City of Gresham - Program for a New City Hall

Brett Holverstott, MArch Candidate

Professor Jean E von Bargen
Department of Architecture
Acknowledgements

The University of Oregon and Jean von Bargen would like to thank the following individuals from the City of Gresham for their participation in this project:

**Urban Design and Planning**
Jim Wheeler, Senior City Planner - Transportation
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

And the following individuals:
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
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 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.

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.

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
Table of Contents

II. Executive Summary 7

III. Introduction Programming and Gresham City Hall 16

IV. Scenario Alternatives and Additional Studies 19
   Group A1 24
   Group A2 60
   Group A3 111
   Group B4 147
   Group B5 189
   Group B6 235

V. Recommendations and Next Steps 268

VI. Conclusion 269

Resources 270
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.

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

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

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

| 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.
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 student 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 or 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...
Downtown study sites
Potential sites for a new Gresham City Hall

Legend
- Light-rail transit stop
- Light-rail line
- Downtown study site
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/light rail 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.
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.

<table>
<thead>
<tr>
<th>Project 1</th>
<th>Qualitative Report + Quantitative Report</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project 2</td>
<td>Program: Interviewing Prep, Tactics + Execution</td>
</tr>
<tr>
<td>Project 3</td>
<td>Program: Gathering, Documenting + Analyzing Data</td>
</tr>
<tr>
<td>Project 4</td>
<td>Program: Site Analysis/Plan/Massing Manipulation</td>
</tr>
<tr>
<td>Project 5</td>
<td>Energy Program</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Dimens</th>
<th>Current</th>
<th>Future</th>
<th>Fixtures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Large Conf Rm</td>
<td>80 x 30</td>
<td>3120</td>
<td>3120</td>
</tr>
<tr>
<td>Entry / Reception</td>
<td>60 x 35</td>
<td>2100</td>
<td>2100</td>
</tr>
<tr>
<td>Kitchen / Lunch</td>
<td>55 x 40</td>
<td>2200</td>
<td>2200</td>
</tr>
<tr>
<td>Print Center</td>
<td>630</td>
<td>630</td>
<td></td>
</tr>
<tr>
<td>Storage / Archive Rm</td>
<td>3467</td>
<td>6934</td>
<td></td>
</tr>
<tr>
<td>Restrooms / Locker</td>
<td>2684</td>
<td>2684</td>
<td></td>
</tr>
<tr>
<td>Bike Storage</td>
<td>500</td>
<td>500</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>14701</td>
<td>18168</td>
<td></td>
</tr>
</tbody>
</table>

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

Total Plumbing Fixture Estimates

<table>
<thead>
<tr>
<th></th>
<th>Fixtures</th>
</tr>
</thead>
<tbody>
<tr>
<td>City Hall</td>
<td>72524</td>
</tr>
<tr>
<td>Police</td>
<td>22,116</td>
</tr>
<tr>
<td>Fire</td>
<td>7,492</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Fixtures</th>
</tr>
</thead>
<tbody>
<tr>
<td>20</td>
</tr>
<tr>
<td>10</td>
</tr>
<tr>
<td>6</td>
</tr>
</tbody>
</table>
Design Codes and Standards

- **Building**: Oregon Structural Specialty Code (OSSC) 2007
- **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

Kate Casselman  
Nicole Holt  
Elizabeth Kilgore  
Craig Race

3rd & Hood
Table of Contents

Student Group  A1
Start Page 24
Thesis & Methods 26
Existing Building Analysis 27

DEPARTMENTAL STUDIES
Finance & Management Services 31
Urban Design & Planning 33

DESIGN CONSIDERATIONS
Precedent Studies 36
Total Areas Chart 39
Design Ideas 40
Adjacency Diagrams 42

SITE ANALYSIS
3rd & Hood 43

DESIGN PROPOSAL
48

ENERGY ANALYSIS
52
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.
Public Interaction
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

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

## Diagrams

**Intradepartmental Adjacency**

- Utility Billing Desk
- Office Space
- Meeting Rooms
- Mail Room
- Public

**Department Connections**

- Finance and Management
- Employee Lounge
- Parking Lot
- Bike Storage
- Locker Rooms

- Community Meeting Space
- Safe Room
- Private Conference Rooms
- Storage Rooms

- Financial Services
- Community Meeting Space
- Writing Room
- Safe Room
- Private Conference Rooms

- Stacked Storage Rooms
- Bike Storage
- Locker Rooms
## Financial and Manag. Services

<table>
<thead>
<tr>
<th>ROOM TYPE</th>
<th>EXISTING # of Rooms</th>
<th>FUTURE # of Rooms</th>
<th>RM DIMS. Ft</th>
<th>CURRENT Sq Ft</th>
<th>FUTURE Sq Ft</th>
<th>NOTES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bike Storage</td>
<td>1</td>
<td>1</td>
<td>20x50</td>
<td>796</td>
<td>796</td>
<td>Some other storage too</td>
</tr>
<tr>
<td>Restrooms - Women's</td>
<td>3</td>
<td>3</td>
<td>varies</td>
<td>588</td>
<td>588</td>
<td>Includes locker room</td>
</tr>
<tr>
<td>Restroom - Men's</td>
<td>3</td>
<td>3</td>
<td>varies</td>
<td>588</td>
<td>588</td>
<td>Includes locker room</td>
</tr>
<tr>
<td>Reception</td>
<td>1</td>
<td>1</td>
<td>varies</td>
<td>1075</td>
<td>1075</td>
<td></td>
</tr>
<tr>
<td>Lunch/Coffee Room</td>
<td>2</td>
<td>2</td>
<td>8x10</td>
<td>153</td>
<td>153</td>
<td></td>
</tr>
<tr>
<td>Lg. Conference (20-50)</td>
<td>3</td>
<td>3</td>
<td>~30x25</td>
<td>2,250</td>
<td>2,250</td>
<td>Can combine 2-3 into a lg</td>
</tr>
<tr>
<td>Sm Conference (2-10)</td>
<td>6</td>
<td>6</td>
<td>~15x12</td>
<td>1080</td>
<td>1080</td>
<td></td>
</tr>
<tr>
<td>Supply/Print/Work Room</td>
<td>2</td>
<td>2</td>
<td>varies</td>
<td>1,348</td>
<td>1,348</td>
<td></td>
</tr>
<tr>
<td>Large File Storage</td>
<td>2</td>
<td>2</td>
<td>~25x30</td>
<td>1,500</td>
<td>1,500</td>
<td></td>
</tr>
<tr>
<td>General Office Spaces</td>
<td>26</td>
<td>26</td>
<td>~10x10/desk</td>
<td>2,600</td>
<td>2,600</td>
<td>includes desks and offices</td>
</tr>
<tr>
<td>Public Conference tables</td>
<td>2</td>
<td>2</td>
<td>8x10/desk</td>
<td>524</td>
<td>524</td>
<td></td>
</tr>
<tr>
<td>Values</td>
<td>Goals</td>
<td>Facts</td>
<td>Needs</td>
<td>Ideas</td>
<td></td>
<td></td>
</tr>
<tr>
<td>--------------</td>
<td>--------------------------------------------</td>
<td>------------------------------------------------------------------------</td>
<td>----------------------------</td>
<td>------------------------------------------------------------------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Human</td>
<td>Accommodate personal privacy needs</td>
<td>Little consideration for nursing mothers</td>
<td>Personal space</td>
<td>Incorporate private stalls into women's bathroom for nursing privacy</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Sick room is useful amenity</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Acoustic separation required for sensitive meetings</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Reconfigure department frequently</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Workload varies depending on development economy</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Environmental</td>
<td>Flexible spaces</td>
<td></td>
<td>Reconfigurable work spaces</td>
<td>Open plan</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Growth spaces</td>
<td>Furniture on wheels</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Mixed-use space</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Privacy hierarchy or spaces (Permit desk - Meeting rooms - Cubes)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Improved public interface</td>
<td>Department currently segregated</td>
<td>Definite public/private sepa</td>
<td>Keep entire department in one space</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ration</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Not welcoming</td>
<td>Accessible meeting spaces</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Collaborative spaces</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Transparency</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Incubate creativity and interaction</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Natural light &amp; ventilation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Views</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Variable sizes of meeting rooms</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Improved spatial organization</td>
<td>Maze of cubes tough to navigate</td>
<td></td>
<td>Easily accessible</td>
<td>Information marquee</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Improved indoor environment</td>
<td>Connection to outdoors improves work environment</td>
<td></td>
<td>Security presence</td>
<td>Street presence</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cultural</td>
<td>Connect to community</td>
<td>Frequent meetings in Portland Prefer to take public transit</td>
<td>Access to public transit</td>
<td>Locate near public transit Incentivize transit use</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Temporal</td>
<td>Access to Portland</td>
<td>Frequent meetings in Portland Prefer to take public transit</td>
<td>Access to public transit</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Economic</td>
<td>Incubate collaboration &amp; creativity</td>
<td>Building feels sterile</td>
<td>Break-out spaces</td>
<td>&quot;Creative spaces&quot; for group work</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aesthetic</td>
<td></td>
<td>Artwork uninspiring</td>
<td>Interaction with space</td>
<td>Rotating exhibitions curated by employees</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Safety</td>
<td></td>
<td>Lack of interaction</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Environmental Flexible spaces**
- Reconfigure department frequently
- Workload varies depending on development economy

**Improved public interface**
- Department currently segregated
- Not welcoming
- Difficult to navigate

**Improved spatial organization**
- Maze of cubes tough to navigate

**Improved indoor environment**
- Connection to outdoors improves work environment

**Cultural Connect to community**
- Often hold community meetings (10 - 100 people)
- Most people coming to city hall are there for permits
- Community meetings tend to take place in evening

**Technological Access to Portland**
- Frequent meetings in Portland
- Prefer to take public transit

**Economic**

**Aesthetic Incubate collaboration & creativity**
- Building feels sterile
- Artwork uninspiring
- Lack of interaction

**Safety**
<table>
<thead>
<tr>
<th>ROOM TYPE</th>
<th>EXISTING Name</th>
<th>EXISTING # of Rooms</th>
<th>EXISTING # of Rooms</th>
<th>EXISTING RM DIMS. Ft Sq Ft</th>
<th>EXISTING CURRENT Ft Sq Ft</th>
<th>FUTURE # of Rooms</th>
<th>FUTURE RM DIMS. Ft Sq Ft</th>
<th>FUTURE CURRENT Ft Sq Ft</th>
<th>FUTURE NOTES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Restrooms - Women's</td>
<td></td>
<td>1</td>
<td></td>
<td>10x19   192</td>
<td>192</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Restroom - Men's</td>
<td></td>
<td>1</td>
<td></td>
<td>10x19   192</td>
<td>192</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lunch/Coffee Room</td>
<td></td>
<td>2</td>
<td></td>
<td>10x18, 8x12 1260</td>
<td>1260</td>
<td></td>
<td></td>
<td></td>
<td>Shared</td>
</tr>
<tr>
<td>Quiet Room</td>
<td></td>
<td>1</td>
<td></td>
<td>6x8     48</td>
<td>48</td>
<td></td>
<td></td>
<td></td>
<td>Shared</td>
</tr>
<tr>
<td>Lg. Conference (20-50)</td>
<td></td>
<td>2</td>
<td></td>
<td>~30x20 600</td>
<td>600</td>
<td></td>
<td></td>
<td></td>
<td>Shared, combine into a lg</td>
</tr>
<tr>
<td>Sm Conference (2-10)</td>
<td></td>
<td>7</td>
<td></td>
<td>~15x12 1260</td>
<td>1260</td>
<td></td>
<td></td>
<td></td>
<td>Shared</td>
</tr>
<tr>
<td>Supply/Print/Work Room</td>
<td></td>
<td>1</td>
<td></td>
<td>10x18   180</td>
<td>180</td>
<td></td>
<td></td>
<td></td>
<td>Shared</td>
</tr>
<tr>
<td>Large File Storage</td>
<td></td>
<td>1</td>
<td></td>
<td>18x28   504</td>
<td>504</td>
<td></td>
<td></td>
<td></td>
<td>Shared</td>
</tr>
<tr>
<td>General Office Spaces</td>
<td></td>
<td>27</td>
<td></td>
<td>~10x10/desk 2,700</td>
<td>2,700</td>
<td></td>
<td></td>
<td></td>
<td>2,700 includse desks and offices</td>
</tr>
</tbody>
</table>
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/restaurant space to hide parking and create a thriving civic center.
- Regularly occurring events to serve as a central 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

