

Group B6

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“A successful Gresham City Hall will translate the unique identity and history of Gresham into civic architecture that inspires, welcomes, and strengthens downtown.”

ARCH 449/549 Architectural Programming
Program for Gresham City Hall
Project 5

Group B6

Table of Contents

Existing Building Analysis	3
OGM	
Needs Analysis	4-5
Adjacency Diagrams	6-7
Scaled Diagram	8
Community Development	
Needs Analysis	9-10
Adjacency Diagrams	11-12
Scaled Diagram	13
Scaled Diagram	14
Design Ideas	15-16
Site Analysis	17-18
Design Guidelines and Standards	19-22
Site Current Conditions	23-24
Schematic Floor Plans	25
Massing	26
Energy Studies	27
Diagrams	28-29
2030 Challenge	30
MIT Design Senarios	31-33

ARCH 449/549 Architectural Programming
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Project 5

Existing Building Analysis

- * Dreary and unwelcoming exterior, does not present the image of a city hall
- * Poor use of space (Daylight access in storage room but not mail/process work room)
- * Long corridors in upper levels
- * Inefficient building layout. Plan need to be reversed to function and serve the public more efficiently
- * Lack of open, central, gathering space
- * More visual access to the outside would help employees mark the time of day
- * Empty, unused concrete plaza
- * Long winding, confusing access to large conference center
- * 8am-5pm building on weekdays and deserted on weeknights and weekends

