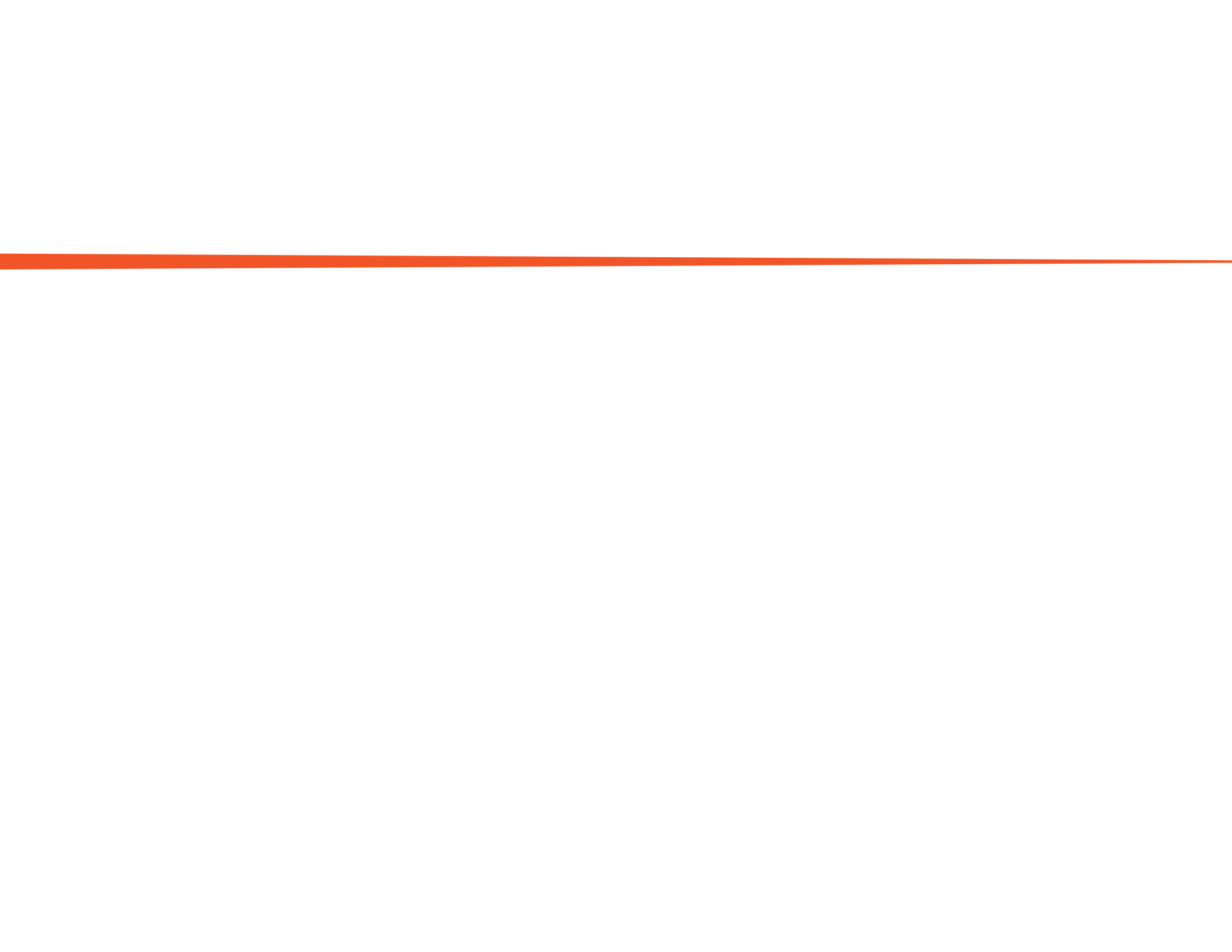


FEASIBILITY STUDY

# WAUWATOSA CITY HALL AND LIBRARY



JANUARY 11, 2023



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# EXECUTIVE SUMMARY

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Prominently located at the intersection of North Avenue, and Wauwatosa Avenue, the Wauwatosa City Hall and Public Library are convenient to single and multi-family residences, schools, places of worship, and local businesses. The City seeks to confirm remaining in this location and in the current structures, modified and/or expanded for the foreseeable future. This study is intended to validate whether the existing facilities, through modernization and expansion, will accommodate the long term needs of the community. This study provides a comprehensive analysis for both the Library and the City Hall as a roadmap to future facility enhancements as a means to remain vital and adaptive to the ever-changing Wauwatosa community.

The Wauwatosa City Hall and Library are located in connected facilities with original construction dating from the mid-1950's. The latest significant expansion, primarily to the Library, was completed in 1992. The facilities have had various additions and renovations spanning their existence, with the health Department remodel completed nearly ten years ago and the Student Commons remodel completed more recently. Current conditions require:

- General repairs
- Modernization of mechanical, electrical, security and telecommunications systems
- Energy performance and sustainability improvements
- Functional and wayfinding improvements
- Accessibility upgrades
- Potential building expansion

This space needs assessment and conceptual design study for the City Hall and Public Library was initiated through priorities identified in previous strategic plan studies completed independently for each entity. Objectives of this study are to provide a comprehensive review and analysis of the Wauwatosa Public Library and City Hall facilities, to 1) provide actionable recommendations for enhancing accessibility, flexibility, and convenience for the facilities, and 2) outline project scope and projected probable costs. These tasks are intended to provide guidance for project scope, capital project budgeting, and fundraising efforts.

### The City of Wauwatosa

The City of Wauwatosa, located four miles west of downtown Milwaukee, had a 2020 population of approximately 48,400. The median age at that time was 37.9 years, below state and national averages. Median household income (2019) was \$83,392, and 58.6% of adults hold a Bachelor's degree or higher. These both exceed county, state and national averages.

(Source: <https://www.wauwatosa.net/discover-tosa/about-wauwatosa>)

### The Wauwatosa Public Library

The Wauwatosa Public Library is an important community amenity, which by comparative analysis, attains consistently high use levels. According to the latest national public library use data set available from the Institute for Museum and Library Services, Wauwatosa's total annual circulation (850,000+) is more than two times the national norm, one-third greater than the norm defined by a cohort of Midwestern peers. Total annual visits (400,000+) exceed the national norm by 75%, and the regional / Midwestern norm by 25%. Total annual program attendance (29,800+) exceeds the national norm five-fold, and the regional /Midwestern norm by 35%. (Source: Library Planning Associates, Inc.)

While the Wauwatosa Public Library intends to continue the traditionally important role as a repository for collections and resources, it acknowledges its expanding responsibility to facilitate and foster community services, events, and connections. The Library has developed a five-year strategic plan focused on how the Library may best serve the community. The strategic plan, and this study, will help guide the Library in providing the following functions:

- A hub for literacy and lifelong learning
- A trusted source for information
- An access point to a multitude of technologies
- A place for civic discourse
- A key city asset
- A community cornerstone

# EXECUTIVE SUMMARY

## SCOPE

The scope of this feasibility study for the City Hall and Library includes:

- Existing Conditions Assessment
- Programming
- Space Planning and Conceptual Design
- Opinion of Probable Costs (Phased Construction)
- Project Master Schedule



# PARTICIPANTS

Many individuals contributed to this study. The consultant, on behalf of the City of Wauwatosa and the Wauwatosa Public Library, would like to thank the following:

## **City of Wauwatosa**

James Archambo  
Melissa Cantarero Weiss  
Charles Pomeranke  
David Simpson

## **Wauwatosa Common Council**

Dennis McBride, Mayor  
Margaret Arney  
Robin Brannin  
Melissa Dolan  
John J. Dubinski  
Ernest Franzen  
Amanda Fuerst  
David R. Lewis  
Sean Lowe  
Joseph Makhoul II  
Andrew Meindl  
James Moldenhauer  
Mike Morgan  
Meagan O'Reilly  
Joe Phillips  
Joel Tilleson  
Jason Wilke

## **Wauwatosa Public Library**

Peter Loeffel, Library Director  
Shellie Anderson  
Anne Kissinger  
Alanna Maddox  
Robert Trunley

## **Wauwatosa Public Library Board of Trustees**

Brian Began, President  
Bill Andrae  
Kathy Causier  
Monica Deluhery  
Peter Holtz  
Annette Mertens  
Meagan O'Reilly  
Sarrah Oliver  
Lauren Roznowski Hayden

**Numerous community members and families**







N WAUWATOSA AVE

W NORTH AVE

WAUWATOSA LIBRARY & CITY HALL



---

## EXISTING FACILITIES

The following pages contain a small collection of photos of the existing Wauwatosa City Hall and Public Library, as well as existing plans of the first and second floor.



