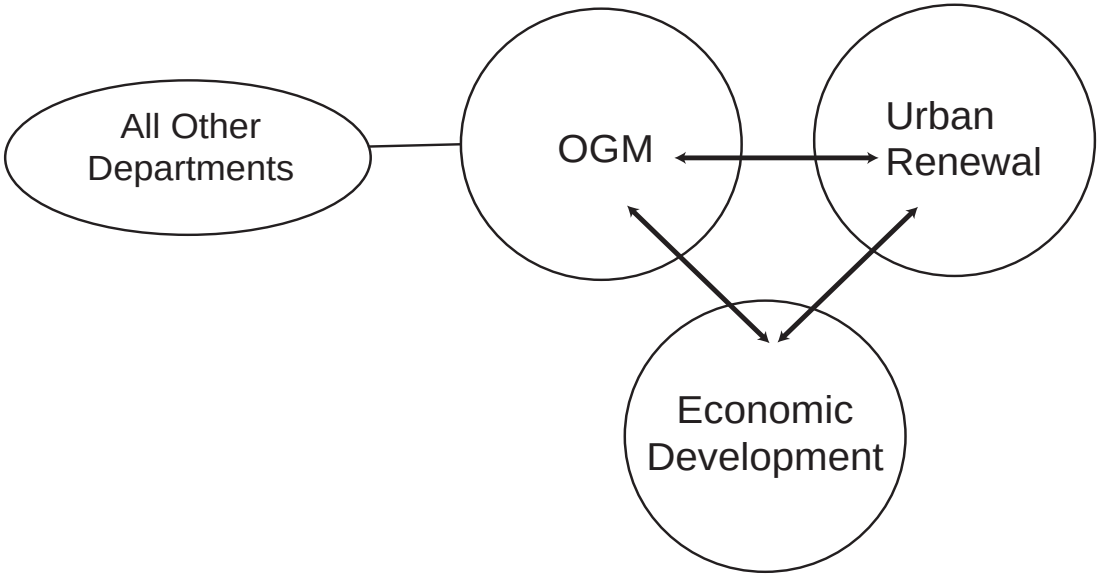
Internal Department DIagrams



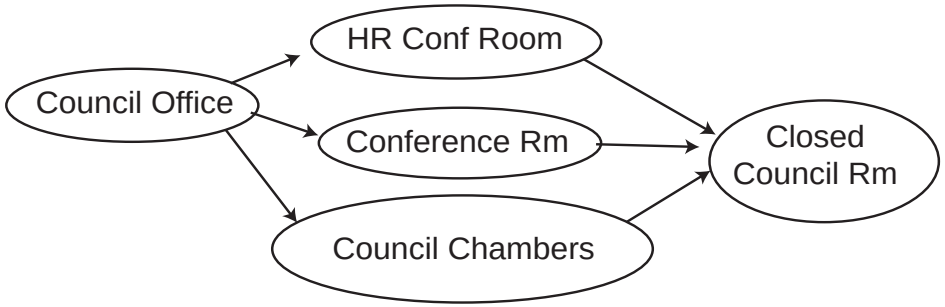
Adjecency Diagrams - OGM

Office of Governance and Management

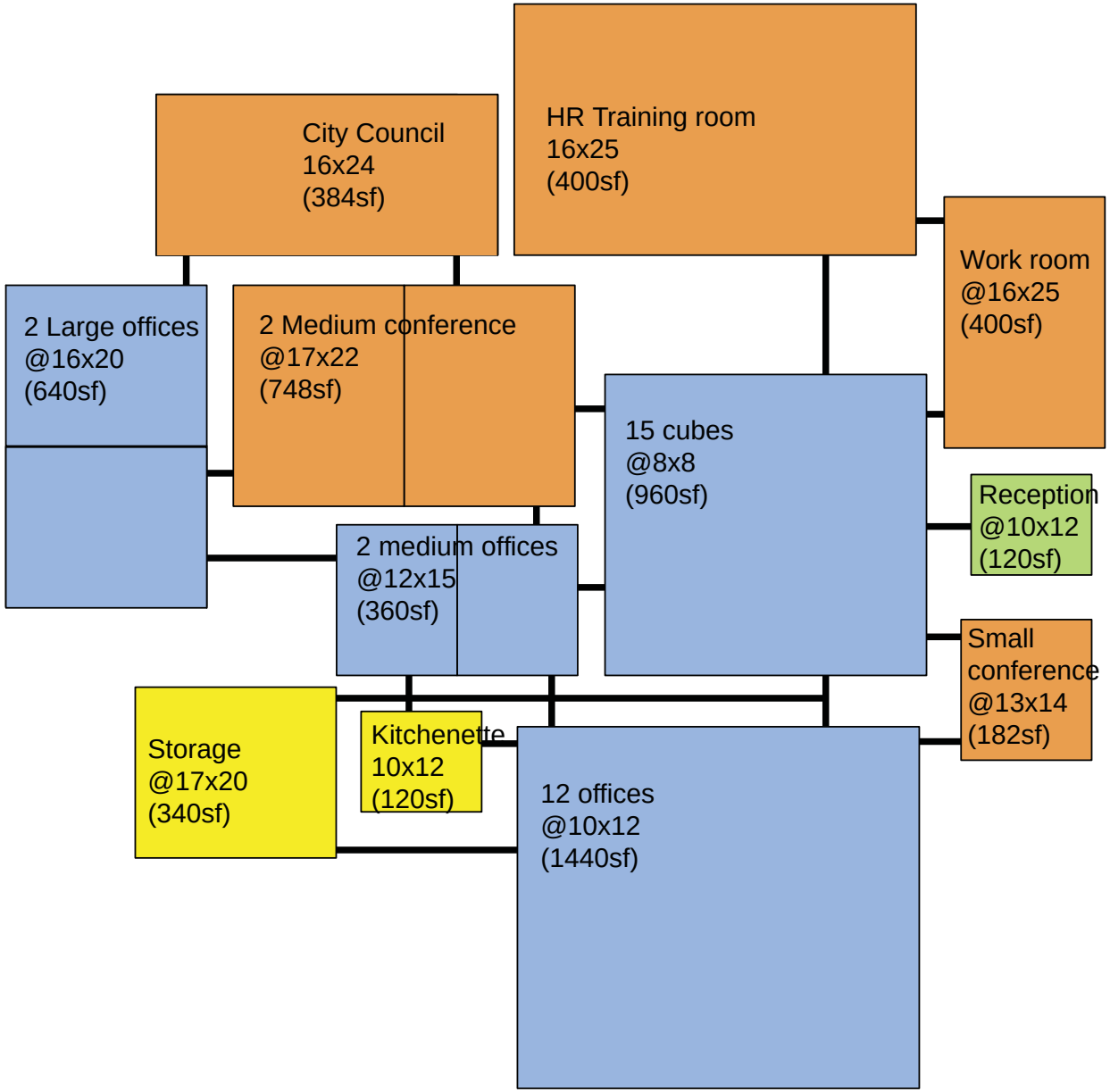
External Department Diagrams



Public Meetings:



Scaled Diagram - OGM



Needs Analysis - Community Development

Gresham City Hall Community Development Plan Areas -						
	Future No. of roo	Room Type	Room Dim Feet	Typical are SF	Total future SF	Notes
Offices						
Director/Building Official	1	Office	16x12	192	192	
Business Systems Coordinator	1	Office	12x10	120	120	
Management Analyst	1	Office	12x10	120	120	
Administrative Supervisor	1	Office	12x10	120	120	
Assistant Building Official	1	Office	12x10	120	120	
Structural Engineer/Plan Examiner	1	Office	12x10	120	120	
Chief Electrical Inspector	1	Office	12x10	120	120	
Chief Mechanical Inspector	1	Office	12x10	120	120	
Chief Plumbing Inspector	1	Office	12x10	120	120	
Senior Code Compliance Inspector	1	Office	12x10	120	120	
Permit Supervisor	1	Office	12x10	120	120	
Senior Rental Housing Inspector	1	Office	12x10	120	120	
Expansion office @ 20% growth	2	Office	12x10	120	240	
Subtotal					1752	
Circulation 40% of total					*700*	
Total					**2452**	
Cubes						
Program Technician	1	Cube	9x9	81	81	
Admin Assistant II	1	Cube	9x9	81	81	
Building Inspector II - Elec	1	Cube	9x9	81	81	
Building Inspectors - St/Mech	2	Cube	9x9	81	162	
Plans Examiners - St/Mech	3	Cube	9x9	81	243	
Building Inspectors - Plumbing	2	Cube	9x9	81	162	
Code Compliance Inspectors	3	Cube	9x9	81	243	
Permit Technicians	5	Cube	9x9	81	405	
Rental Housing Inspectors	3	Cube	9x9	81	243	
Expansion cubes @ 20% growth	4	Cube	9x9	81	324	
Subtotal					2025	
Circulation 40% of total					810	
Total					**2835**	