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

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

Current City Hall

current 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

Current City Hall

Our Proposal

is to design a lay out where natural light reaches into the cubicle layout and more workers have views of outside.
**Zoning Restrictions and Requirements**

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum height</td>
<td>85 feet</td>
</tr>
<tr>
<td>Minimum FAR</td>
<td>1</td>
</tr>
<tr>
<td>Maximum FAR</td>
<td>3 (5 with bonuses)*</td>
</tr>
<tr>
<td>Minimum Residential Density (not mixed use)</td>
<td>17</td>
</tr>
<tr>
<td>Maximum Residential Density</td>
<td>no maximum</td>
</tr>
</tbody>
</table>

**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 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.
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.

Site Analysis
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.
DESIGN PROPOSAL

Floor Plan _ First Floor

- Retail
- Retail
- Retail
- MTG.
- MTG.
- MTG.
- Finance & Management Services
- Merchant (MTG.)
- Merchant (MTG.)
- Merchant (MTG.)
- Urban Design & Planning
- Training / Conference
- Library

0 10 20 30 FT

Sustainable Cities Initiative
Floor Plan _ Second Floor
Proposed City Hall Square Footage

<table>
<thead>
<tr>
<th>DEPARTMENTS</th>
<th>NET SQ. FT.</th>
<th>GROSS SQ. FT.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Finance Management and Services</td>
<td>3,100</td>
<td>7,000</td>
</tr>
<tr>
<td>Department of Environmental Services</td>
<td>2,800</td>
<td>3,000</td>
</tr>
<tr>
<td>Planning and Urban Development</td>
<td>3,150</td>
<td>6,000</td>
</tr>
<tr>
<td>Economic Development &amp; Urban Renewal</td>
<td>1,000</td>
<td>4,200</td>
</tr>
<tr>
<td>Community Development</td>
<td>1,200</td>
<td>3,200</td>
</tr>
<tr>
<td>Office of Governance and Management</td>
<td>3,000</td>
<td>4,400</td>
</tr>
<tr>
<td>City Attorney</td>
<td>1,300</td>
<td>5,500</td>
</tr>
<tr>
<td><strong>Overall Footprint</strong></td>
<td><strong>18,294</strong></td>
<td><strong>39,000</strong></td>
</tr>
</tbody>
</table>

*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.

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

<table>
<thead>
<tr>
<th>Target Energy Performance Results (estimated)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Energy</td>
</tr>
<tr>
<td>Design</td>
</tr>
<tr>
<td>-------</td>
</tr>
<tr>
<td>Energy Performance Rating (1-100)</td>
</tr>
<tr>
<td>Energy Reduction (%)</td>
</tr>
<tr>
<td>Source Energy Use Intensity (kBtu/Sq. Ft/yr)</td>
</tr>
<tr>
<td>Site Energy Use Intensity (kBtu/Sq. Ft/yr)</td>
</tr>
<tr>
<td>Total Annual Source Energy (kBtu)</td>
</tr>
<tr>
<td>Total Annual Site Energy (kBtu)</td>
</tr>
<tr>
<td>Total Annual Energy Cost ($)</td>
</tr>
<tr>
<td>Pollution Emissions</td>
</tr>
<tr>
<td>CO2-eq Emissions (metric tons/year)</td>
</tr>
<tr>
<td>CO2-eq Emissions Reduction (%)</td>
</tr>
</tbody>
</table>

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 assemblies 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.)
Works Cited


Group A2

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.”
# Table of Contents

**Student Group**  
Start Page 60  
Thesis & Methods 77, 85  
Existing Building Analysis 68

**DEPARTMENTAL STUDIES**  
City Attorney’s Office 62  
Police Department 70

**DESIGN CONSIDERATIONS**  
Precedent Studies 83  
Adjacency Diagrams 78

**SITE ANALYSIS**  
NW Eastman Parkway & NW 3rd Street 86

**DESIGN PROPOSAL**  
89

**ENERGY ANALYSIS**  
100
<table>
<thead>
<tr>
<th>Values</th>
<th>Goals</th>
<th>Facts</th>
<th>Needs</th>
<th>Ideas</th>
</tr>
</thead>
<tbody>
<tr>
<td>Human</td>
<td>Accessibility internal and public</td>
<td>Proximity to other departments</td>
<td>Proximity to other departments located on clear circulation path</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Public presence</td>
<td>Public used City Hall</td>
<td>Main entrance presence near public circulation</td>
<td>Close to mayor, city manager, council etc</td>
</tr>
<tr>
<td></td>
<td>Good Communication</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Environmental</td>
<td>Access to natural light and air</td>
<td>Health and wellness</td>
<td>eed operable indoor space</td>
<td>lights atrium</td>
</tr>
<tr>
<td></td>
<td>Privacy</td>
<td>Deal with confidential documents</td>
<td>eed more space for storage</td>
<td>library all open to the office</td>
</tr>
<tr>
<td></td>
<td>Storage</td>
<td>of enough storage</td>
<td>eed more space for storage</td>
<td>Have their own archive space</td>
</tr>
<tr>
<td>Cultural</td>
<td>Interaction Multi purpose Room</td>
<td>Currently all used space</td>
<td>eed more conference rooms</td>
<td>Large flexible space, 4th partitions</td>
</tr>
<tr>
<td></td>
<td>on office related interaction</td>
<td>Don’t have kitchen or lunch room</td>
<td>eed sink and fridge</td>
<td>Kitchenette within their office</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Eat lunch in office</td>
<td></td>
<td>Yoga and Gym within City Hall</td>
</tr>
<tr>
<td>Technological</td>
<td>Access to personal computers and internet</td>
<td></td>
<td></td>
<td>Individual computer(s)</td>
</tr>
<tr>
<td>Economic</td>
<td>More efficient spatial layout</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aesthetic</td>
<td>Clear signage</td>
<td>Confusing signage</td>
<td>Larger signage</td>
<td>Clarity in layout</td>
</tr>
<tr>
<td></td>
<td>Good wayfinding</td>
<td>Light and long hallways</td>
<td>Light and shorter hallways</td>
<td>Lights in hallways</td>
</tr>
<tr>
<td></td>
<td>Permanence/Historic Presence</td>
<td>Currently in temporary office</td>
<td>Select of permanent materials</td>
<td>Nice and stone</td>
</tr>
<tr>
<td>Safety</td>
<td>Confidentiality</td>
<td>a year</td>
<td>eed secure place for files</td>
<td>Access to filing room</td>
</tr>
<tr>
<td></td>
<td>Security for files and staff</td>
<td>Deal with confidential documents</td>
<td>eed security for employees</td>
<td>Evening and end security</td>
</tr>
<tr>
<td></td>
<td></td>
<td>eed receptionist</td>
<td>Hire an assistant/receptionist</td>
<td></td>
</tr>
</tbody>
</table>
City Attorney’s Office
Design Ideas

**Human**
- Public Presence
- Entry Procession
- Transparencies
- Eating
- Soft Materials

**Environmental**
- Health and Wellness
- Daylighting
- Operable Indoors
- Skylights
- Open Office Plan
- Atrium
- Art
- Office

**Security**
- Confidentiality
- Partitions
- Staffed Reception
- Private Offices
### City Attorney's Office

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

- Create a more utilized public space
- Create easy to access bike storage
- 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

- Invite public & Gresham community into City Hall
- 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.
Gresham City Hall Analysis
District Attorneys
Good qualities with current space

Maintain large indoor spaces in offices
Ylights add daylight in stair wells

City Hall Common spaces
Friendly inviting Reception
Gresham Police Department
Internal Adjacency Diagram

- Investigations
- Administration
- Operations
- Services
- Lab Division
- Lab Division
- Lab Division
- Lab Division
- Report Writing Room
- Intervening Room
- Kitchen
- Office Room
- Gym
- Secured Parking
- Equipment Storage
- Secured Vault
- Interviewing Room
- Nailing Range
- Paper or Storage
- Nit

Sustainable Cities Initiative
A270
<table>
<thead>
<tr>
<th>Values</th>
<th>Goals</th>
<th>Facts</th>
<th>Needs</th>
<th>Ideas</th>
</tr>
</thead>
<tbody>
<tr>
<td>Human</td>
<td>Protect and assist public</td>
<td>Are on call hours a day</td>
<td>eed a hour staffed reception des</td>
<td>Reception des on first floor service booth doubles as security for bldg</td>
</tr>
<tr>
<td></td>
<td></td>
<td>operation of private and public restrooms</td>
<td>eed more restrooms within each division</td>
<td>eed more private restrooms</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Are currently using public restrooms</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Environmental</td>
<td>Privacy</td>
<td>investigators need private/confidential offices</td>
<td>eed some private offices</td>
<td>One private offices</td>
</tr>
<tr>
<td></td>
<td>Paper or storage</td>
<td>hey do not have enough storage</td>
<td>eed archive space</td>
<td>Large shared archive space</td>
</tr>
<tr>
<td></td>
<td></td>
<td>eed more funding</td>
<td>eed more space in general</td>
<td>Local storage within departments</td>
</tr>
<tr>
<td></td>
<td>Illness</td>
<td>illness and good health is required on job</td>
<td>eed or out room</td>
<td>Out room within adjacent loc or rooms</td>
</tr>
<tr>
<td>Cultural</td>
<td>Interaction non formal</td>
<td>Don’t have lunch or break room</td>
<td>eed break and lunch room</td>
<td>Multi-purpose room for informal interaction</td>
</tr>
<tr>
<td>Work Culture</td>
<td></td>
<td>Don’t have enough space for these rooms</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Transactional building that supports or culture</td>
<td>Have a lot of equipment and gear</td>
<td>eed storage for e equipment</td>
<td>Flexible equipment storage</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Don’t have enough funding</td>
<td>eed loc e rooms</td>
<td></td>
</tr>
<tr>
<td>Technological</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Economic</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aesthetic</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Safety</td>
<td>Confidentiality</td>
<td>Deal 1st confidential information</td>
<td>eed separate building</td>
<td>E stand alone Police building</td>
</tr>
<tr>
<td></td>
<td></td>
<td>undergoing investigations</td>
<td>eed private offices</td>
<td>Private offices for investigators in basement</td>
</tr>
<tr>
<td></td>
<td></td>
<td>arms on site</td>
<td>eed secured vault for fire arms</td>
<td>More cells</td>
</tr>
<tr>
<td></td>
<td></td>
<td>interrogate people</td>
<td>eed more cells</td>
<td>More intense space</td>
</tr>
<tr>
<td></td>
<td></td>
<td>separate Police building</td>
<td>eed secure intvl space</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>hot response time</td>
<td>eed separate Police building</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>more secure</td>
<td>eed good vehicular access</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Emergency response</td>
<td>eed secured car lot</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Have emergency vehicles</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Gresham Police Department
Design Ideas