CITY

No Parking

FOLLOW US ON SOCIAL MEDIA  
FACEBOOK  
TWITTER

# EXISTING FACILITIES

## CITY HALL



Court Clerk Reception



City Clerk Reception



Employee Lounge



War Memorial



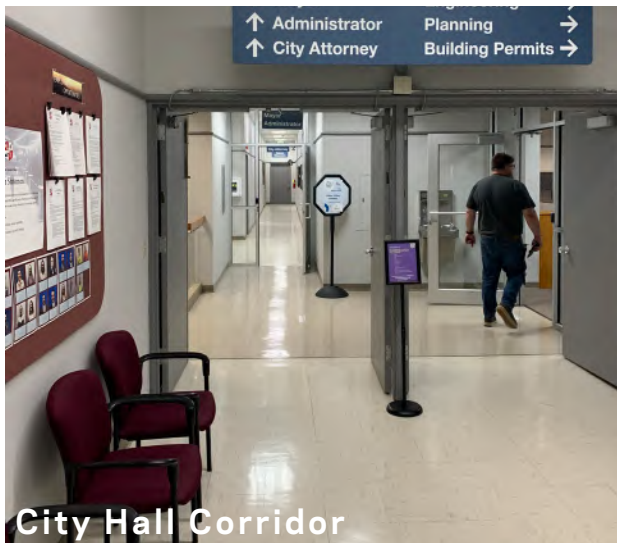
Restroom



Reception



Conference



City Hall Corridor



Records

# EXISTING FACILITIES

CITY HALL



Office



Council Chamber



Engineering / Drafting

L  
I  
B  
R  
A  
R  
Y



NO  
LOITERING



Only  
Emergency  
Exit



# EXISTING FACILITIES

LIBRARY



Story Room



Exterior Book Nooks



Adult Collection



Workroom



Book Drop



Lobby



Media Collection



Story Room Entrance



Study Rooms

# EXISTING FACILITIES

## LIBRARY



Quiet Reading Area



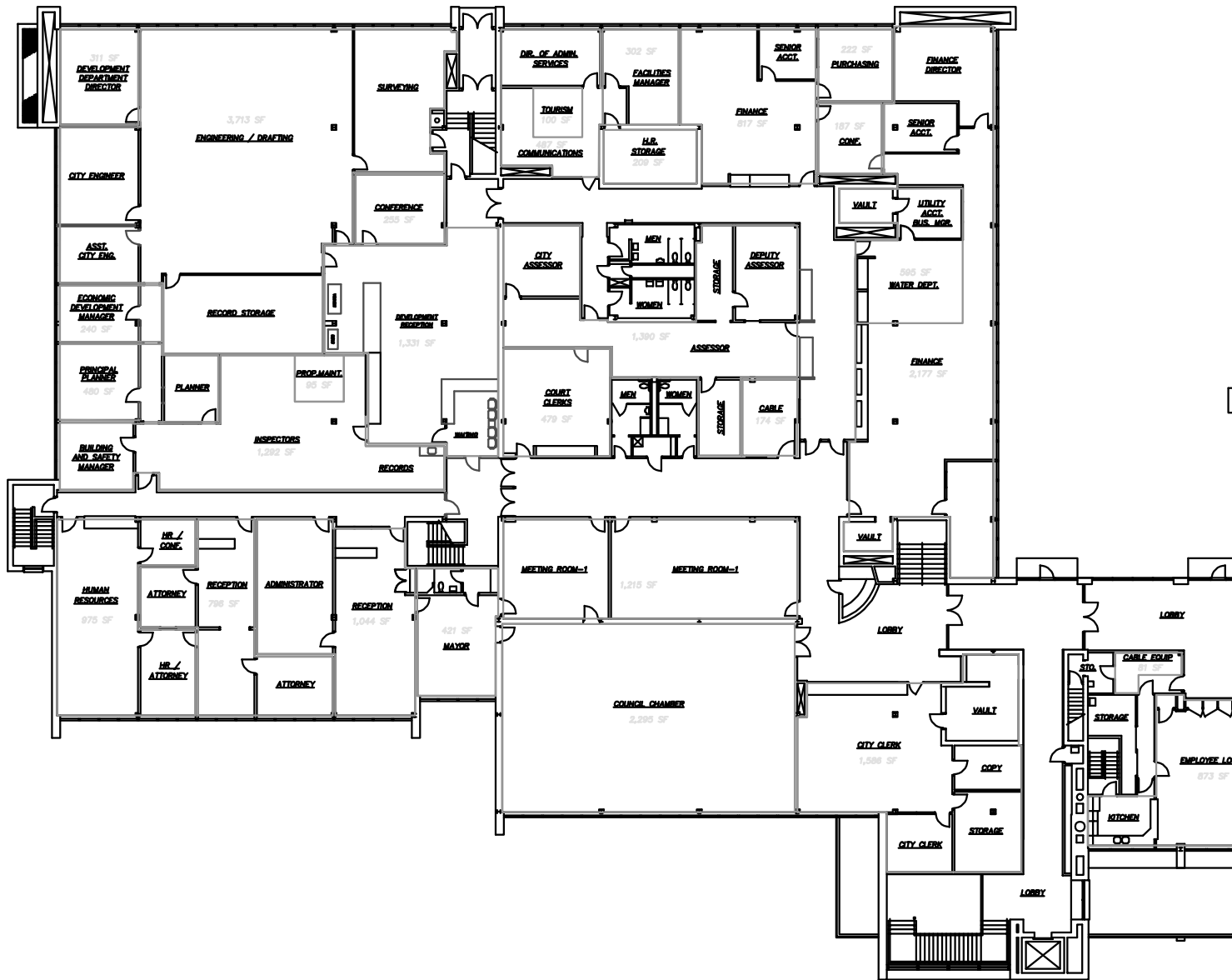
Study Area



Adult Collection



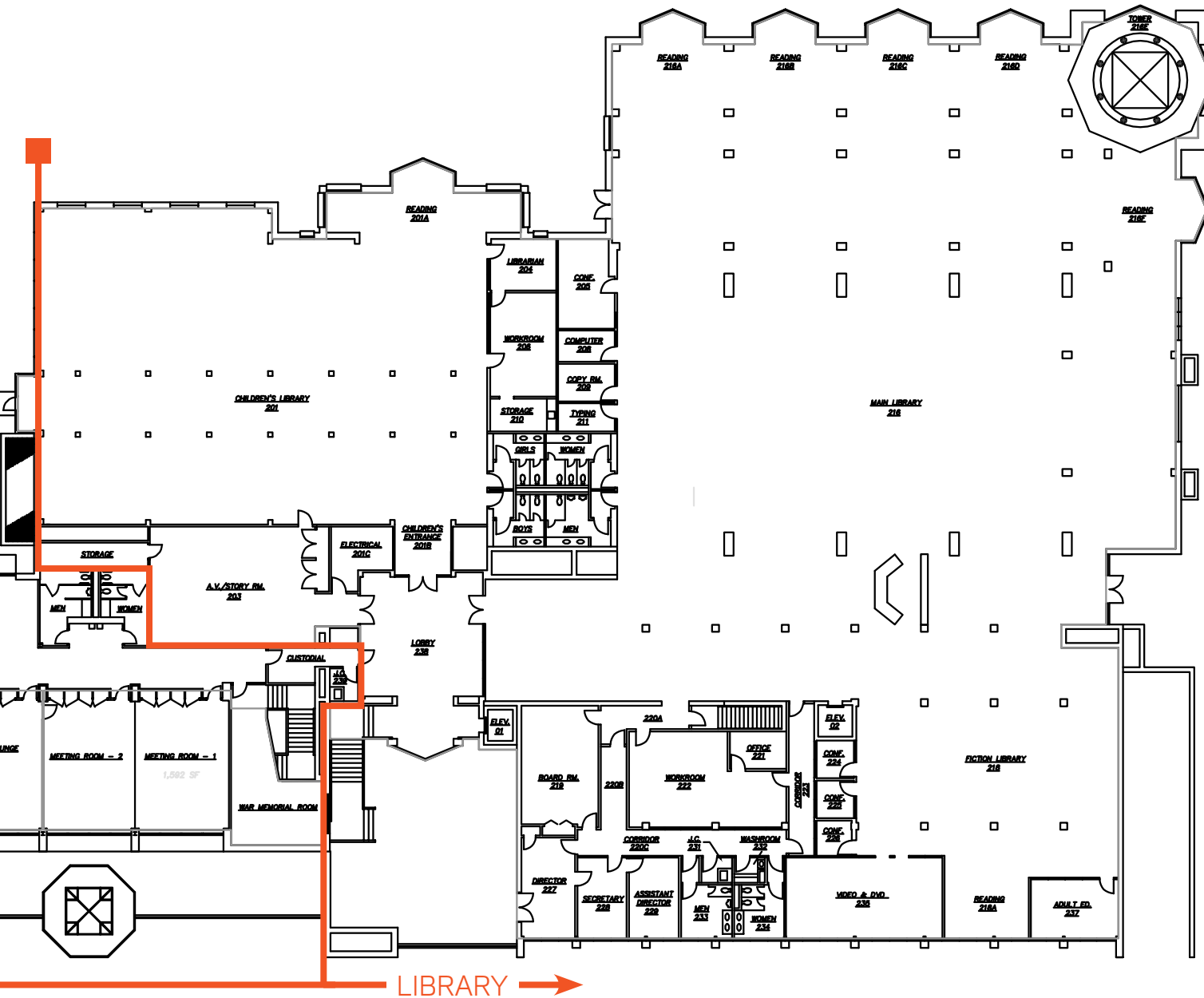




← CITY HALL →

# EXISTING FACILITIES

## OVERALL LEVEL 2 PLAN







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## EXISTING FACILITIES ASSESSMENT

This existing facilities assessment sought to analyze the general condition of the City Hall and Library and to determine their feasibility for renovation and expansion. Conducting this assessment included a review of the existing building envelope and structure, and the mechanical, electrical, safety, and technology systems. This assessment reinforces previous assessments, that the nearly seventy-year-old facilities, based on current conditions, are nearing the end of their useful life without significant improvements.



# EXISTING FACILITIES

## ASSESSMENT

**BUILDING ENVELOPE:** The building envelope assessment includes a review of the existing wall assembly, roof assembly, and windows and other openings.

**Exterior Wall Assembly:** Consistent with construction practices common at the time of original construction, the wall assembly lacks current efficiency standards for insulation and weather barriers. Improvements to the exterior wall assembly could be made from the internal side furring, then utilizing expanding foam insulation to improve both the thermal capacity and act as a weather barrier (restricting moisture and air movement through a wall assembly). This will not be a simple or inexpensive task, and shall be done under careful professional guidance to avoid trapping moisture in the wall cavity.

**Window & Door Openings:** Window and door openings typically represent a significant component of the building envelope. Windows and doors also represent an area of weakness in the efficiency of the overall building envelope. The mid-1950's original windows are non-thermally broken aluminum framed with single-pane glazing. The 1992 Library expansion includes improved thermally broken aluminum window frames with insulated glazing. Building renovation and improvements should consider replacement of all original windows and doors with modern, thermally broken aluminum frames and double glazed windows with high-performance coatings such as with Low-E film which better control solar gain.

**Roof Assembly:** The facilities roof assembly has been improved from the original. The building has been re-roofed over the years with a ballasted membrane system, replacing what was probably originally a built-

up system. At the time of re-roofing, insulation was added to improve overall energy efficiency. Remodeling and expansion may require some re-roofing of existing. Thermal values can be increased utilizing the appropriate type of insulation, meeting current code requirements and standard practices. Re-roofing will require removal, then reinstallation of the rooftop solar array. Current roof leakage is primarily through existing skylights or related flashings.

**BUILDING STRUCTURE:** The original building structure consist of concrete foundations, a slab-on-grade concrete floor at the lower level, a structural concrete floor system at the upper level and a steel-framed roof structure. Exterior walls are generally a load bearing concrete masonry unit with brick and stone veneer. The 1992 Library expansion consists of a concrete foundation, slab-on-grade floor and steel-framed roof structure. Exterior walls are primarily concrete masonry units with brick veneer and an exterior insulation and finish system (EIFS). The building has been maintained with no apparent structural damage or degradation leaving the existing structural systems in good condition. The existing structural systems are capable of continued use and can accommodate appropriate renovation and remodeling as long as any modifications are appropriately engineered.

**BUILDING SYSTEMS:** The assessment of existing building systems was completed by Design Engineers. Their assessment of existing systems included Fire Suppression, Plumbing, Heating Ventilation and Air Conditioning (HVAC), Building Automation, Electrical Power, Electrical Lighting, and Technology and Safety Systems. Their report is attached as Appendix C. Below is a summary of their findings.

**Fire Assembly Systems:** The City Hall and Library complex does not currently have a fire suppression system (more commonly referred to as a fire sprinkler system). Under current code, this would not be allowable, most likely, any major renovation and expansion would require some spaces to be equipped with a fire suppression system. For life safety as well as property protection, a complete fire suppression system is highly recommended.

**Plumbing Systems:** Piping in the older parts of the building is showing signs of leaking. Most of the original building plumbing fixtures have been replaced, yet, any major new remodeling and expansion would require upgrades to meet current plumbing and accessibility codes. This will require remodel of most, if not all, restroom facilities.

**HVAC Systems:** The general building heating and cooling is distributed by a forced air system served by ten indoor air handling units and three rooftop units. Additionally, the building has hydronic heating and cooling served by three boilers (heating and domestic hot water) and a chiller (cooling). There is no existing energy recovery equipment, and current systems do not meet current codes and standards for fresh air intake which contributes to better indoor air quality and overall energy efficiency.

Building Automation System:

The building automation system is a mix of DDC and pneumatic. The recommendation is to continue the gradual conversion from pneumatic to DDC. Systems should be replaced where the most intensive renovation occurs. Some existing systems can remain serving those

areas least disturbed by new renovation. A building wide comprehensive system replacement could provide a more modern, and more efficient heating and cooling system.

**Electrical Power Systems:** In general, the electrical distribution gear and conductors original to the building are in poor condition and are approaching obsolescence due to age and lack of replacement parts. That which is from the early 1990's is generally in good condition. It is recommended that older (pre-1990's) equipment be replaced in the near future.

Solar Power System:

A solar photovoltaic (PV) system was installed in April 2021, offsetting the current facility electrical use by approximately 40%. The only concern is, under any extensive remodel requiring roof replacement, this relatively new system would need to be removed, then reinstalled.

Emergency Power:

The facility has two emergency power generators. The original 15 kW natural gas generator may still be operational but is no longer connected and utilized. The current utilized generator is 100 kW diesel located near the southwest corner of the facility. Current generator power distribution does not meet current code requirements, and a complete analysis of new loads with any substantial renovation and expansion will require assessment of the current generator.

Electric Branch Circuits:

Branch circuit wiring appears to be in fair condition, as do branch raceway systems. However, engineers recommend new branch circuit wiring and branch raceways be installed

in renovated areas.