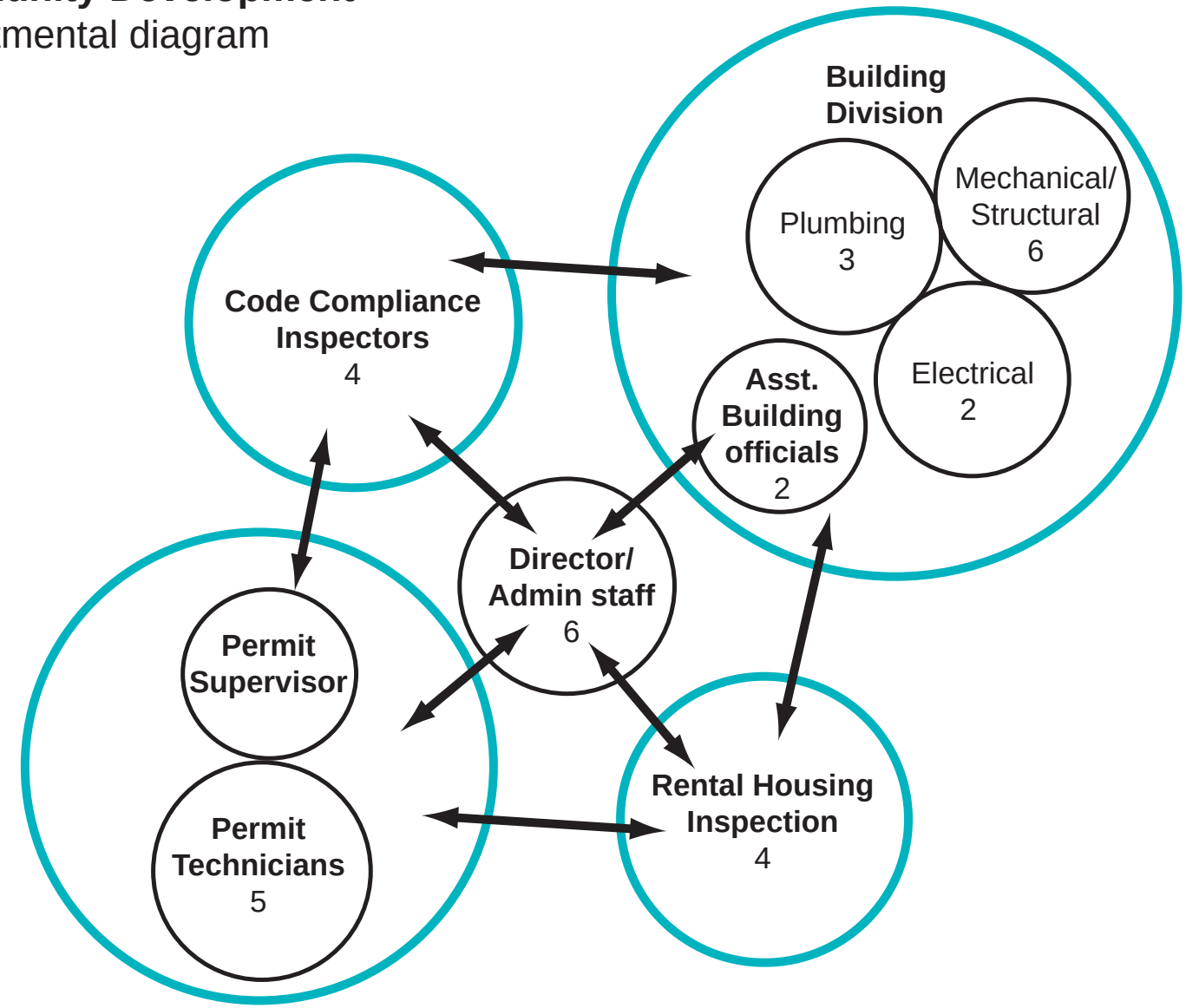
Common Spaces					
Conference rooms - small (5-7)	4	10x12	120	480	
Conference rooms - medium (10-14)	2	22x17	374	748	
					Could be shared outside
Conference rooms - large (16-20)	1	30x20	600	600	Community Development
Storage	1	17x20	340	340	To be revisited
Kitchen/Break room	1	30x40	1200	1200	Could be shared
Waiting area/public counters	1	30x40	1200	1200	
Subtotal				4568	
Circulation 40% of total				1827	
Total				**6395**	

Needs Analysis - Community Dev.

	GOALS	FACTS	NEEDS	IDEAS
HUMAN	Adjacency of departments	Communication is vital between departments	Need to be on the same floor in close proximity	Departments surround central space, e.g. waiting area
			Shared conference space	
	Efficiency	Staff spends too much time moving between counters and departments	Customer should move between departments	"Assembly line" of counters that moves public through permitting/inspection process
		Large, multi-paged documents are cumbersome	More work area to accommodate documents	More counter space
	Physical access	Public counters works best near building entrance	Counters need to be accessible and easy to find	Public counters visible from reception desk and on same the level
ENVIRONMENT	Connection to nature	Staff says access to outdoors improves mood and outlook	Visual and physical access	Outdoor lunch patio
			Workday should be marked by weather changes and time of day	Accessible green roof
				"Green" atrium
				Water feature
	Sustainable City Hall	Public considers City Hall a symbol of city's values	City Hall should reflect Gresham's commitment to sustainability	LEED certifitication
CULTURAL	Public-friendly	People only enter City Hall for specific business	Contribute to downtown life	Mixed-use building with retail, café
		City Hall is funded by taxpayers	City Hall should represent thoughtful spending of taxpayer funds	Curtain wall at the ground floor
			Public should enjoy their City Hall	Make certain spaces available for rental, public functions
TECHNOLOGY	Easy and secure document retrieval	Archived files/documents require lots of storage	Digital/electronic documentation	Reduce physical storage by using online and digital files

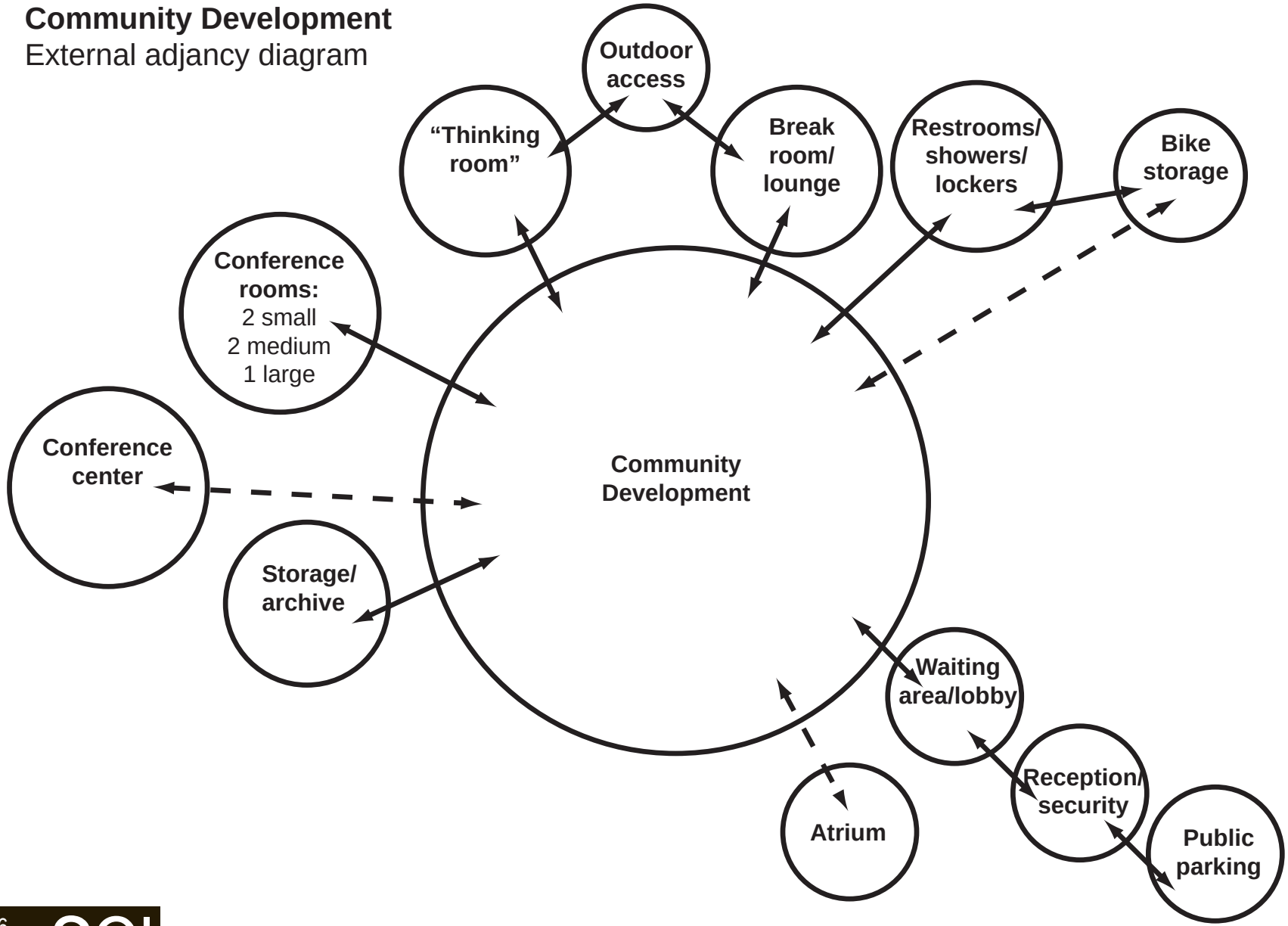
Adjecency Diagrams - Community Development

