Gresham City Hall

ARCHITECTURAL PROGRAM

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| Architectural Programming | arch 449/549 | 10 December 2009 | Jean von Bargen |

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CONTENTS AND METHODS

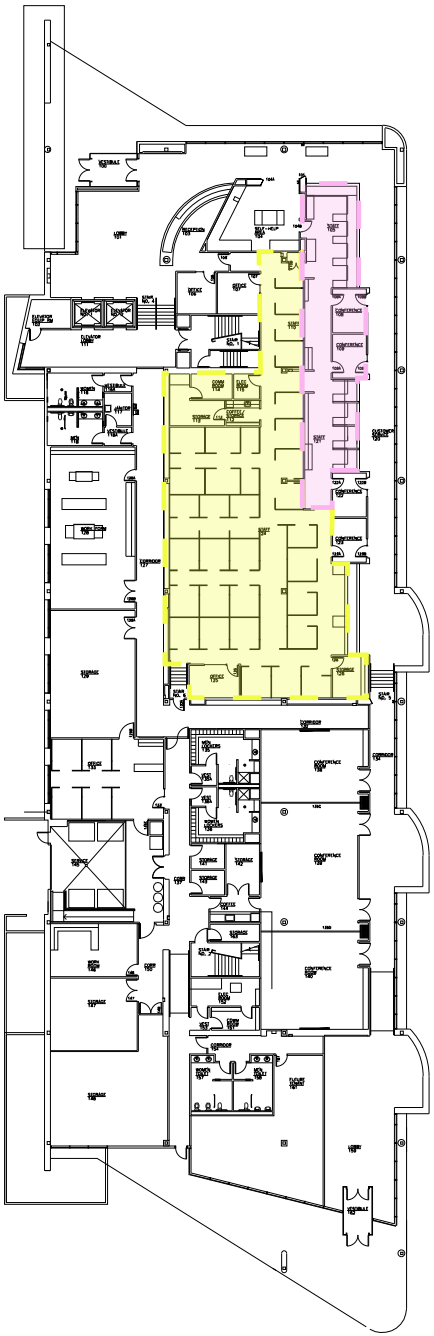
The purpose of this project is to create a comprehensive program for a new city hall for the city of Gresham, Oregon. The charts and diagrams contained in the following document illustrate the information gathered through our interactions with the city of Gresham and external research. The methods used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

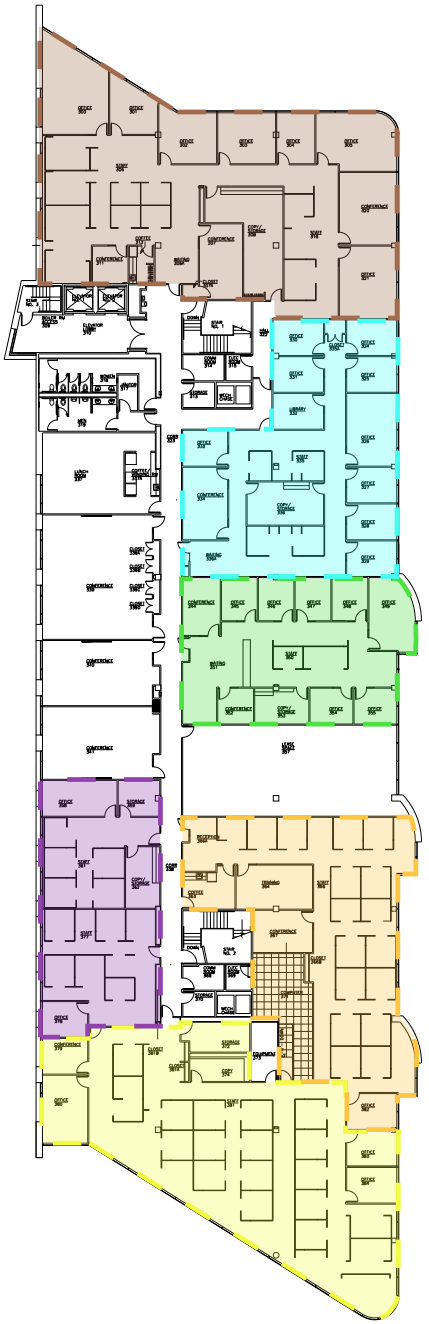
EXECUTIVE SUMMARY

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

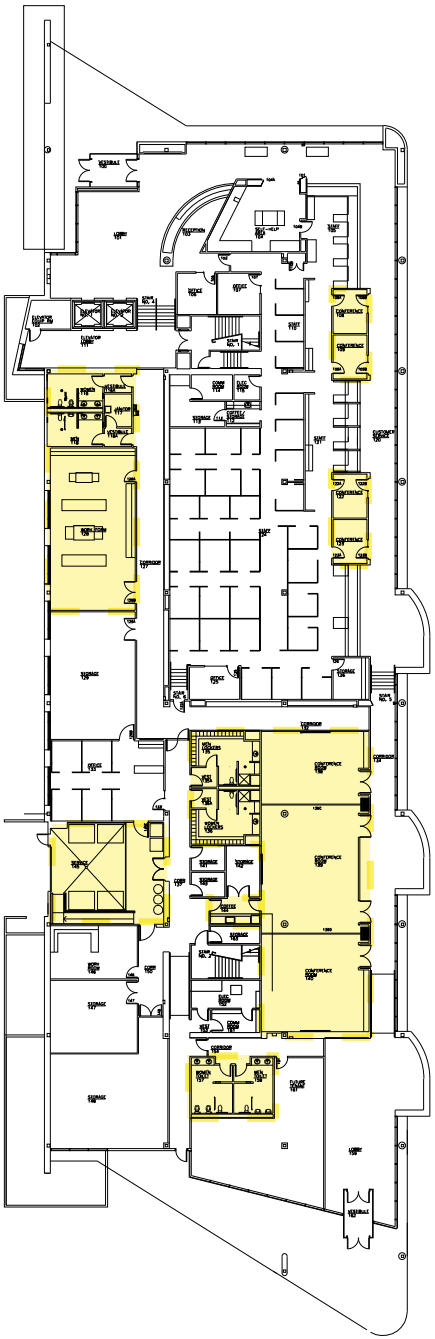
Gresham City Hall will serve as an identity for an emerging downtown while promoting community revitalization.