Needs Analysis - OGM

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

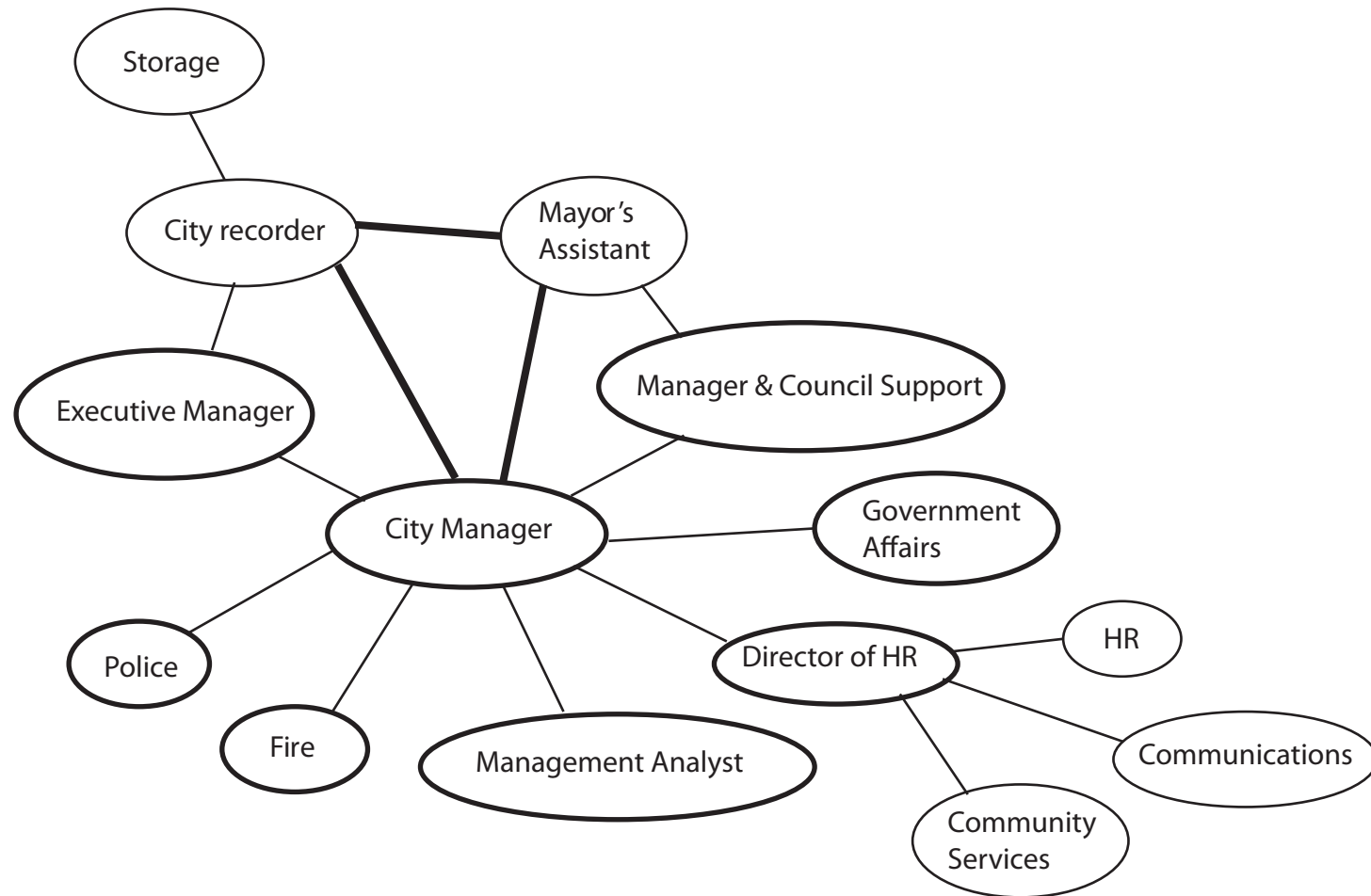
Needs Analysis - OGM

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

Adjacency Diagrams - OGM

Office of Management and Governance

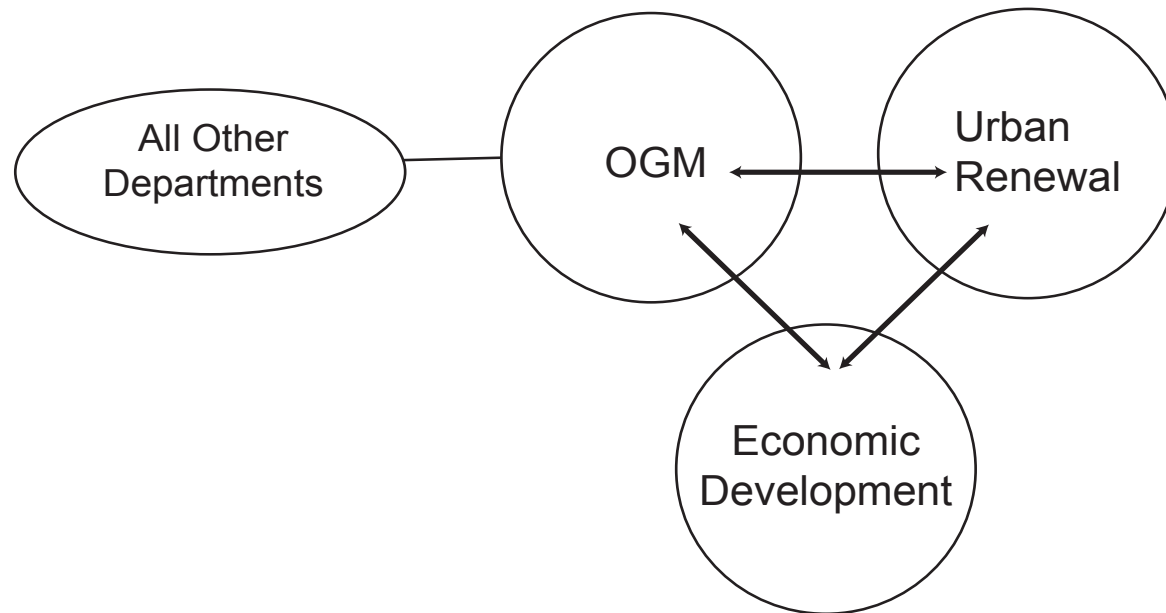
Internal Department Diagrams



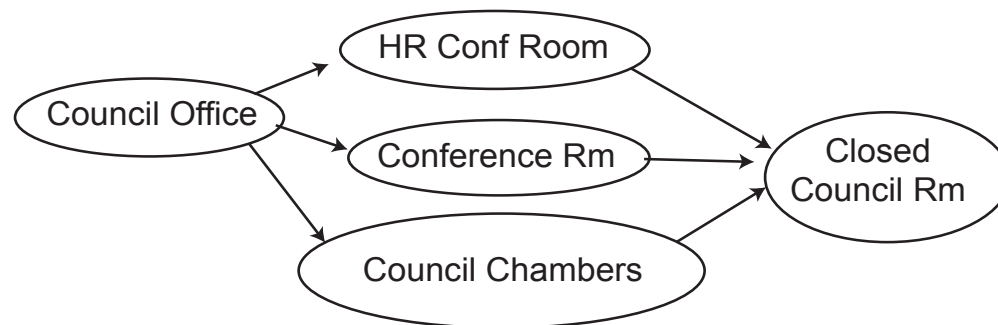
Adjacency Diagrams - OGM

Office of Governance and Management

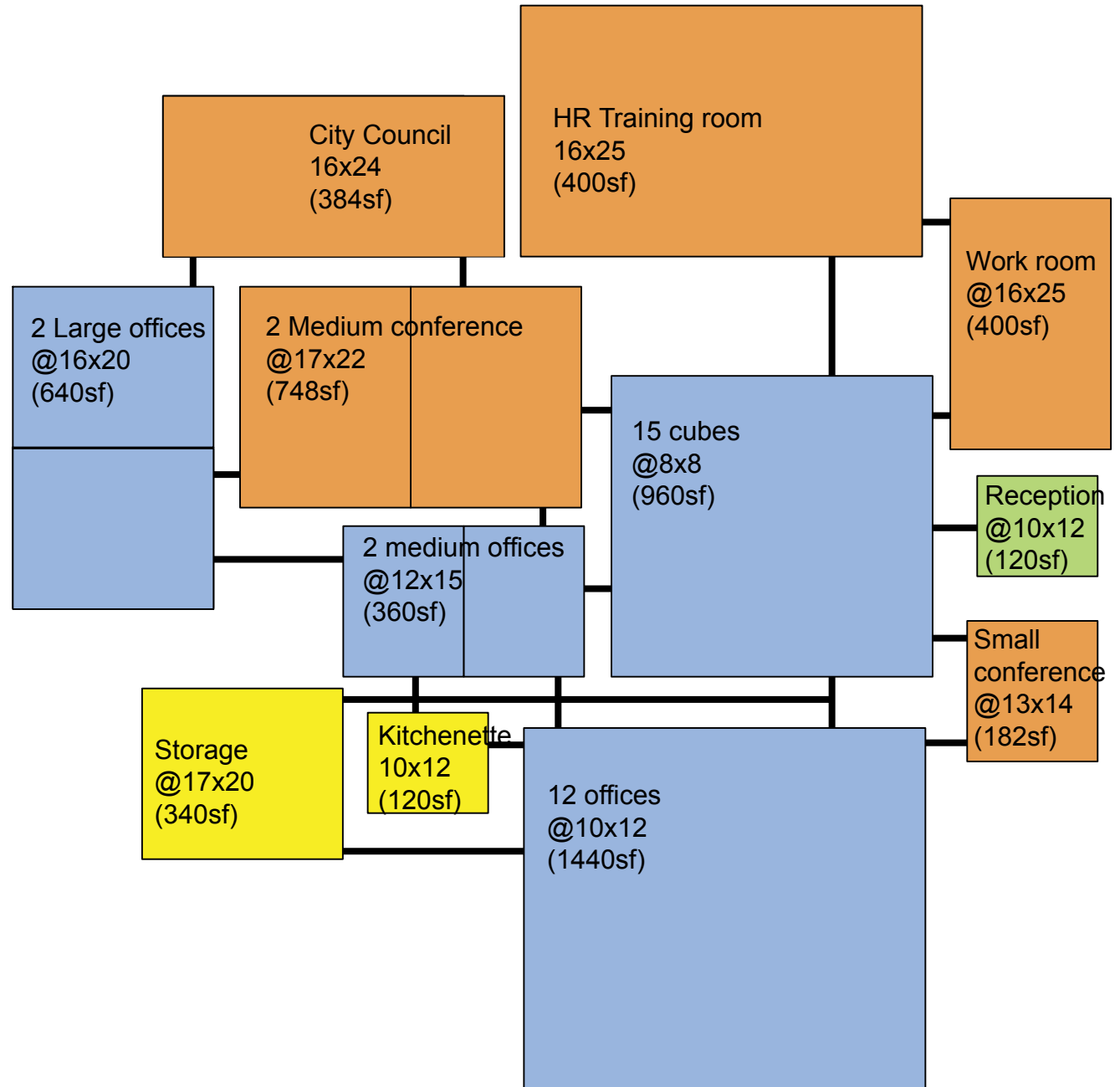
External Department Diagrams



Public Meetings:



Scaled Diagram - OGM



Needs Analysis - Community Development

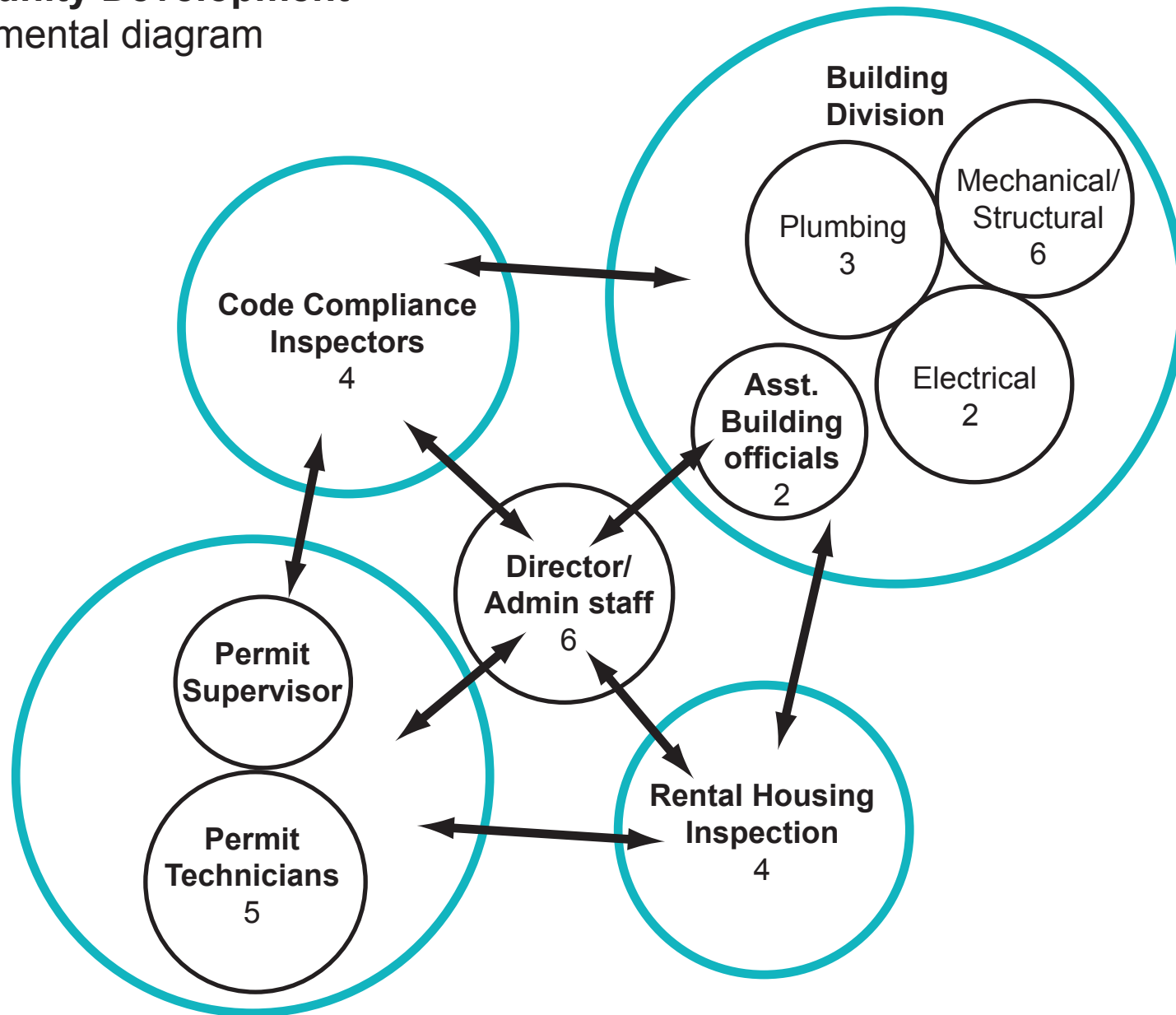
Gresham City Hall Community Development Plan Areas -						
	Future No. of rooms	Room Type	Room Dim Feet	Typical area SF	Total future SF	Notes
Offices						
Director/Building Official	1	Office	16x12	192	192	
Business Systems Coordinator	1	Office	12x10	120	120	
Management Analyst	1	Office	12x10	120	120	
Administrative Supervisor	1	Office	12x10	120	120	
Assistant Building Official	1	Office	12x10	120	120	
Structural Engineer/Plan Examiner	1	Office	12x10	120	120	
Chief Electrical Inspector	1	Office	12x10	120	120	
Chief Mechanical Inspector	1	Office	12x10	120	120	
Chief Plumbing Inspector	1	Office	12x10	120	120	
Senior Code Compliance Inspector	1	Office	12x10	120	120	
Permit Supervisor	1	Office	12x10	120	120	
Senior Rental Housing Inspector	1	Office	12x10	120	120	
Expansion office @ 20% growth	2	Office	12x10	120	240	
Subtotal					1752	
<i>Circulation 40% of total</i>					700	
Total					2452	
Cubes						
Program Technician	1	Cube	9x9	81	81	
Admin Assistant II	1	Cube	9x9	81	81	
Building Inspector II - Elec	1	Cube	9x9	81	81	
Building Inspectors - St/Mech	2	Cube	9x9	81	162	
Plans Examiners - St/Mech	3	Cube	9x9	81	243	
Building Inspectors - Plumbing	2	Cube	9x9	81	162	
Code Compliance Inspectors	3	Cube	9x9	81	243	
Permit Technicians	5	Cube	9x9	81	405	
Rental Housing Inspectors	3	Cube	9x9	81	243	
Expansion cubes @ 20% growth	4	Cube	9x9	81	324	
Subtotal					2025	
<i>Circulation 40% of total</i>					810	
Total					2835	
Common Spaces						
Conference rooms - small (5-7)	4		10x12	120	480	
Conference rooms - medium (10-14)	2		22x17	374	748	
Conference rooms - large (16-20)	1		30x20	600	600	Could be shared outside Community Development
Storage	1		17x20	340	340	To be revisited