Community Development
Departmental diagram

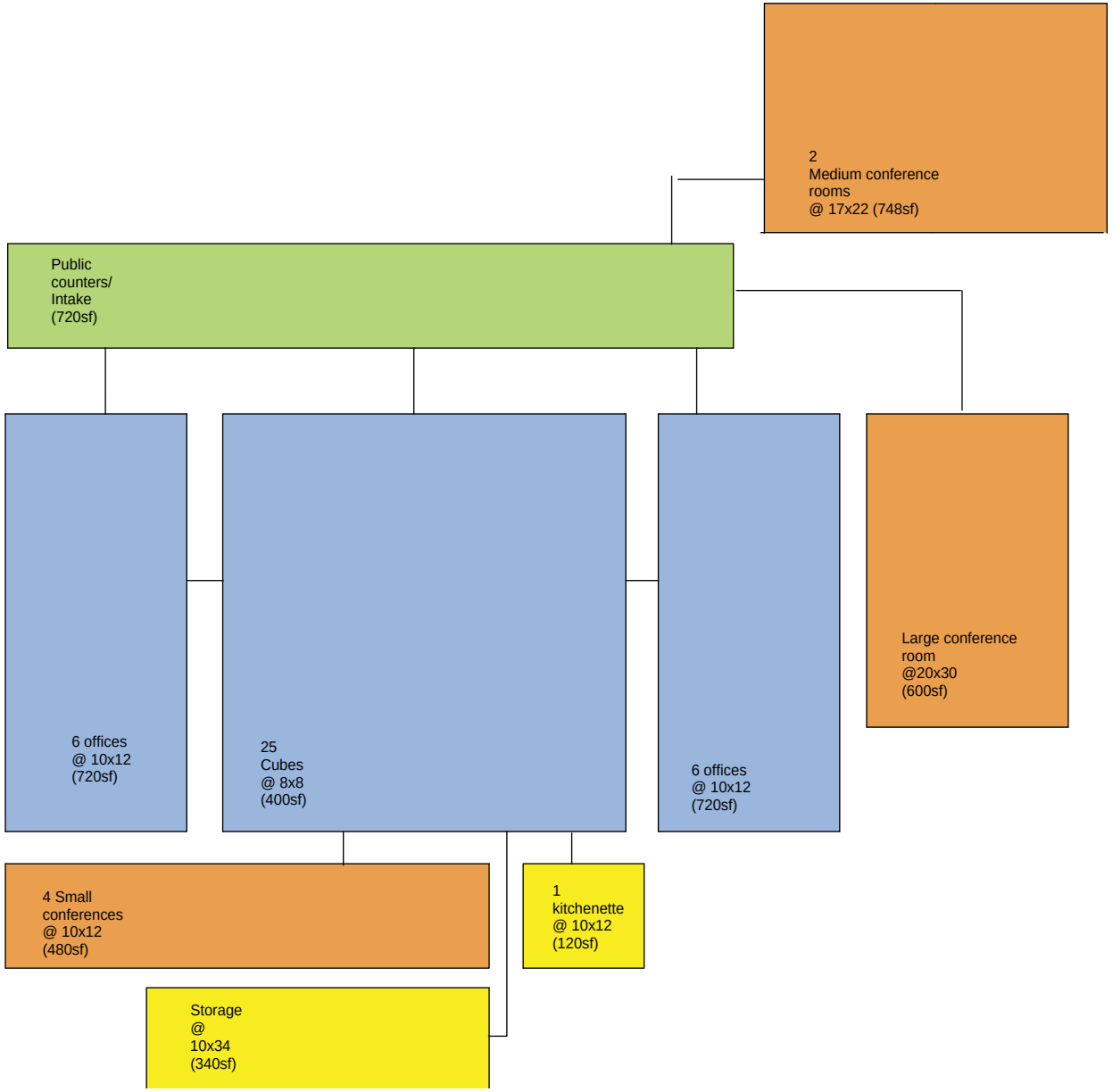


Adjecency Diagrams - Community Development

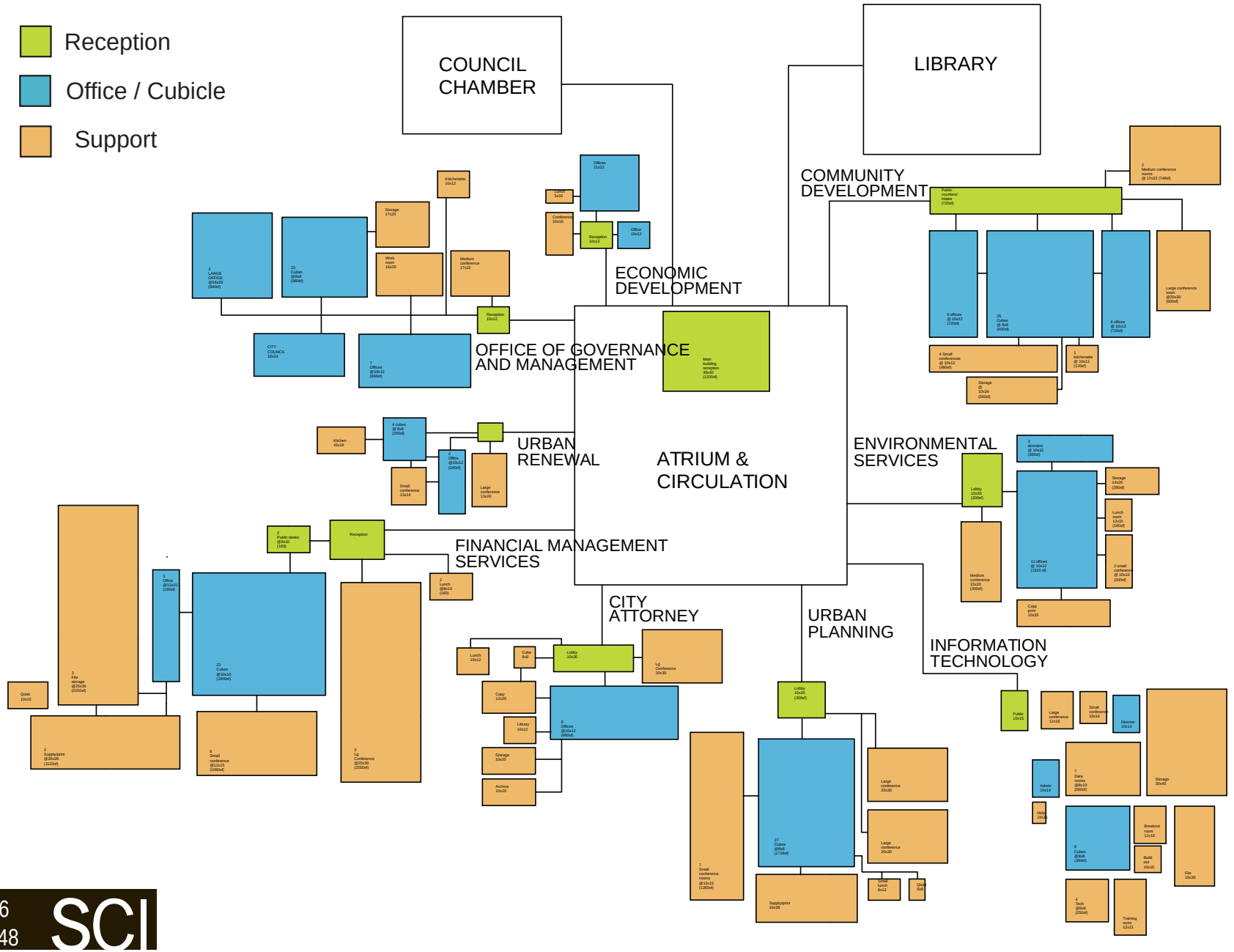
Community Development
External adjancy diagram



Scaled Diagram - Community Development



Scaled Diagram - Gresham City Hall



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Design Ideas

Eugene City Hall proposal THA Architects -

The Eugene City hall proposal by THA Architects demonstrates the use of an atrium as an organizi element as well as public interface and wayfinding. Atriums also provide daylight access deep into t building where there would otherwise be artificially lit spaces.