Departments

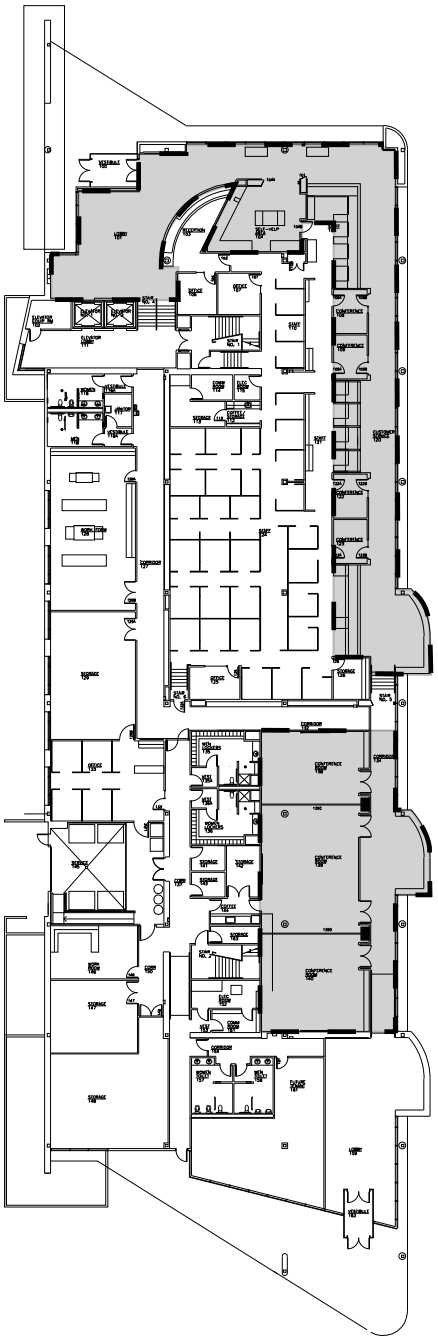


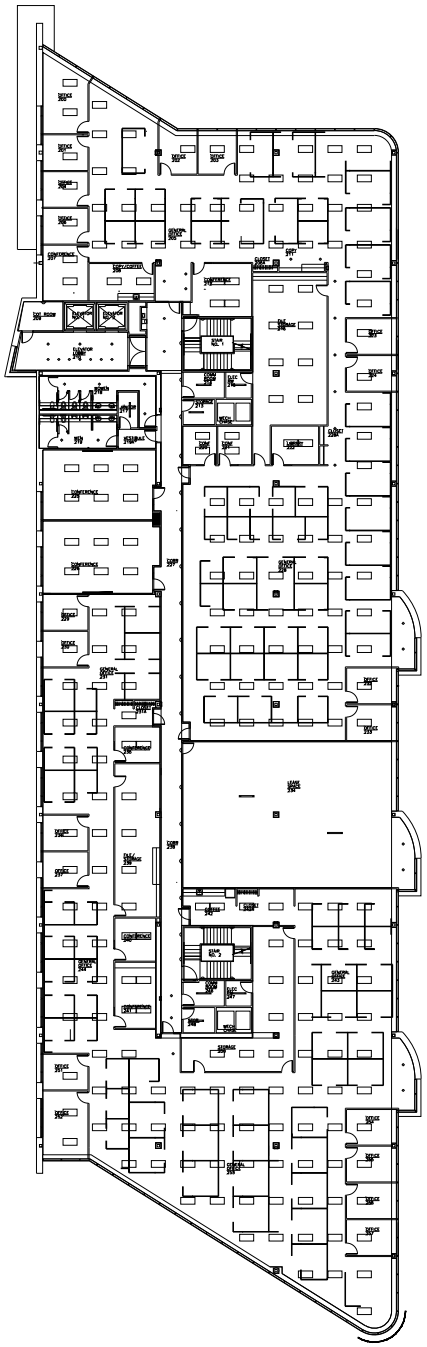


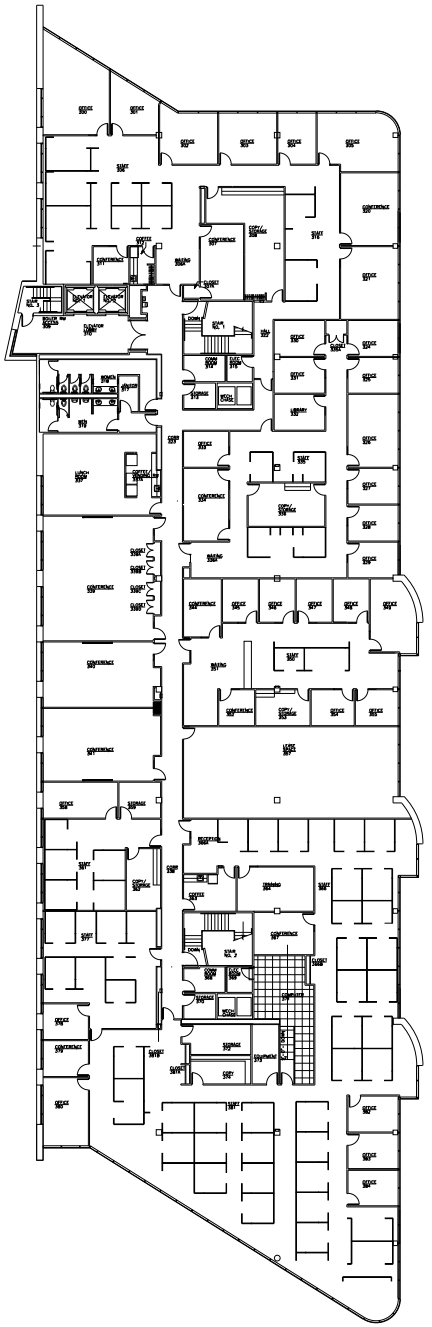
Communal Spaces



Public Interaction







DEPARTMENT INTERVIEW DIAGRAMS

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

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

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

Intradepartment Adjacency Diagram

describes the physical needs and relationships within the department.

Department connections Diagram

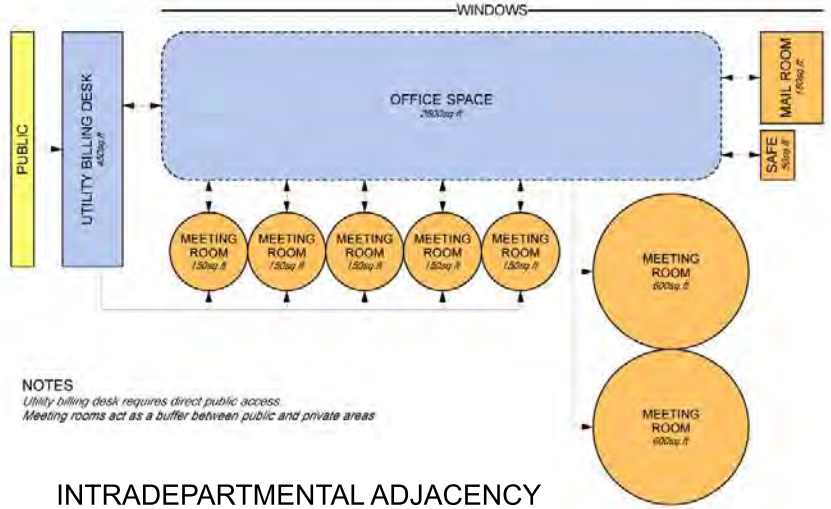
shows the relationships of the department to other departments in City Hall as well as to the public.

Values Chart

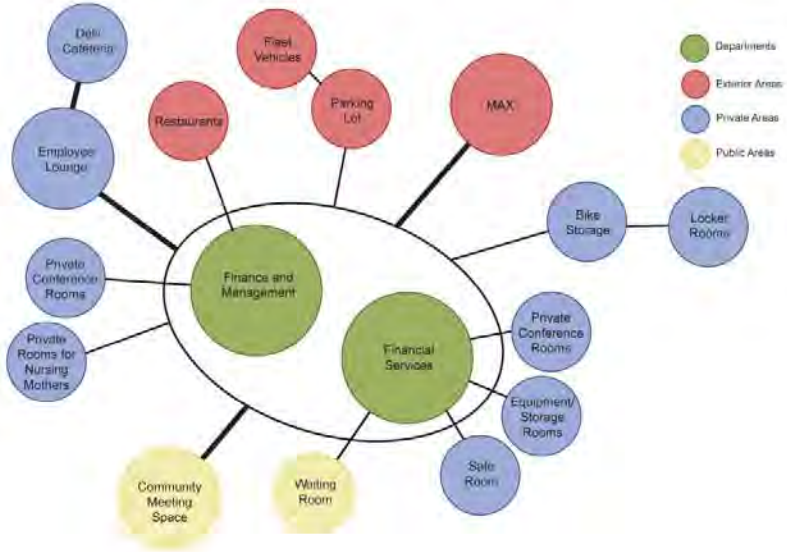
expresses, in a text spreadsheet, the goals of the department, how they function, their needs to fulfill their goals and ideas to make their department effective and efficient in achieving their goals.

Finance & Management Services

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



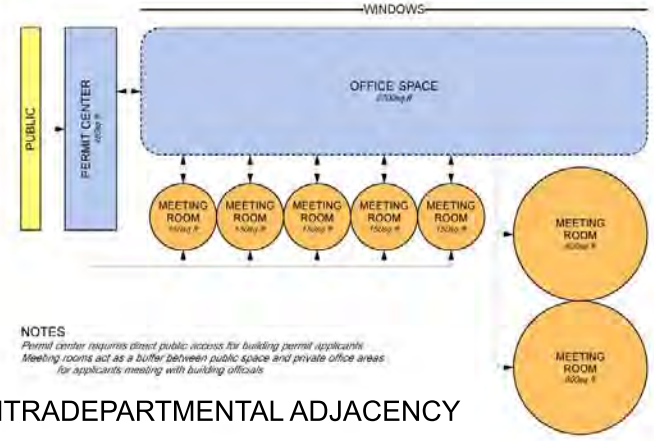
INTRADEPARTMENTAL ADJACENCY



DEPARTMENT CONNECTIONS

Urban Design & Planning

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



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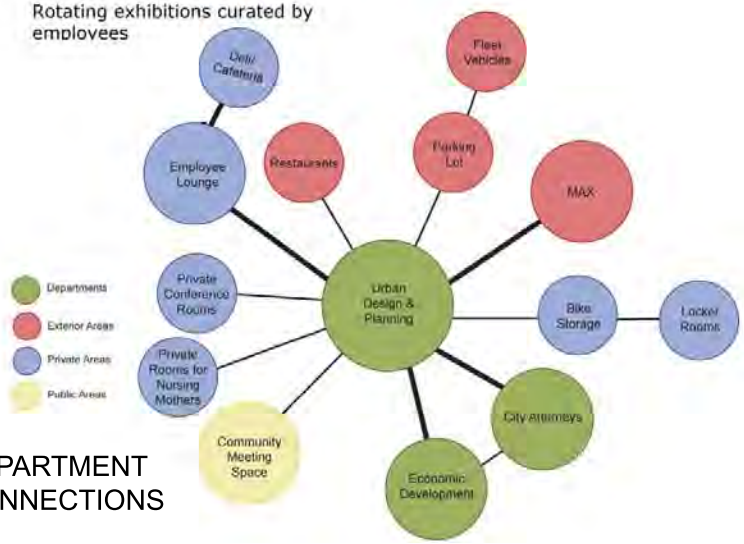


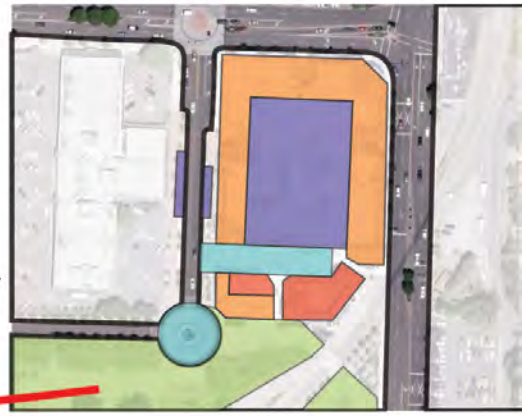
DEPARTMENT CONNECTIONS

Precedent Studies

LAKE OSWEGO MILLENIUM PARK

MacLeod Reckord Landscape Architects
1999

public plaza
restaurant
commercial/retail
shared pedestrian/car street
public parking



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

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

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

Recreation opportunities

Pedestrian friendly open spaces with seating, planters and low shelters

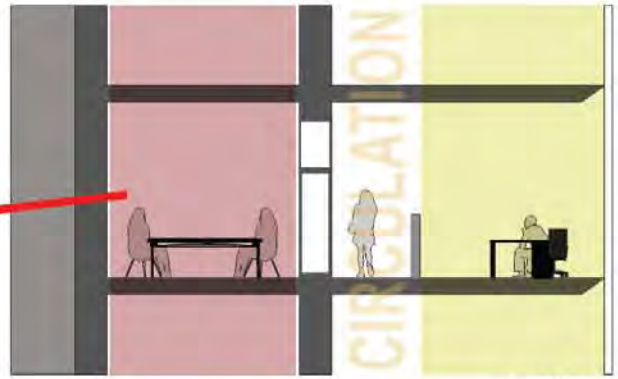
TORONTO CITY HALL

Viljo Revell
1965

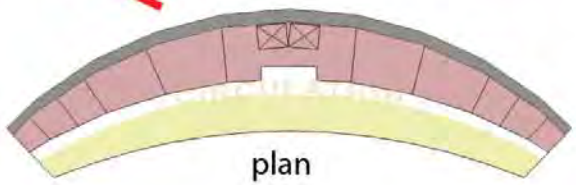
Differentiated geometries to indicated uses and a public and private separation.