**Cultural**
- Non-formal Interaction
- Relaxation
- Bonding
- Event Space
- Community Interaction
- Building 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
<table>
<thead>
<tr>
<th>Gresham Police Department</th>
<th>Existing</th>
<th>Future</th>
<th>Room Dims</th>
<th>Area</th>
<th>Current</th>
<th>Future</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td># of rooms</td>
<td># of rooms</td>
<td>Feet</td>
<td>SF</td>
<td>SF</td>
<td>SF</td>
</tr>
<tr>
<td><strong>services</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>records</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>records window</td>
<td>1</td>
<td>2</td>
<td>20x20</td>
<td>400</td>
<td>400</td>
<td>800</td>
</tr>
<tr>
<td>records office</td>
<td>3</td>
<td>6</td>
<td>10x12</td>
<td>120</td>
<td>150</td>
<td>300</td>
</tr>
<tr>
<td>records assist desk</td>
<td>1</td>
<td>2</td>
<td>10x15</td>
<td>150</td>
<td>150</td>
<td>300</td>
</tr>
<tr>
<td>open office records</td>
<td>2</td>
<td>4</td>
<td>15x15</td>
<td>225</td>
<td>450</td>
<td>900</td>
</tr>
<tr>
<td>records storage</td>
<td>1</td>
<td>2</td>
<td>15x15</td>
<td>225</td>
<td>225</td>
<td>450</td>
</tr>
<tr>
<td><strong>reports</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>reports work</td>
<td>1</td>
<td>2</td>
<td>15x20</td>
<td>300</td>
<td>300</td>
<td>600</td>
</tr>
<tr>
<td>dui processing</td>
<td>1</td>
<td>2</td>
<td>10x20</td>
<td>200</td>
<td>200</td>
<td>400</td>
</tr>
<tr>
<td>holding cells</td>
<td>4</td>
<td>8</td>
<td>7x9</td>
<td>63</td>
<td>252</td>
<td>504</td>
</tr>
<tr>
<td>sally port</td>
<td>1</td>
<td>2</td>
<td>20x20</td>
<td>400</td>
<td>400</td>
<td>800</td>
</tr>
<tr>
<td><strong>investigations</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>lab dark room</td>
<td>1</td>
<td>2</td>
<td>15x20</td>
<td>300</td>
<td>300</td>
<td>600</td>
</tr>
<tr>
<td>property intake</td>
<td>1</td>
<td>2</td>
<td>9x20</td>
<td>180</td>
<td>180</td>
<td>360</td>
</tr>
<tr>
<td>property storage</td>
<td>1</td>
<td>2</td>
<td>20x20</td>
<td>400</td>
<td>400</td>
<td>800</td>
</tr>
<tr>
<td>equipment storage</td>
<td>1</td>
<td>2</td>
<td>12x12</td>
<td>144</td>
<td>144</td>
<td>288</td>
</tr>
<tr>
<td>office</td>
<td>5</td>
<td>10</td>
<td>9x9</td>
<td>81</td>
<td>405</td>
<td>810</td>
</tr>
<tr>
<td>office</td>
<td>1</td>
<td>2</td>
<td>9x15</td>
<td>135</td>
<td>135</td>
<td>270</td>
</tr>
<tr>
<td>office</td>
<td>8</td>
<td>16</td>
<td>10x12</td>
<td>120</td>
<td>960</td>
<td>1920</td>
</tr>
<tr>
<td>office</td>
<td>1</td>
<td>2</td>
<td>18x18</td>
<td>324</td>
<td>324</td>
<td>648</td>
</tr>
<tr>
<td>vault secure</td>
<td>1</td>
<td>2</td>
<td>9x15</td>
<td>135</td>
<td>135</td>
<td>324</td>
</tr>
<tr>
<td>lunch</td>
<td>1</td>
<td>2</td>
<td>9x10</td>
<td>90</td>
<td>90</td>
<td>180</td>
</tr>
<tr>
<td>open office</td>
<td>4</td>
<td>8</td>
<td>20x20</td>
<td>400</td>
<td>1600</td>
<td>3200</td>
</tr>
<tr>
<td>interview</td>
<td>2</td>
<td>4</td>
<td>10x12</td>
<td>120</td>
<td>240</td>
<td>480</td>
</tr>
<tr>
<td><strong>admin</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>office</td>
<td>9</td>
<td>18</td>
<td>10x12</td>
<td>120</td>
<td>1080</td>
<td>2160</td>
</tr>
<tr>
<td>conference</td>
<td>1</td>
<td>2</td>
<td>10x20</td>
<td>200</td>
<td>200</td>
<td>400</td>
</tr>
<tr>
<td>reception</td>
<td>1</td>
<td>1</td>
<td>10x20</td>
<td>200</td>
<td>200</td>
<td>400</td>
</tr>
<tr>
<td>open office</td>
<td>1</td>
<td>2</td>
<td>10x20</td>
<td>200</td>
<td>200</td>
<td>400</td>
</tr>
<tr>
<td>men's lockers</td>
<td>1</td>
<td>2</td>
<td>34x34</td>
<td>1156</td>
<td>1156</td>
<td>2312</td>
</tr>
<tr>
<td>women's lockers</td>
<td>1</td>
<td>2</td>
<td>15x15</td>
<td>225</td>
<td>225</td>
<td>450</td>
</tr>
<tr>
<td><strong>total</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>10711</td>
<td>21276</td>
</tr>
</tbody>
</table>
Gresham City Hall Analysis
Police
Improvements to current space

Provide a gym/work out area
Provide more storage rooms for the large amounts of paperwork that have to be kept on file
Introduce more daylight and warmer materials into the spaces
Avoid using triangular shapes that create dead corners

Possible Additions to Facility
Incorporate a K-9 Unit on site
Provide a shooting Range
Provide a gym/work out area
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

Entry

Communiy Development

Urban Renewal

Bike/Shower

Break/Lounge

Finance & Management

Environmental Services

IT

Facilities Management

Archives/Stor.

City Attorney

Urban Design & Planning

Economic Development

Nursing/Sick

OGM

Community Space Connection

Department Connection

Sustainable Cities Initiative
1/16” = 1’-0” CITY HALL SCALED ADJACENCIES
POLICE SCALED RELATIONSHIP DIAGRAMS

Direct Adjacency Scale 1/16" = 1'

- Reception
- Office
- Conference
- Open Office
- Property Storage
- Property Intake
- Vault Secure
- Lab Dark Room
- Equip Storage
- Sally Port
- Records
- DUI Processing
- Holding Cells
- Reports Work
- Inter view
- Investigation

Support Space
Entry Vestibule
Office Space

Hard Connection
Soft Connection

Scale 1/16" = 1'
FIRE DEPARTMENT SCALED ROOM DIAGRAM

Scale 1/16" = 1'

- Office Space
- Support Space
- Entry Vestibule

- Hard Connection
- Soft Connection
- Direct Adjacency
Historical City Halls

Ellen Hagen, Sina Meier,
Jessica Kreitzberg, Mark Schmidt
New City Hall Precedents

Ellen Hagen, Sina Meier,
Jessica Kreitzberg, Maik Schmidt

1. Skirvin Hotel hotel
2. Vertical solar panels
3. Extension of park through connected open spaces
4. Rain water used for irrigation
5. Below grade systems

Puyallup, WA City Hall - Mithun Architects

Austin, TX City Hall - Antoine Prodoc Architects

Seinäjoki, Finland City Hall - Alvar Aalto

Seattle, WA City Hall - Bohlin Cywinski Jackson

Redmond, WA City Hall - Mulvanny G2

Sustainable Cities Initiative
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
Design Considerations for Site
Existing Conditions

- Existing Building and Parking Lot
- NW Eastman Parkway
- NW 3rd Street
- Apartment Buildings West of Site
- Housing South of Site
Floor Plans : 1st Floor

- Community Development
- City Attorney
- Ground Floor Retail/Cafe
Floor Plans : 2nd Floor

Finance and Management
Urban Planning
Floor Plans: 3rd Floor

- Exterior

- Economic Development
- Office of Governance and Management
Floor Plans : 4th Floor

Exterior

Environmental Services
Information Technology
Floor Plans: Police

1st

[Diagram of the 1st floor plans of a police building, showing areas for investigations, administration, and operations.]

- Investigations
- Administration
- Operations

Sustainable Cities Initiative
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

## Energy Program: Spatial Needs

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

- Reception: 1200
- Attorney: 4000
- Community Development: 10000
- Urban Planning: 6000
- Finance & Management: 10000
- Economic Development: 4500
- Governance & Management: 10000
- Information Technology: 6000
- Environmental Services: 10000
- Apparatus Bay: 5000
- Fire Administration: 7000
- Fire Living: 4600
- Fire Sleeping: 1000
### High Efficiency

**Setup: Describe the Building You Wish to Simulate**

**Building Properties**

1. **Climate**
   - **Region:** USA
   - **City:** OR - Portland

2. **Occupancy and Equipment**
   - **Occupancy Schedule:**
     - **Lighting control:**
     - **Equipment:**
       - **Person-density:** 0.10 people/m²
       - **Lighting:** 500 lux
       - **Equipment:** 0.3 W/m²

3. **Ventilation System**
   - **Ventilation Rate:**
     - **Indoor Air Temperature Max:** 22°C
     - **Relative Humidity Max:** 50%
     - **Air Change Rate:** 1 roomfuls/hour

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

5. **Building Geometry**
   - **Building Orientation:** N-S / E-W
   - **Building Dimensions:**
     - **Side a:** 12 m
     - **Side b:** 12 m
   - **Roof Description:**
     - **Roof Insulation:** R-Value: 5 (m²-ºC)/W
     - **Roof Insulation Location:** Floors:

6. **Typical Room Properties**
   - **Room Dimensions:**
     - **Width:** 5 m
     - **Depth:** 5 m
     - **Height:** 3 m
   - **Window / Primary Facade Orientation:** north

### Medium Efficiency

**Setup: Describe the Building You Wish to Simulate**

**Building Properties**

1. **Climate**
   - **Region:** USA
   - **City:** OR - Portland

2. **Occupancy and Equipment**
   - **Occupancy Schedule:**
     - **Lighting control:**
     - **Equipment:**
       - **Person-density:** 0.10 people/m²
       - **Lighting:** 500 lux
       - **Equipment:** 0.5 W/m²

3. **Ventilation System**
   - **Ventilation Rate:**
     - **Indoor Air Temperature Max:** 22°C
     - **Relative Humidity Max:** 50%
     - **Air Change Rate:** 1 roomfuls/hour

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

5. **Building Geometry**
   - **Building Orientation:** N-S / E-W
   - **Building Dimensions:**
     - **Side a:** 12 m
     - **Side b:** 12 m
   - **Roof Description:**
     - **Roof Insulation:** R-Value: 2 (m²-ºC)/W
     - **Roof Insulation Location:** Floors:

6. **Typical Room Properties**
   - **Room Dimensions:**
     - **Width:** 5 m
     - **Depth:** 5 m
     - **Height:** 3 m
   - **Window / Primary Facade Orientation:** north

7. **Window Description**
   - **Window Area:** 50% of exterior wall area
   - **Window blind settings:**
     - **Select a Window Type:**
       - Single glazed
       - Double glazed
       - Triple glazed
       - High performance

8. **Wall Description**
   - **Wall Insulation:** Commercial (Medium Insulation)
   - **Wall R-Value:** 5 (m²-ºC)/W

---

**Source:** Energy Program: MIT Design Advisor
Energy Program : MIT Design Advisor

Setup: Describe the Building You Wish to Simulate

Getting Started

Building Properties
1. Climate
Region: USA
City: OR - Portland

2. Occupancy and Equipment
Office Building
Occupancy Schedule:
- begins
- ends

3. Ventilation System
Indoor Air Temperature
Max: ºC
Min: ºC
Max Relative Humidity
% of exterior wall area

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

5. Building Geometry
Building Orientation:
- N-S / E-W
- NE-SW / SE-NW
Building Dimensions
Side a: m
Side b: m

6. Roof Description
Roof Insulation:
R-Value: (m²-ºC)/W
Roof Insulation Location:
Floors:

Typical Room Properties
7. Room Dimensions
Width: m
Depth: m
Height: m
Window / Primary Facade Orientation:

8. Window Description
Window Area: % of exterior wall area
Window blind settings...
Ventilated window settings...
Select a Window Type:
- single glazed
- double glazed
- triple glazed
- low-e

Overhang
Distance: m

9. Wall Description
Wall Insulation:
Commerical (Low Insulation)
Wall R-Value: (m²-ºC)/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.

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

Current Conditions
104
A2
104

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

- **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.

Units: **kWh/m²**
Scale: **500**

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

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

Scenario Three

Season: Spring
Time of Day: 9 AM
Blind Angle: No Blinds
Natural Ventilation: Indoor Air Temperature Histogram

- **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
  - Cooling: 0.8
  - Heating: 1.3
  - Total: 4.7

- **Yearly CO2 Emissions** (kg)
  - Lighting: 1
  - Cooling: 0
  - Heating: 2.1
  - Total: 3.1

Lifecycle Energy Cost: $ per therm
Cost of Electricity: $ per kWh
Years of Operation: 15 years
Discount Rate: 5.0% per year
CO2 Emission Rate: 0.2 kg per kWh

<table>
<thead>
<tr>
<th>Floor Area</th>
<th>Lifecycle Cost</th>
<th>Carbon Dioxide</th>
</tr>
</thead>
<tbody>
<tr>
<td>square meters</td>
<td>$ per m²</td>
<td>kilograms</td>
</tr>
</tbody>
</table>

University of Oregon

Buildings | Neighborhoods | Regions | Architecture | Planning | Landscape | Policy
Content: Energy & Carbon results  

Energy and Carbon Results

Proposed building energy use: 5,627.66MBtu/yr
Proposed building carbon emissions: 591.7tons CO2/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

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:

<table>
<thead>
<tr>
<th>Year</th>
<th>% Reduction</th>
<th>Btu/ft²</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current</td>
<td>50</td>
<td>49</td>
</tr>
<tr>
<td>2010</td>
<td>60</td>
<td>41</td>
</tr>
<tr>
<td>2015</td>
<td>70</td>
<td>34</td>
</tr>
<tr>
<td>2020</td>
<td>80</td>
<td>29</td>
</tr>
<tr>
<td>2025</td>
<td>90</td>
<td>29</td>
</tr>
<tr>
<td>2030</td>
<td>100</td>
<td>0</td>
</tr>
</tbody>
</table>

For certain building types targets are calculated using Energy Star methodology where energy consumption is calculated as a % 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: 1,004.7Btu/yr

The Climate Energy Index is a simple global unitary measure.

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

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

| Facility Information                           |        |        |                 |
| Gresham City Hall                              |        |        |                 |
| Gresham, OR 97030 United States               |        |        |                 |

<table>
<thead>
<tr>
<th>Facility Characteristics</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Space Type</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Office</td>
<td>50,000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Gross Floor Area</td>
<td>50,000</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Estimated Design Energy</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Energy Source</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Electricity - Grid Purchase</td>
<td>kBtu</td>
<td>N/A</td>
<td>$ 0.022/kBtu</td>
</tr>
<tr>
<td>Natural Gas</td>
<td>kBtu</td>
<td>N/A</td>
<td>$ 0.011/kBtu</td>
</tr>
</tbody>
</table>

Source: Data adapted from DOE/EIA. See EPA Technical Description.
"The relocation of Gresham City Hall will stimulate investment in the surrounding community and spawn urban revitalization through a renewed sense of civic pride."
# Table of Contents

## Student Group
- A3
  - Start Page: 111
  - Thesis & Methods: 124
  - Existing Building Analysis: 114

## DEPARTMENTAL STUDIES
- Fire Department: 119
- Department of Environmental Services: 121

## DESIGN CONSIDERATIONS
- Precedent Studies: 125
- Gresham History: 126
- Total Areas Chart: 138
  - Design Ideas: 117, 137
  - Adjacency Diagrams: 116

## SITE ANALYSIS
- NW Eastman Parkway & NW 3rd Street: 128

## DESIGN PROPOSAL
- 139

## ENERGY ANALYSIS
- 144
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
EXISTING 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

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

---

**Legend:**

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

A3  SCI
Sustainable Cities Initiative
Gresham Fire Department - Administration

Neighborhood Adjacencies

Departmental Needs

Fire Bay
Fire House
Community Center
Meeting Spaces
Break Room
Storage
Shower Facility
Public Use
Administrative Use
Fire Operations

Departmental Adjacencies
Fire Department Plan

<table>
<thead>
<tr>
<th># of Rooms</th>
<th>SF</th>
<th>Dimensions</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Fire Department (Admin)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Offices</td>
<td>5</td>
<td>120</td>
</tr>
<tr>
<td>Open office space</td>
<td>1</td>
<td>400</td>
</tr>
<tr>
<td>Break room</td>
<td>1</td>
<td>180</td>
</tr>
<tr>
<td>Small meeting Room</td>
<td>1</td>
<td>100</td>
</tr>
<tr>
<td>Multi-use rooms/emergency op.</td>
<td>1</td>
<td>1500</td>
</tr>
<tr>
<td>Laundry room</td>
<td>1</td>
<td>48</td>
</tr>
<tr>
<td>Locker room with showers</td>
<td>2</td>
<td>192</td>
</tr>
<tr>
<td>Bathroom</td>
<td>2</td>
<td>48</td>
</tr>
<tr>
<td>Values</td>
<td>Goals</td>
<td>Facts</td>
</tr>
<tr>
<td>---------------</td>
<td>--------------------------------------------</td>
<td>----------------------------------------------------------------------</td>
</tr>
<tr>
<td>Human</td>
<td>Comfortable environment</td>
<td>Cubes are not sound-proof</td>
</tr>
<tr>
<td></td>
<td>Space to have private conversations</td>
<td>Extra amenities are expensive</td>
</tr>
<tr>
<td>Environmental</td>
<td>Easy access to co-workers within the department and people who work in offices outside city hall</td>
<td>Many people leave the office to conduct business and use fleet cars</td>
</tr>
<tr>
<td>Cultural</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Technological</td>
<td>Green/sustainable building</td>
<td>New building - opportunity to work with new materials and new design of space</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Temporal</td>
<td>Adaptable space for future growth</td>
<td>Gresham is growing quickly city hall staff is increasing</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Economic</td>
<td>Balance swank with tax $</td>
<td>Tax payers like to see their tax dollars benefiting the community</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aesthetic</td>
<td>Inviting spaces</td>
<td>Many different people need access to documents &amp; drawings</td>
</tr>
<tr>
<td></td>
<td>Tidy, organized work spaces</td>
<td></td>
</tr>
</tbody>
</table>
Department of Environmental Services Plan

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

Turku City Library

Seattle City Hall

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 establish 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

Bird’s Eye View of Gresham, Oregon
Gresham History
1905 - The Municipality of Gresham was incorporated
  Lewis & Clark Exposition.

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

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

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

Floor 1

Floor 2
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 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 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 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 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.
“Gresham city hall will have a strong civic identity and responsibly drive future development within the city.”
# Table of Contents

**Student Group**  
Start Page 147  
Thesis & Methods 158  
Existing Building Analysis 159

**DEPARTMENTAL STUDIES**  
Fire Department 153  
Economic Development 149

**DESIGN CONSIDERATIONS**  
Precedent Studies 162  
Design Ideas 160  
Adjacency Diagrams 169

**SITE ANALYSIS**  
NW Division St & N Main Ave 163

**DESIGN PROPOSAL**  
175

**ENERGY ANALYSIS**  
185
<table>
<thead>
<tr>
<th>Values</th>
<th>Goals</th>
<th>Facts</th>
<th>Needs</th>
<th>Ideas</th>
</tr>
</thead>
<tbody>
<tr>
<td>Human</td>
<td>- Work closely with other departments</td>
<td>- Adjacency to other departments and common areas in which to meet</td>
<td>- Share space with Urban Renewal</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Comfort in the work environment</td>
<td>- They do not have control over their work environment</td>
<td>- Comfortable environment in order to get more work done</td>
<td>- HVAC controls in each office</td>
</tr>
<tr>
<td>Technological</td>
<td>- Work more efficiently using technology</td>
<td>- Use technology on a daily basis</td>
<td>- Plug power control</td>
<td>- Place plugs near workspaces with easy accessibility</td>
</tr>
<tr>
<td>Safety</td>
<td>- Protect confidential information</td>
<td>- No designated, secure storage</td>
<td>- Access to secure storage fairly frequently</td>
<td>- Lock on storage area</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- No designated, secure conference room</td>
<td>- Separate, confidential conference room in order to handle private information</td>
<td>- Keep out of public realm</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>- Provide separate, secure conference room</td>
</tr>
<tr>
<td>Temporal</td>
<td>- Efficiency in managing spaces</td>
<td>- Conference rooms are double booked regularly as there is no central booking</td>
<td>- Central system for consistency throughout city hall to manage booking</td>
<td>- Online system to sign out conference rooms</td>
</tr>
</tbody>
</table>
Economic Development

URBAN RENEWAL

ECONOMIC DEVELOPMENT

PLANNING

BUILDING PERMITS

DEVELOPMENT ENGINEER D.E.S.
Economic Development

- MAYOR/COUNCIL
- CONFERENCE (12) (NOT PUBLIC)
- RECEPTION (8) PEOPLE
- ECONOMIC DEVELOPMENT
- COPY/COFFEE
- OGM
- URBAN RENEWAL
## Gresham City Department of Economic Development Plan Areas - Current Future