### **Electrical Lighting Systems:**

#### Interior Lighting:

Existing interior lighting is primarily fluorescent style fixtures with manual switch control, the majority of which have been retrofitted with LED replacement lamps. Light fixtures installed before the 1992 Library addition and remodel are in poor condition and provide poor light quality. Engineers recommend replacing fixtures with new LED fixtures, providing better lighting quality, lower maintenance costs, improved energy efficiency, and electronic control such as dimming and programmable control features.

#### Exterior Lighting:

Existing exterior lighting are older and in poor condition. The light source is mostly metal halide which may not meet current code requirements. Engineers recommend most exterior lighting be replaced with new LED fixtures.

#### Emergency Lighting:

Generally, existing exit/emergency lighting is in poor condition due to age. There is a mix of types, styles, and colors. Replacement is recommended for any renovation.

### **Technology & Safety Systems:**

#### Fire Alarm:

Although functioning, the manual actuation (via pull stations) system is recommended to be replaced with a new addressable system and devices to provide code required coverage. Due to the different space types throughout the facility, occupant loads and varying public demographics, a voice-based fire alarm system should be considered. This upgrade would also allow the system

to be used for mass notification purposes should there be an event other than fire that presents danger to the facility occupants.

#### Voice/Data Systems:

The overall condition of the telecommunication equipment appears to be in good condition. It is recommended that a new entrance facility room be established, and new telecommunications rooms be strategically placed throughout the facility under renovations to serve new locations. Another recommendation would be to eliminate unused cables, old cable types and organize system layouts to facilitate future changes. A final recommendation is that all future projects include modern cabling constructions such as those in the CAT 6 family or greater.

### **Access Control / Camera Systems:**

#### Access Control:

The facility currently has an access control system controlling about 12 doors throughout the facility ranging from department interior doors, entry, and IT spaces. There is also a security keypad at the main entry. Extending card access to interior doors is becoming more common in public buildings. This allows access to be granted and revoked more readily without the necessity of tracking keys. Depending on the system selected and how the door card terminals are programmed, doors could also be locked simultaneously should an event necessitate this feature for emergency protection. The City should consider these upgrades be considered with any major renovation and addition.

#### Camera Systems:

The current facility has minimal security camera



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## COMMUNITY ENGAGEMENT STUDY APPROACH

OPN Architects led a series of sessions with City Hall & Library leaders and community members to establish a guiding vision for the design of the Wauwatosa City Hall & Library renovation. The events included exercises to define goals, needs, and aesthetic preferences for the new interior and exterior. Thank you to all the participants who offered their valuable time and input. The following findings provide a framework for the creative process and future design decisions.

## **WE BELIEVE**

The Wauwatosa Public Library and City Hall are as unique as the City of Wauwatosa itself. This study is intended to help your community define how your City and Library will provide vital services for the next fifty years.

**VITAL:** Your Library and City Hall should be a beacon in the community, drawing people to learn, create, and participate in civic life.

**WELCOMING:** Your Library and City Hall are a shared destination for all members of the community.

**INSPIRING:** Your Library and City Hall have the power to reach users of every age and inspire life-long learning, literacy, and creative endeavors.

**ADAPTABLE:** Technology, more than ever, is not only evolving, but a necessity for children and adults of all ages to learn online. Your Library and City Hall can be designed to anticipate and accommodate changes to programs, spatial needs and technological advancements.

**PARTICIPATORY:** What if your Library and City Hall could be used in ways we cannot currently imagine? That should be our goal! A properly designed Library and City Hall will serve as the lab, studio, stage and classroom, inspiring residents of Wauwatosa for generations to come



### METHODOLOGY

An important objective of this study was to assist the Library and City leaders in engaging the diverse and dynamic Wauwatosa community in their collective vision for the future of their facilities. This study provided several opportunities for community input. These included:

- 1.** An online community survey seeking community feedback on experiences utilizing the existing facilities. This survey was available 24/7 for those with appropriate internet access and online skills.
- 2.** An “off-site” community engagement event conducted on a weekday in the central hall at the Mayfair Mall, located on Mayfair Road, Wauwatosa. This location was chosen to engage those that may be less likely to in-person visit the Library or the City Hall or complete the online survey. This engagement session included asking participants what they liked or did not like about the Library or City Hall, or what they would like to see in new and improved facilities. The second part asked participants to indicate which images they liked more, or liked less, amongst a diverse grouping of existing libraries and city halls or community centers, a process referred to as benchmarking.
- 3.** A third and final “on-site” opportunity was held in the “Link,” the connecting corridor between the first floor City Hall and Library, on a Saturday. This location provided an opportunity to engage both casual and frequent library users. This engagement session repeated the two components utilized at Mayfair Mall, included asking participants what they liked or didn’t like about the Library or City Hall, or what they might envision for new and improved facilities and then also participate in the same benchmarking exercise.

### **PURPOSE**

OPN worked closely with the City and the Library to define project goals and objectives. These goals were developed from community feedback and individual and group discussions with staff. The discussions revolved around facility modernization, technological improvements, functionality, flexibility, materiality, and sustainability.

**BOTTOM LINE UP FRONT:** It was generally agreed that the existing facilities are functionally deficient for today's demands, are technologically obsolete, and have challenges with wayfinding and interfacing with customers.

**WORKSPACE MODERNIZATION:** Create connected and collaborative workspaces, teaming rooms, and meeting rooms that are flexible, multi-functional, technologically accommodating, are appropriately equipped with modern lighting and controls, and are environmentally comfortable.

**MODERNIZED & INTUITIVE WAYFINDING:** As the existing complex has been added to and remodeled on multiple occasions over its nearly seventy-year lifespan, the Library and City Hall suffer from a lack of central organizing spaces that clearly guide the user to their destination. A major goal is to improve this wayfinding to be more architecturally intuitive and user friendly.

**DEVELOP FLEXIBLE & ADAPTABLE COMMUNITY SPACES:** Community facilities must change and evolve as a community does. The City Hall and Library both have a need to upgrade and provide modern flexible meeting spaces to accommodate varying group sizes and group needs. Modern libraries have evolved beyond a depository for books and periodicals into multi-functioning, welcoming and participatory community gathering spaces. The connected Wauwatosa City Hall and Library can continue to accommodate an efficiency of shared community gathering spaces.

**ENHANCE SECURITY & TRANSPARENCY:** An important objective is to balance security with transparency. This requires the use of an appropriate level of digital surveillance technology without being overly intrusive.

**IMPROVE SERVICE MODEL:** The City Hall and Library provide vital community services. How can the customer-service provider interface be enhanced and improved? The Concept Design component of this study seeks to significantly enhance the user experience.

**LEAVE ROOM FOR THE UNEXPECTED:** Less defined, but not less important, is to leave room for the unexpected. The participants of this study are doing their best to envision and define the community needs. They may not connect with everyone in the community. They will not think of every need or use. Along with the goals outlined above, we must leave room for the unexpected.



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## COMMUNITY ENGAGEMENT COMMUNITY FEEDBACK

The following pages depict results from the community feedback survey, and from community engagement sessions outlined in the previous pages. The Wauwatosa community provided feedback in survey form by responding with their thoughts on future City Hall and Library facilities utilizing a 1-5 rating system (5 is best) to rate their current experiences; and, in a visual form referred to as benchmarking, where participants “voted” for their personal visual preferences by placing colored dots onto images of Library and City Hall facilities they preferred.

## What is important to you in re-imagining City Hall?

"More modern, new technology, more community space"

"A space that can be used to bring more economic opportunity to our city"

"A place where the public enjoys staying for longer than a few minutes. Cafe?"

"Community-accessible, community-centric, and exudes a welcoming, positive space"

"Accessibility for all ages/abilities, easy way-finding, places to gather/come together"

"Modern, accessible, welcoming"

"I wish I could just walk in to pay a bill or vote early on the main floor"

## What is important to you in re-imagining the Library?

"Improved access for the children who exit the school across the street"

"That it is a space for community and especially children"

"Accessibility, I don't want to use the stairs or elevator every time I use the library"

"Places of gathering, increased childrens programming, connection to the outdoors"

"A more robust area for young children and families"

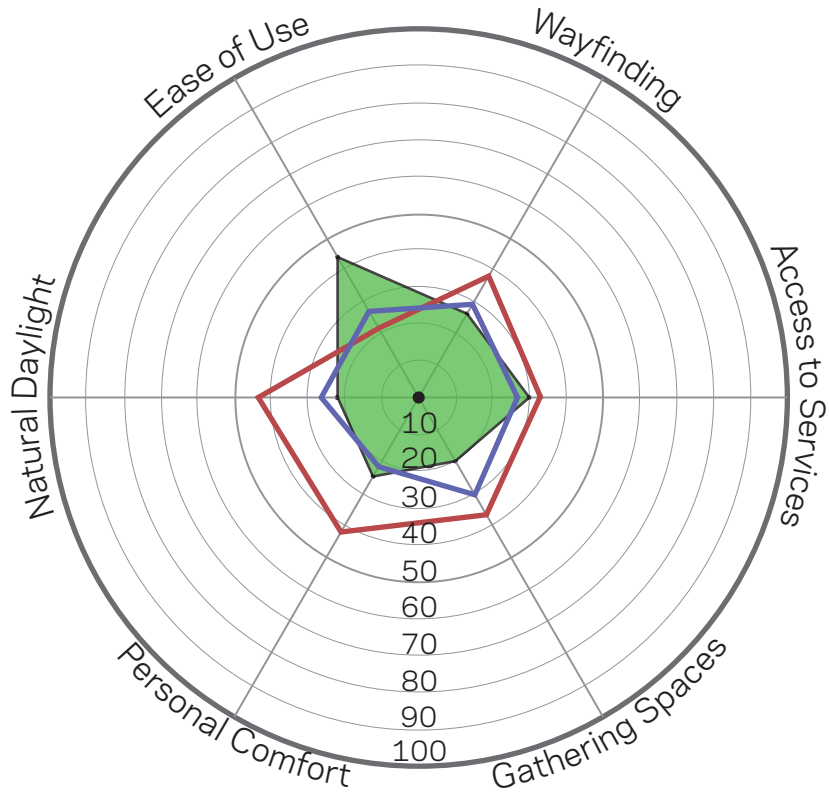
"Central location for librarians. Ease of use/ easier drop off & pick up"

"Larger space between stacks for wheelchair + walker accessibility, larger meeting rooms"