OFFICES
COUNCIL CHAMBER
PUBLIC USES
PUBLIC PLAZA

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



section



plan

support spaces

offices

SEATTLE CITY HALL

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

Natural lighting wherever possible

A large central atrium organizes the public space

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

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

Art installations inspire creativity and provide a sense of place

Area Chart

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

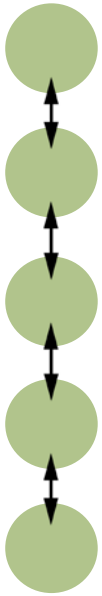
Guiding Design Principles

Flexible and efficient layout

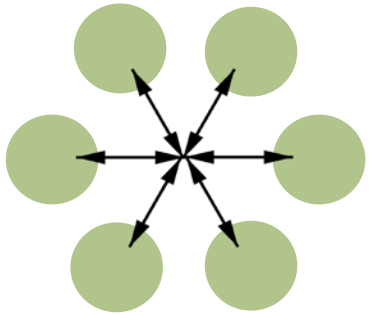
Simple and welcoming public interface with a strong civic feel

Healthy indoor environment including natural light and ventilation

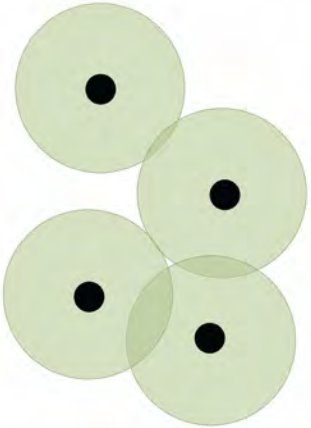
Design Diagrams



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



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

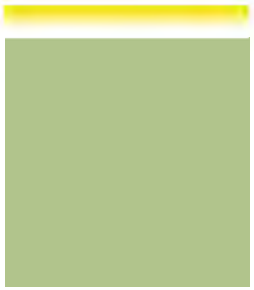


Current City Hall
communal space such as copy rooms, small conference rooms and break rooms are scattered randomly throughout the floor, which isolates workers and adds to the confusing layout.

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

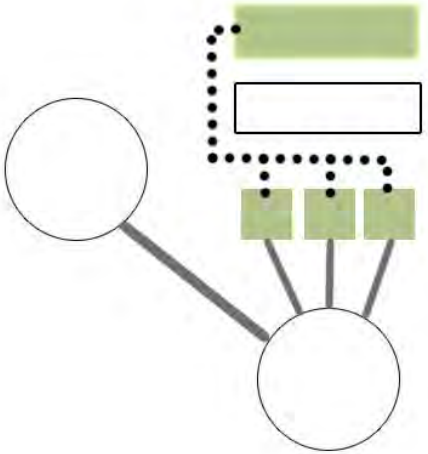
Design Diagrams Continued

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

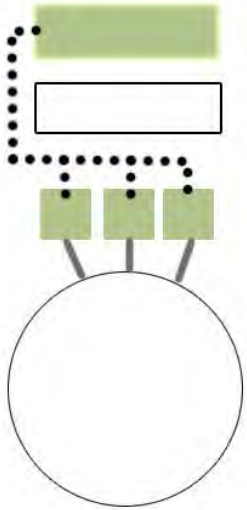


Our Proposal
to locate departments that deal with the public near the reception desk and to make wayfinding very clear for these departments.

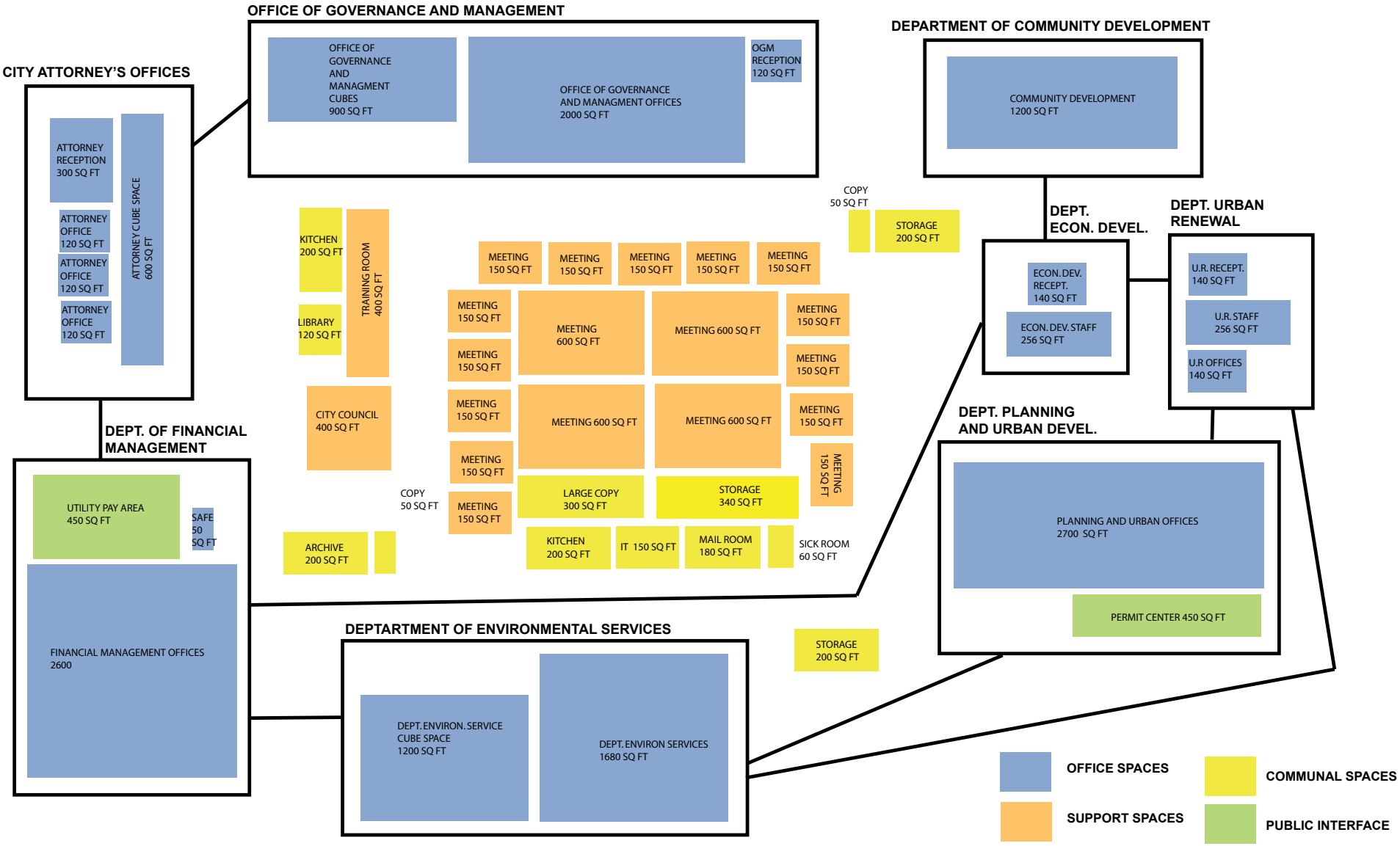
Current City Hall
is designed so that only a few offices access natural light. Our interviewees indicated a strong desire to have access to natural light reach as many desks as possible.



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



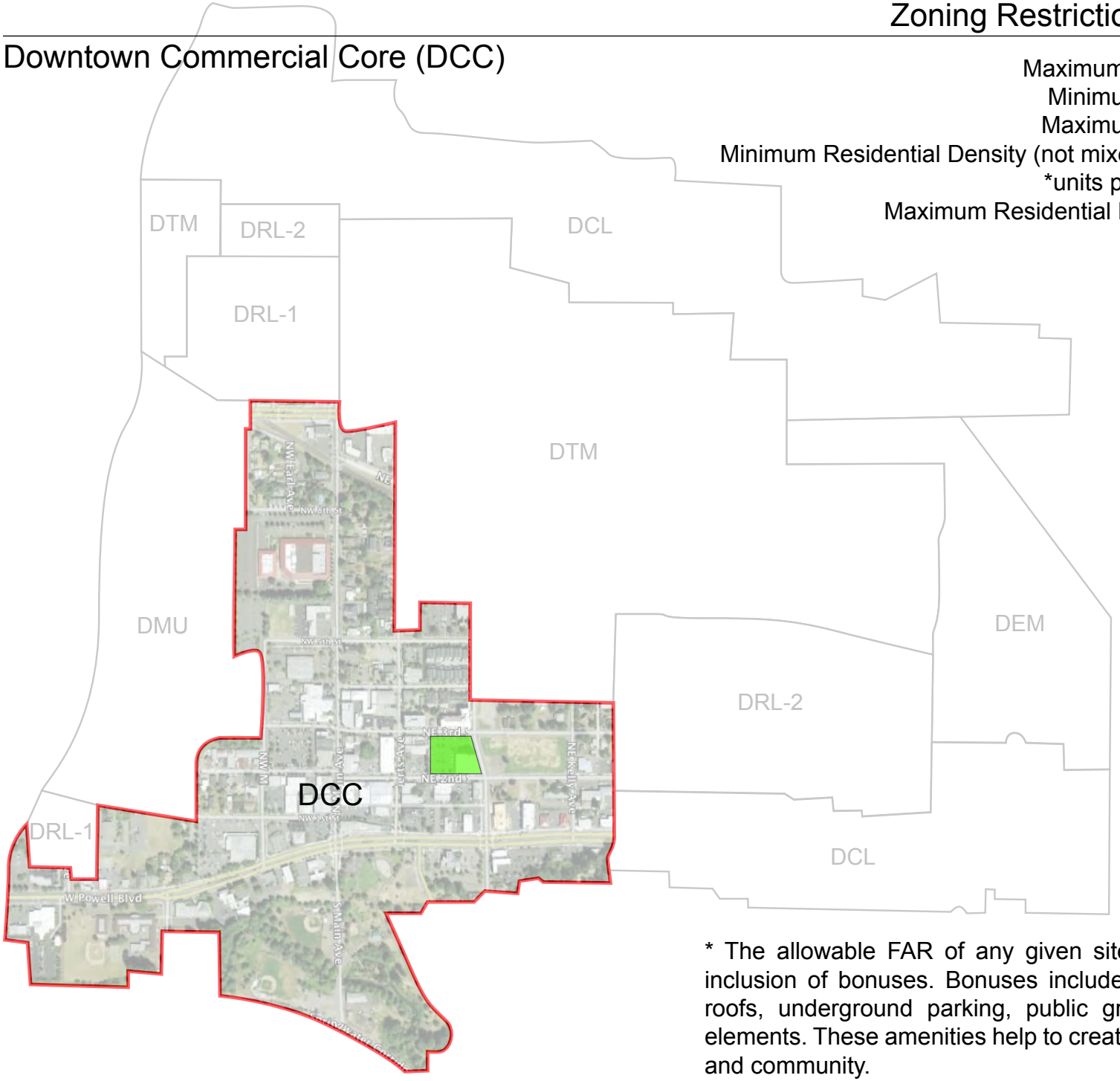
Scaled Relationship Diagram



Zoning Restrictions and Requirements

Downtown Commercial Core (DCC)