Needs Analysis - Community Development

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

Adjacency Diagrams - Community Development

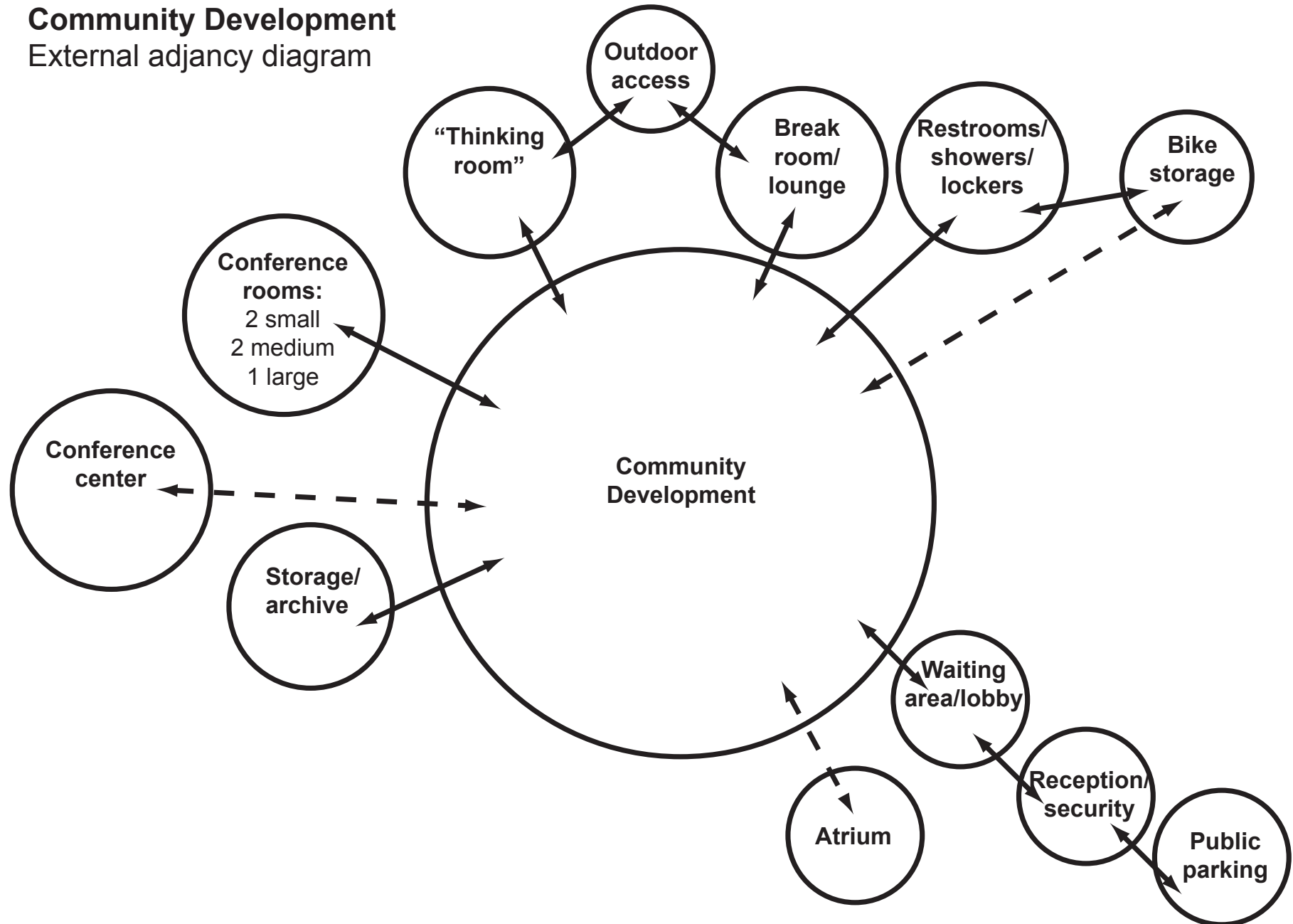
Community Development Departmental diagram



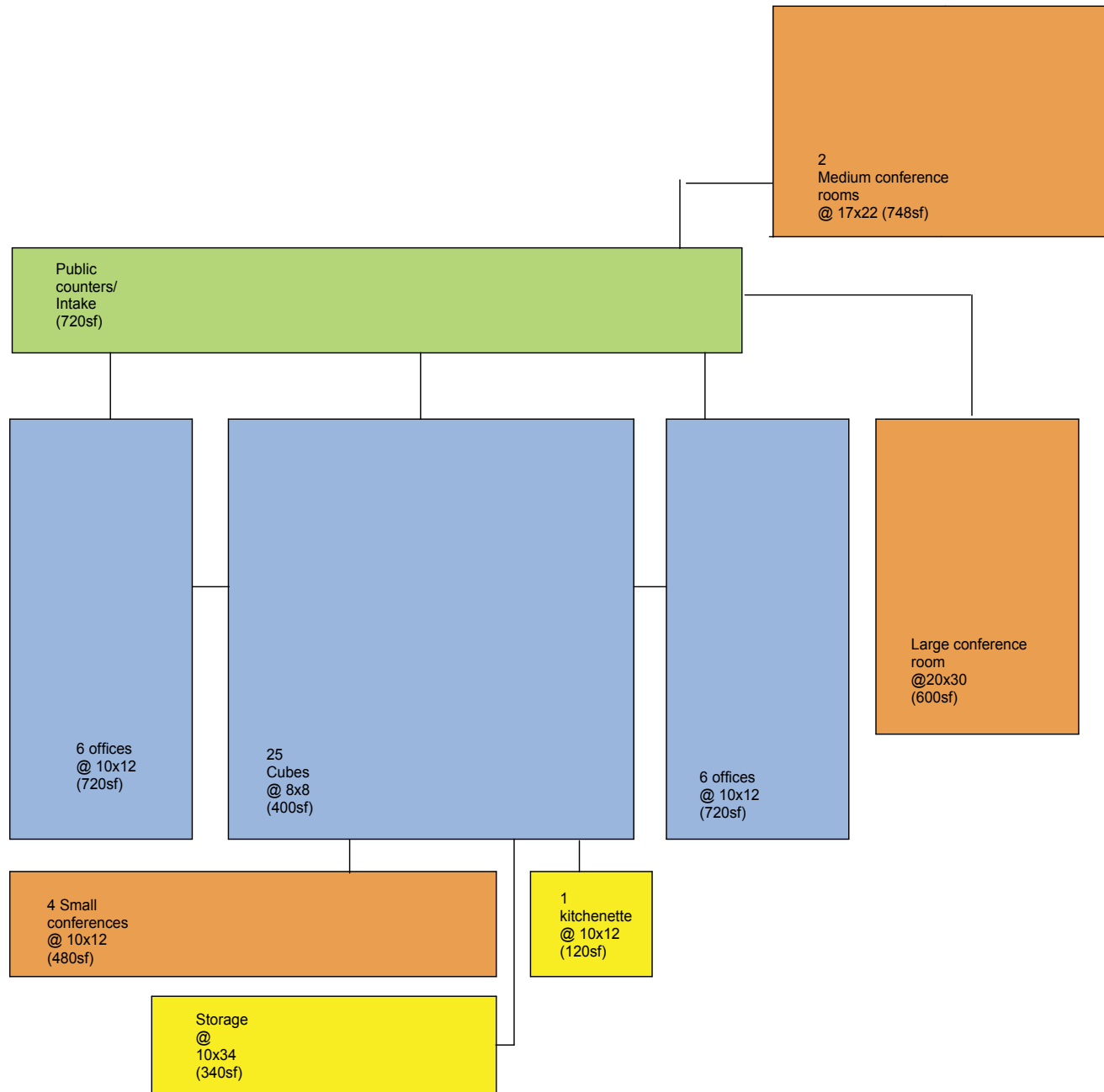
Adjacency Diagrams - Community Development