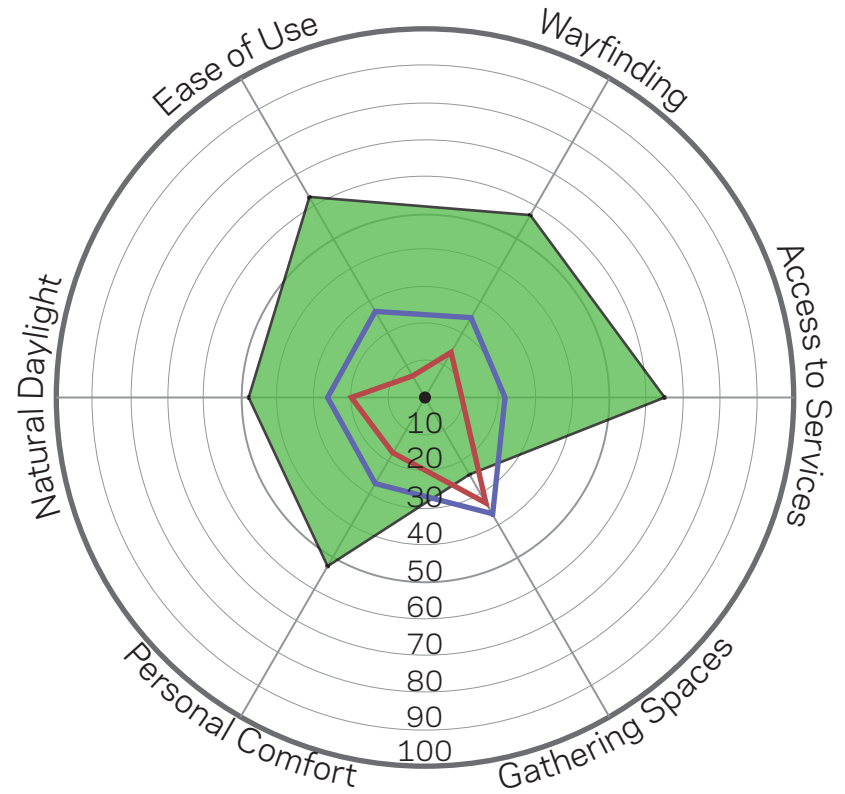
# COMMUNITY ENGAGEMENT

## COMMUNITY FEEDBACK SURVEY

CITY HALL



LIBRARY

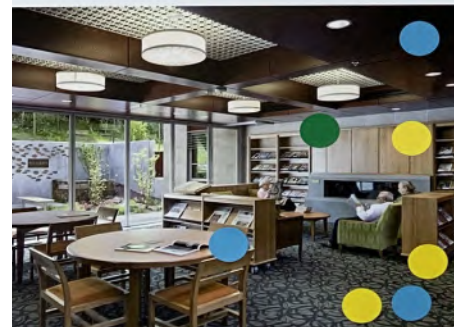
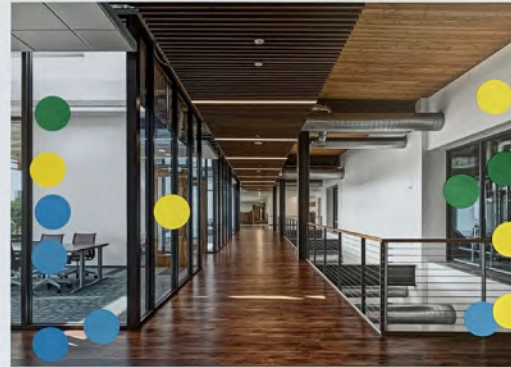


Percentage of participants who gave a rating of:

Positive

Neutral

Negative

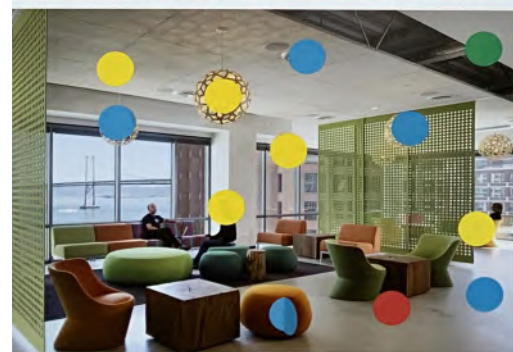
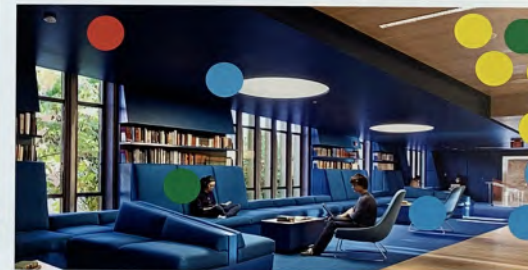




# COMMUNITY ENGAGEMENT

BENCHMARKING

DOTS DENOTE PARTICIPANTS VISUAL PREFERENCES





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## PROGRAMMING

Programming is the process of establishing the scope of work. It represents project research, the establishment of goals and objectives, information gathering, analysis of opportunities and constraints, and quantitative requirements. OPN Architects worked closely with City leadership and staff, and Library leadership and staff, to produce rigorous and detailed programming summaries for the next twenty years.

## City Hall

At the beginning of the programming phase the City's sentiment was the City Hall had adequate, if not excess, space than needed. The programming analysis confirmed this. The space breakdown can be summarized as follows:

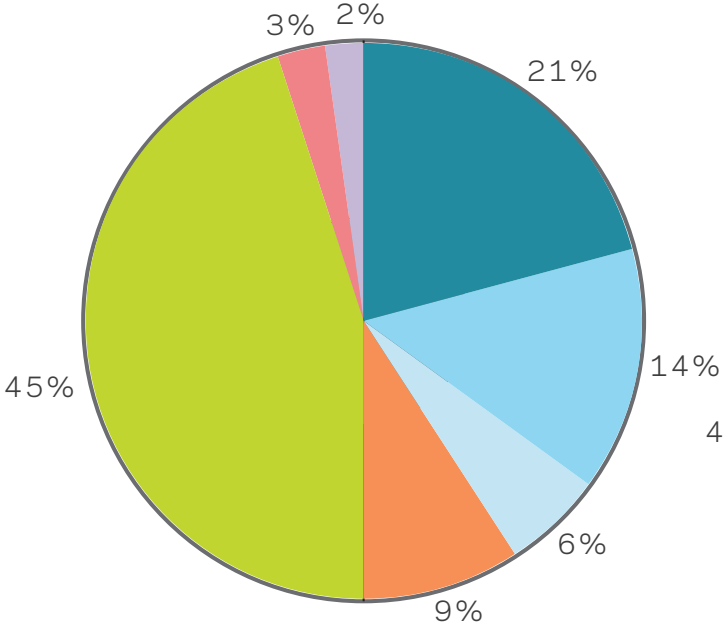
<b>Programming Summary</b>	<b>Existing Gross Area</b>	<b>Programmed Gross Area</b>
First Floor	31,582 SF	32,468 SF to 35,174 SF
Second Floor	37,142 SF	25,879 SF to 28,035 SF
Total	68,724 SF	58,347 SF to 63,209 SF

Combining the two levels, the above summary indicates the existing building area of 68,724 SF should reasonably accommodate remodeling for the programmed area of 58,347 SF to 63,209 SF. This programming will be validated through the space planning exercise in the following Conceptual Design section.

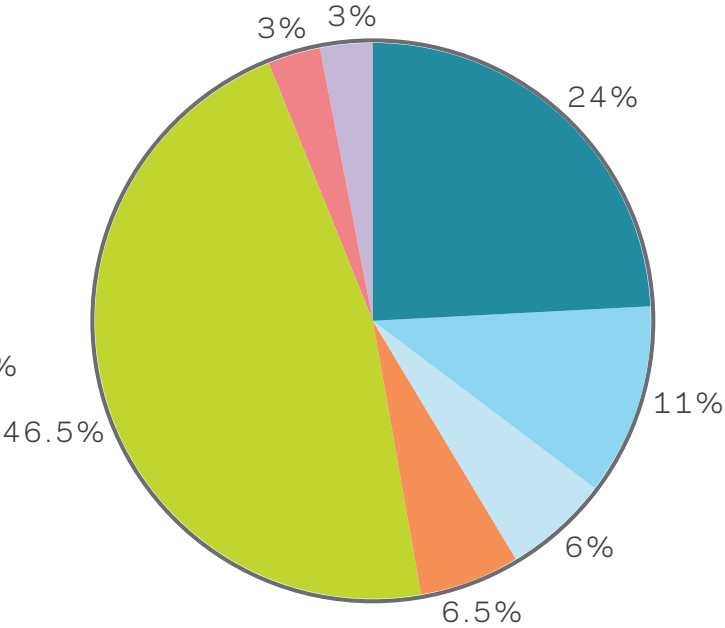
(\*Area does not include existing City Vehicle Garage which is intended to remain as is.)

- City Administration
- Civic Planning
- Finance
- Health Department
- Shared Spaces
- Information Technology
- Human Resources

### CITY HALL EXISTING SPACE ALLOCATION



### CITY HALL PROPOSED SPACE ALLOCATION



### Library

The Library programming projects are based on two components. The first looked at the space needs requirements to accommodate projected growth of the collections, as anticipated by the Library. This resulted in a calculation of approximately 40,084 SF needed for collections shelving. The shelving calculations were then incorporated, by collections type, into the overall programming spreadsheet. The second looked at library space needs beyond collections. This took a concerted and detailed effort working closely with Library staff to outline expansion needs to accommodate both current and future program needs. The Library space needs is summarized as follows:

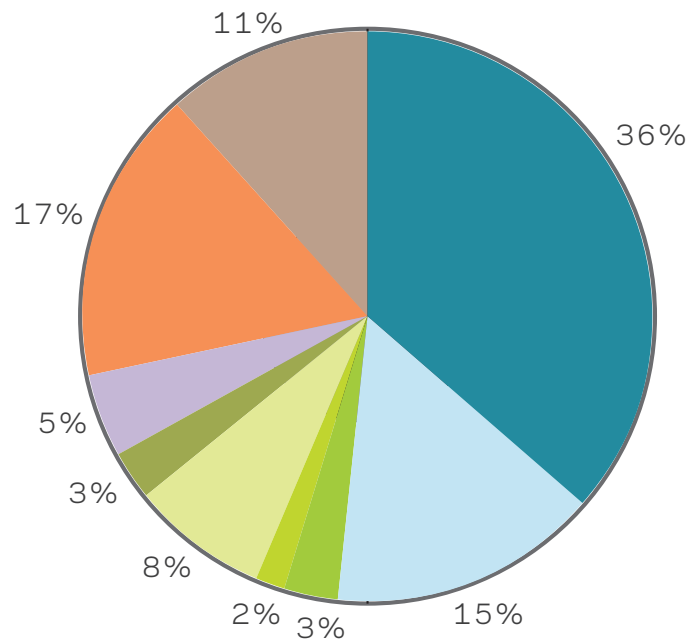
<b>Programming Summary</b>	<b>Existing Gross Area</b>	<b>Programmed Gross Area</b>
First Floor	12,974 SF	15,098 SF to 16,357 SF
Second Floor	36,294 SF	77,919 SF to 84,412 SF
Total	49,268 SF	93,017 SF to 100,769 SF

The programmed area needs for the Library of 93,017 SF to 100,796 SF exceeds the existing building area of 49,268 SF on the two levels by a range of 43,749 SF to 51,528 SF. This represents a substantial increase. This programming will be validated through the space planning exercise in the following Conceptual Design section.

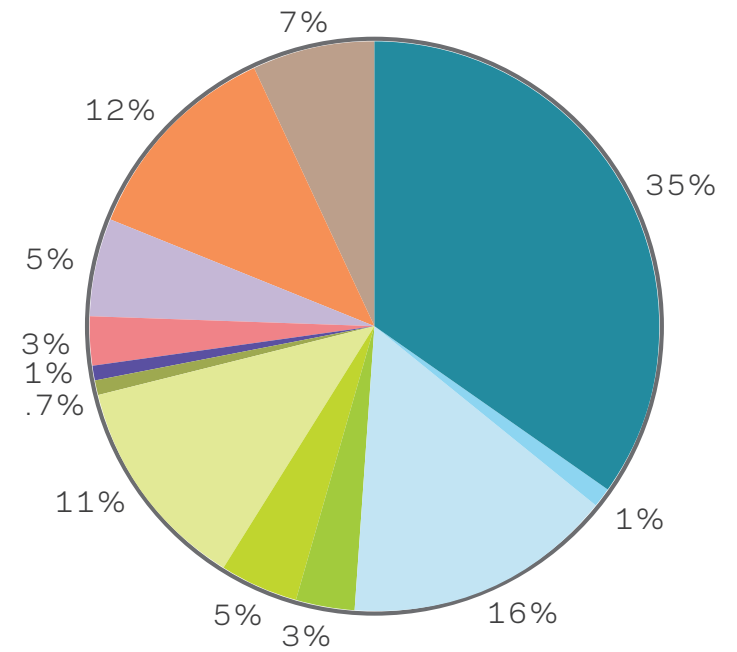
Refer to **Appendix A** for the detailed programming outline.