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



Characteristics

small-scale storefronts
intimate sidewalks
walkable
active
engaging
vibrant

Uses

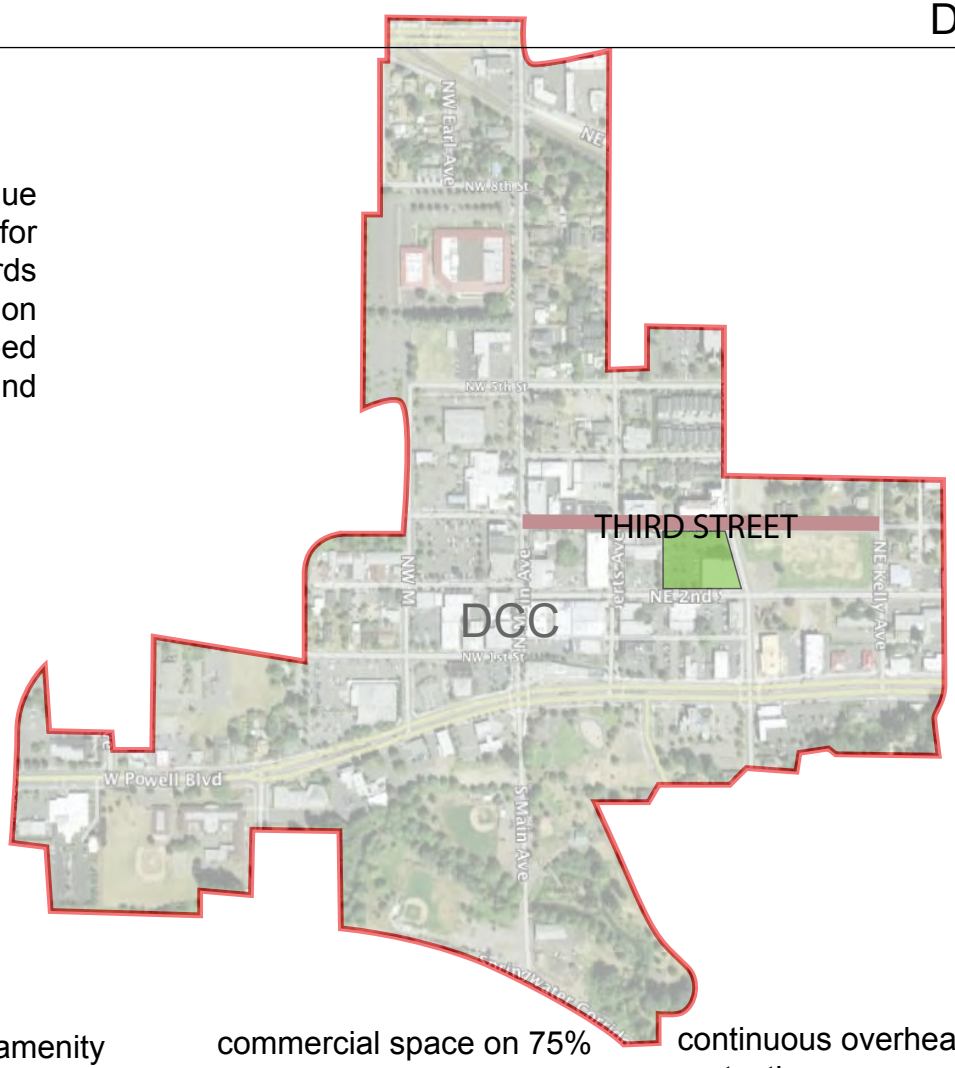
retail
service
office
residential

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

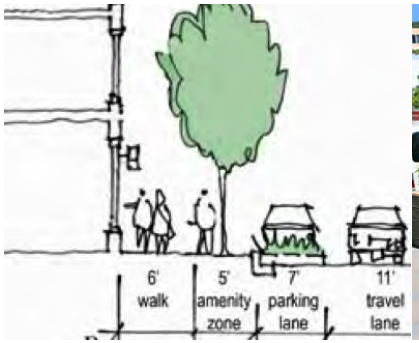
Third Street Standards

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

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



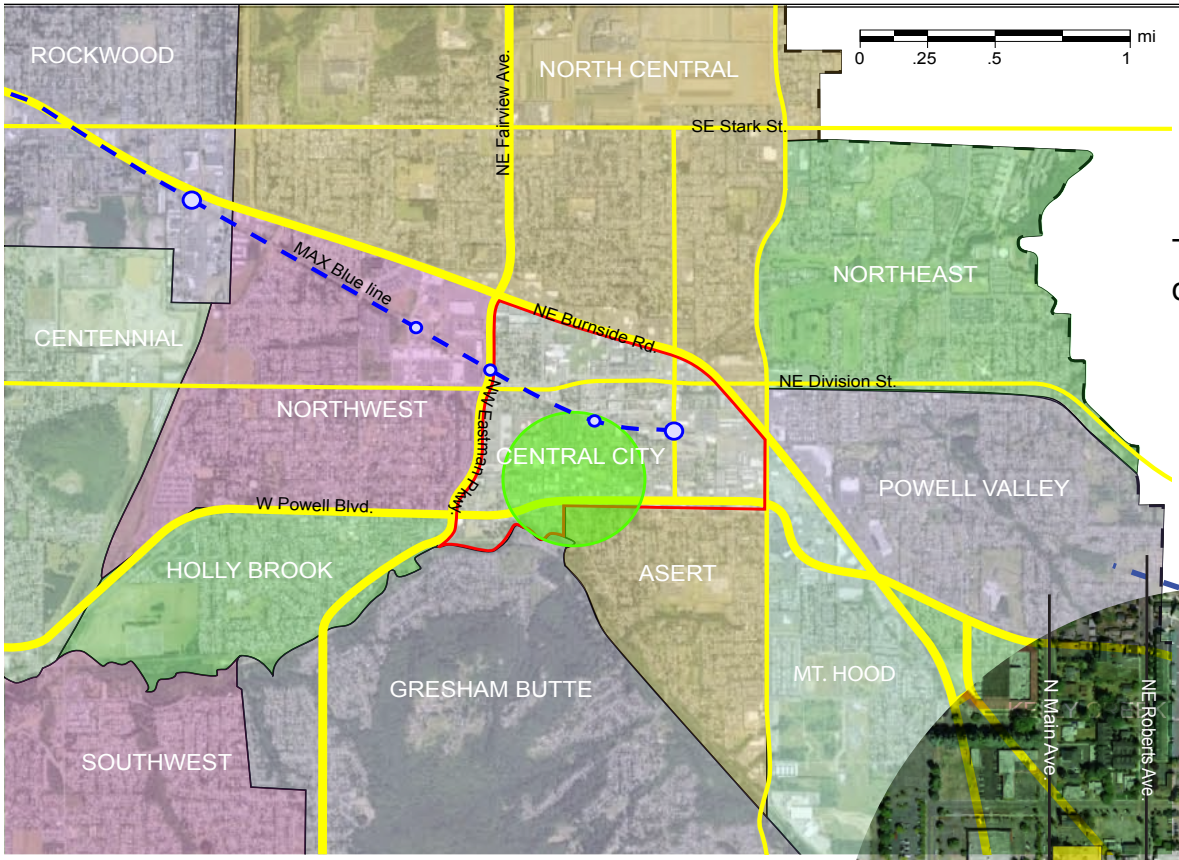
A pedestrian walk that is 6 feet wide



four-foot amenity zone

commercial space on 75% of the ground floor

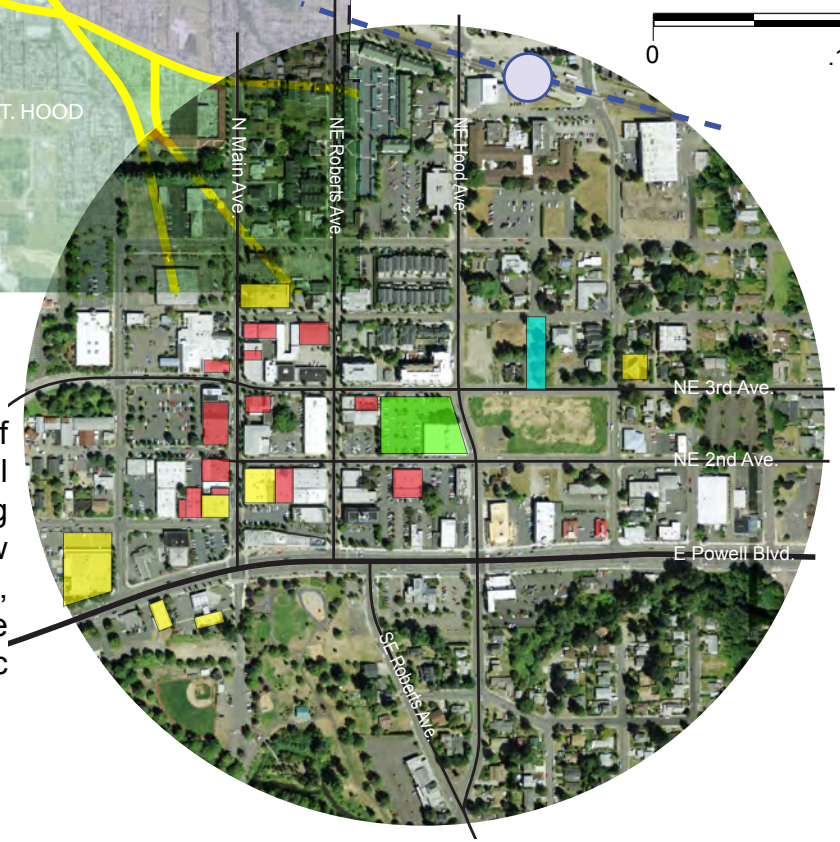
continuous overhead weather protection



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

1/4 Mile Radius

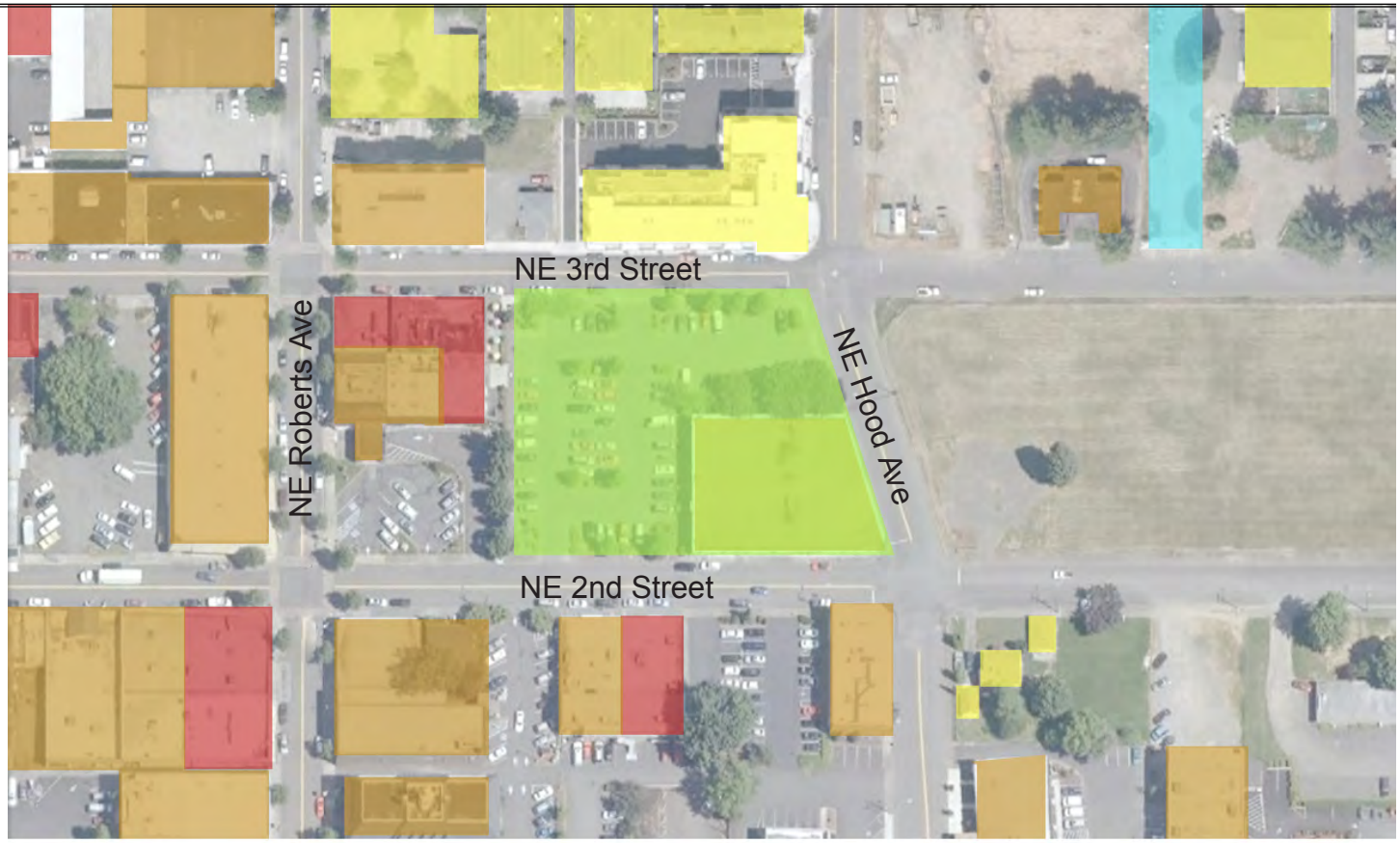