Design Ideas

Lloyds of London - Richard Rogers Partnership

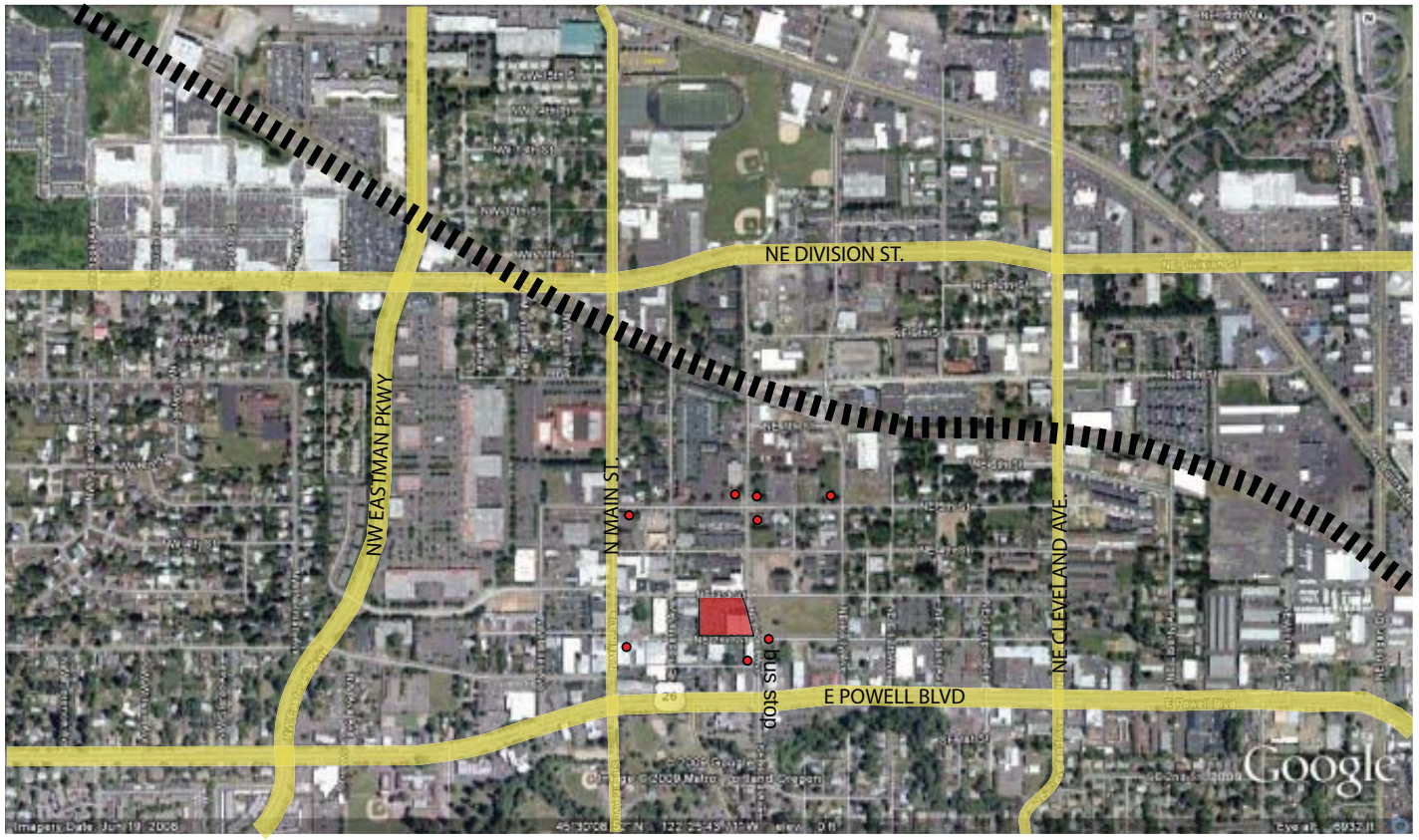
The Lloyds of London building is another example of the organizational quality an atrium provides a
well as a sense of unification and spaceiousness.

2nd and Hood (Site 2) Site Analysis

- Proximity to light rail

- Along or in proximity of bus route 9, 27, 80, 81, 84

- Close access to major roads

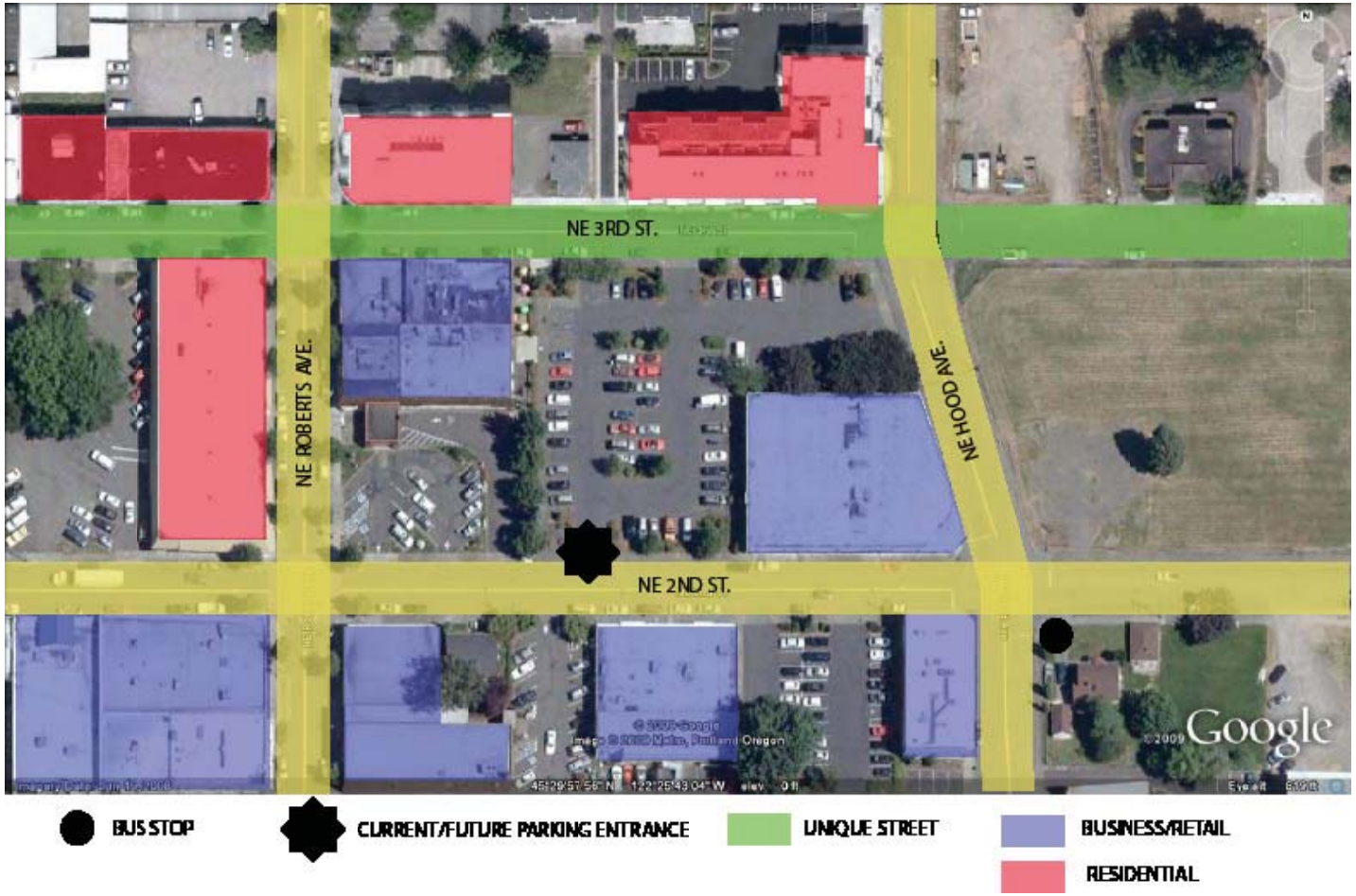


2nd and Hood (Site 2) Site Analysis

- 3rd St. desiginated as “unique street” surrounded by residential and business

- Urban commercial street

- Future parking entrance to be on 2nd st.



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Design Guidelines and Standards -
City of Gresham

Downtown Commercial Core (DCC)

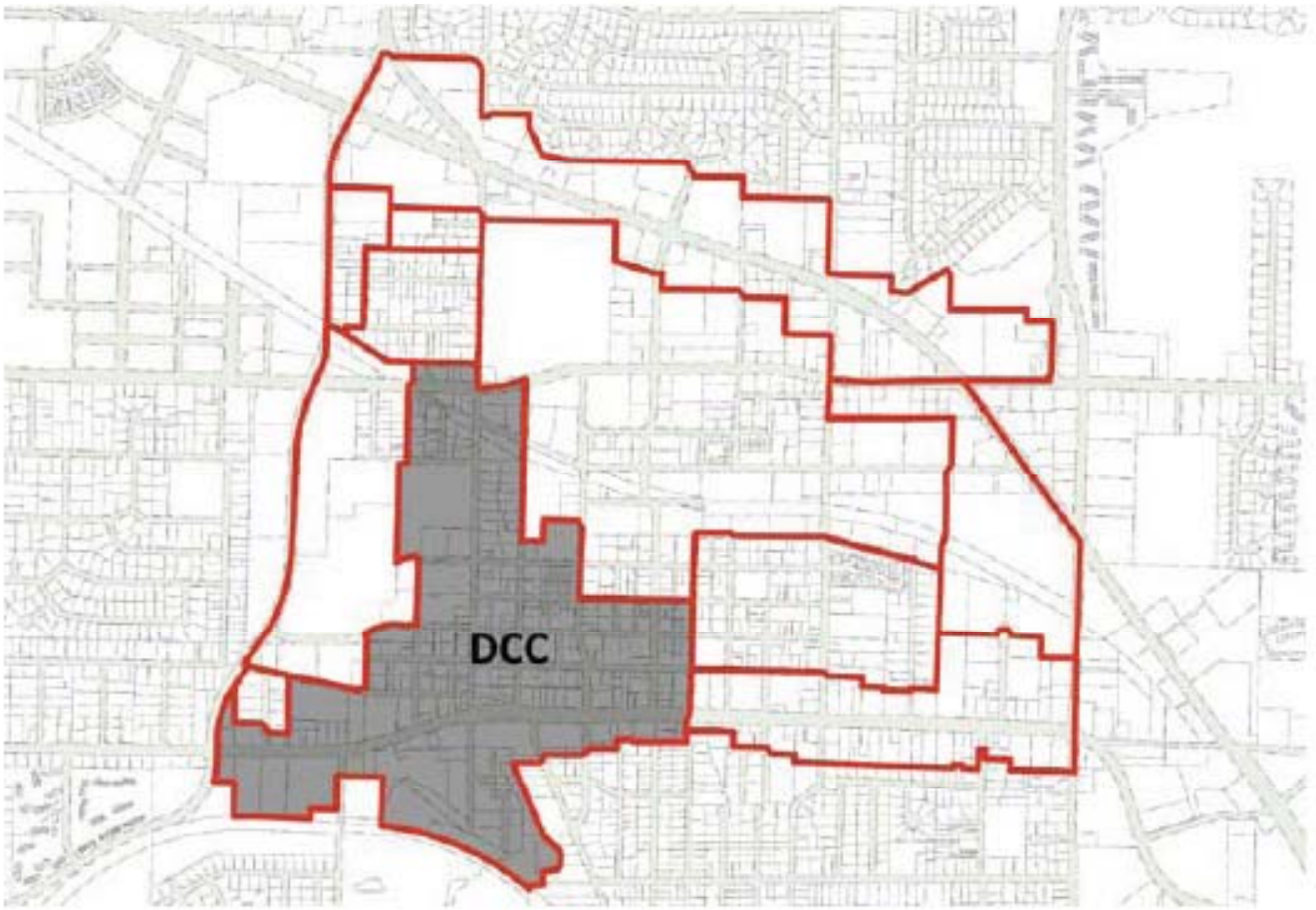
- City's long-standing center

-local businesses, small-scale storefronts, and inti-mate
sidewalks.