- Adult
- Young Adult
- Children
- Children's Program
- Study / Conference
- Community
- Art Gallery
- Maker's Space
- Public Technology
- Circ. / Self-Check
- Staff / Support
- Storage / Misc.

LIBRARY EXISTING  
SPACE ALLOCATION



LIBRARY PROPOSED  
SPACE ALLOCATION





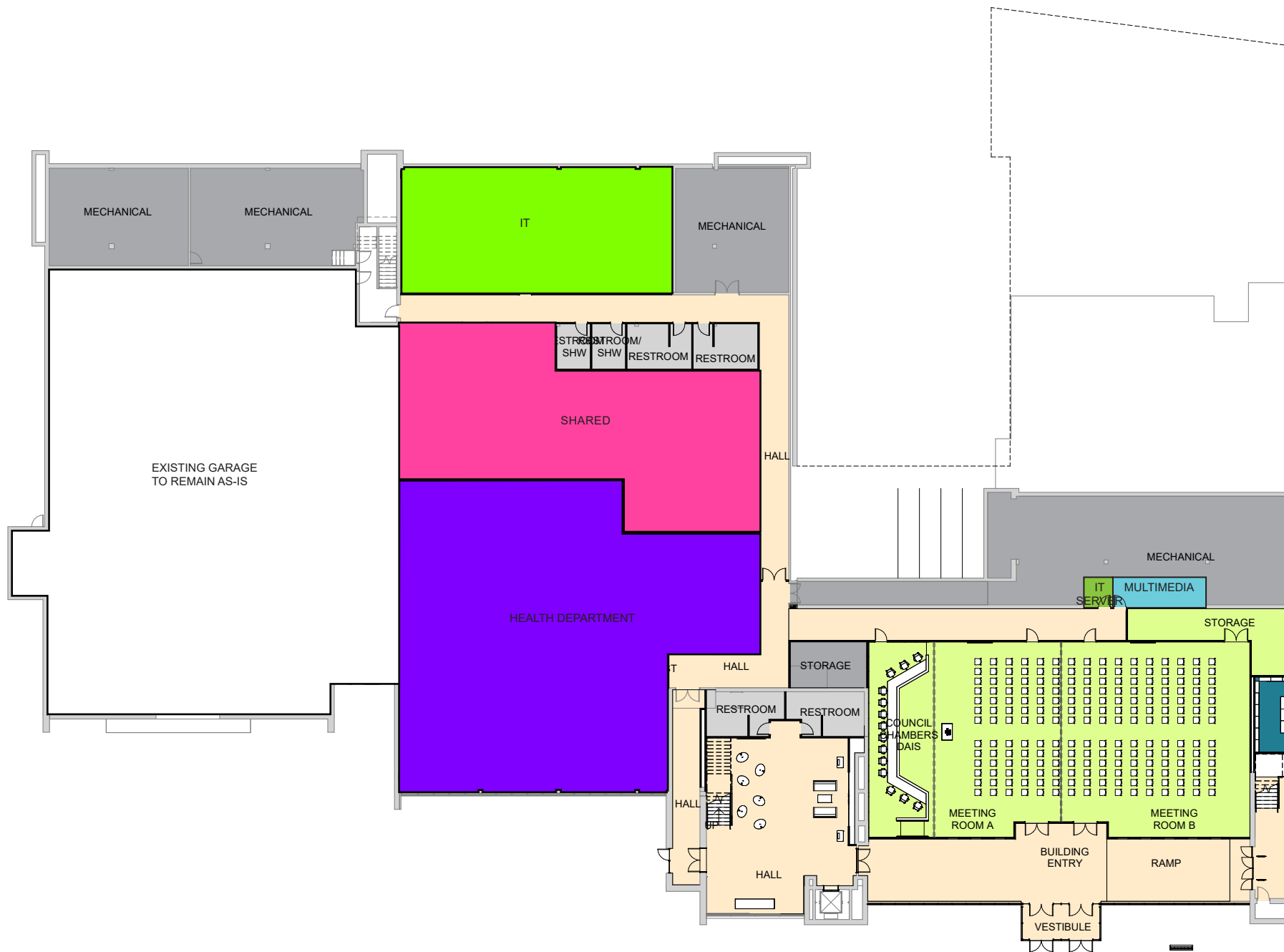


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## CONCEPTUAL DESIGN

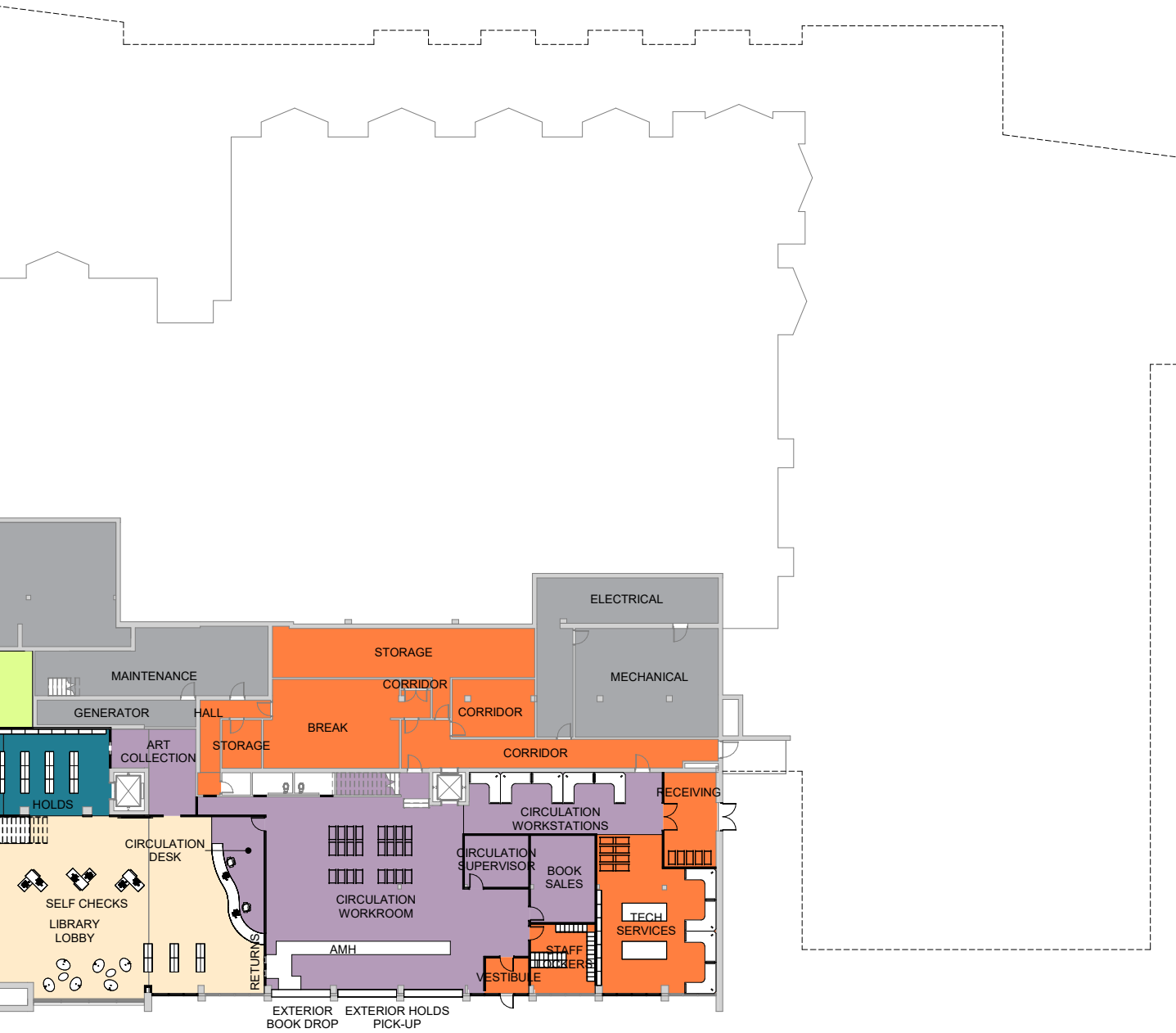
The conceptual design phase of this study consists of space planning followed by developing a preliminary design concept. The space planning essentially develops an organizing floor plan based on the programming outlined previously. This exercise again confirmed the City Hall space requirements can be met within the existing facility. The Library, on the other hand, requires expansion.

Based on conceptual space plans below, the City Hall components can all be accommodated within the constraints of the existing building. The Library's projected needs can be accommodated with a floor plan expansion totaling 37,795 SF, actually less than outlined in the programming phase.



# CONCEPTUAL DESIGN

## OVERALL LEVEL 1 SPACE PLAN



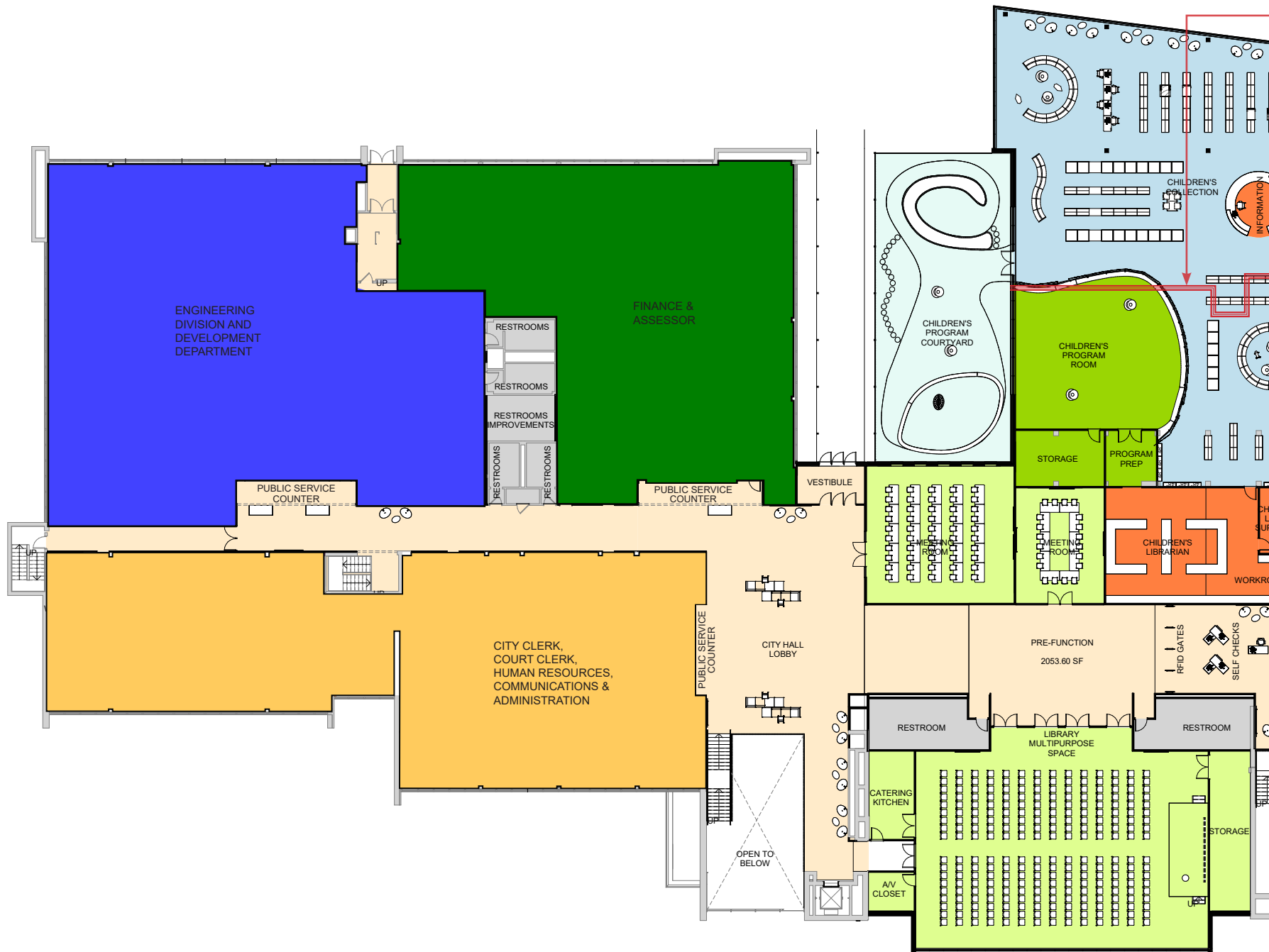
### LIBRARY

- Admin
- Adult Collection
- Circulation
- Circulation Department
- City Clinic
- Public Meeting
- Restroom
- Service Area
- Shared