The site is located in the historic downtown of Gresham, Oregon within a 1/4 mile of a MAX stop, several restaurants and historic buildings. With the new zoning design standards in place, the area surrounding this new location of Gresham City Hall will become an active, lively, walkable district. Directly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

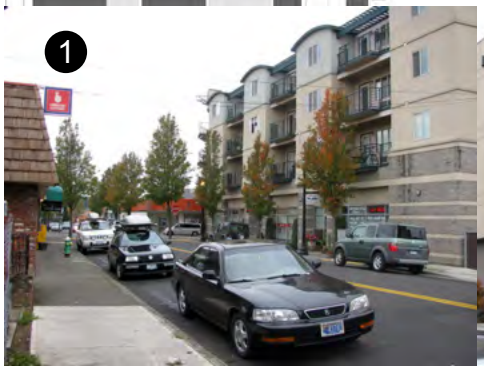


Existing Uses

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

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



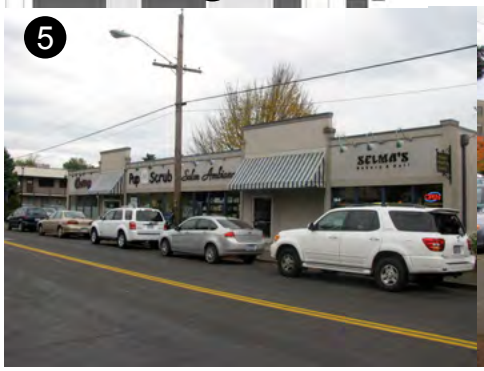


Planned Future Development

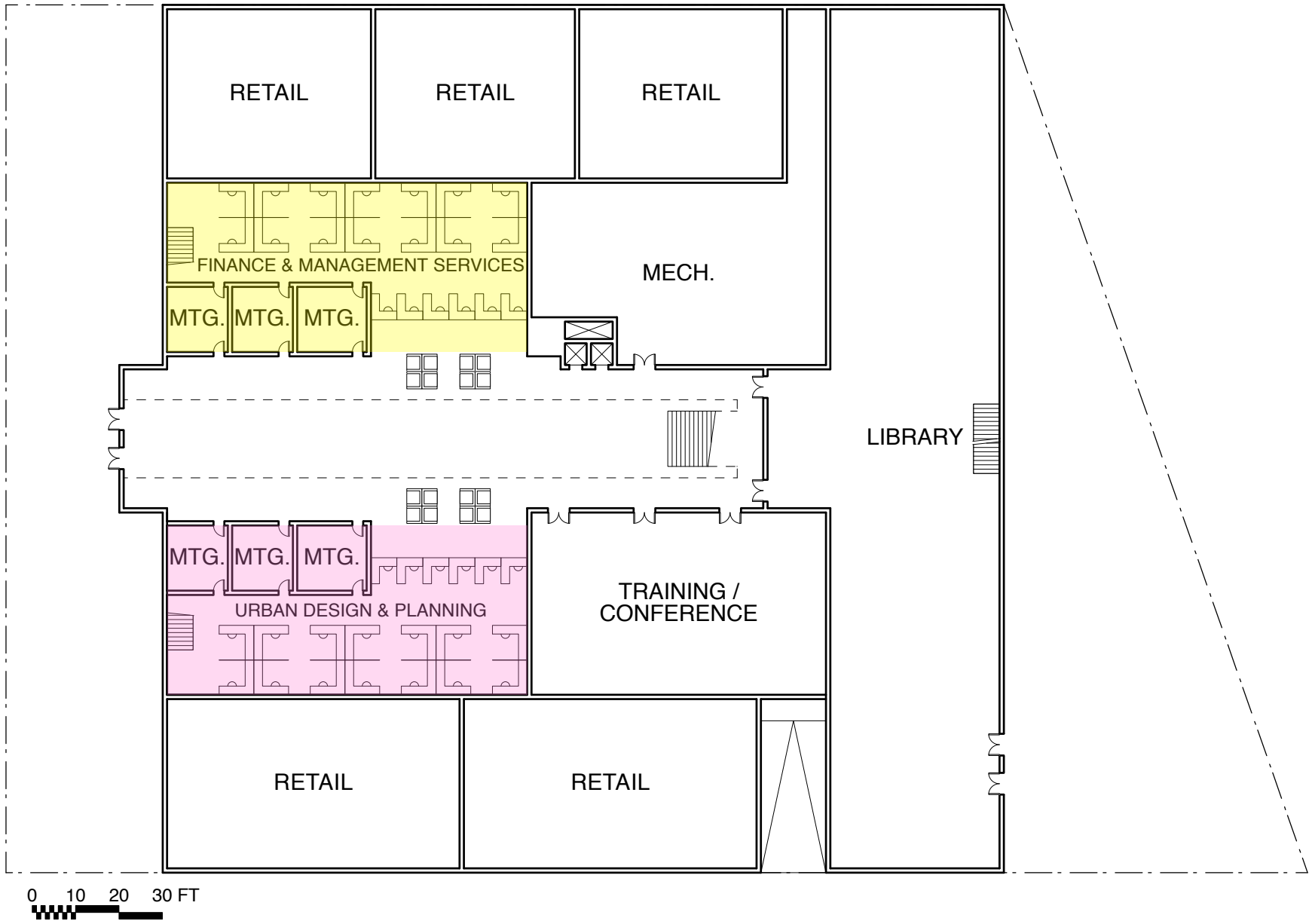
Gresham's city plan includes creative infill within the city center as well as more residential development to the north and around the proposed festival street. To the east of the site is the location of the new Gresham Center for the Arts and a public plaza.