<table>
<thead>
<tr>
<th></th>
<th>Existing</th>
<th>Future</th>
<th>Room Dims</th>
<th>Typ. Area</th>
<th>Total Current</th>
<th>Total Future</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Office</strong></td>
<td>1</td>
<td>1</td>
<td>10' x 12'</td>
<td>130</td>
<td>130</td>
<td>125</td>
<td></td>
</tr>
<tr>
<td><strong>Conference Room</strong></td>
<td>0</td>
<td>1</td>
<td>16' x 11'</td>
<td>160</td>
<td>160*</td>
<td>180</td>
<td>*shared space (UR)</td>
</tr>
<tr>
<td><strong>Staff Cubicles</strong></td>
<td>1</td>
<td>1</td>
<td>22' x 21'</td>
<td>462</td>
<td>462</td>
<td>462</td>
<td>4 occupants</td>
</tr>
<tr>
<td><strong>Copy/Coffee Room</strong></td>
<td>0</td>
<td>1</td>
<td>5' x 10'</td>
<td>50</td>
<td>0</td>
<td>50</td>
<td></td>
</tr>
<tr>
<td><strong>Reception</strong></td>
<td>1</td>
<td>1</td>
<td>120*</td>
<td>120*</td>
<td>135*</td>
<td></td>
<td>*shared space (UR)</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td></td>
<td></td>
<td>922</td>
<td>872</td>
<td>1,052</td>
<td></td>
</tr>
<tr>
<td>Values</td>
<td>Goals</td>
<td>Facts</td>
<td>Needs</td>
<td>Ideas</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>--------------</td>
<td>--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>----------------------------------------------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>--------------------------------------------------------------------------------------------</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Human</td>
<td>Efficient layout of built space</td>
<td>- Existing triangular layout produces inefficient space &amp; dissatisfaction among occupants</td>
<td>- Primarily rectilinear plan</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Public/Private not well defined</td>
<td>- Plan which clearly delineates public/admin/apparatus bays/living quarters</td>
<td>- Create dedicated community conference room accessible to the public</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Provide gender specific facilities</td>
<td>- Currently minimal space dedicated to female firefighters</td>
<td>- Construct 2 sets of gender specific locker room/bathroom facilities</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Facilities of comparable quality for both genders</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Secure separation of public/administrative space</td>
<td>- Current facility shares lobby with police station</td>
<td>- Transparent division directly between lobby &amp; public</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Lobby not currently secure</td>
<td>- Group like functions together with circulation around them</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Confusing building organization</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Technological</td>
<td>Clear &amp; unified organization of space and equipment</td>
<td>- Currently firefighter equipment is distributed haphazardly</td>
<td>- Open section in apparatus bay with subdivided storage cabinets and ventilation</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Consolidated space allowing for all special requirements</td>
<td>- Archive for paperwork</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Smaller storage divisions for specific uses</td>
<td>- Proper ventilation</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Temporal</td>
<td>Provide for increased capacity</td>
<td>- Storms + weather emergencies, shift changes require more personnel on site</td>
<td>- Have certain spaces be adaptable during times of crisis</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Economic improvements will increase staff</td>
<td>- Provide more showers per bathroom</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Spare generator to account for electrical/data</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Improve emergency response time</td>
<td>- Emergency response requires 5-minute response time</td>
<td>- Place building on site adjacent to main arterial</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Current facility too far from right of way</td>
<td>- Avoid placing building next to light rail stop</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Close proximity to main driving route</td>
<td>- Overdesign for systems</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Fast route to apparatus bays from living quarters</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Fire Department

<table>
<thead>
<tr>
<th>Economic</th>
<th>Aesthetic</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Durability of Facilities</strong></td>
<td><strong>Create presence/identity of building public</strong></td>
</tr>
<tr>
<td>- Firefighting lifestyle produces heavy wear on a building</td>
<td>- Fire department wants a recognizable presence without suggesting exorbitant spending</td>
</tr>
<tr>
<td>- Residential grade equipment is insufficient</td>
<td>- Appearance that is agreeable to the public</td>
</tr>
<tr>
<td>- Tennis balls on chairs/Boot scuffs on floors</td>
<td>- Community space</td>
</tr>
<tr>
<td>- Low maintenance materials that last as long as possible under heavy use conditions</td>
<td>- Historically evocative materials</td>
</tr>
<tr>
<td>- Concrete flooring</td>
<td>- Downplay expense of materials</td>
</tr>
<tr>
<td>- Commercial grade appliances &amp; finishes</td>
<td></td>
</tr>
</tbody>
</table>

| **Home-like atmosphere**                                                 | **Flexible lounge space**                                                 |
| - Firefighters spend a 24-hr shift in the living quarters every 3 days   | - Scale spaces to domestic-style use                                      |
| - Cooking, laundry, sleeping quarters                                    | - Open plan within communal spaces                                       |
| - Exterior gathering space                                                | - Natural light & ventilation                                             |
Fire Department
OVERALL ADJACENCY DIAGRAM

PARKING LOT

RESTROOMS

ADMINISTRATIVE OFFICE
- FIRE CHIEF
- DEPUTY CHIEF
- (3) BATTALION CHIEFS
- SECRETARY
- ACCOUNTANT
- ACCT ASSISTANT
- 1/2 TIME ADMIN ASSIST
- FIRE MARSHALL
- (7) DEPUTY FIRE MARSHALLS

PUBLIC LOBBY

CONFERENCE ROOM

APPARATUS BAY
- 4 BAYS @ 2 VEHICLES PER BAY
- EQUIPMENT STORAGE

LIVING QUARTERS
- KITCHEN
- LIVING
- DINING
- PATIO
- WORKSTATIONS
- GYM
- LOCKER ROOM
- SHOWERS/BATHROOMS
- SLEEPING ROOMS

STREET

RESTROOMS

APPARATUS BAY

LIVING QUARTERS
Fire Department
ADMINISTRATIVE OFFICE
ADJACENCY DIAGRAM

ADMINISTRATIVE GROUP

SECRETARY’S OFFICE

ASSISTANT TO FIRE CHIEF (MICHELLE)

ACCOUNTANT + ASSISTANT ACCOUNTANT

1/2 TIME ADMIN. ASSISTANT

3 BATTALION CHIEFS OFFICES

FIRE CHIEF’S OFFICE

DEPUTY FIRE CHIEF’S OFFICE

FIRE MARSHALL’S OFFICE

7 DEPUTY FIRE MARSHALLS’ OFFICES

B4 156
Sustainable Cities Initiative
Fire Department

LIVING QUARTERS
ADJACENCY DIAGRAM

- Living
- Kitchen
- Dining
- Lounge
- Patio
- Workstations
- Gym
- Locker Room
- Sleeping Rooms
- Showers/Bathrooms
- Apparatus Bays

UNIVERSITY OF OREGON

Buildings | Neighborhoods | Regions | Architecture | Planning | Landscape | Policy
<table>
<thead>
<tr>
<th>EXISTING</th>
<th>FUTURE</th>
<th>ROOM DIMS</th>
<th>TYP. AREA</th>
<th>TOTAL CURRENT</th>
<th>TOTAL FUTURE</th>
<th>NOTES</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>feet</td>
<td>SF</td>
<td>SF</td>
<td>SF</td>
<td></td>
</tr>
<tr>
<td>Fire Reception Area</td>
<td>1</td>
<td>0</td>
<td>34'x23'</td>
<td>782</td>
<td>782</td>
<td>0</td>
</tr>
<tr>
<td>Public Lobby</td>
<td>0</td>
<td>1</td>
<td>25'x12'</td>
<td>300</td>
<td>0</td>
<td>300</td>
</tr>
<tr>
<td>Admin. Offices</td>
<td>0</td>
<td>1</td>
<td>34'x23'</td>
<td>782</td>
<td>0</td>
<td>782</td>
</tr>
<tr>
<td>Admin. Reception &amp; Work Area</td>
<td>1</td>
<td>0</td>
<td>25'x20'</td>
<td>500</td>
<td>500</td>
<td>0</td>
</tr>
<tr>
<td>Fire Chief's Office</td>
<td>1</td>
<td>1</td>
<td>17'x12'</td>
<td>204</td>
<td>204</td>
<td>204</td>
</tr>
<tr>
<td>Fire Chief's Assistant</td>
<td>0</td>
<td>1</td>
<td>15'x10'</td>
<td>150</td>
<td>0</td>
<td>150</td>
</tr>
<tr>
<td>Fire Marshal Office</td>
<td>1</td>
<td>1</td>
<td>15'x10'</td>
<td>150</td>
<td>150</td>
<td>150</td>
</tr>
<tr>
<td>Deputy Fire Chief Office</td>
<td>1</td>
<td>1</td>
<td>17'x10'</td>
<td>170</td>
<td>170</td>
<td>170</td>
</tr>
<tr>
<td>Battalion Chief Office</td>
<td>1</td>
<td>1</td>
<td>17'x12'</td>
<td>204</td>
<td>204</td>
<td>400</td>
</tr>
<tr>
<td>Deputy Fire Marshal Office</td>
<td>4</td>
<td>4</td>
<td>15'x12'</td>
<td>180</td>
<td>720</td>
<td>720</td>
</tr>
<tr>
<td>Storage</td>
<td>4</td>
<td>2</td>
<td>13'x10'</td>
<td>130</td>
<td>520</td>
<td>520</td>
</tr>
<tr>
<td>Break Room</td>
<td>1</td>
<td>1</td>
<td>19'x10'</td>
<td>190</td>
<td>190</td>
<td>190</td>
</tr>
<tr>
<td>Management Analyst Office</td>
<td>1</td>
<td>1</td>
<td>14'x10'</td>
<td>140</td>
<td>140</td>
<td>140</td>
</tr>
<tr>
<td>Conference Room</td>
<td>1</td>
<td>1</td>
<td>20'x20'</td>
<td>400</td>
<td>400</td>
<td>400</td>
</tr>
<tr>
<td>Service Area</td>
<td>3</td>
<td>3</td>
<td>20'x10'</td>
<td>200</td>
<td>600</td>
<td>600</td>
</tr>
<tr>
<td>Wash Room</td>
<td>1</td>
<td>1</td>
<td>10'x10'</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>Apparatus Bays (double width)</td>
<td>3</td>
<td>4</td>
<td>69'x18'</td>
<td>1,242</td>
<td>3,726</td>
<td>4,968</td>
</tr>
<tr>
<td>Exercise Room</td>
<td>1</td>
<td>1</td>
<td>18'x13'</td>
<td>234</td>
<td>234</td>
<td>700</td>
</tr>
<tr>
<td>Day Room/ Open Office Area</td>
<td>1</td>
<td>1</td>
<td>25'x21'</td>
<td>525</td>
<td>525</td>
<td>525</td>
</tr>
<tr>
<td>TV Area</td>
<td>1</td>
<td>1</td>
<td>25'x20'</td>
<td>500</td>
<td>500</td>
<td>500</td>
</tr>
<tr>
<td>Kitchen/ Eating Area</td>
<td>1</td>
<td>1</td>
<td>30'x20'</td>
<td>600</td>
<td>600</td>
<td>800</td>
</tr>
<tr>
<td>Office</td>
<td>1</td>
<td>0</td>
<td>12'x10'</td>
<td>120</td>
<td>120</td>
<td>0</td>
</tr>
<tr>
<td>Report/ Emergency Command Room</td>
<td>0</td>
<td>1</td>
<td>30'x20'</td>
<td>600</td>
<td>0</td>
<td>600</td>
</tr>
<tr>
<td>Bedroom</td>
<td>8</td>
<td>10</td>
<td>11'x9'</td>
<td>99</td>
<td>792</td>
<td>990</td>
</tr>
<tr>
<td>Locker Room/ Showers</td>
<td>1</td>
<td>2</td>
<td>30'x13'</td>
<td>390</td>
<td>390</td>
<td>780</td>
</tr>
<tr>
<td>Bathroom</td>
<td>2</td>
<td>2</td>
<td>18'x10'</td>
<td>180</td>
<td>360</td>
<td>360</td>
</tr>
</tbody>
</table>

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
BUILDING PRECEDENT:
Minneapolis Central Library
Pelli Clarke Pelli Architects
HISTORIC DOWNTOWN

SITE #4

TRANSIT LINES

CURRENT CITY HALL

HISTORIC DOWNTOWN

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 Context
Site Context
FIRE DEPARTMENT:
ADMINISTRATIVE AREA
3RD FLOOR PLAN

- Community Development
- Office of Governance and Management

SCALE: 1/32 in = 1 ft
Gresham City Hall

FIRE STATION - FLOOR 2

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

FIRE STATION - MASSING

LIVING QUARTERS

ADMINISTRATION

APPARATUS BAYS

Sustainable Cities Initiative
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).