### CITY HALL

- Health Department
- Shared
- IT
- Multimedia







# CONCEPTUAL DESIGN

NORTH ENTRANCE



# CONCEPTUAL DESIGN

LEARNING GARDEN



# CONCEPTUAL DESIGN

## SOUTH ENTRANCE





# CONCEPTUAL DESIGN

RETURN & HOLDS



# CONCEPTUAL DESIGN

CITY HALL LOBBY



# CONCEPTUAL DESIGN

## FIREFLY ROOM



# CONCEPTUAL DESIGN

## LIBRARY LOBBY



# CONCEPTUAL DESIGN

## READING ROOM



# CONCEPTUAL DESIGN

ADULT COLLECTION



# CONCEPTUAL DESIGN

MAKER'S SPACE



# CONCEPTUAL DESIGN

CHILDREN'S COLLECTION





# CONCEPTUAL DESIGN

CHILDREN'S PROGRAM ROOM





# OPINION OF PROBABLE COSTS

Wauwatosa City Hall and Library Study  
Wauwatosa, Wisconsin



OPN Architects Project No: 21638000

## OPINION OF PROBABLE COSTS

December 16, 2022

### Based on 2023 Probable Construction Costs

	QTY.	UNIT	Cost Range		Selective Demo	Remodel	New Addition	TOTAL
			Cost / SF	Cost / SF	Cost Range	Cost Range	Cost Range	Cost Range
<b>***CITY HALL ***</b>								
Selective Demolition	68,724	SF	\$15.75 -	\$21.00	\$1,082,403 to \$1,443,204	\$18,899,100 to \$22,678,920		\$19,981,503 to \$24,122,124
Remodel	68,724	SF	\$275.00 -	\$330.00				
New Addition	0	SF					N/A	
			<b>Total Cost / SF =</b>		<b>\$290.75</b>	<b>to</b>	<b>\$351.00</b>	
<b>***PUBLIC LIBRARY ***</b>								
Selective Demolition	49,268	SF	\$19.25 -	\$24.00	\$948,409 to \$1,182,432	\$13,548,700 to \$16,258,440		\$30,559,984 to \$36,149,397
Remodel	49,268 57%	SF	\$275.00 -	\$330.00			\$16,062,875 to \$18,708,525	
New Addition	37,795 43%	SF	\$425.00 -	\$495.00				
			<b>Total Cost / SF =</b>		<b>\$351.01</b>	<b>to</b>	<b>\$415.21</b>	
<b>***EXTERIOR IMPROVEMENTS ***</b>								
Selective Demolition*	16,293	SF	\$6.75 -	\$8.25	\$109,978 to \$134,417			\$362,519 to \$452,131
Remodel	0	SF					N/A	
New Exterior Improvements*	16,293	SF	\$15.50 -	\$19.50			\$252,542 to \$317,714	
			<b>Total Cost / SF =</b>		<b>\$22.25</b>	<b>to</b>	<b>\$27.75</b>	

\* Projected Exterior Improvement costs are split equally between City Hall and Public Library in probable cost projections outlined below

### FUTURE PROBABLE COST RANGE PROJECTIONS

	Area SF	2023	Annual % Increase	2024	2025	2026	2027
<b>CITY HALL COST RANGE**</b>	68,724	\$20,162,763 to \$24,348,189	4%	\$20,969,273 to \$25,322,117	\$21,808,044 to \$26,335,002	\$22,680,366 to \$27,388,402	\$23,587,580 to \$28,483,938
<b>PUBLIC LIBRARY COST RANGE**</b>	87,063	\$30,741,244 to \$36,375,462	4%	\$31,970,893 to \$37,830,481	\$33,249,729 to \$39,343,700	\$34,579,718 to \$40,917,448	\$35,962,907 to \$42,554,146
<b>COMBINED TOTAL COST RANGE**</b>	155,787	\$50,904,006 to \$60,723,652	4%	\$52,940,167 to \$63,152,598	\$55,057,773 to \$65,678,702	\$57,260,084 to \$68,305,850	\$59,550,487 to \$71,038,084

\*\* Costs do not include:  
Design Fees  
Legal Fees  
Moving Costs  
New Furniture, including Office and Library Shelving Costs  
New Computers and Audio/Video Equipment Costs  
New Automated Book Sorting System Costs  
Parking and Stormwater Management Improvements

The Opinion of Probable Costs represents a probable cost range for a specific time. Recent years have seen significant cost increases, both in construction materials and labor. CBRE, a global commercial real estates services company, projected 2022 construction cost increases to be 14.1%. However, they also project a stabilization for 2023 and 2024 in the range of 2% to 4% annual increases.

The Opinion of Probable Costs summary for this study outlines projections separately for the City Hall and for the Library. These costs for each begin with a 2023 projected cost range of approximately 20%. Projections are then outlined for the next four years, through 2027, with annual 4% cost increases.

Projected approximate costs for the City Hall range from just over \$20,000,000 (2023) to nearly \$28,500,000 (2027). For the Library, approximate costs range from \$30,750,000 (2023) to \$42,500,000 (2027).



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## APPENDICES


WAUWATOSA LIBRARY AND CITY HALL STUDY										
Wauwatosa, Wisconsin		OPN ARCHITECTS		June 6, 2022		Project Number: 21638000				
<b>DRAFT</b> <b>Program Summary</b>										
LIBRARY										
PROGRAMMED						EXISTING				
LIBRARY ADMINISTRATION	Program Space:	AREA 2nd Flr	AREA 1st Flr	Primary Relationship:	Secondary Relationship:	Notes:	AREA 2nd Flr	AREA 1st Flr	Total	Total
Peter Loeffel Library Director	Private office with 4 person conf. table	216		Administrative Staff	Shared staff conference room	closet requested	245			
Robert Trunley Assistant Library Director	Private office with two person conf. table	160		Administrative Staff		admin dpt easily visible to public but behind closed door (could be)	182			
Administrative Assistant	Semi-private work station with reception counter	160		Administrative Staff		Existing "Secretary 228"	182			
Board Room	Capacity 16 (Public Conference Room)	450		Administrative Staff		Cabinet Storage, Technology	425			
Future Marketing Specialist		120		Administrative Staff						
Administrative Staff Office		320		Administrative Staff		Existing "Office 221"	96			
Administrative Work Room	5 workstations x 64	320		Administrative Staff			579			
Restrooms	2 single use accessible restrooms, 80 SF each	160		Administrative Staff		Incl. Janitor Closet and Wash Room	379			
Coat Closet		25		Administrative Staff			23			
Storage		200		Administrative Staff						
Print and Copy Area		60		Administrative Staff	Adult Library staff	networked multifunction printer				
Net Assignable Area:		2,191	0	NSF	% of Total NSF:		2,111	0		
Net Assignable Area x 1.12 = Net Occupiable Area:		2,454	0	NSF Net Occupiable Area						
ADULT LIBRARY ADMIN										
ADULT LIBRARY ADMIN	Program Space:	AREA 2nd Flr	AREA 1st Flr	Primary Relationship:	Secondary Relationship:	Notes:	AREA 2nd Flr	AREA 1st Flr	Total	Total
Shellee Anderson Adult Library Supervisor	Private office with 2 person conf. table	160		Adult library staff	Information desk, print and copy area	storage, room for carts	95			
Full Time Adult Librarian	Semi-private work station	64		Adult library staff	Information desk, print and copy area	storage, room for carts	400			
Full Time Adult Librarian	Semi-private work station	64		Adult library staff	Information desk, print and copy area	storage, room for carts				
Future Full Time Adult Librarian	Semi-private work station	64		Adult library staff	Information desk, print and copy area	storage, room for carts				
Part Time Librarians: 3	Semi-private work stations - shared	64		Adult library staff	Information desk, print and copy area	Hotelling at shared workstation: 1				
Volunteers	Small desk - shared	64		Adult library staff	Information desk, print and copy area	Hotelling: 1 volunteer at a time				
Volunteers / staff hotelling	Small portable desk - shared	64		Patron Computer Area		can also be used by librarians, movable				
Adult Library information desk	2-person workstation with reception counter	128		Adult library entrance with back wall shelving/cabinets	Adult library staff area, patron computer area	two librarians at all times				
Storage	Large room with shelving	300		Adult library staff area		space for large items as well as shelving needed	253			
Collaborative Workspace	2-4 person table	120		Adult library staff area						
Project Room	6 - 8 person	320		Adult library staff area						
Print and Copy Area	can be shared with other dpts if close	80								
Net Assignable Area:		1,492	0	NSF	% of Total NSF:		748	0		
Net Assignable Area x 1.12 = Net Occupiable Area:		1,671	0	NSF Net Occupiable Area						
CIRCULATION STAFF SHARED STAFF SPACES										
CIRCULATION STAFF SHARED STAFF SPACES	Program Space:	AREA 2nd Flr	AREA 1st Flr	Primary Relationship:	Secondary Relationship:	Notes:	AREA 2nd Flr	AREA 1st Flr	Total	Total
Staff Break Room	kitchenette, seating		600			current SF				608
Staff New Mothers Room			100							0
Staff Wellness Room			100							0
Staff Lockers	30 lockers with, boot storage		60	Shared Coat rack						50
General Storage			500							920
Receiving Room			200	Loading Dock	Technical Services, Circulation	Recycling bins				
Staff Restrooms (total)	2 single use accessible restrooms, 80 SF each		160							126
Net Assignable Area:										
Net Assignable Area x 1.12 = Net Occupiable Area:										