Community Development

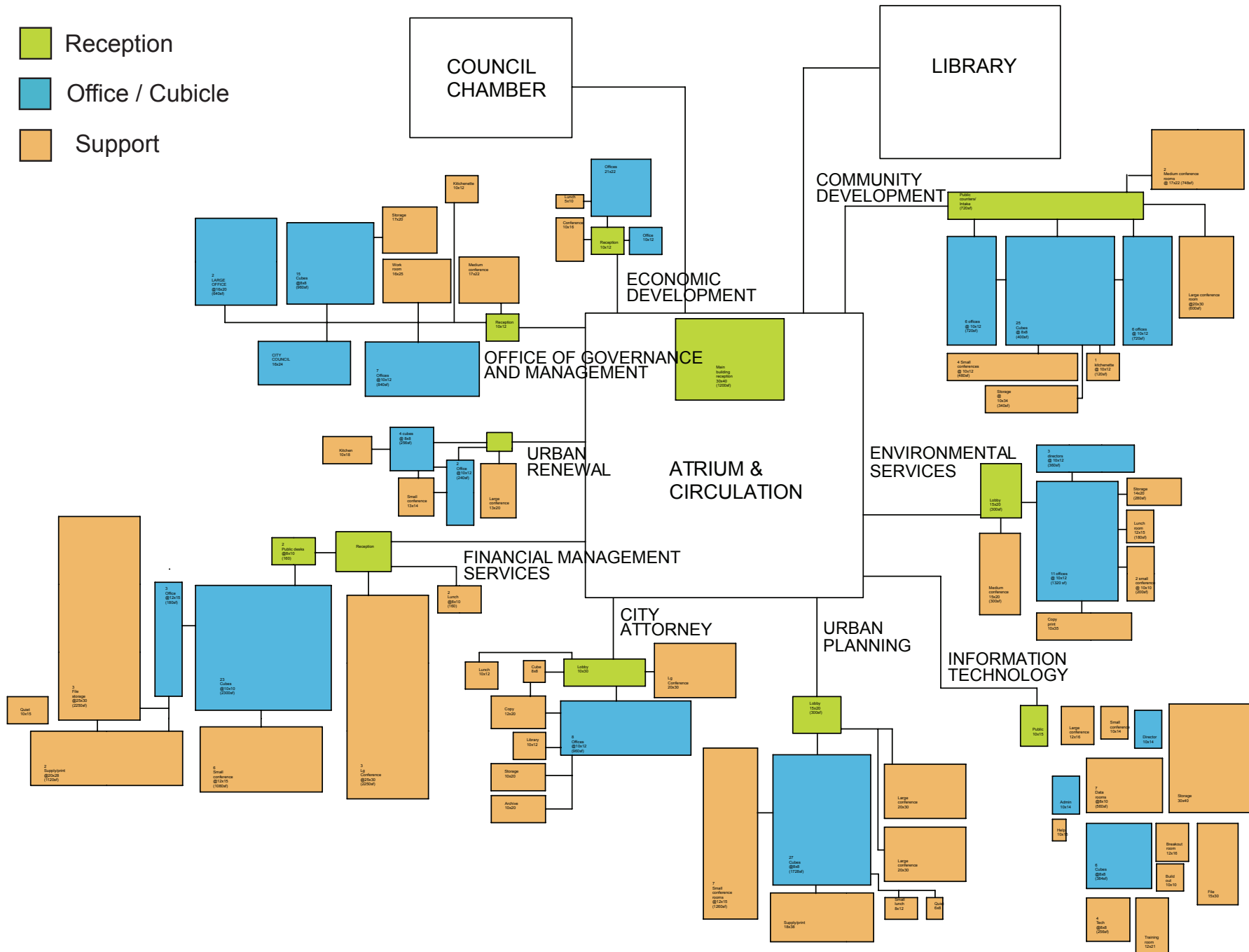
External adjacency diagram



Scaled Diagram - Community Development



Scaled Diagram - Gresham City Hall



Design Ideas



Eugene City Hall proposal THA Architects -

The Eugene City hall proposal by THA Architects demonstrates the use of an atrium as an organizing 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