-small-scale, walkable quality

- The DCC allows a wide range of uses- residential, office,
retail, service- that will help create a vibrant Sub-District that is active most of the day.

Map 4.1152: Downtown Commercial Core Sub-District



Design Guidelines and Standards -
Downtown Street Types

- positive building-to-sidewalk relationships and well-de-signed streetscapes.

-The life of Downtown shall be closely tied to the character of its public space

-focus on the community and pedestrian-oriented, transit-supportive Sub-Districts.

-Special features have been incorporated into several street design classifications. How buildings interface with the street varies based on function, location, land uses and multi-modal capacity.

Map 4.1140: Downtown Street Types

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Design Guidelines and Standards -
Urban Commercial Street (2nd St. and others)

Street Type Standards:

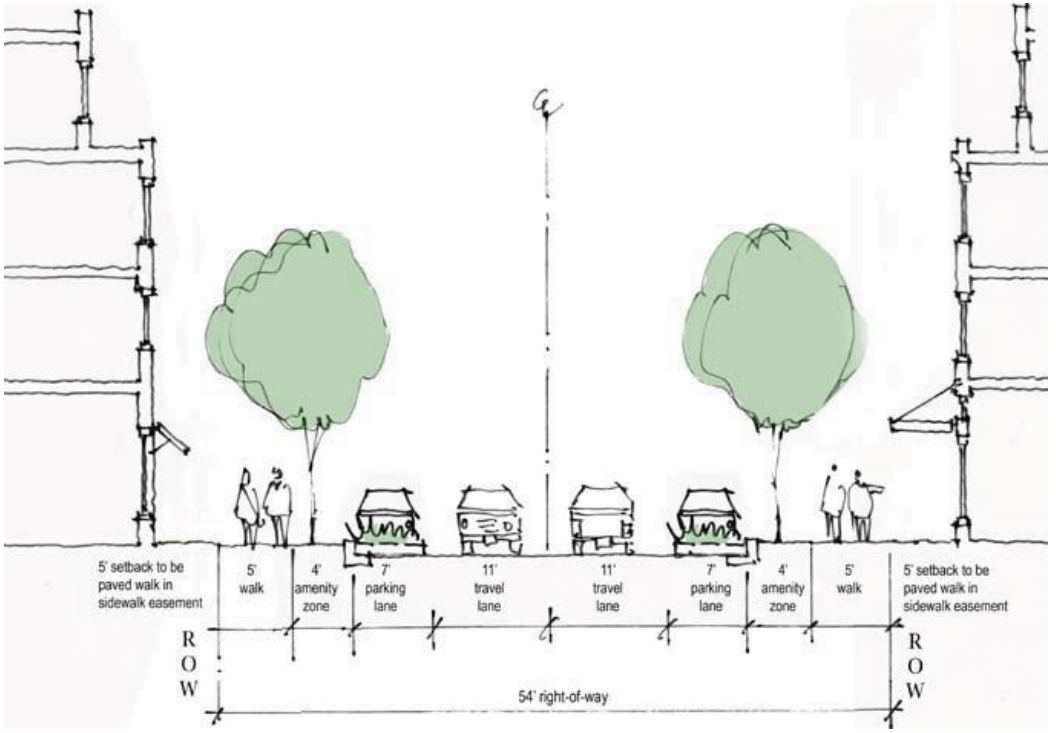
1. There shall be a clear accessible walking route of 5 feet provided in a walk of 10 feet width.

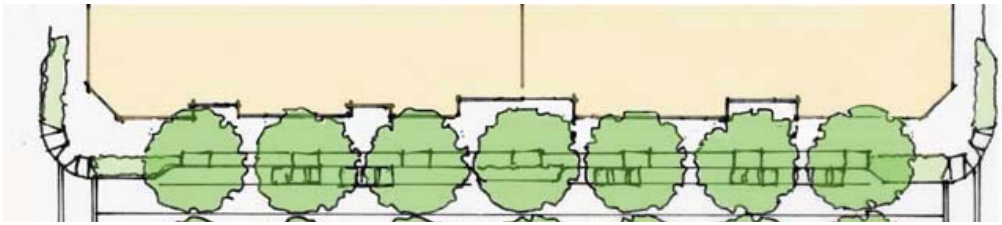
2. There shall be a 4-foot amenity zone provided. This amenity zone may consist of street trees, street lighting, landscaping and/or seating.

3. A minimum of 60% of the ground-floor level shall be transparent with visibility into and out of the building for commercial uses.

4. No parking shall be permitted on any corners facing public streets.

5. Overhead weather protection shall be





Design Guidelines and Standards -
Unique Street (3rd St.)

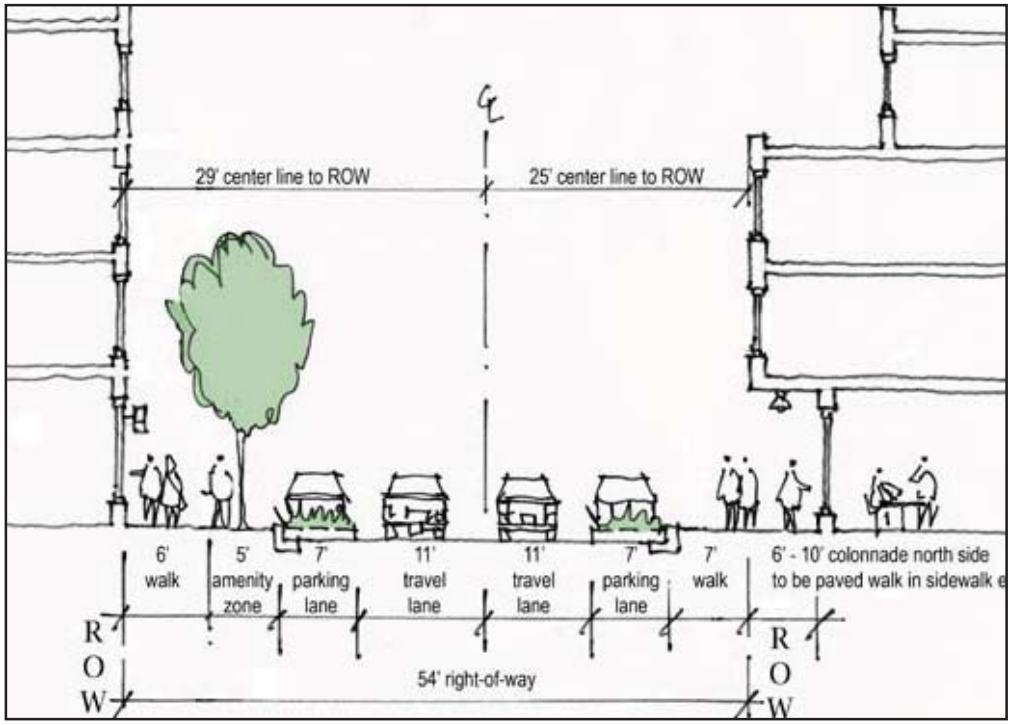
Street Type Standards:

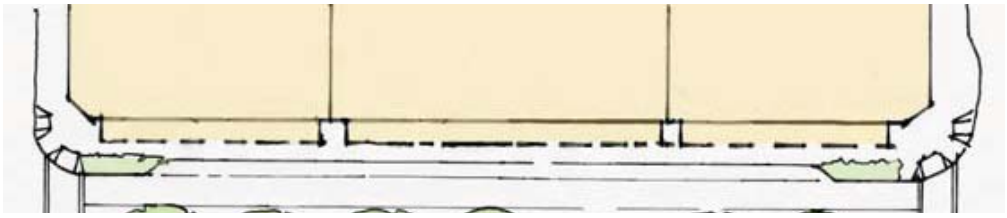
1. There shall be a minimum clear accessible walking route of 5 feet provided on the north and south sides of the street. The pedestrian walk width shall be 6 feet on the south side of the street and 7 feet on the north side.

2. There shall be a 4-foot amenity zone provided on the south side of the street. This amenity zone may consist of street trees, street lighting, landscaping and/or seating.

3. A minimum of 75% of the ground-floor level shall be transparent with visibility into and out of the building.

4. No parking shall be permitted on any corners facing public streets. No parking access or loading access shall be provided directly from this street.





2nd and Hood (Site 2) Current Conditions

site from arts plaza

3rd and Hood - existing buildings on site

3rd and Hood from arts plaza

center for the arts plaza (across from site

2nd and Hood (Site 2) Current Conditions

Positives:

-The new Gresham City Hall will invigorate the immediate area by injecting a few hundred more people, who will work in and travel through the downtown area.