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...
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.
### Energy and Carbon Results

- **Proposed building energy use**: 3,462.48 MBtu/yr
- **Proposed building carbon emissions**: 455.4 tons CO₂/yr

#### Energy Breakdown:
- **Heating**: 5%
- **Cooling**: 6%
- **Lights**: 20%
- **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/apachetron

### AIA 2030 Challenge - summary

- **Current design meets 2030 Challenge Target for**:
  - Design Building Energy Use Intensity: 47 IBTU/ft²
  - Average Building Energy Use Intensity: 66 IBTU/ft²
- **Does not meet current target**:
  - Administrative/Professional and Government Office

Analysis Details:
- **Location**: Portland, Oregon (45.56N. 122.66W)
- **Climate File**: PortlandTM2.5x
- **Calculated**: 08/Dec/2009 at 16:33
- **Calculation period**: 01/Jan - 31/Dec

#### Climate Energy Metric

- **Climate Energy Metric**
- **24 hour use**: 2,965.1 Btu/yr
- **Proposed hours of use**: 1,004.7 Btu/yr
- **Using the local fuel mix**: 0.1 lb CO₂/yr

Building simulation results can be compared with the index to provide a simple measure of performance in the context of local climate.
## Building Area Allocations

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

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

Facilities Department

Preferred Adjacency

IT Department
### Department of Information Technology

<table>
<thead>
<tr>
<th>Existing</th>
<th>Future</th>
<th>Room Dims</th>
<th>Area</th>
<th>Total current</th>
<th>Total Future</th>
</tr>
</thead>
<tbody>
<tr>
<td># of rooms</td>
<td># of rooms</td>
<td>Feet</td>
<td>SF</td>
<td>SF</td>
<td>SF</td>
</tr>
<tr>
<td><strong>IT</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>data/comm room</td>
<td>6</td>
<td>6</td>
<td>8x10</td>
<td>2 per flr 80 sq ft each</td>
<td>480 total</td>
</tr>
<tr>
<td>small conf.</td>
<td>1</td>
<td>1</td>
<td>10x14</td>
<td>140 sq. ft.</td>
<td>140 sq. ft.</td>
</tr>
<tr>
<td>large conf.</td>
<td>1</td>
<td>1</td>
<td>12x16</td>
<td>192 sq. ft.</td>
<td>192 sq. ft.</td>
</tr>
<tr>
<td>training room</td>
<td>1</td>
<td>1</td>
<td>21x12</td>
<td>250 sq. ft.</td>
<td>250 sq. ft.</td>
</tr>
<tr>
<td>server room</td>
<td>1</td>
<td>1</td>
<td>30x15</td>
<td>417 sq. ft.</td>
<td>417 sq. ft.</td>
</tr>
<tr>
<td>public interface</td>
<td>1</td>
<td>1</td>
<td>10x15</td>
<td>150 sq. ft.</td>
<td>150 sq. ft.</td>
</tr>
<tr>
<td>help desk</td>
<td>1</td>
<td>1</td>
<td>5x8</td>
<td>40 sq. ft.</td>
<td>40 sq. ft.</td>
</tr>
<tr>
<td>administration</td>
<td>1</td>
<td>1</td>
<td>10x14</td>
<td>140 sq. ft.</td>
<td>140 sq. ft.</td>
</tr>
<tr>
<td>tech support staff</td>
<td>5</td>
<td>5</td>
<td>5 cubes @ 70 sq. ft.</td>
<td>350 sq. ft.</td>
<td>350 sq. ft.</td>
</tr>
<tr>
<td>storage</td>
<td>1</td>
<td>1</td>
<td>1260 sq. ft.</td>
<td>1260 sq. ft.</td>
<td>1260 sq. ft.</td>
</tr>
<tr>
<td>break out room</td>
<td>1</td>
<td>1</td>
<td>12x16</td>
<td>192 sq. ft.</td>
<td>192 sq. ft.</td>
</tr>
<tr>
<td>director</td>
<td>1</td>
<td>1</td>
<td>10x14</td>
<td>140 sq. ft.</td>
<td>140 sq. ft.</td>
</tr>
<tr>
<td>technicians</td>
<td>4</td>
<td>4</td>
<td>4 cubes @ 70 sq. ft.</td>
<td>280 sq. ft.</td>
<td>280 sq. ft.</td>
</tr>
<tr>
<td>build out room</td>
<td>1</td>
<td>1</td>
<td>10x10</td>
<td>100 sq. ft.</td>
<td>100 sq. ft.</td>
</tr>
</tbody>
</table>

**Urban Renewal**

| | | | | | | room dims vary (currently mixed with facilities) |
| **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**

- **4,131 sq. ft.**
- **1,202 sq. ft.**
# Department of Urban Renewal

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

- Work Room/Kitchen
  - Reception Desk
  - Private Office
  - Small Conference
  - Large Conference
  - (4) Cubicles
<table>
<thead>
<tr>
<th>Existing</th>
<th>Future</th>
<th>Room Dims</th>
<th>Area</th>
<th>Total current</th>
<th>Total Future</th>
</tr>
</thead>
<tbody>
<tr>
<td># of rooms</td>
<td># of rooms</td>
<td>Feet</td>
<td>SF</td>
<td>SF</td>
<td>SF</td>
</tr>
<tr>
<td>IT</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>data/comm room</td>
<td>6</td>
<td>6</td>
<td>8x10</td>
<td>2 per flr 80 sq ft each</td>
<td>480 total</td>
</tr>
<tr>
<td>small conf.</td>
<td>1</td>
<td>1</td>
<td>10x14</td>
<td>140 sq. ft.</td>
<td>140 sq. ft.</td>
</tr>
<tr>
<td>large conf.</td>
<td>1</td>
<td>1</td>
<td>12x16</td>
<td>192 sq. ft.</td>
<td>192 sq. ft.</td>
</tr>
<tr>
<td>training room</td>
<td>1</td>
<td>1</td>
<td>21x12</td>
<td>250 sq. ft.</td>
<td>250 sq. ft.</td>
</tr>
<tr>
<td>server room</td>
<td>1</td>
<td>1</td>
<td>30x15</td>
<td>417 sq. ft.</td>
<td>417 sq. ft.</td>
</tr>
<tr>
<td>public interface</td>
<td>1</td>
<td>1</td>
<td>10x15</td>
<td>150 sq. ft.</td>
<td>150 sq. ft.</td>
</tr>
<tr>
<td>help desk</td>
<td>1</td>
<td>1</td>
<td>5x8</td>
<td>40 sq. ft.</td>
<td>40 sq. ft.</td>
</tr>
<tr>
<td>administration</td>
<td>1</td>
<td>1</td>
<td>10x14</td>
<td>140 sq. ft.</td>
<td>140 sq. ft.</td>
</tr>
<tr>
<td>tech support staff</td>
<td>5</td>
<td>5</td>
<td>5 cubes @ 70 sq. ft.</td>
<td>350 sq. ft.</td>
<td>350 sq. ft.</td>
</tr>
<tr>
<td>storage</td>
<td>1</td>
<td>1</td>
<td></td>
<td>1260 sq. ft.</td>
<td>1260 sq. ft.</td>
</tr>
<tr>
<td>break out room</td>
<td>1</td>
<td>1</td>
<td>12x16</td>
<td>192 sq. ft.</td>
<td>192 sq. ft.</td>
</tr>
<tr>
<td>director</td>
<td>1</td>
<td>1</td>
<td>10x14</td>
<td>140 sq. ft.</td>
<td>140 sq. ft.</td>
</tr>
<tr>
<td>technicians</td>
<td>4</td>
<td>4</td>
<td>4 cubes @ 70 sq. ft.</td>
<td>280 sq. ft.</td>
<td>280 sq. ft.</td>
</tr>
<tr>
<td>build out room</td>
<td>1</td>
<td>1</td>
<td>10x10</td>
<td>100 sq. ft.</td>
<td>100 sq. ft.</td>
</tr>
</tbody>
</table>

**Total** = 4,131 sq. ft.

**Urban Renewal**

<table>
<thead>
<tr>
<th># of rooms</th>
<th># of rooms</th>
<th>Feet</th>
<th>SF</th>
<th>SF</th>
<th>SF</th>
</tr>
</thead>
<tbody>
<tr>
<td>work room/kitchen</td>
<td>1</td>
<td>1</td>
<td>10x18</td>
<td>180 sq. ft.</td>
<td>180 sq. ft.</td>
</tr>
<tr>
<td>large conf.</td>
<td>1</td>
<td>1</td>
<td>20x13</td>
<td>260 sq. ft.</td>
<td>260 sq. ft.</td>
</tr>
<tr>
<td>staff</td>
<td>4</td>
<td>4</td>
<td>4 cubes @ 70 sq. ft.</td>
<td>280 sq. ft.</td>
<td>280 sq. ft.</td>
</tr>
<tr>
<td>small conf.</td>
<td>1</td>
<td>1</td>
<td>13x14</td>
<td>182 sq. ft.</td>
<td>182 sq. ft.</td>
</tr>
<tr>
<td>private office</td>
<td>1</td>
<td>1</td>
<td>10x14</td>
<td>140 sq. ft.</td>
<td>140 sq. ft.</td>
</tr>
<tr>
<td>reception desk</td>
<td>1</td>
<td>1</td>
<td>16x10</td>
<td>160 sq. ft.</td>
<td>160 sq. ft.</td>
</tr>
</tbody>
</table>

**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 HEALTH BENEFITS TREMENDOUS.

WHILE THE OFFICES ARE ORGANIZED AROUND THE OUTSIDE PERIMETER OF THE BUILDING, 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.
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:

**DCC - DOWNTOWN COMMERCIAL CORE:**
The DCC is the city's long-standing center and features unique local businesses, small-scale storefronts, and intimate sidewalks.

**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.

**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.

**MAX HEIGHT: 85 FEET**

**MAX HEIGHT: 50 FEET**
SITE

DOWNTOWN COMMERCIAL CORE:
The DCC is the city’s long-standing center and features unique local businesses, small-scale storefronts, and intimate sidewalks.

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.

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.

ZONING AND PLANNING:

MAX HEIGHT: 85 FEET

MAX HEIGHT: 50 FEET

MAX HEIGHT: 85 FEET
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 structures 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 in a manner 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.
DESIGN CONSIDERATIONS FOR THE SITE

SINGLE FAMILY HOMES:
These structures 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.

STRIPE 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 in a manner suitable for low density retail situations.