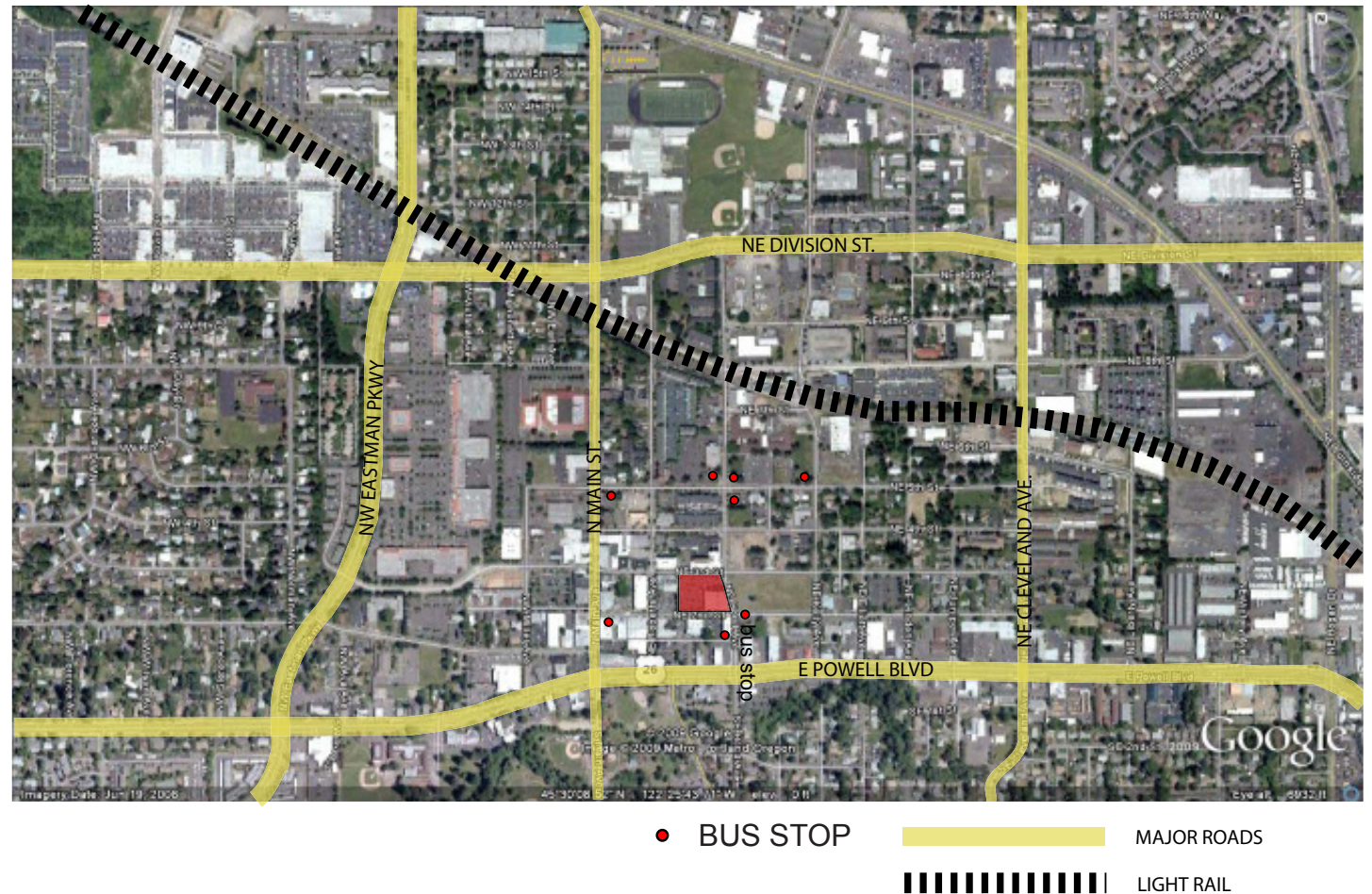


Lloyds of London - Richard Rogers Partnership

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

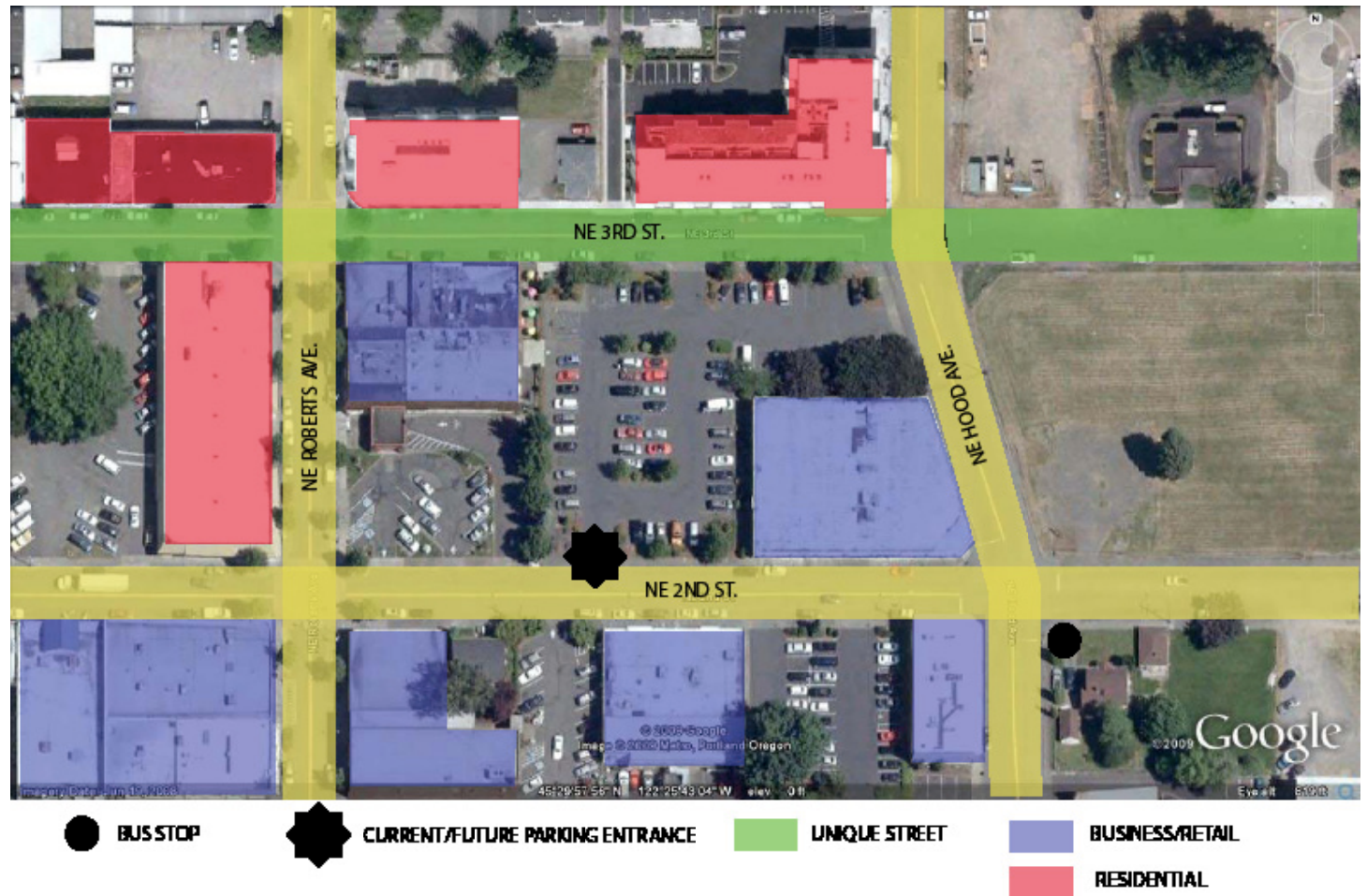
2nd and Hood (Site 2) Site Analysis

- 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.

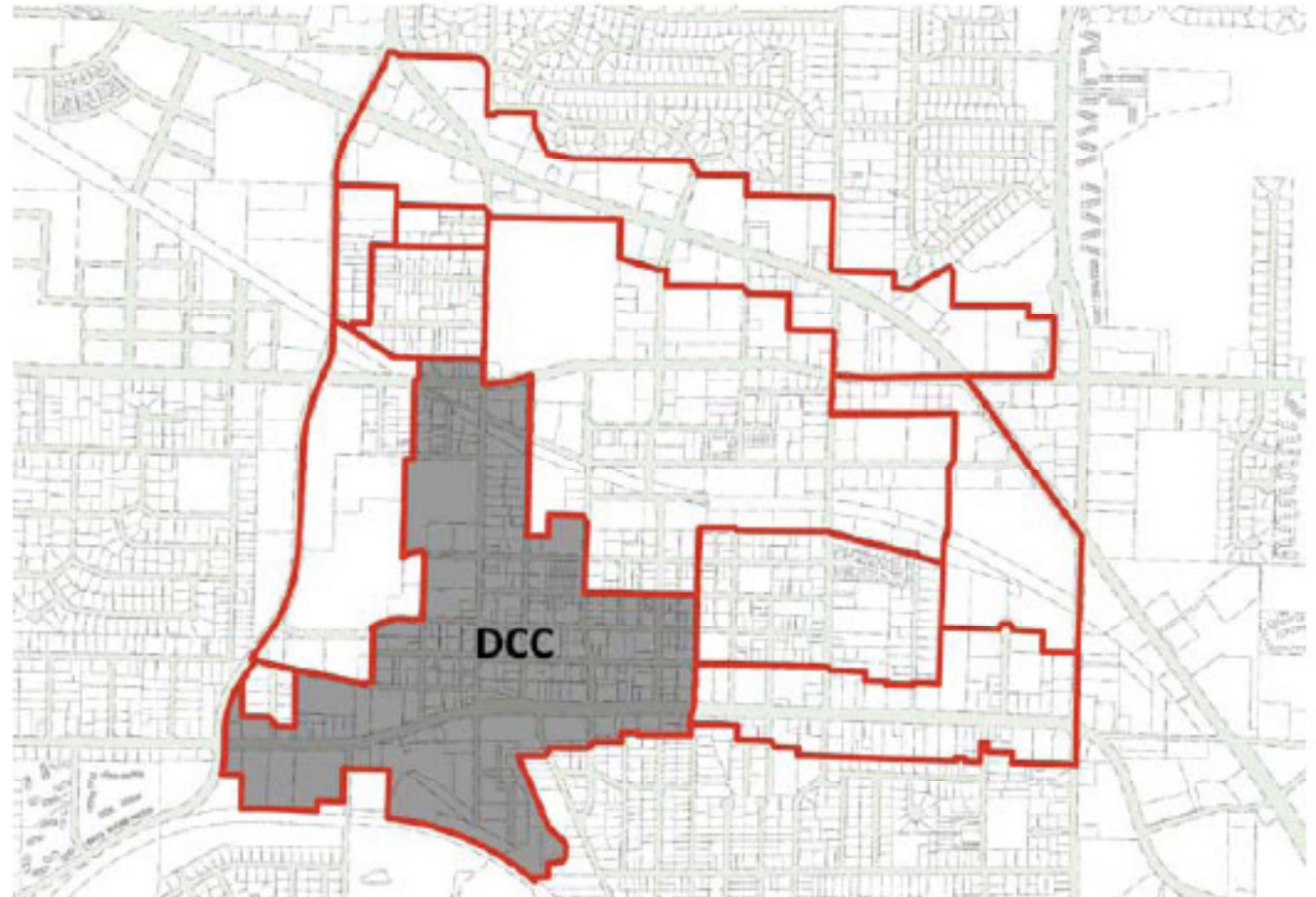


Design Guidelines and Standards - City of Gresham

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.

Map 4.1152: Downtown Commercial Core Sub-District



Design Guidelines and Standards - Downtown Street Types

- 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.