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

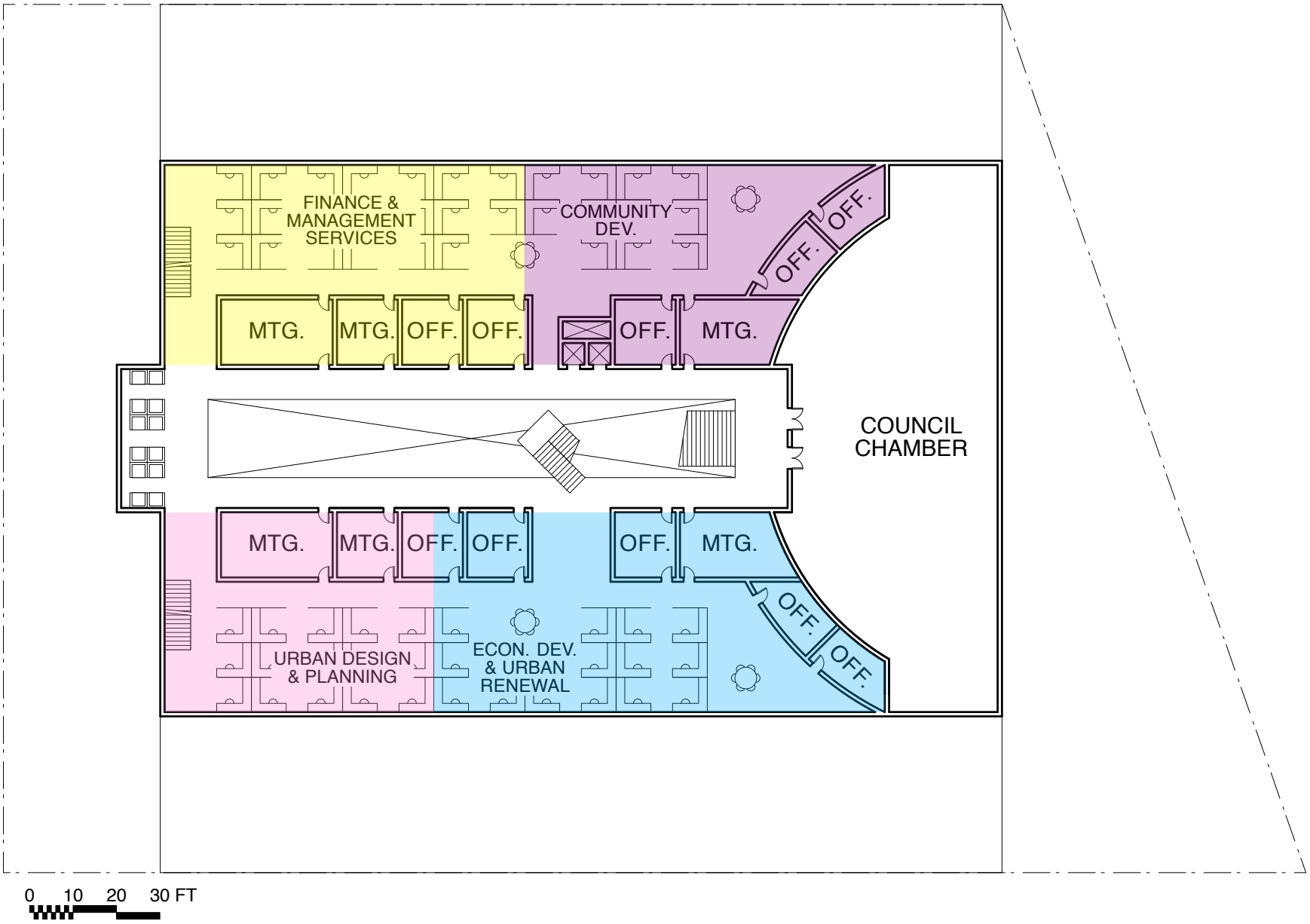
Planned Future Development
City Hall Site
Festival Street
Existing Development
3rd Street Development