NEOWER 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.
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:
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

3D DIGITAL MODEL:

AXONS AND SITE CONTEXT.
PROJECT REQUIREMENTS

3D DIGITAL MODEL:

BUILDING ELEVATION
PROJECT REQUIREMENTS

3D DIGITAL MODEL:
ENTRY PERSPECTIVES.
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
<table>
<thead>
<tr>
<th>DEPARTMENT</th>
<th>ACTIVITIES IN SPACE</th>
<th>OCCUPANTS</th>
<th>AREA</th>
<th>HEIGHT</th>
<th>LIGHTING REQUIREMENTS</th>
<th>SCHEDULE</th>
<th>TEMPERATURE NEEDS</th>
</tr>
</thead>
<tbody>
<tr>
<td>URBAN RENEWAL</td>
<td>LIGHT TO MEDIUM OFFICE WORK</td>
<td>6</td>
<td>1200 SF</td>
<td>12'</td>
<td>TASK LIGHTING</td>
<td>8AM-5PM</td>
<td>68-78 F</td>
</tr>
<tr>
<td>ECONOMIC DEVELOPMENT</td>
<td>LIGHT TO MEDIUM OFFICE WORK</td>
<td>6</td>
<td>1000 SF</td>
<td>12'</td>
<td>TASK LIGHTING</td>
<td>8AM-5PM</td>
<td>68-78 F</td>
</tr>
<tr>
<td>CITY ATTORNEY</td>
<td>LIGHT TO MEDIUM OFFICE WORK</td>
<td>10</td>
<td>2800 SF</td>
<td>12'</td>
<td>TASK LIGHTING</td>
<td>8AM-5PM</td>
<td>68-78 F</td>
</tr>
<tr>
<td>DEPARTMENT OF ENVIRONMENTAL SERVICES</td>
<td>LIGHT TO MEDIUM OFFICE WORK</td>
<td>17</td>
<td>2000 SF</td>
<td>12'</td>
<td>TASK LIGHTING</td>
<td>8AM-5PM</td>
<td>68-78 F</td>
</tr>
<tr>
<td>FACILITIES</td>
<td>LIGHT TO MEDIUM OFFICE WORK</td>
<td>12</td>
<td>2000 SF</td>
<td>12'</td>
<td>TASK LIGHTING</td>
<td>24 HR ON CALL</td>
<td>68-78 F</td>
</tr>
<tr>
<td>FINANCIAL MANAGEMENT</td>
<td>LIGHT TO MEDIUM OFFICE WORK</td>
<td>30</td>
<td>10,530 SF</td>
<td>12'</td>
<td>TASK LIGHTING</td>
<td>8AM-5PM</td>
<td>68-78 F</td>
</tr>
<tr>
<td>URBAN PLANNING</td>
<td>LIGHT TO MEDIUM OFFICE WORK</td>
<td>35</td>
<td>5700 SF</td>
<td>12'</td>
<td>TASK LIGHTING</td>
<td>8AM-5PM</td>
<td>68-78 F</td>
</tr>
<tr>
<td>COMMUNITY DEVELOPMENT</td>
<td>LIGHT TO MEDIUM OFFICE WORK</td>
<td>40</td>
<td>12,500 SF</td>
<td>12'</td>
<td>TASK LIGHTING</td>
<td>8AM-5PM</td>
<td>68-78 F</td>
</tr>
<tr>
<td>INFORMATION TECHNOLOGIES</td>
<td>LIGHT TO MEDIUM OFFICE WORK</td>
<td>12</td>
<td>4000 SF</td>
<td>12'</td>
<td>TASK LIGHTING</td>
<td>24 HR ON CALL</td>
<td>INDEPENDENT CONTROL NEEDED</td>
</tr>
</tbody>
</table>
ADJACENCY DIAGRAMS BY THEIR FUNCTIONAL NEEDS
DEPARTMENT LOCATIONS BY THEIR FUNCTIONAL NEEDS
<table>
<thead>
<tr>
<th>Zone</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zone 1</td>
<td>Contains major spaces of occupancy throughout the day</td>
</tr>
<tr>
<td>Zone 2</td>
<td>Contains the main circulation and atrium area</td>
</tr>
<tr>
<td>Zone 3</td>
<td>Library</td>
</tr>
<tr>
<td>Zone 4</td>
<td>Public spaces</td>
</tr>
<tr>
<td>Zone 5</td>
<td>Storage and locker room areas</td>
</tr>
<tr>
<td>Zone 6</td>
<td>Mechanical areas</td>
</tr>
<tr>
<td>Zone 7</td>
<td>Council chamber and meeting spaces</td>
</tr>
<tr>
<td>Zone 8</td>
<td>Rest rooms</td>
</tr>
<tr>
<td>Zone 9</td>
<td>Server room</td>
</tr>
</tbody>
</table>
ENERGY ZONE PLAN ADJACENCIES AND STACKING

SECOND FLOOR

GROUND FLOOR

ZONE 1
ZONE 2
ZONE 3
ZONE 5
ZONE 6
ZONE 7
SCHEDULING NEEDS BY DEPARTMENT USE

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

- 9AM-8PM
- 9AM-6PM
- 9AM-9PM
- 24 HOURS/DAY

COLOR CODE:
- 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

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

<table>
<thead>
<tr>
<th>Energy</th>
<th>Design</th>
<th>Target</th>
<th>Average Building</th>
</tr>
</thead>
<tbody>
<tr>
<td>Energy Performance Rating (1-100)</td>
<td>59</td>
<td>60</td>
<td>50</td>
</tr>
<tr>
<td>Energy Reduction (%)</td>
<td>10</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Source Energy Use Intensity (kBtu/Sq. Ft./yr)</td>
<td>197</td>
<td>218</td>
<td>218</td>
</tr>
<tr>
<td>Site Energy Use Intensity (kBtu/Sq. Ft./yr)</td>
<td>59</td>
<td>65</td>
<td>65</td>
</tr>
<tr>
<td>Total Annual Source Energy (kBtu)</td>
<td>30,313,573</td>
<td>33,504,961</td>
<td>33,504,961</td>
</tr>
<tr>
<td>Total Annual Site Energy (kBtu)</td>
<td>9,075,920</td>
<td>10,031,422</td>
<td>10,031,422</td>
</tr>
<tr>
<td>Total Annual Energy Cost ($)</td>
<td>$133,000</td>
<td>$147,002</td>
<td>$147,002</td>
</tr>
<tr>
<td>Pollution Emissions</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CO2-eq Emissions (metric tons/year)</td>
<td>1,095</td>
<td>1,210</td>
<td>1,210</td>
</tr>
<tr>
<td>CO2-eq Emissions Reduction (%)</td>
<td>10%</td>
<td>0%</td>
<td>0%</td>
</tr>
</tbody>
</table>

Facility Information
Gresham City Hall
Gresham, OR 97030
United States

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

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

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

Source: Data adapted from DOE-EIA. See EPA Technical Description.
WITH THE ENERGY CONSERVATION STRATEGIES USED IT IS ESTIMATED 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

-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

ENERGY USE PER SQUARE METER

1ST YEAR ENERGY COST/SQUARE FOOT

HEATING
COOLING
LIGHTING

HEATING
COOLING
LIGHTING
SCENARIO TWO

ENERGY USE PER SQUARE METER 1ST YEAR ENERGY COST/SQUARE FOOT

-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
RESULTS COMPARED

ENERGY USE PER SQUARE METER

1ST YEAR ENERGY COST/SQUARE FOOT

HEATING
COOLING
LIGHTING

INDOOR AIR TEMPERATURE FROM NATURAL VENTILATION
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 dependent 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.
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:

<table>
<thead>
<tr>
<th>Year</th>
<th>% reduction</th>
<th>kBtu/ft²</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current</td>
<td>50</td>
<td>42</td>
</tr>
<tr>
<td>2010</td>
<td>60</td>
<td>34</td>
</tr>
<tr>
<td>2015</td>
<td>70</td>
<td>29</td>
</tr>
<tr>
<td>2020</td>
<td>80</td>
<td>25</td>
</tr>
<tr>
<td>2025</td>
<td>90</td>
<td>25</td>
</tr>
<tr>
<td>2030</td>
<td>100</td>
<td>0</td>
</tr>
</tbody>
</table>

For certain building types targets are calculated using Energy Star methodology where energy consumption is not direct % reduction against average.
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.
“A successful Gresham City Hall will translate the unique identity and history of Gresham into civic architecture that inspires, welcomes, and strengthens downtown.”
### Table of Contents

**Student Group**  
B6  
Start Page 235  
Thesis & Methods 235  
Existing Building Analysis 237

**DEPARTMENTAL STUDIES**  
Office of Governance and Management 238  
Community Development 243

**DESIGN CONSIDERATIONS**  
Precedent Studies 249  
Adjacency Diagrams 248

**SITE ANALYSIS**  
3rd & Hood 251

**DESIGN PROPOSAL**  
259  
**ENERGY ANALYSIS**  
261
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

<table>
<thead>
<tr>
<th>Office/Position</th>
<th>Future No. of rooms</th>
<th>Room Type</th>
<th>Room Dims</th>
<th>Typical area SF</th>
<th>Total future SF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mayors Office</td>
<td>1</td>
<td>Office</td>
<td>16x20</td>
<td>320</td>
<td>320</td>
</tr>
<tr>
<td>City Manager's Office</td>
<td>1</td>
<td>Office</td>
<td>16x20</td>
<td>320</td>
<td>320</td>
</tr>
<tr>
<td>City Councilor's Workroom</td>
<td>1</td>
<td>Office</td>
<td>16x24</td>
<td>384</td>
<td>384</td>
</tr>
<tr>
<td>Assistant to the Mayor</td>
<td>1</td>
<td>Office</td>
<td>12x10</td>
<td>120</td>
<td>120</td>
</tr>
<tr>
<td>Director of Human Resources &amp; Community Services</td>
<td>1</td>
<td>Office</td>
<td>12x10</td>
<td>120</td>
<td>120</td>
</tr>
<tr>
<td>Senior Personnel Analyst – Training</td>
<td>2</td>
<td>Office</td>
<td>12x10</td>
<td>120</td>
<td>240</td>
</tr>
<tr>
<td>Personnel Analyst</td>
<td>1</td>
<td>Office</td>
<td>12x10</td>
<td>120</td>
<td>120</td>
</tr>
<tr>
<td>Communications Manager</td>
<td>1</td>
<td>Office</td>
<td>12x15</td>
<td>180</td>
<td>180</td>
</tr>
<tr>
<td>Program Technician - Communications, askGresham</td>
<td>1</td>
<td>Office</td>
<td>12x10</td>
<td>120</td>
<td>120</td>
</tr>
<tr>
<td>Community Services Manager - Volunteers, Neighborhoods</td>
<td>1</td>
<td>Office</td>
<td>12x10</td>
<td>120</td>
<td>120</td>
</tr>
<tr>
<td>Emergency Management Coordinator</td>
<td>1</td>
<td>Office</td>
<td>12x10</td>
<td>120</td>
<td>120</td>
</tr>
<tr>
<td>CERT Program Coordinator</td>
<td>1</td>
<td>Office</td>
<td>12x10</td>
<td>120</td>
<td>120</td>
</tr>
<tr>
<td>Mediation Specialist</td>
<td>1</td>
<td>Office</td>
<td>12x10</td>
<td>120</td>
<td>120</td>
</tr>
<tr>
<td>Council Coordinator</td>
<td>1</td>
<td>Office</td>
<td>12x10</td>
<td>120</td>
<td>120</td>
</tr>
<tr>
<td>Executive Director – Rockwood-West Gresham Urban Renewal Area</td>
<td>1</td>
<td>Office</td>
<td>12x10</td>
<td>120</td>
<td>120</td>
</tr>
<tr>
<td>City Recorder Management Analyst Program Technician</td>
<td>1</td>
<td>Office</td>
<td>12x15</td>
<td>180</td>
<td>180</td>
</tr>
</tbody>
</table>