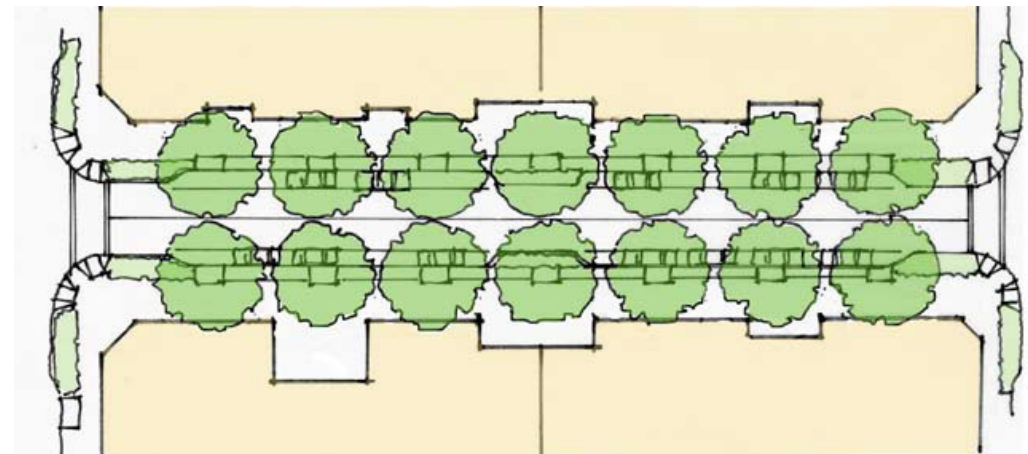
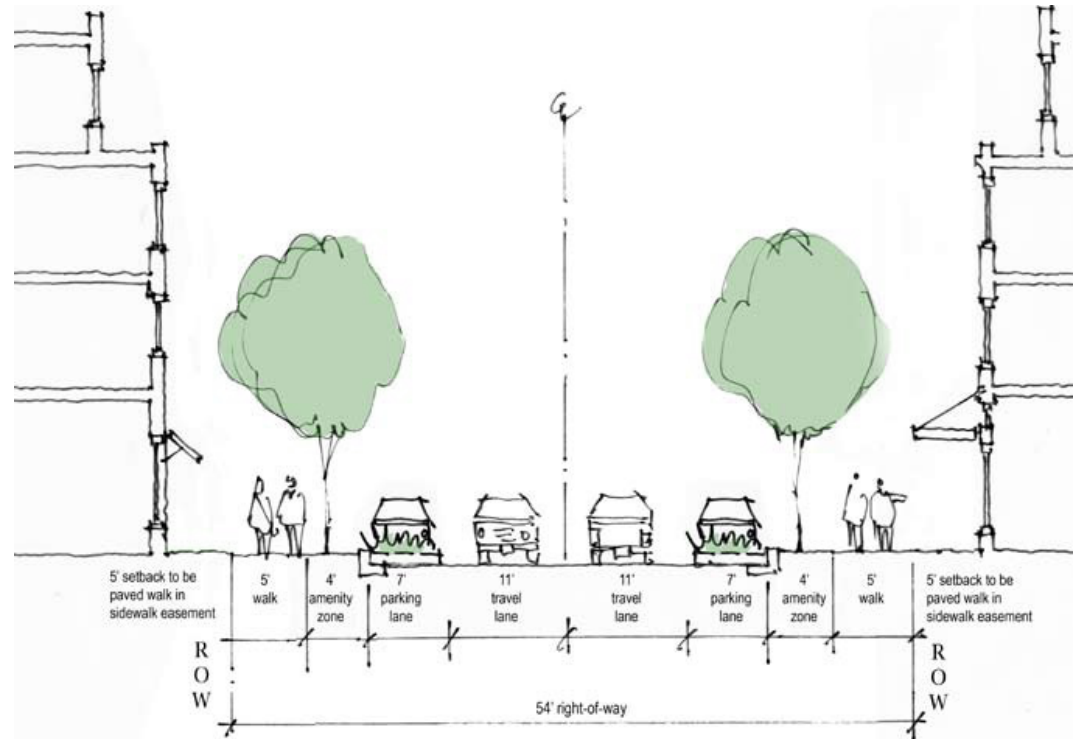
- Special features have been incorporated into several street design classifications. How buildings interface with the street varies based on function, location, land uses and multi-modal capacity.



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

Street Type Standards:

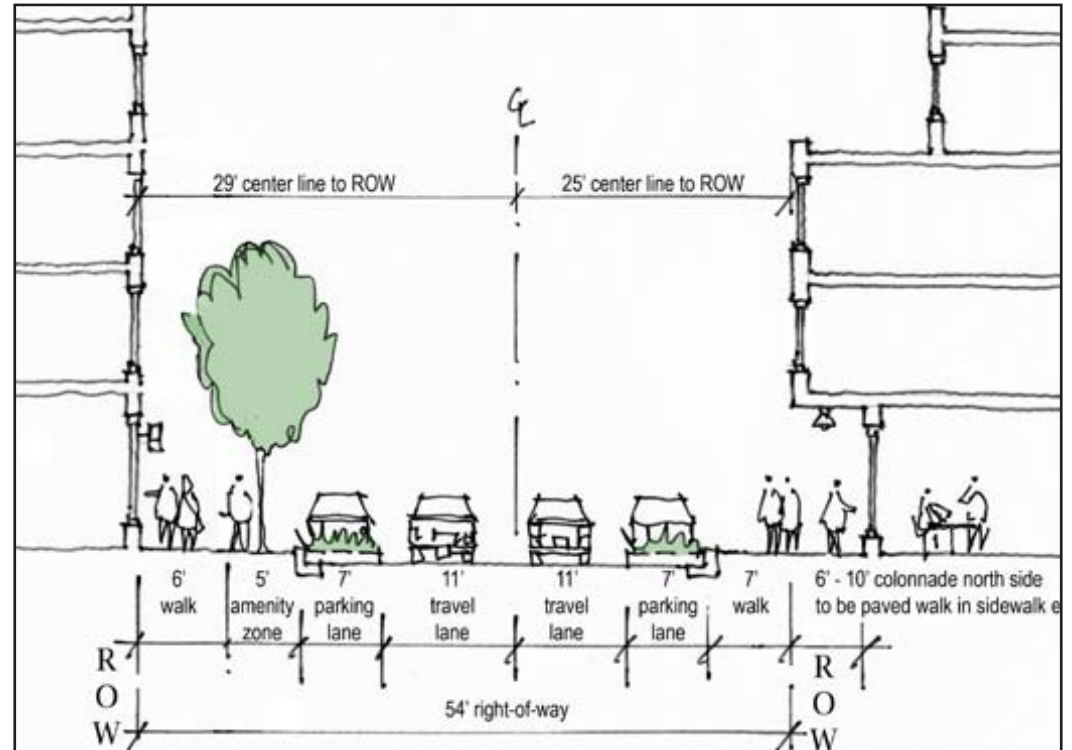
1. There shall be a clear accessible walking route of 5 feet provided in a walk of 10 feet width.
2. There shall be a 4-foot amenity zone provided. This amenity zone may consist of street trees, street lighting, landscaping and/or seating.
3. A minimum of 60% of the ground-floor level shall be transparent 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 provided that is at least 4 feet in depth, that is a minimum of 9 feet high



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.
5. Overhead weather protection shall be provided that is at least 4 feet in depth, that is a minimum of 9 feet above grade and that corresponds to the first-floor height.



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

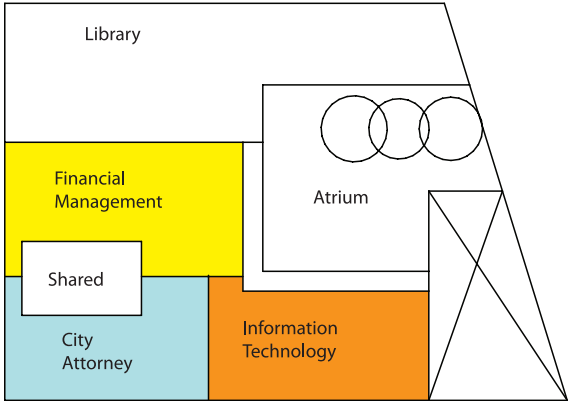
Positives:

- 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.

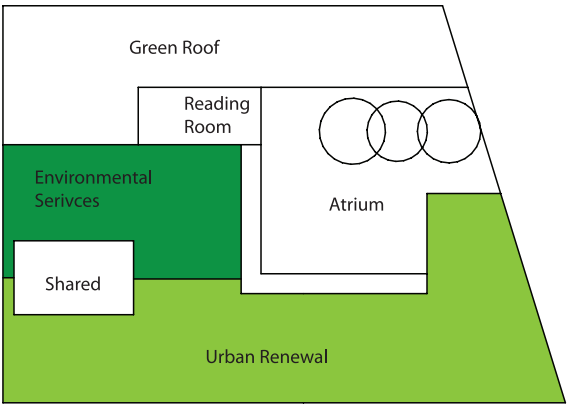
Negatives:

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

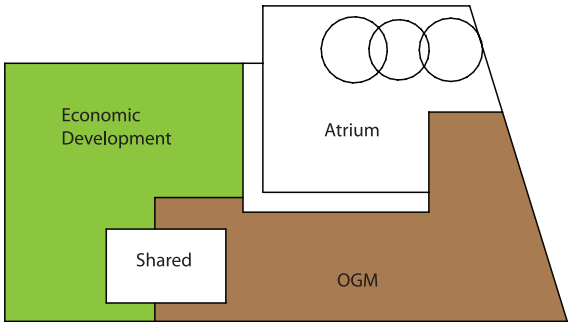
2nd and Hood (Site 2) Floor Plans



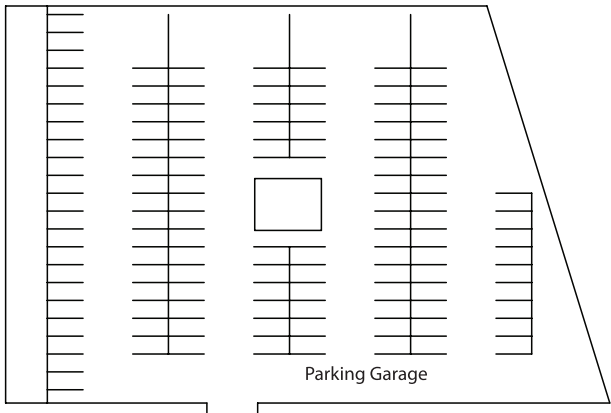
second floor



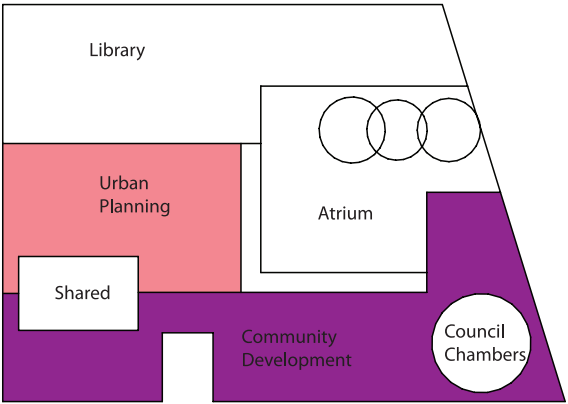
third floor



fourth floor

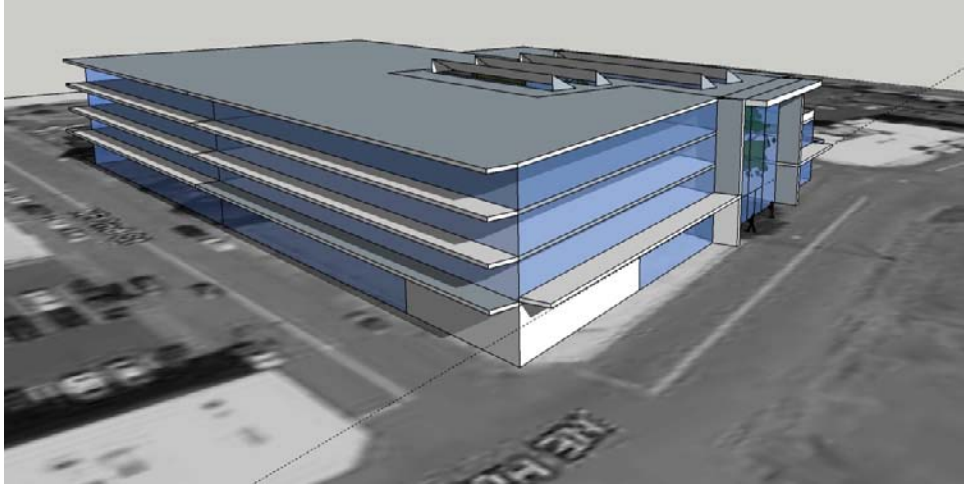
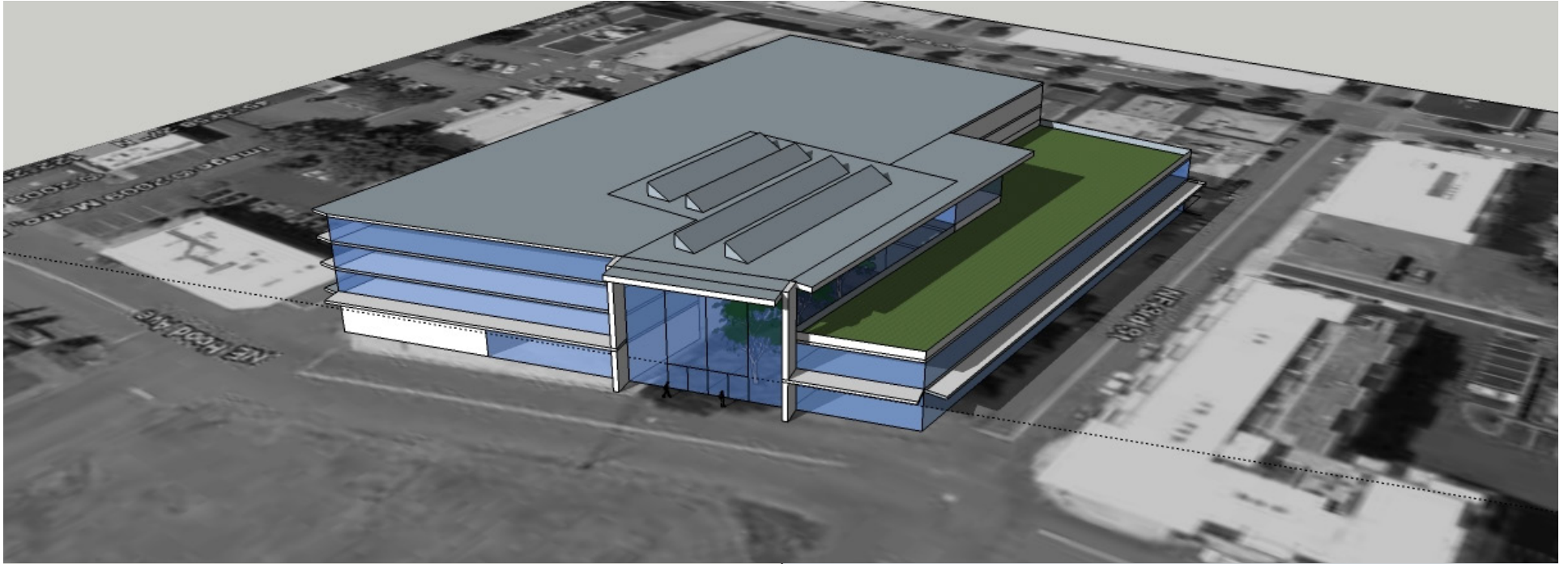