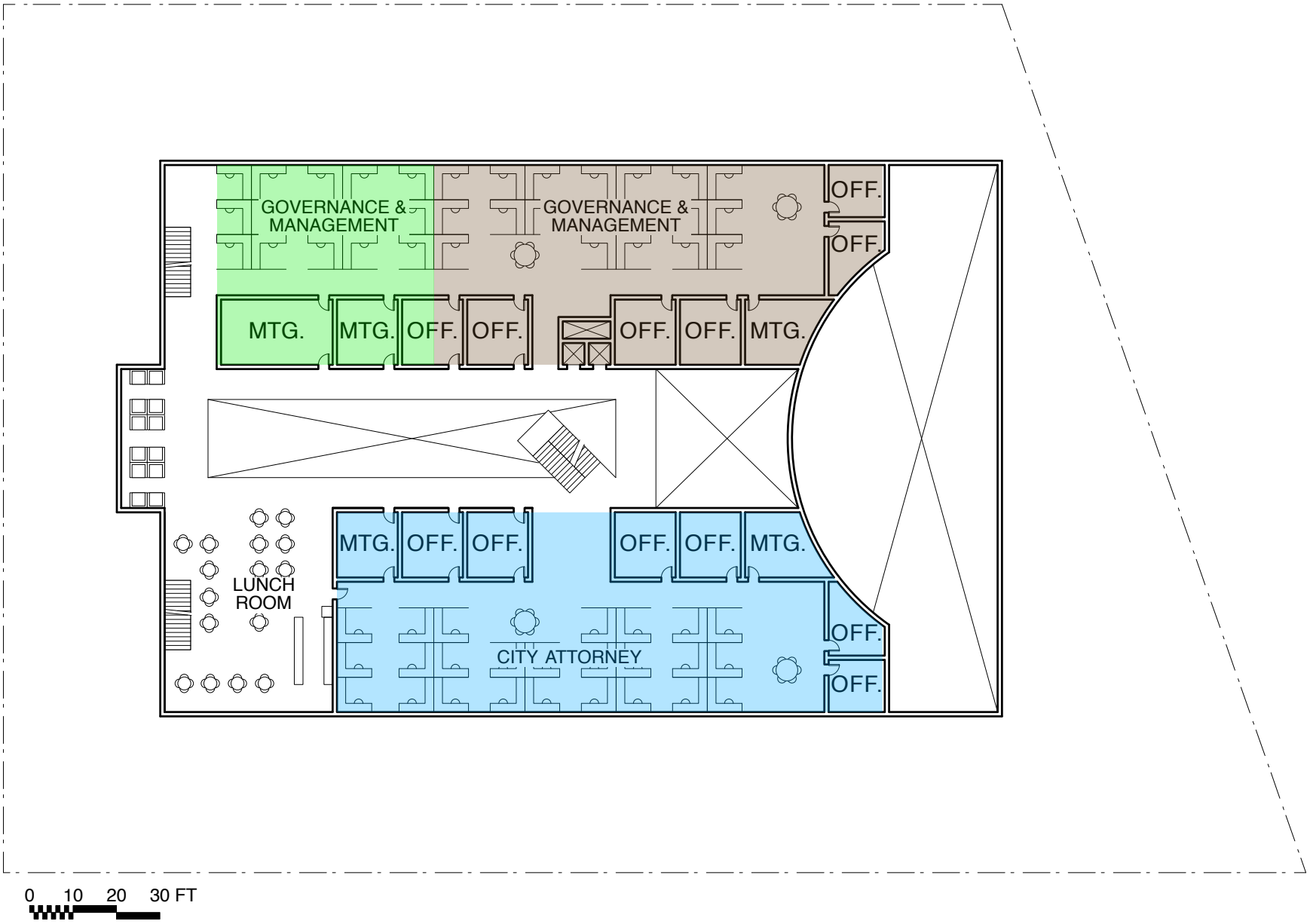
Floor Plan _ First Floor



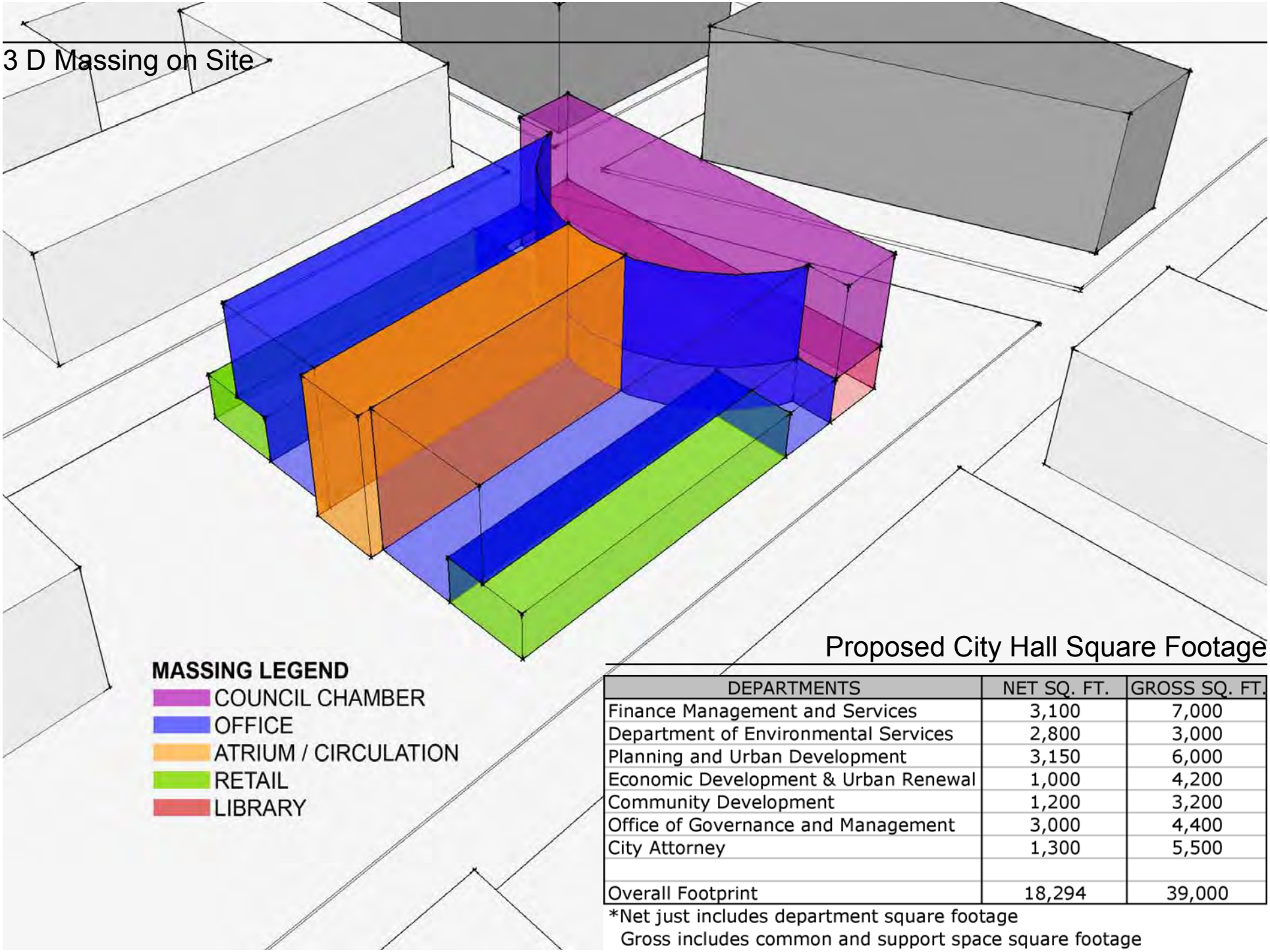
Floor Plan _ Second Floor



Floor Plan _ Third Floor



3 D Massing on Site



Proposed City Hall Square Footage

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

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

ENERGY PROGRAM

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

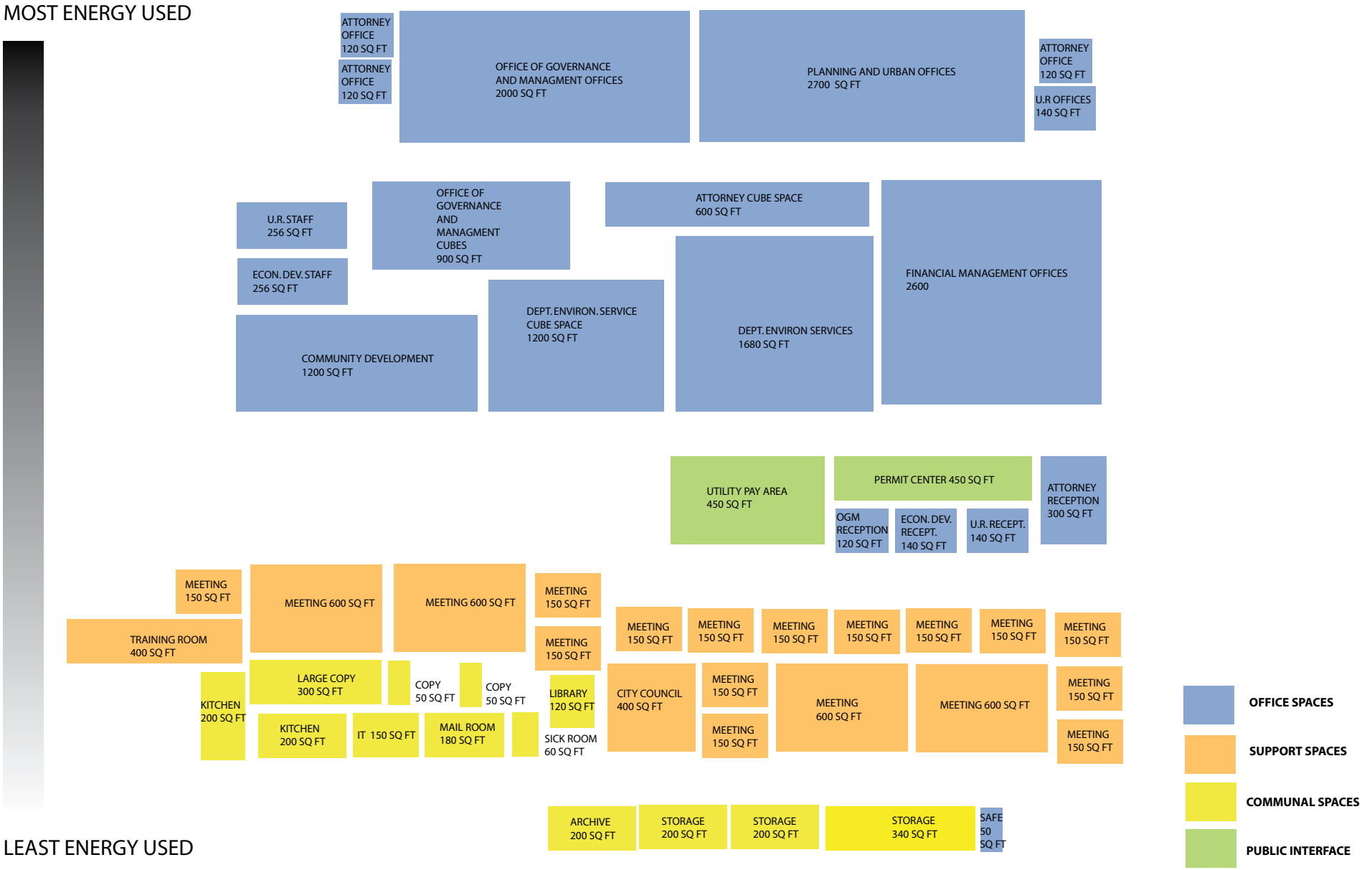
using PV panels
providing sun shading devices on the south commercial façade
orienting work spaces to maximize the use of daylight
minimize glazing on North side to reduce heat loss
installing Green roof for heat retention and reduction of heat island effect
using natural ventilation in unconditioned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