-By responding to the unique site condition, the new city hall will embrace Center for the Arts Plaza across the street and create an activated civic space.

-The call to have 3rd Street reflect the unique character of Gresham will be supported by a new 30,000 sq. ft. city library with its green roof terrace planted with indigenous species

-Surrounding local businesses will experience a boost in clientele with perhaps a consumer base large enough to support future small businesses.

Negatives:

-The volume of traffic will dramatically affect the area, possibly creating congestion at 8am and 5pm.

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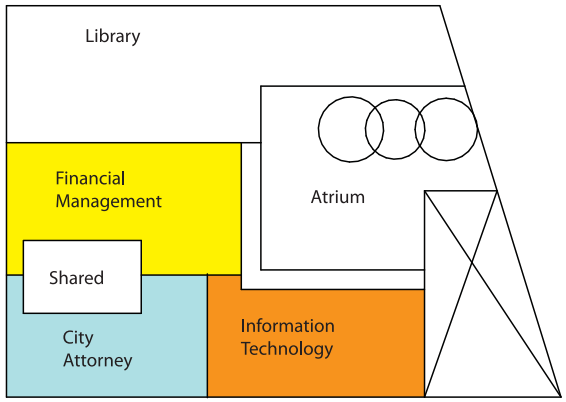
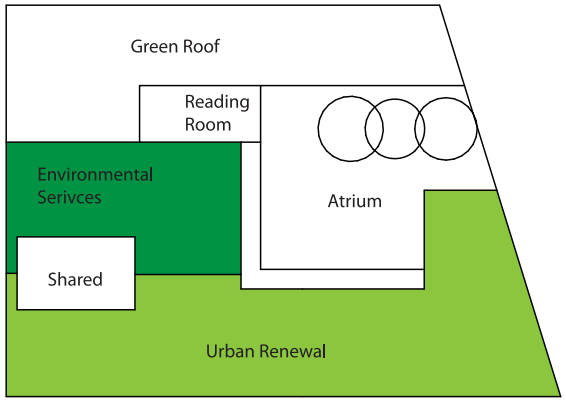
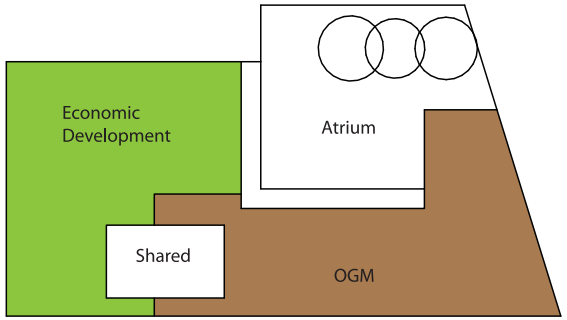
2nd and Hood (Site 2) Floor Plans