WAUWATOSA LIBRARY AND CITY HALL STUDY										
Wauwatosa, Wisconsin		OPN ARCHITECTS		June 6, 2022		Project Number: 21638000				
<b>DRAFT</b> <b>Program Summary</b>										
LIBRARY										
PROGRAMMED						EXISTING				
CHILDRENS LIBRARY ADMIN	Program Space:	AREA 2nd Flr	AREA 1st Flr	Primary Relationship:	Secondary Relationship:	Notes:	AREA 2nd Flr	AREA 1st Flr	Total	Total
Anne Kissinger Childrens Library Supervisor	Semi-private work station	180		Children's library staff			153			
Full Time Childrens Librarian	Semi-private work station	120		Children's library staff		storage space	310			
Full Time Childrens Librarian	Semi-private work station	120		Children's library staff		storage space				
Full Time Childrens Librarian	Semi-private work station	120		Children's library staff		storage space				
Future full Time Childrens Librarian	Semi-private work station	120		Children's library staff		storage space				
Childrens library information desk	2-person workstation with reception counter	180		Children's Library entrance	Children's library staff area	(space included in Childrens Library)	0			
Staff Print and Copy Area	can be shared with other dpts if close	80					98			
Large Workroom	storage, large worktop; can be part of open	192		Children's library staff area		Collaborative work / prep area	0			
Collaborative Workspace	2-4 person table, enclosed for meetings	215		Children's library staff area			0			
Net Assignable Area:		1,327	0	NSF	% of Total NSF:		561	0		
Net Assignable Area x 1.12 = Net Occupiable Area:		1,486	0	NSF Net Occupiable Area						
TECHNICAL SERVICES DEPARTMENT										
TECHNICAL SERVICES DEPARTMENT	Program Space:	AREA 2nd Flr	AREA 1st Flr	Primary Relationship:	Secondary Relationship:	Notes:	AREA 2nd Flr	AREA 1st Flr	Total	Total
Full Time Technical Services Librarian	Open office work station		64	Technical services	Circulation	storage, room for carts				375
Full Time Technical Services Librarian	Open office work station		64	Technical services	Circulation	storage, room for carts				
Technical Services Clerk	Open office work station		64	Adjacent to technical services librarians	Receiving room	large work surface for processing materials,				
Periodicals Clerk	Workstation with extra work surface		64	Technical services or Circulation	Receiving room	space for carts; could be shared workstation				
Shared Workspace	Open office work station		1,000	Technical services	Receiving room	shared workstation, space for carts				916
Storage	shelving plus box area		250	Technical services	Receiving room	current amount of shelving adequate, need box staging area,				120
Net Assignable Area:		0	1,506	NSF	% of Total NSF:		0	1,411		
Net Assignable Area x 1.12 = Net Occupiable Area:		0	1,687	NSF Net Occupiable Area						
CIRCULATION STAFF SHARED STAFF SPACES										
CIRCULATION STAFF SHARED STAFF SPACES	Program Space:	AREA 2nd Flr	AREA 1st Flr	Primary Relationship:	Secondary Relationship:	Notes:	AREA 2nd Flr	AREA 1st Flr	Total	Total
Staff Break Room	kitchenette, seating		600			current SF				608
Staff New Mothers Room			100							0
Staff Wellness Room			100							0
Staff Lockers	30 lockers with, boot storage		60	Shared Coat rack						50
General Storage			500							920
Receiving Room			200	Loading Dock	Technical Services, Circulation	Recycling bins				
Staff Restrooms (total)	2 single use accessible restrooms, 80 SF each		160							126
Net Assignable Area:										
Net Assignable Area x 1.12 = Net Occupiable Area:										

# APPENDIX A

## LIBRARY PROGRAM

WAUWATOSA LIBRARY AND CITY HALL STUDY									
Wauwatosa, Wisconsin		OPN ARCHITECTS		June 6, 2022		Project Number: 21638000			
 <b>DRAFT</b> <b>Program Summary</b>									
<b>LIBRARY</b>									
Net Assignable Area:		0	1,720	NSF	% of Total NSF:		0	1,704	
Net Assignable Area x 1.12 = Net Occupiable Area:		0	1,926	NSF	NSF Net Occupiable Area				
<b>PROGRAMMED</b>					<b>EXISTING</b>				
CIRCULATION DEPARTMENT	Program Space:	AREA 2nd Flr	AREA 1st Flr	Primary Relationship:	Secondary Relationship:	Notes:	AREA 2nd Flr	AREA 1st Flr	
Alanna Maddox Circulation Supervisor	Private office with two chairs across desk		148	Circulation		Cabinets		148	
Circulation Attendants	Open office work station 64x4		256	Circulation		hotelling: 3 with PC, one without		468	
Shelvers	open office work station 64x4		256	Circulation		hotelling: 2 with PC, 2 without, in circ workroom			
Processing workstation-shared	Open office work station		64	Circulation		in circ workroom; counter space			
Book Sale - prep and storage	Closed Room		300	Circulation		in circ workroom; shelves, cart space			
Circulation Workroom	room would include workstations above; SF is additional		2,500	Circulation	Receiving Room	space for bins, carts, RFID sorter; more space than current. Would like glass out to		1,139	
Staff Kiosks	Kiosks 48x3+ 1 for Cash Register		192						
Self Check Stations	Self Check 48x4		192						
Net Assignable Area:		0	3,908	NSF	% of Total NSF:		0	1,755	
Net Assignable Area x 1.12 = Net Occupiable Area:		0	4,377	NSF	NSF Net Occupiable Area				
<b>PROGRAMMED</b>					<b>EXISTING</b>				
COMMUNITY SPACES	Program Space:	AREA 2nd Flr	AREA 1st Flr	Primary Relationship:	Secondary Relationship:	Notes:	AREA 2nd Flr	AREA 1st Flr	
Student Commons	coffee, vending, cafe tables	2,000		Young Adults		SF based on existing commons	1,050		
Coworking Space	docking stations, 16x64	1,000				Dispersed throughout library or concentrated location?	0	0	
Community Meeting Space	2 Classrooms 1000 SF each	2,000		2 32 person classroom		Capacity 65-140, Existing Firefly Room		1,823	
Large Auditorium Space	flexible open space, sub dividable, shared with city hall	2,500				Capacity 160 - 350, possible retractable seating		0	
Catering Kitchen		333				proportions based on Waunakee PL; total combined SF		0	
Auditorium Storage	table / chair storage	700				proportions based on Waunakee PL; total combined SF		175	
A/V Closet		60				proportions based on Waunakee PL; total combined SF		0	
Net Assignable Area:		8,593	0	NSF	% of Total NSF:		1,050	1,998	
Net Assignable Area x 1.12 = Net Occupiable Area:		9,624	0	NSF	NSF Net Occupiable Area				
<b>PROGRAMMED</b>					<b>EXISTING</b>				
STUDY / CONFERENCE	Program Space:	AREA 2nd Flr	AREA 1st Flr	Primary Relationship:	Secondary Relationship:	Notes:	AREA 2nd Flr	AREA 1st Flr	
Conference Room	2- 250 SF Conference Rooms (capacity 16)	1,000		Adult Collection		Existing Conf. Rm 205	220		
Unconference Room	2 - 200 SF Unconference Rooms (capacity 12)	550		Adult Collection			0		
Childrens Lib. 1-2P Study	x 4 @ 80 SF each	320		Childrens Collection			0		

WAUWATOSA LIBRARY AND CITY HALL STUDY									
Wauwatosa, Wisconsin		OPN ARCHITECTS		June 6, 2022		Project Number: 21638000			
 <b>DRAFT</b> <b>Program Summary</b>									
<b>LIBRARY</b>									
Net Assignable Area:		0	1,720	NSF	% of Total NSF:		0	1,704	
Net Assignable Area x 1.12 = Net Occupiable Area:		0	1,926	NSF	NSF Net Occupiable Area				
<b>PROGRAMMED</b>					<b>EXISTING</b>				
CHILDRENS PROGRAM ROOM	Program Space:	AREA 2nd Flr	AREA 1st Flr	Primary Relationship:	Secondary Relationship:	Notes:	AREA 2nd Flr	AREA 1st Flr	
Childrens Program Space	Space for 100 kids	1,500		Childrens Collection, Childrens Admin	Library Entry			958	
Childrens Program Storage		400		Childrens Collection, Childrens Admin		Childrens Program Space		162	
Childrens Program Prep Room	large worktop	320		Childrens Collection, Childrens Admin		Storage, prep area, AV equipment and controls		164	
Net Assignable Area:		3,190	0	NSF	% of Total NSF:		653	0	
Net Assignable Area x 1.12 = Net Occupiable Area:		3,573	0	NSF	NSF Net Occupiable Area				
<b>PROGRAMMED</b>					<b>EXISTING</b>				
ART GALLERY	Program Space:	AREA 2nd Flr	AREA 1st Flr	Primary Relationship:	Secondary Relationship:	Notes:	AREA 2nd Flr	AREA 1st Flr	
Art Gallery	Enclosed - secure	500				2nd floor lobby, lower level Circulation	700	400	
Net Assignable Area:		500	0	NSF	% of Total NSF:		700	400	
Net Assignable Area x 1.12 = Net Occupiable Area:		560	0	NSF	NSF Net Occupiable Area				
<b>PROGRAMMED</b>					<b>EXISTING</b>				
ADULT COLLECTION	Program Space:	AREA 2nd Flr	AREA 1st Flr	Primary Relationship:	Secondary Relationship:	Notes:	AREA 2nd Flr	AREA 1st Flr	
Adult Collection	See Collections Worksheet	21,384				area depends on shelving height and density	3,600		
Media	See Collections Worksheet	4,114				area depends on shelving height and density	5,500		
Local History	See Collections Worksheet	338				area depends on shelving height and density	350		
Holds	See Collections Worksheet	1,220				current Veido & DVD 235	574		
Art		250				area depends on shelving height and density			
Quiet Reading Area							150		
							500		
						current total SF	600		
						current total SF	3,000		
Net Assignable Area:		2,220	0	NSF	% of Total NSF:		1,284	0	
Net Assignable Area x 1.12 = Net Occupiable Area:		2,486	0	NSF	NSF Net Occupiable Area				
<b>PROGRAMMED</b>					<b>EXISTING</b>				
<b>ADULT COLLECTION</b>									
ADULT COLLECTION	Program Space:	AREA 2nd Flr	AREA 1st Flr	Primary Relationship:	Secondary Relationship:	Notes:	AREA 2nd Flr	AREA 1st Flr	
Adult Collection	See Collections Worksheet	21,384				area depends on shelving height and density	3,600		
Media	See Collections Worksheet	4,114				area depends on shelving height and density	5,500		
Local History	See Collections Worksheet	338				area depends on shelving height and density	350		
Holds	See Collections Worksheet	1,220				current Veido & DVD 235	574		
Art		250				area depends on shelving height and density			
Quiet Reading Area							150		
							500		
						current total SF	600		
						current total SF	3,000		
Net Assignable Area:		2,220	0	NSF	% of Total NSF:		1,284	0	
Net Assignable Area x 1.12 = Net Occupiable Area:		2,486	0	NSF	NSF Net Occupiable Area				
<b>PROGRAMMED</b>					<b>EXISTING</b>				

# APPENDIX A

## LIBRARY PROGRAM

WAWWATOSA LIBRARY AND CITY HALL STUDY									
Wauwatosa, Wisconsin		OPN ARCHITECTS		DRAFT		June 6, 2022		Project Number: 21638000	
Program Summary									
<b>LIBRARY</b>									
Net Occupiable Area:		27,306	0	NSF		% of Total NSF:		14,274	0
NSF Net Occupiable Area									
<b>PROGRAMMED</b>					<b>EXISTING</b>				
YOUNG ADULT COLLECTION	Program Space:	AREA 2nd Flr	AREA 1st Flr	Primary Relationship:	Secondary Relationship:	Notes:	AREA 2nd Flr	AREA 1st Flr	
Young Adult collection	See Collections Worksheet	859		630 LF	area depends on shelving height and density	current LF of shelving	0		
Variety of Seating Spaces				young adult collection	public technology / adult coworking space	SF includes storage			
Net Occupiable Area:		859	0	NSF		% of Total NSF:		0	0
NSF Net Occupiable Area									
<b>PROGRAMMED</b>					<b>EXISTING</b>				
CHILDRENS COLLECTION	Program Space:	AREA 2nd Flr	AREA 1st Flr	Primary Relationship:	Secondary Relationship:	Notes:	AREA 2nd Flr	AREA 1st Flr	
Childrens Collection	See Collections Worksheet	12,169		Children's library staff area		Collaborative work / prep area	6,000		
(see Childrens Program Space Outline above)									
Quiet Reading Area									
Net Occupiable Area:		12,169	0	NSF		% of Total NSF:		6,000	0
NSF Net Occupiable Area									
<b>PROGRAMMED</b>					<b>EXISTING</b>				
PUBLIC TECHNOLOGY	Program Space:	AREA 2nd Flr	AREA 1st Flr	Primary Relationship:	Secondary Relationship:	Notes:	AREA 2nd Flr	AREA 1st Flr	
Public Computers	20x50	1,000							
Business Center	computers, tables and chairs, reference books	400							
Public Copy Center		150							
Maker Sapce		500		For children and young adults					
Net Assignable Area:		2,050	0	NSF		% of Total NSF:		0	0
NSF Net Occupiable Area									
Net Assignable Area x 1.12 = Net Occupiable Area:		2,296	0	NSF Net Occupiable Area					
<b>PROGRAMMED</b>					<b>EXISTING</b>				
MISC SPACES	Program Space:	AREA 2nd Flr	AREA 1st Flr	Primary Relationship:	Secondary Relationship:	Notes:	AREA 2nd Flr	AREA 1st Flr	
Second Floor Lobby				Administrative Staff, particularly assistant	Adult Library staff	networked multifunction printer	695		
First Floor Stair/Circulation Lobby			1,700			current SF		1,686	
Mechanical			2,000			current SF		1,450	
Public Restrooms		400	400				340	360	
Net Assignable Area:		400	4,100	NSF		% of Total NSF:		1,035	3,496
NSF Net Occupiable Area									
Net Assignable Area x 1.12 = Net Occupiable Area:		448	4,592	NSF Net Occupiable Area					
AREA SUMMARY		AREA 2nd Flr	AREA 1st Flr	Notes:		AREA 2nd Flr	AREA 1st Flr		
Second Floor Program Areas:		64,933		NSF Net Occupiable Area		Existing Assigned NSF:		28,416	
Gross Factor: 20%		77,919		GSF					