basement



first floor

2nd and Hood (Site 2) Massing

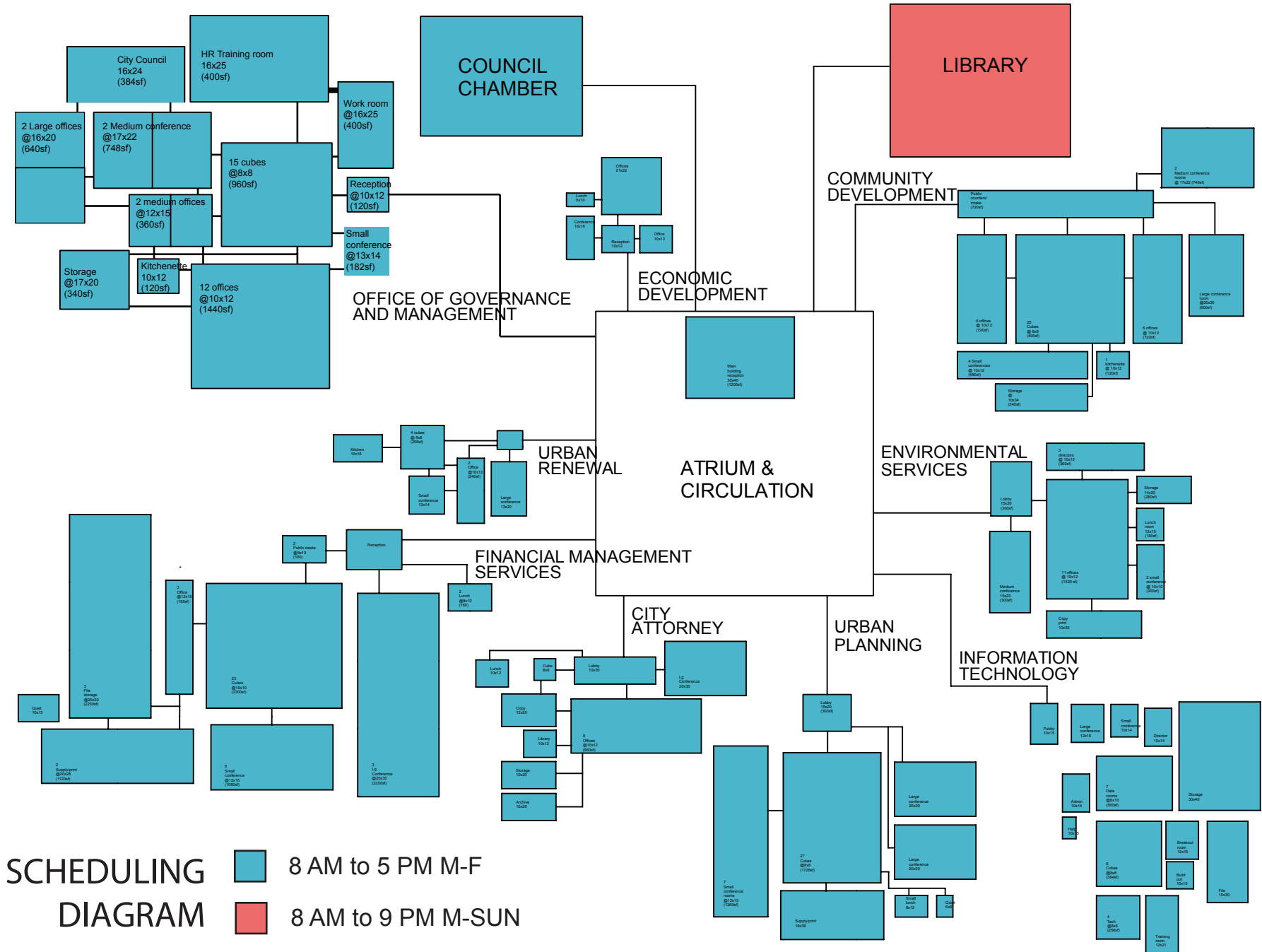


Energy Studies - Introduction

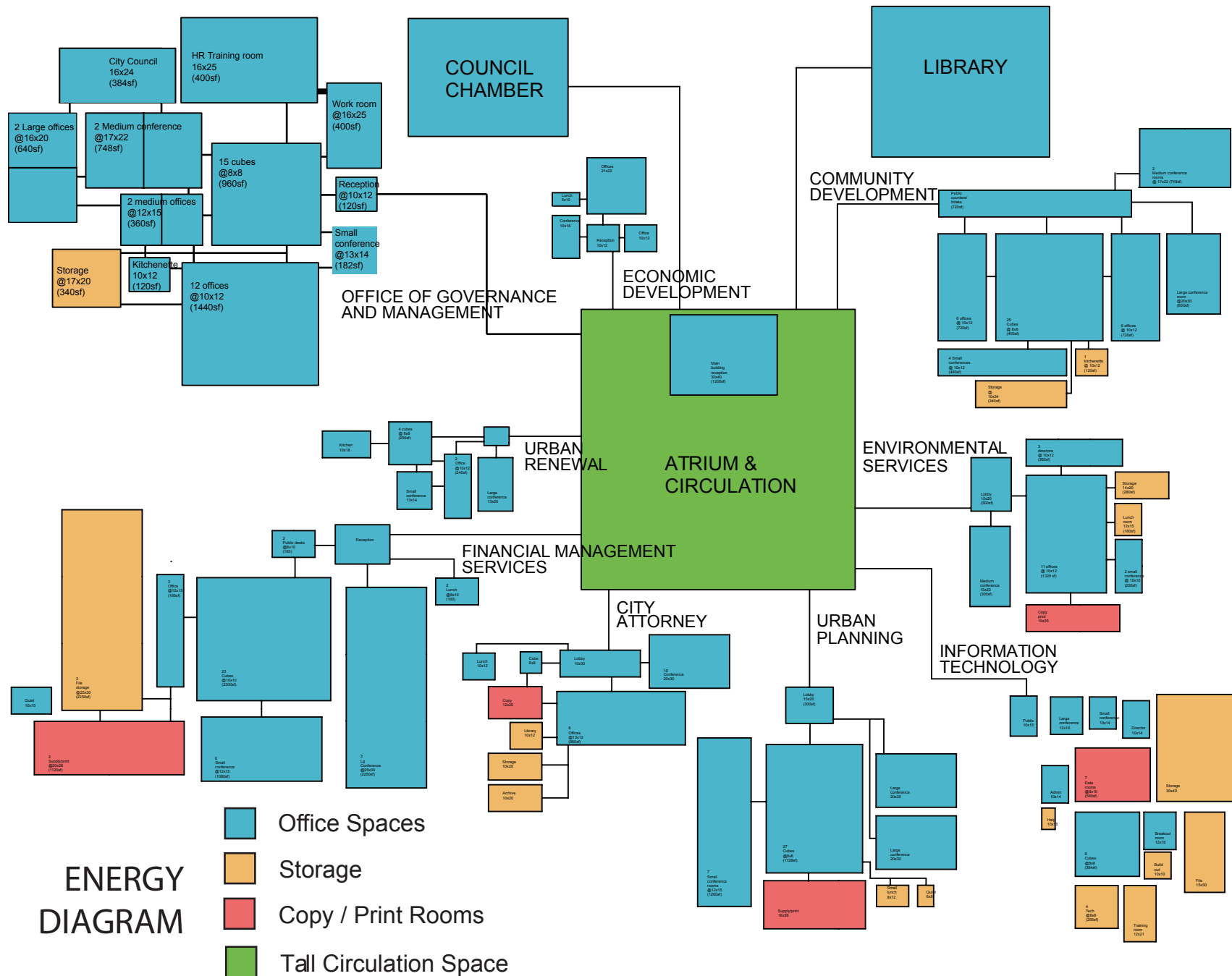
To promote sustainability in Gresham, the new City Hall needs to incorporate sustainable design as a way to demonstrate the city's commitment to energy efficient building. This idea of symbolizing the city's goals in a visible and concrete way was expressed to our team by city employees, who encouraged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

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

Scheduling Diagram



Energy Usage Typology Diagram



2030 Challenge Analysis - Current Gresham City Hall

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

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

Facility Information

City Hall

Gresham, OR 97030

United States

Facility Characteristics

Space Type

Gross Floor Area (Sq. Ft.)

Office

90,000

Total Gross Floor Area

90,000

Estimated Design Energy

Energy Source

Units

Estimated Total Annual Energy Use

Energy Rate (\$/Unit)

Electricity - Grid Purchase

kWh

4,161,093

\$ 0.075/kWh

Natural Gas

therms

103,952

\$ 1.130/therms

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

Source: Data adapted from DOE-EIA. See EPA [Technical Description](#).

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):

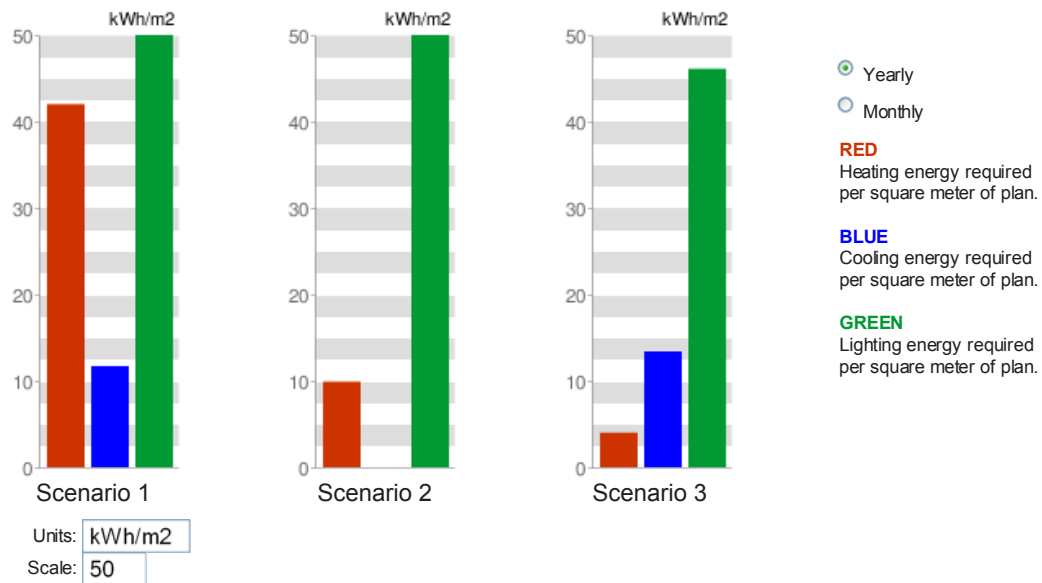
Mechanical Heating and Natural Ventilation Cooling
Double Pane glazing on 50% of facade
Medium commercial insulation.
High Thermal Mass

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

MIT Design Advisor Analysis - Results

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%

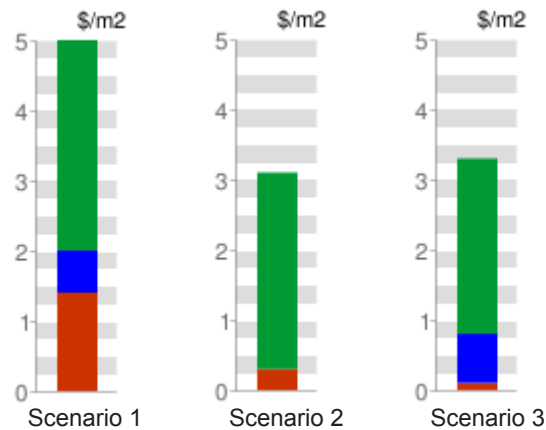
Fuel to Thermal Efficiency = 100%

Lighting Efficiency = 13.5%

Chiller COP = 3.0

MIT Design Advisor Analysis - Results

Life Cycle Figures: Cost of Energy and CO2 Emissions

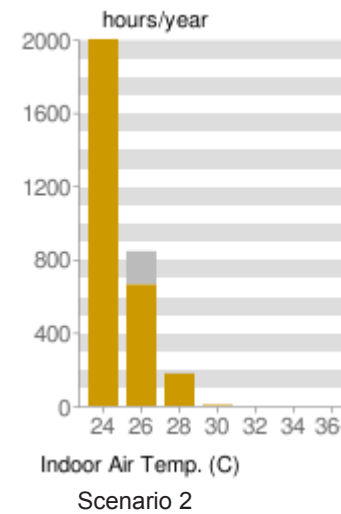


Lighting	1.8	2.8	2.5	0	\$/m2
Cooling	0.4	0	0.7	0	\$/m2
Heating	0.7	0.3	0.1	0	\$/m2
Total	2.9	3.1	3.3	0	\$/m2

Lifecycle Energy Cost
First Year Energy Cost
Yearly CO₂ Emissions

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

Natural Ventilation: Indoor Air Temperature Histogram



Temperature Units: C
Hours Scale: 2,000

ORANGE

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

GRAY

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