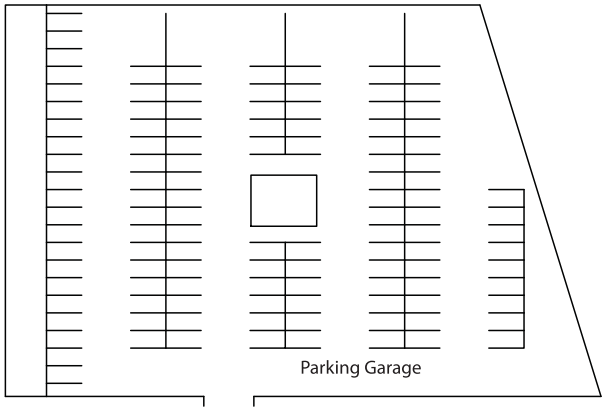
second floor



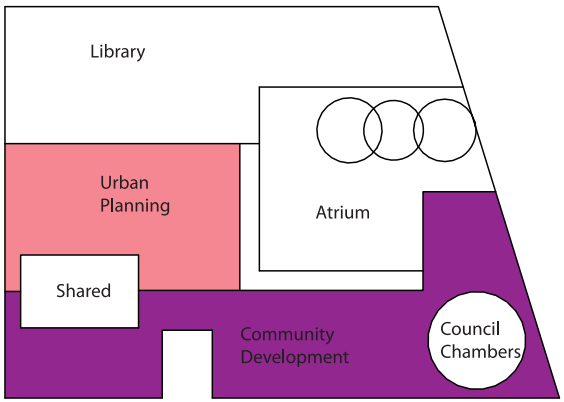
third floor



fourth floor

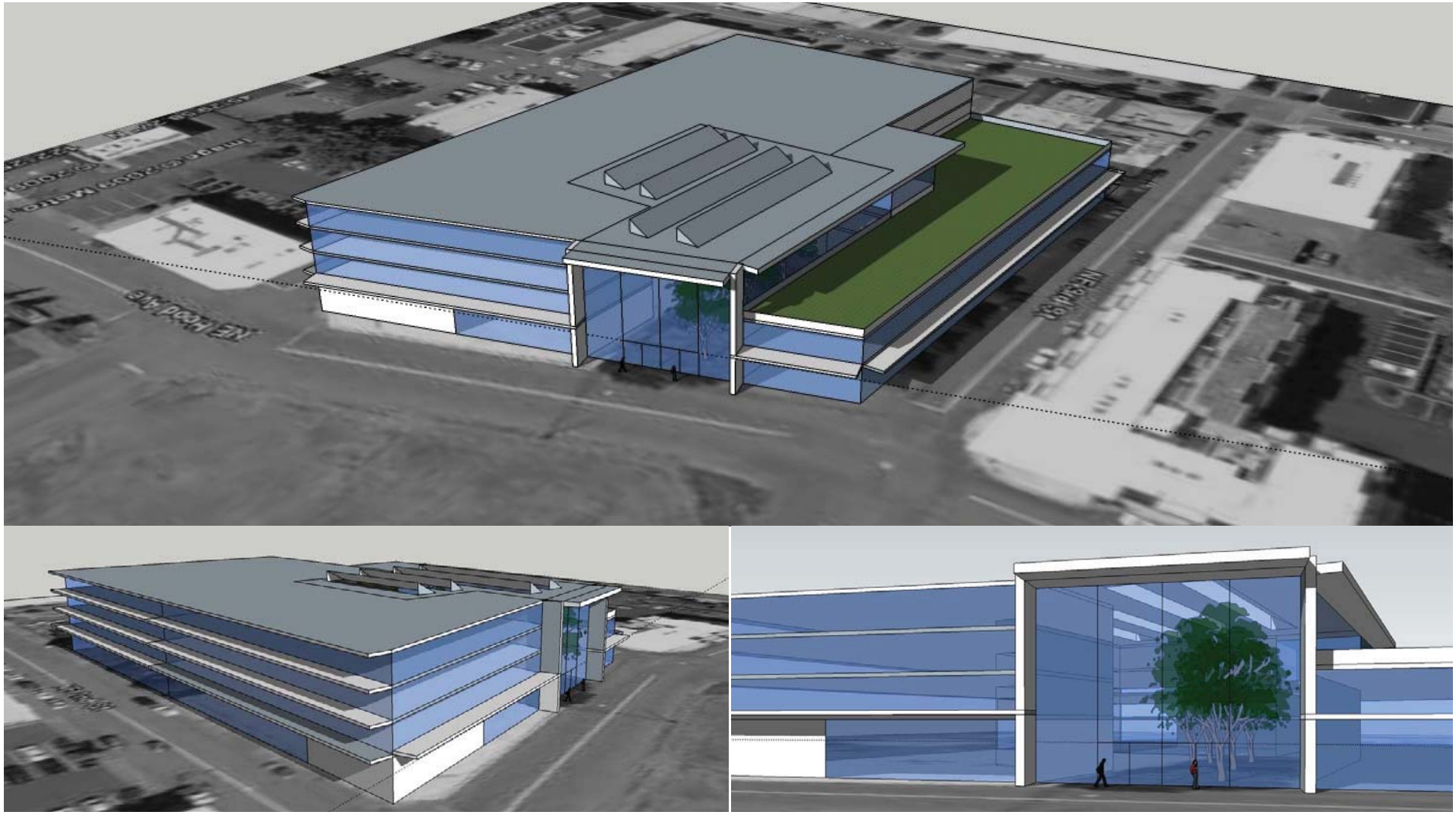


basement



first floor

2nd and Hood (Site 2) Massing



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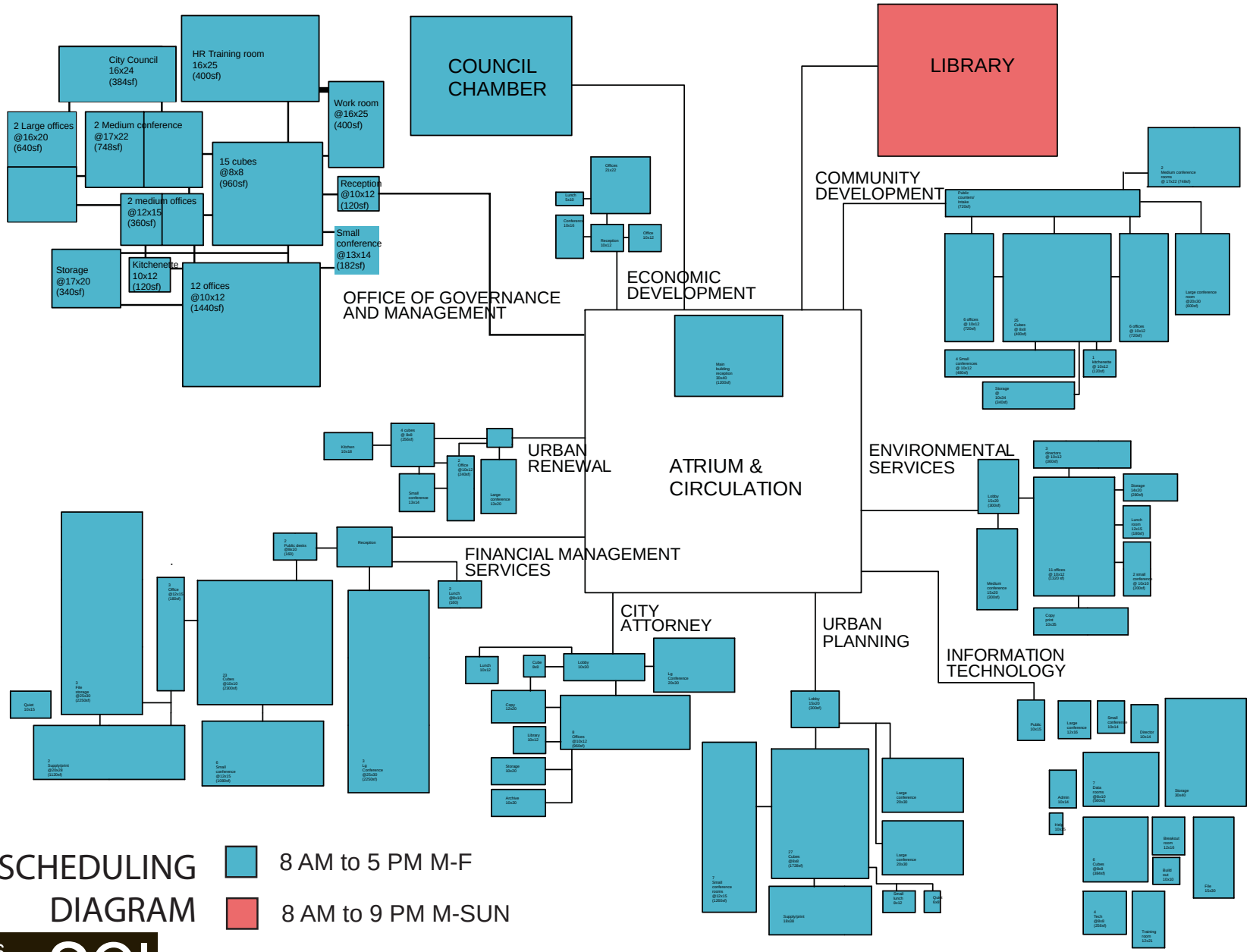
Energy Studies - Introduction

To promote sustainability in Gresham, the new City Hall needs to incorporate sustainable design as a way to demonstrate the city's commitment to energy efficient building. This idea of symbolizing the city's goals in a visible and concrete way was expressed to our team by city employees, who encouraged features such as a green roof, open atrium and solar panels. In addition to planning and zoning efforts, the new building can represent of the city's intentions for its future. The city's current building was not built to these standards and has the utility bills to prove it.

Our proposal incorporates energy efficient features such as solar shading, light shelves, a triple glazed curtain wall, green roof and natural ventilation using the stack effect in our atrium. The atrium encloses existing trees for a winter garden. These strategies not only reduce energy use but also introduce natural elements into the building, another recommendation from City staff.

Scheduling Diagram



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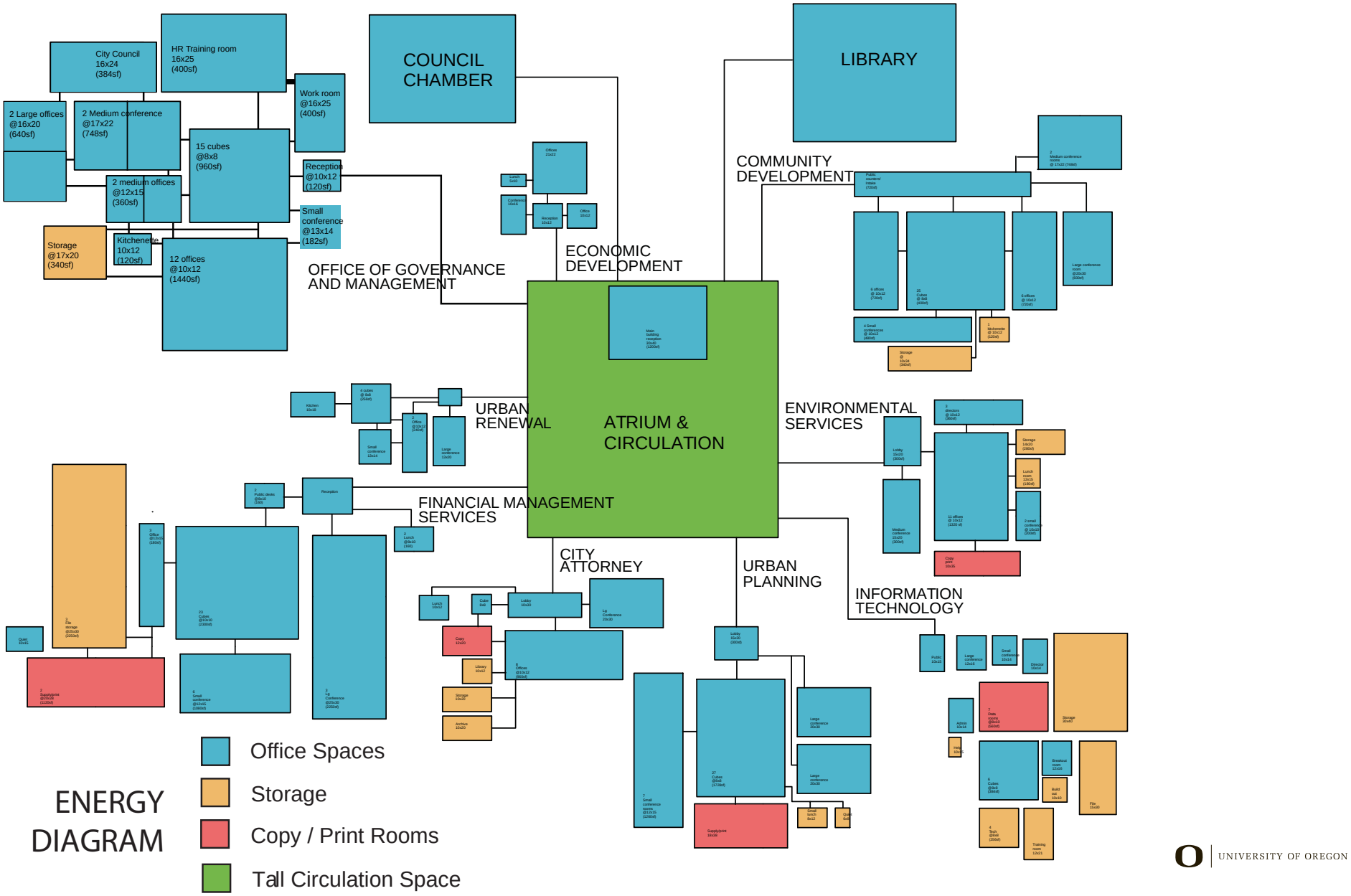
Energy Usage Typology Diagram



UNIVERSITY OF OREGON

Buildings | Neighborhoods | Regions | Architecture | Planning | Landscape | Policy

2030 Challenge Analysis - Current Gresham City Hall

Factoring in grid electricity and natural gas purchased at average rates for the Gresham area, the current City Hall is extremely far from the minimum for the 2030 Challenge. Energy use and cost is about 5 times the 2030 target and about 3 times the average building.

Target Energy Performance Results (estimated)			
Energy	**Design**	**Target**	**Average Building**
Energy Performance Rating (1-100)	1	93	50
Energy Reduction (%)	N/A	50	0
Source Energy Use Intensity (kBtu/Sq. Ft./yr)	648	118	236
Site Energy Use Intensity (kBtu/Sq. Ft./yr)	273	50	100
Total Annual Source Energy (kBtu)	58,303,923	10,636,175	21,272,350
Total Annual Site Energy (kBtu)	24,592,849	4,486,385	8,972,770
Total Annual Energy Cost ($)	$ 429,548	$ 78,361	$ 156,722
Pollution Emissions			
CO2-eq Emissions (metric tons/year)	2,265	413	827
CO2-eq Emissions Reduction (%)	-174%	50%	0%

Facility Information Edit

City Hall
Gresham, OR 97030
United States

Facility Characteristics Edit	
Space Type	**Gross Floor Area (Sq. Ft.)**
Office	90,000
Total Gross Floor Area	90,000

* The Average Building is equivalent to an EPA Energy Performance Rating of 50.

Estimated Design Energy Edit			
Energy Source	**Units**	**Estimated Total Annual Energy Use**	**Energy Rate ($/Unit)**
Electricity - Grid Purchase	kWh	4,161,093	$ 0.075/kWh
Natural Gas	therms	103,952	$ 1.130/therms

Source: Data adapted from DOE-EIA. See EPA Technical Description.