**Subtotal**: 2044

**Circulation 40% of total**: 700

**Total**: 2744

### Cubes

<table>
<thead>
<tr>
<th>Position</th>
<th>Future No. of rooms</th>
<th>Room Type</th>
<th>Room Dims</th>
<th>Typical area SF</th>
<th>Total future SF</th>
</tr>
</thead>
<tbody>
<tr>
<td>AmeriCorp Neighborhood Safety Team Coordinator</td>
<td>1</td>
<td>Cube</td>
<td>9x9</td>
<td>81</td>
<td>81</td>
</tr>
<tr>
<td>Community Relations Administration</td>
<td>1</td>
<td>Cube</td>
<td>9x9</td>
<td>81</td>
<td>81</td>
</tr>
<tr>
<td>Administrative Assistant II</td>
<td>1</td>
<td>Cube</td>
<td>9x9</td>
<td>81</td>
<td>81</td>
</tr>
<tr>
<td>Administrative Assistant III</td>
<td>1</td>
<td>Cube</td>
<td>9x9</td>
<td>81</td>
<td>81</td>
</tr>
<tr>
<td>Expansion cubes</td>
<td>10</td>
<td>Cube</td>
<td>9x9</td>
<td>810</td>
<td>810</td>
</tr>
</tbody>
</table>

**Subtotal**: 1134

**Circulation 40% of total**: 486

**Total**: 1620

### Common Spaces

<table>
<thead>
<tr>
<th>Space</th>
<th>Future No. of rooms</th>
<th>Room Type</th>
<th>Room Dims</th>
<th>Typical area SF</th>
<th>Total future SF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conference rooms - medium (10-14)</td>
<td>2</td>
<td>22x17</td>
<td>374</td>
<td>748</td>
<td></td>
</tr>
<tr>
<td>Conference room - large (25)</td>
<td>1</td>
<td>16x25</td>
<td>400</td>
<td>400</td>
<td></td>
</tr>
<tr>
<td>HR training room - (60)</td>
<td>1</td>
<td>25x40</td>
<td>1000</td>
<td>1000</td>
<td></td>
</tr>
<tr>
<td>Work Room</td>
<td>1</td>
<td>16x25</td>
<td>400</td>
<td>400</td>
<td></td>
</tr>
<tr>
<td>Kitchen/Break room</td>
<td>2</td>
<td>12x10</td>
<td>120</td>
<td>240</td>
<td></td>
</tr>
<tr>
<td>Waiting area</td>
<td>1</td>
<td>12x10</td>
<td>120</td>
<td>120</td>
<td></td>
</tr>
</tbody>
</table>

**Subtotal**: 2908

**Circulation 40% of total**: 406

**Total**: 3314
# Needs Analysis - OGM

<table>
<thead>
<tr>
<th>GOALS</th>
<th>FACTS</th>
<th>NEEDS</th>
<th>IDEAS</th>
</tr>
</thead>
<tbody>
<tr>
<td>HUMAN</td>
<td>Childcare</td>
<td>Employees have small children</td>
<td>Care for 40 0-5 tots</td>
</tr>
<tr>
<td></td>
<td>Accessible Food and Drink</td>
<td>Employees like easily accessible coffee and food</td>
<td>Coffee or Deli to serve employees</td>
</tr>
<tr>
<td>ENVIRONMENTAL</td>
<td>x</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CULTURAL</td>
<td>Public access</td>
<td>Current location removed from public</td>
<td>Better accessibility</td>
</tr>
<tr>
<td>TECH</td>
<td></td>
<td></td>
<td>Kitchenette w/ DW and purified water</td>
</tr>
<tr>
<td></td>
<td>Only one copier and the City Council places high demand on it</td>
<td>Second copier for City Council</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Coffee station for City Council</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TEMPORAL ECONOMIC</td>
<td>Anticipate future growth</td>
<td>Current economic conditions have temp. reduced the OGM workforce</td>
<td>Space to add 10 cubes</td>
</tr>
<tr>
<td>AESTHETIC</td>
<td>To reflect city identity</td>
<td></td>
<td>Waiting area displays</td>
</tr>
<tr>
<td>SAFETY</td>
<td>Re-usable dishware to reduce landfill impact</td>
<td>Paper plates currently used</td>
<td>Meet sanitary standards for re-usable dishes</td>
</tr>
</tbody>
</table>
Adjacency Diagrams - OGM
Office of Governance and Management

External Department Diagrams

All Other Departments

OGM

Urban Renewal

Economic Development

Public Meetings:

Council Office

HR Conf Room

Conference Rm

Council Chambers

Closed Council Rm
# Needs Analysis - Community Development

<table>
<thead>
<tr>
<th>Gresham City Hall Community Development Plan Areas -</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Future No. of room</strong></td>
</tr>
<tr>
<td>Offices</td>
</tr>
<tr>
<td>Director/Building Official</td>
</tr>
<tr>
<td>Business Systems Coordinator</td>
</tr>
<tr>
<td>Management Analyst</td>
</tr>
<tr>
<td>Administrative Supervisor</td>
</tr>
<tr>
<td>Assistant Building Official</td>
</tr>
<tr>
<td>Structural Engineer/Plan Examiner</td>
</tr>
<tr>
<td>Chief Electrical Inspector</td>
</tr>
<tr>
<td>Chief Mechanical Inspector</td>
</tr>
<tr>
<td>Chief Plumbing Inspector</td>
</tr>
<tr>
<td>Senior Code Compliance Inspector</td>
</tr>
<tr>
<td>Permit Supervisor</td>
</tr>
<tr>
<td>Senior Rental Housing Inspector</td>
</tr>
<tr>
<td>Expansion office @ 20% growth</td>
</tr>
<tr>
<td><strong>Subtotal</strong></td>
</tr>
<tr>
<td><strong>Circulation 40% of total</strong></td>
</tr>
<tr>
<td><strong>Total</strong></td>
</tr>
<tr>
<td>Cubes</td>
</tr>
<tr>
<td>Program Technician</td>
</tr>
<tr>
<td>Admin Assistant II</td>
</tr>
<tr>
<td>Building Inspector II - Elec</td>
</tr>
<tr>
<td>Building Inspectors - St/Mech</td>
</tr>
<tr>
<td>Plans Examiners - St/Mech</td>
</tr>
<tr>
<td>Building Inspectors - Plumbing</td>
</tr>
<tr>
<td>Code Compliance Inspectors</td>
</tr>
<tr>
<td>Permit Technicians</td>
</tr>
<tr>
<td>Rental Housing Inspectors</td>
</tr>
<tr>
<td><strong>Expansion cubes @ 20% growth</strong></td>
</tr>
<tr>
<td><strong>Subtotal</strong></td>
</tr>
<tr>
<td><strong>Circulation 40% of total</strong></td>
</tr>
<tr>
<td><strong>Total</strong></td>
</tr>
<tr>
<td>Common Spaces</td>
</tr>
<tr>
<td>Conference rooms - small (5-7)</td>
</tr>
<tr>
<td>Conference rooms - medium (10-14)</td>
</tr>
<tr>
<td>Conference rooms - large (16-20)</td>
</tr>
<tr>
<td>Storage</td>
</tr>
<tr>
<td>Kitchen/Break room</td>
</tr>
<tr>
<td>Waiting area/public counters</td>
</tr>
<tr>
<td><strong>Subtotal</strong></td>
</tr>
<tr>
<td><strong>Circulation 40% of total</strong></td>
</tr>
<tr>
<td><strong>Total</strong></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>------------------</td>
</tr>
<tr>
<td>HUMAN</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Efficiency</td>
</tr>
<tr>
<td>Physical access</td>
</tr>
<tr>
<td>ENVIRONMENT</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Sustainable City Hall</td>
</tr>
<tr>
<td>CULTURAL</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>TECHNOLOGY</td>
</tr>
</tbody>
</table>
Adjacency Diagrams - Community Development

Community Development
Departmental diagram

- Code Compliance Inspectors: 4
- Permit Supervisor
- Permit Technicians: 5
- Director/Admin staff: 6
- Rental Housing Inspection: 4
- Building Division
  - Mechanical/Structural: 6
  - Plumbing: 3
  - Electrical: 2
- Asst. Building officials: 2
Scaled Diagram - Community Development

Public counters/ Intake (720sf)

6 offices @ 10x12 (720sf)

25 Cubes @ 8x8 (400sf)

6 offices @ 10x12 (720sf)

4 Small conferences @ 10x12 (480sf)

Storage @ 10x34 (340sf)

1 kitchenette @ 10x12 (120sf)

2 Medium conference rooms @ 17x22 (748sf)

Large conference room @ 20x30 (600sf)
Eugene City Hall proposal THA Architects -

The Eugene City hall proposal by THA Architects demonstrates the use of an atrium as an organizational element as well as public interface and wayfinding. Atriums also provide daylight access deep into the 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 as well as a sense of unification and spaciousness.
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. designated as “unique street” surrounded by residential and business

- Urban commercial street

- Future parking entrance to be on 2nd st.
Downtown Commercial Core (DCC)

- City’s long-standing center

-local businesses, small-scale storefronts, and intimate 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.
- positive building-to-sidewalk relationships and well-designed 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.
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.
2nd and Hood (Site 2) Floor Plans

second floor
- Library
- Financial Management
- Shared
- City Attorney
- Information Technology
- Atrium

third floor
- Green Roof
- Reading Room
- Environmental Services
- Shared
- Urban Renewal
- Atrium

fourth floor
- Economic Development
- Shared
- OGM
- Atrium

basement
- Parking Garage

first floor
- Library
- Urban Planning
- Shared
- Community Development
- Council Chambers
- Atrium
2nd and Hood (Site 2) Massing
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.
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.
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

Scenario 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 glazing with 2 low-e coatings on 100% of facade
High commercial insulation.
High Thermal Mass
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
MIT Design Advisor Analysis - Results

Life Cycle Figures: Cost of Energy and CO2 Emissions

<table>
<thead>
<tr>
<th>Scenario 1</th>
<th>Scenario 2</th>
<th>Scenario 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lighting</td>
<td>1.8 $/m^2</td>
<td>2.8 $/m^2</td>
</tr>
<tr>
<td>Cooling</td>
<td>0.4 $/m^2</td>
<td>0.3 $/m^2</td>
</tr>
<tr>
<td>Heating</td>
<td>0.7 $/m^2</td>
<td>0.1 $/m^2</td>
</tr>
<tr>
<td>Total</td>
<td>2.9 $/m^2</td>
<td>3.1 $/m^2</td>
</tr>
</tbody>
</table>

First Year Energy Cost -- ($ / m²)

Natural Ventilation: Indoor Air Temperature Histogram

- **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 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

Other Resources

- Gresham Historical Society: http://community.gorge.net/ghs/
- OSSC 2007
Energy Modeling:

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

General Class References:


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

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