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

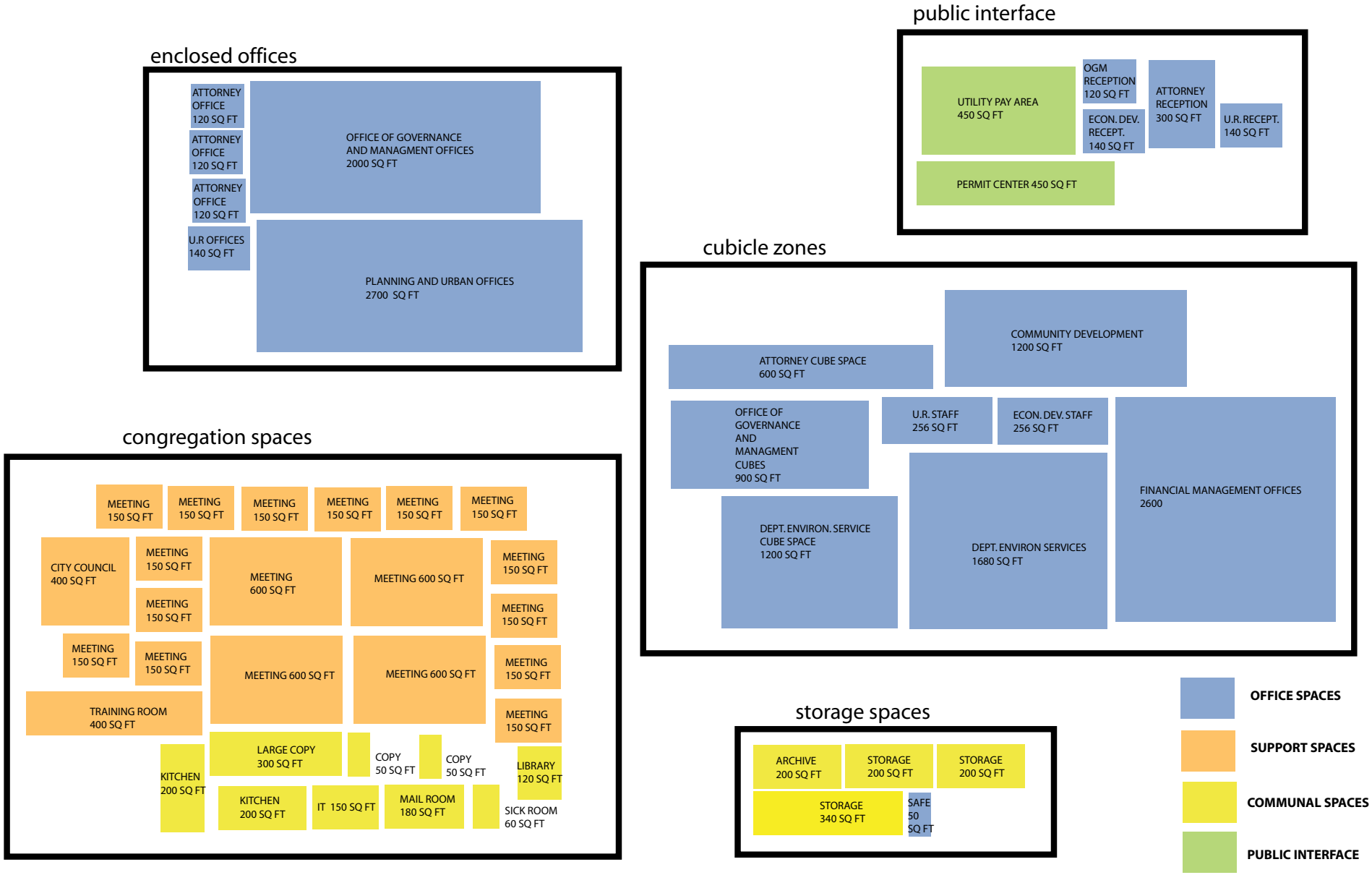
City Hall Space Needs

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

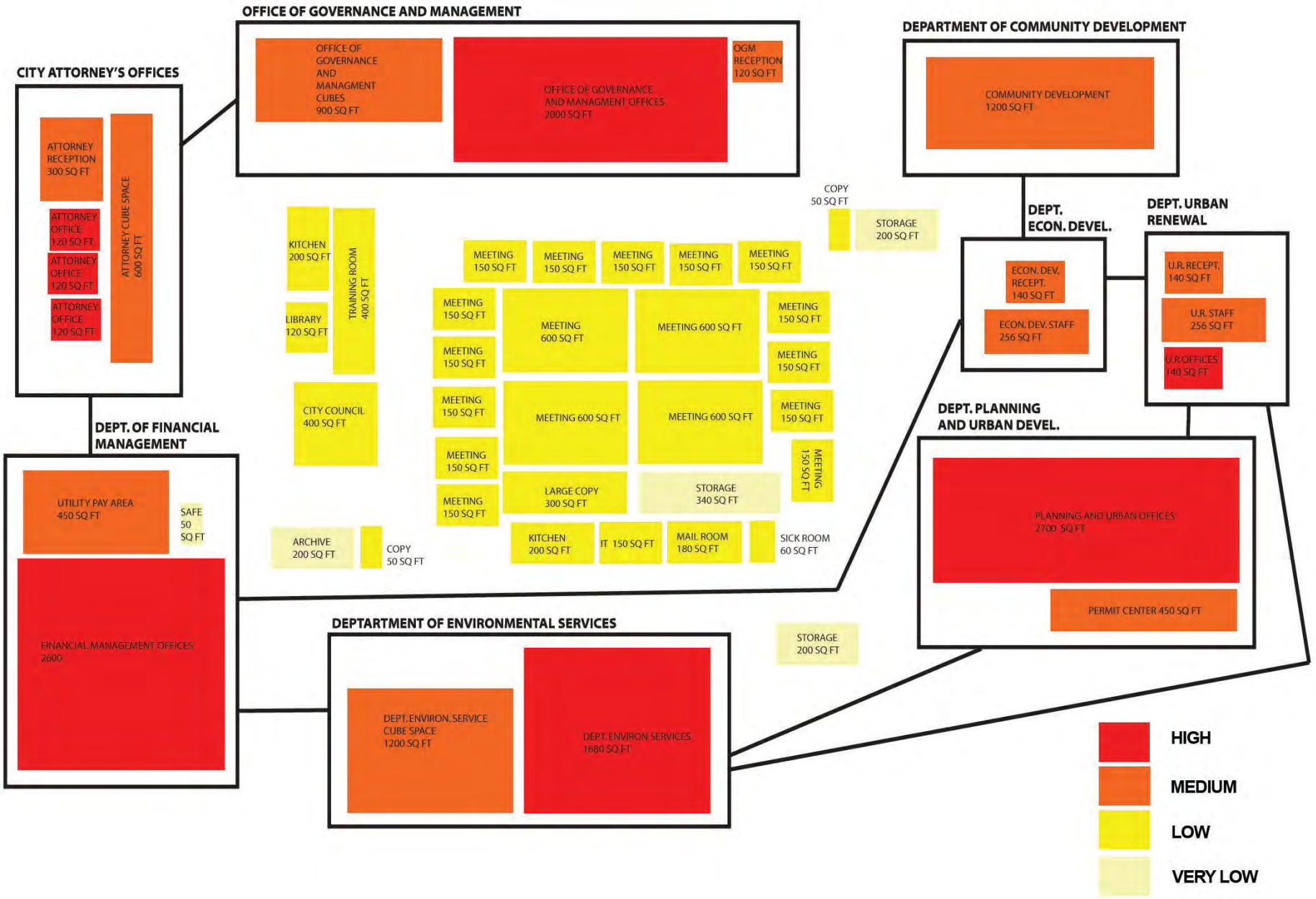
Energy Grouping



Program Function/Grouping



Energy Use By Adjacency



2030 Challenge

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

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

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

MIT Design Advisor

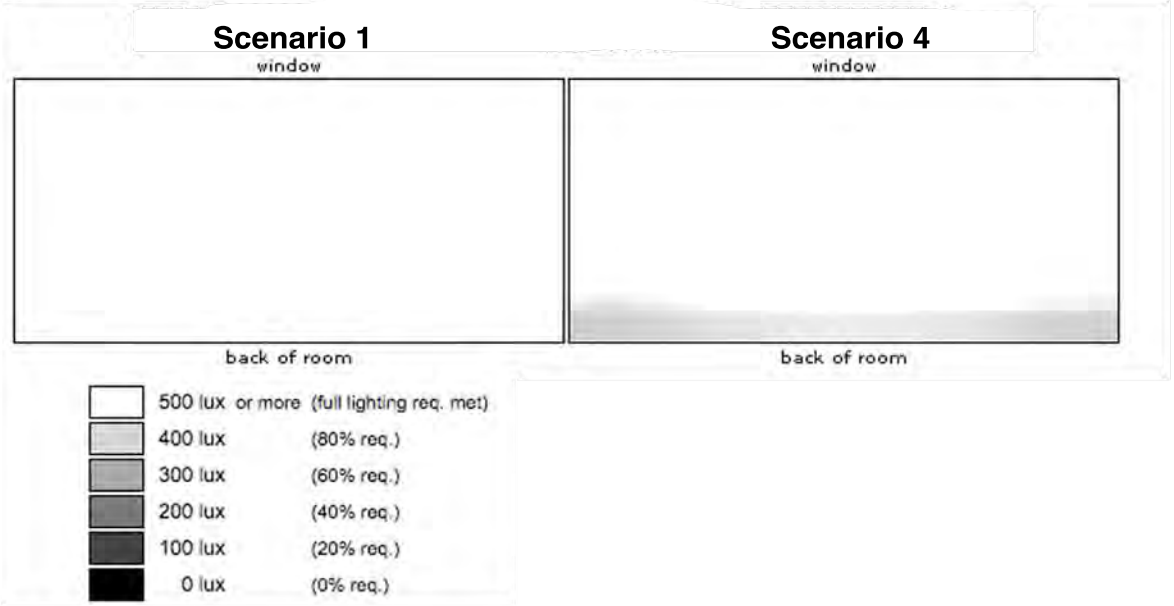
Energy modeling with MIT's online design advisor program revealed a positive relation between insulation and energy consumption. Obviously the better insulated the building, the less heat or cold is required to maintain a comfortable temperature.

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

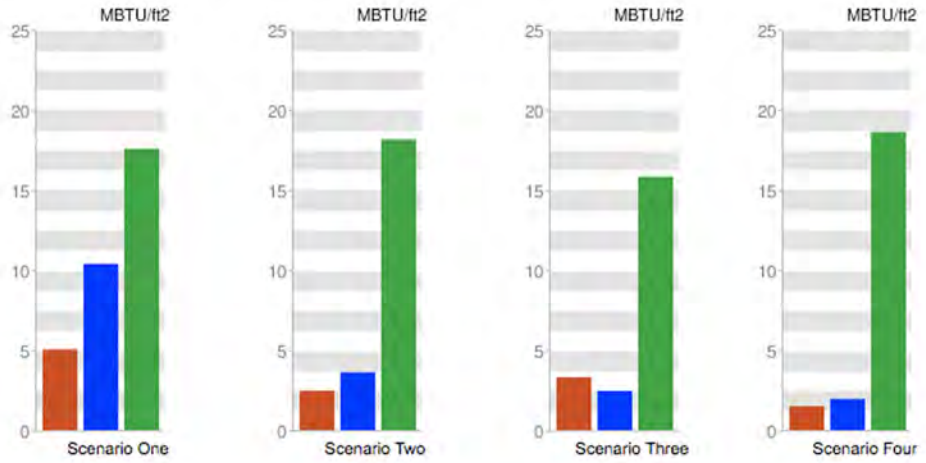
Four design scenarios were considered...
Scenario 1 - Baseline Building - Standard commercial building envelope.
Scenario 2 - Same as base building, with supplemental natural ventilation and improved insulation.
Scenario 3 - Same as scenario 2, but a green roof and dimming lights were added.
Scenario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

MIT Design Advisor Analysis

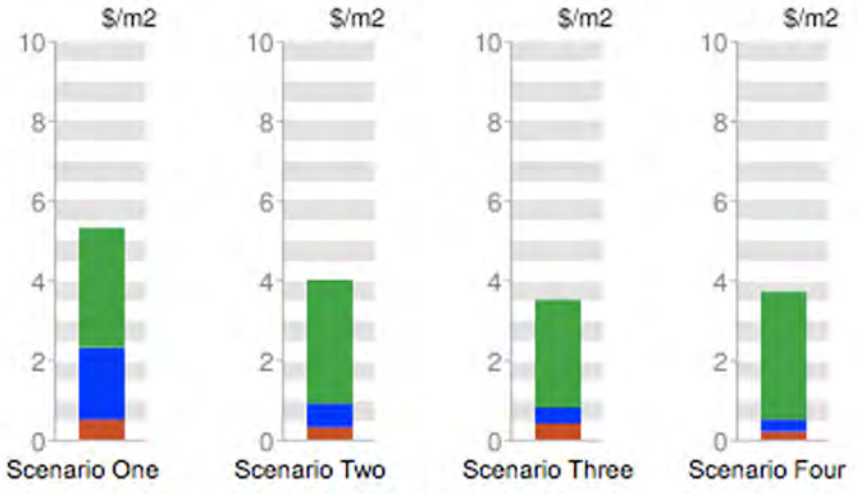
MIT Design Advisor _ Daylighting
Scenario 1 _ Baseline Building
Scenario 2 _ Operable Shading Devices



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



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

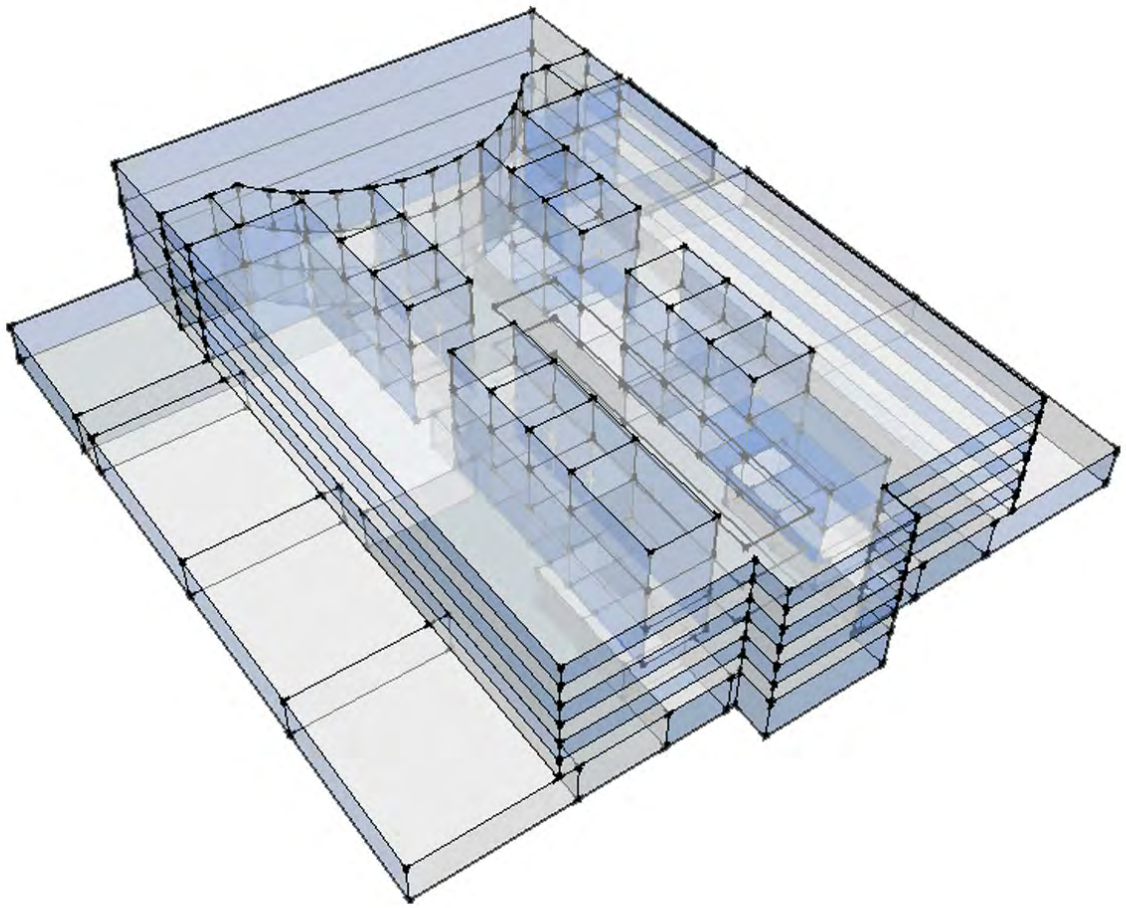


Testing our model for the 2030 Challenge.

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

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

No shading devices or green roofs were included.



Results

Building Energy Use

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

Building Carbon Emissions

673.9 tons CO2/yr

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

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