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MIT Design Advisor Analysis - Scenarios

Scenario One (Blue):

Mechanical Heating and Cooling
Single pane glazing on 50% of facade
Medium Commercial Insulation
High Thermal Mass

Scenairo Two (Yellow):

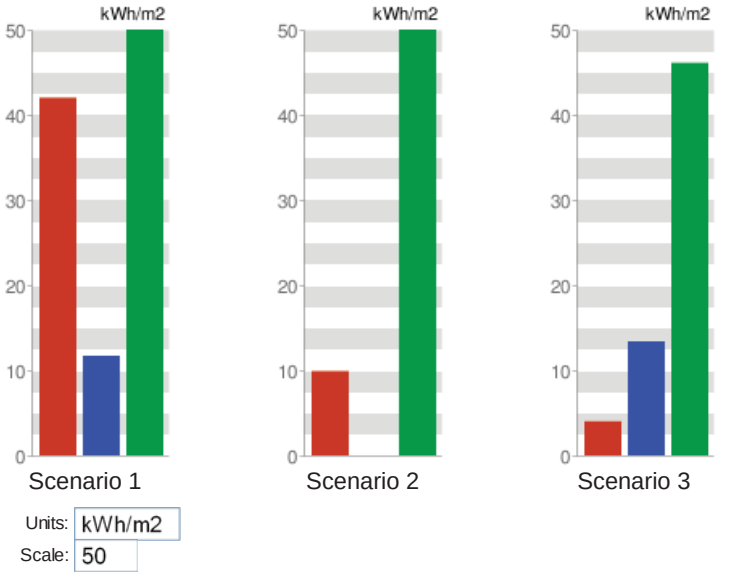
Mechanical Heating and Natural Ventilation Cooling
Double Pane glazing on 50% of facade
Medium commercial insulation.
High Thermal Mass

Scenario Three (Red):

“Joint” Mechanical Heating and Natural Vent Cooling
Triple pane glasing with 2 low-e coatings on 100% of facade
High commercial insulation.
High Thermal Mass

MIT Design Advisor Analysis - Results

Primary Energy: Annual Heating, Cooling, and Lighting (per average floor area)



Yearly

Monthly

RED
Heating energy required per square meter of plan.

BLUE
Cooling energy required per square meter of plan.

GREEN
Lighting energy required per square meter of plan.

Note that the energy shown on this page reflects **Primary Energy Use**, which is the amount of energy contained in the raw fuels (coal, natural gas, nuclear fuel, etc.) that are used to generate the electricity or heat used by the building.

PRIMARY HEATING ENERGY = Heating Load / Thermal Efficiency
PRIMARY COOLING ENERGY= Cooling Load / (Electricity Production Efficiency x Chiller Coefficient of Performance)
PRIMARY LIGHTING ENERGY= Lighting Load / (Electricity Production Efficiency x Lighting Efficiency)

Assumed Efficiencies:
Electricity Production Efficiency = 30%
Fuel to Thermal Efficiency = 100%
Lighting Efficiency = 13.5%
Chiller COP = 3.0

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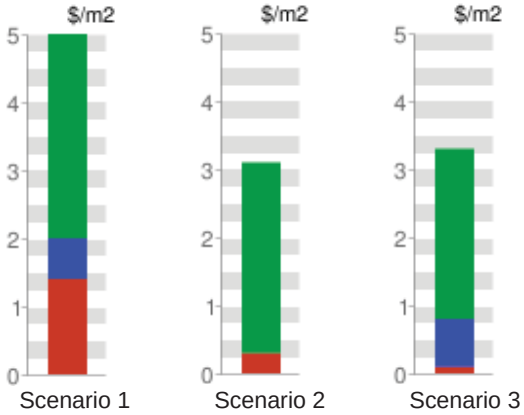
MIT Design Advisor Analysis - Results

Life Cycle Figures: Cost of Energy and CO2 Emissions



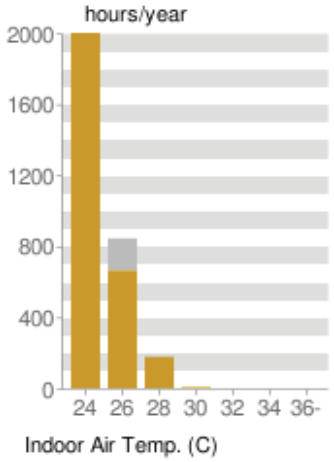
First Year Energy Cost -- ($ / m2)

Lighting	1.8	2.8	2.5	0	$/m2
Cooling	0.4	0	0.7	0	$/m2
Heating	0.7	0.3	0.1	0	$/m2
Total	2.9	3.1	3.3	0	$/m2

Lifecycle Energy Cost
First Year Energy Cost
Yearly CO_2 Emissions

Floor Area: square meters
Carbon Dioxide: kilograms
Scale: 5

Natural Ventilation: Indoor Air Temperature Histogram



Scenario 2

Temperature Units: C
Hours Scale: 2,000

ORANGE
Number of hours per year at the designated indoor air temperature.

GRAY
Number of hours per year at *or above* the indicated temperature.

V. Recommendations and Next Steps

Six groups of students have developed preliminary architectural programs for four sites in Downtown Gresham. The information these programs have been built on has been from staff and some higher level departmental commentary. The student programs are rough drafts at this time. The most important next step would be to reconvene interview group representatives or a City Hall Building Committee and review the results for accuracy. The cost of this would be entirely internal to the City of Gresham.

We recommend that the two studio courses be encouraged to continue to investigate all four sites and a future studio be added to address the interim challenge of how to adapt the current City Hall to meet the staff expressed goals for a more civic and accessible City Hall. Although the City has expressed interest in Site 3 and 4 only for excellent reasons, there is an ongoing question of what would be appropriate architecturally on all four sites, regardless of City Hall program. Arguments for excluding Site 1 and 2 seem also to be great arguments for retaining them as opportunities for investigating what increased density or mixed use may do to alter how a City Hall occupies a downtown site.

A studio looking specifically at ground floor areas would be the most cost effective and environmentally friendly option to improve service to the citizens of Gresham. This could be couched as an interim study to examine ground floor activities as they relate to the public face aspirations for City Hall. This could be an Interiors studio or a combination of Interiors and Architecture if ideas for main entrance, circulation and energy are explored.

The greater question still unaddressed is: ‘what is civic?’ This could be approached in two ways. First, a citizen advisory committee could be re-formed from the Downtown Plan development effort and charged in a set of two meetings to define what is civic in downtown Gresham. Second, the studios may conduct a City Hall typology study looking at traditional and non-traditional case studies.

VI. Conclusion

There was no clear winner for this exercise. The preferred sites were named based on the City's expressed values more than on student arguments. Student work was presented in a powerpoint slide show format to the City of Gresham featuring the products of each project. Additional student description of why building plans and models best resolved the researched program would be helpful to aid in determining which site was most successfully accommodating the program. For example, if one group develops floor plans covering the site and reducing building height and another group plans a tower clearly these groups are responding to very different data collected. In this class these 'data' were collected in a Value Matrix, but additional text would help explain the move from data to architecture. Finally, parking was a struggle for each site and urban quality was a clear trade off for adequate parking.

From the perspective of the instructor, tasks and projects will be revised for future classes that may provide a more even progression of instruction. The area requirement results vary in more ways than were necessary and more control of the raw data would have been helpful to the results. Students worked very hard to assemble conclusive plans and models; however with more organizational support from the instructor this could be made a simpler and more enjoyable process. We look forward to incorporating these lessons into future classes and thank the City of Gresham for allowing us to work alongside staff and share access to their facilities in the name of our higher education.

Resources

Documents and Resources Supplied by the City of Gresham

- City Hall Building Floor Plans - Levels 1, 2, 3 (PDF & DWG)
- City Hall Building Plans (TIF)
- Downtown Implementation Action Plan - Strategies, Action Items and Funding Options - Attachment A (9/29/2009)
- Downtown Implementation Action Plan - Strategies, Action Items and Funding Options - Attachment B (9/18/2009)
- Department Directory (*see Appendix*)
- Downtown Plan District Design Manual (Section 4.1100) (07/16/2009)
- Downtown Plan Brochure
- Public Safety Building Floor and Ceiling Plans (PDF & DWG) (6/01/2006, 05/01/2006)
- Utility Costs for 2008-2009 Spreadsheet
- City of Gresham Adopted Budget Fiscal Year 2009/2010
- Staffing and Operational Analysis of Fire & Emergency Services, City of Gresham, Oregon. Matrix Consulting Group, Palo Alto, California. January 9, 2009. See pgs 59-65, 107-111, 116-119
- 2009 Downtown Plan: http://www.greshamoregon.gov/city/city-departments/planning-services/comprehensiveplanning/template.aspx?id=18486
- City zoning on the Web: http://greshamoregon.gov/city/city-departments/planning-services/developmentplanning/template.aspx?id=3586&terms=development+code
- Mapping on the Web (GreshamView): http://greshamoregon.gov/city/template.aspx?id=3112

Other Resources

- Gresham Historical Society: http://community.gorge.net/ghs/
- Gresham: The Friendly City: http://www.powells.com/biblio/2-9781112886249-0
- OSSC 2007

- University of Oregon Libraries Support: http://libweb.uoregon.edu.libproxy.uoregon.edu/guides/planning/GreshamCityYear.html

Energy Modeling:

- **IES** = test apertures and orientation, plug in free online at http://www.iesve.com
- **MIT** = test envelope options with http://designadvisor.mit.edu/design/

General Class References:

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https://scholarsbank.uoregon.edu (energy program examples)

http://www.wbdg.org/design/dd_archprogramming.php

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