WAWWATOSA LIBRARY AND CITY HALL STUDY									
Wauwatosa, Wisconsin		OPN ARCHITECTS		DRAFT		June 6, 2022		Project Number: 21638000	
Program Summary									
<b>LIBRARY</b>									
Gross Factor: 30%		84,412		GSF		Existing GSF:		36,294	
First Floor Program Areas:		12,582		NSF Net Occupiable Area		Existing Assigned NSF:		10,764	
Gross Factor: 20%		15,098		GSF					
Gross Factor: 30%		16,357		GSF		Existing GSF:		12,974	
<b>TOTAL LIBRARY PROGRAMMED SPACE NEEDS (Range):</b>		<b>93,018 to 100,769</b>		<b>GSF</b>		<b>EXISTING TOTAL LIBRARY GSF:</b>		<b>49,268</b>	





**Wauwatosa City Hall, Civic Center & Library**

**FIRE SUPPRESSION SYSTEMS**

No part of the building has a fire suppression system. Adding a fire suppression system for the building should be considered as it will provide for better safety for building occupants and more flexibility for future construction projects. The existing 6" water service located in Lower Level Mechanical Room #3 is likely sufficient to support a fire suppression system without requiring a new water service to be brought to the building.

**PLUMBING SYSTEMS**

The building is served by a 6" water service and meter located in Lower Level Mechanical Room #3. From there a 4" main distributes water to the building.

Almost all of the existing distribution piping is galvanized steel and original to the building or addition when it was installed, including the 1992 addition. The piping in the older parts of the building is starting to leak. The parking garage includes a hose connection, but no backflow prevention device, so under the right conditions, this could result in a possible contamination of the domestic water system.

Waste and vent piping in the City Hall and Civic Center is mostly cast iron while piping in the library addition is PVC. The parking garage included drains but catch basins were not observed, meaning sand, dirt, and other debris could potentially clog below slab piping. There are two kitchen areas in the Civic Center that have cooking appliances, but no grease interceptor. Additional information on the type and frequency of cooking would help to determine if a grease interceptor is needed.

The water heater (WH-1) is located in Boiler Room #1 and provides domestic hot water to the entire building. A small pump circulates hot water throughout the building to provide quick response of hot water at fixtures. The building does not include a water softener for either hot or cold water, but one should be considered on the hot water system to extend the life of the water heater and to reduce maintenance on the water heater.

Most plumbing fixtures in the original portions of the building have been replaced at some point. The plumbing fixtures throughout all parts of the building are inconsistent with no building standard established. Restroom fixtures include manual or automatic actuation, urinals and water closets are wall or floor-mounted, and lavatories are wall-hung or drop-in bowls.

DESCRIPTION	AREA SERVED	CONDITION	AGE	COMMENTS
Supply Piping	City Hall and Civic Center	Poor	1955-1970	Issues with leaks
Supply Piping	Library	Fair	1992	Issues with leaking likely in future
Waste/Vent Piping	City Hall and Civic Center	Fair	1955-1970	Mostly cast iron
Waste/Vent Piping	Library	Fair to Good	1992	Mostly PVC
Water Heater #1	All	Fair	2006	Gas, 76-gallon, 199,900 Btu/hr, 193.8 gal/hr recovery
Hot Water Circulation Pump	All	Fair	--	Motor recently replaced

Plumbing Fixtures	All	Fair	--	Inconsistent fixture types throughout
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*Domestic Water Service and Meter*

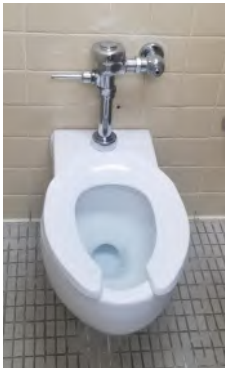
APPENDIX B  
CONDITIONS ASSESSMENT  
BY DESIGN ENGINEERS



*Building Water Heater and Circulating Pump*



*Examples of Restroom Urinals*



*Examples of Restroom Water Closets*



Examples of Restroom Lavatories

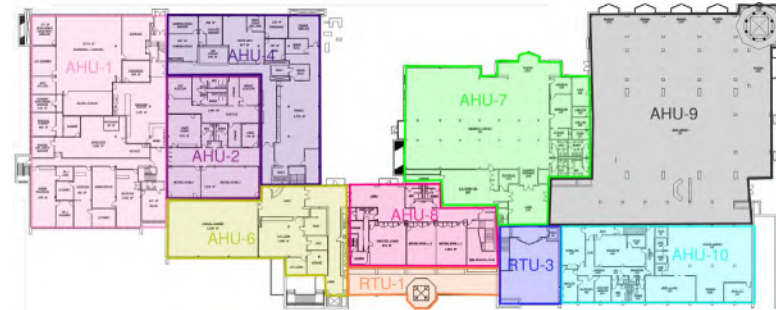
## HVAC SYSTEMS

### Air Handling Systems

The majority of the building is heated and cooled by ten indoor air handling units (AHUs) and three rooftop units (RTUs). The approximate areas served by each of the AHUs and RTUs is as shown in the following figures.



Areas of Building Served by Air Handling Equipment – Lower Level



Areas of Building Served by Air Handling Equipment – Upper Level

All outdoor air is brought in directly to the AHUs and RTUs with no energy recovery equipment. Outdoor air is mixed with return air at the AHUs and RTUs. Chilled water cooling coils within the AHUs and DX coils in the RTUs cool and dehumidifies outdoor air in warmer months. In cooler months, space heating for areas served by AHUs occurs at the reheat coils serving each zone as none of the AHUs has the ability to heat air. Space heating for areas served by RTUs occurs at gas burners within the RTUs.

Exhaust air is removed from the building through many exhaust fans located on the roof serving various spaces throughout the building. Most exhaust fans appear to be original to the portion of the building where they are located.

AHU-1 is located in Mechanical Room #1 and is original to the 1969 addition and includes a supply fan and chilled water coil. A duct-mounted return fan brings air back to the unit. The unit is variable volume and supplies air to a series of variable air volume (VAV) boxes with hot water reheat coils for conditioning of individual zones and spaces also include perimeter hot water fin tube.

AHU-2 is located in Mechanical Room #2 and is original to the 1955 building and includes a fan and chilled water and duct-mounted hot water coil (hot water coil is disconnected). The unit is variable volume and supplies air to a series of variable air volume (VAV) boxes with hot water reheat coils.

AHU-3 and AHU-4 are located in Mechanical Room #3 and are both original to the 1955 building. Both units include a chilled water coil and hot water coil (hot water coil is disconnected). Both units are variable volume and supply air to a series of variable air volume (VAV) boxes with hot water reheat coils and spaces also include perimeter hot water fin tube.

AHU-5 is a small, vertical unit located in Mechanical Room #4 and is original to the 1955 building. The unit includes a chilled water coil and supplies air to a series of variable air volume (VAV) boxes with hot water reheat coils and spaces also include perimeter hot water fin tube. It was noted that this unit is short on airflow which results in an inability to adequately condition the spaces it serves.

AHU-6 is located in a mezzanine above the Vault room near the center of the building. The unit is original to the 1955 building, includes a chilled water coil, and supplies air to a series of variable air volume (VAV) boxes with hot water reheat coils. Spaces also include perimeter hot water fin tube

AHU-7, AHU-8, and AHU-9 are located in Mechanical Room #6 and are original to the 1992 addition. Each unit includes a chilled water coil. AHU-7 and AHU-9 supply air to a series of variable air volume (VAV) boxes with hot water reheat coils. Much of the supply air for AHU-9 is routed through tunnels

# APPENDIX B

## CONDITIONS ASSESSMENT BY DESIGN ENGINEERS

under the floor. AHU-8 is a constant volume unit that supplies air to duct-mounted hot water reheat coils and the associated spaces also include perimeter hot water fin tube. Converting AHU-8 unit to variable volume would result in significant energy savings.

AHU-10 is located in Mechanical Room #7 and is original to the 1992 addition. The unit includes a chilled water coil and a duct-mounted return fan brings air back to the unit. The unit is constant volume and supplies air to duct-mounted hot water reheat coils and the associated spaces also include perimeter hot water fin tube. Converting this unit to variable volume would result in significant energy savings.

RTU-1, RTU-2, and RTU-3 are located on the roof above the main entry areas and are single zone units. RTU-1 and RTU-2 were replaced about 10 years ago, but RTU-3 appears to be older. Each RTU include a DX cooling coil and gas burner.

The IT server room is cooled by a ductless split unit that appeared to be adequately sized for the load. The condensing unit for the ductless split system is located in the parking garage. Two additional server racks are located in an IT equipment room, had no dedicated cooling, and the room was warm during our visit. Moving these racks into the IT server room or adding dedicated cooling at their current location would be something to consider. Additionally, there is a Cable Room near the center of City Hall on the Upper Level that has IT equipment in it but does not have airflow. Adding cooling to this room should be considered.

The Civic Center includes two kitchen areas with ranges and ovens. Additional information on the type and frequency of cooking would help to determine if a Type I Grease Hood and fan are needed.

The indoor parking garage on the west side of the Lower Level is heated by a make-up air unit, MAU-1, located in Mechanical Room #1 and is original to the 1969 addition. The unit includes a fan and hot water coil. MAU-2 is located in Boiler Room #2 and is no longer in service and could be removed.

An inline exhaust fan, EF-2, is located in the parking garage to provide code required exhaust from the parking garage. The fan is constant volume with make-up air provided by MAU-1, which is also constant volume. Energy savings could be realized by converting this equipment to variable volume to reduce the amount of airflow (and the associated energy to heat that air) except when sensors detect vehicle exhaust contaminants in the air.

An inline exhaust fan provides ventilation for Electrical Room 106 that serves the library.

DESCRIPTION	AREA SERVED	CONDITION	AGE	COMMENTS
Air Handling Unit AHU-1	City Hall, Upper Level West	Poor	1969	Original, due for replacement
Air Handling Unit AHU-2	City Hall, Upper Level Center	Poor	1955	Original, due for replacement
Air Handling Unit AHU-3	City Hall, Lower Level Center	Poor	1955	Original, due for replacement
Air Handling Unit AHU-4	City Hall, Upper Level East	Poor	1955	Original, due for replacement
Air Handling Unit AHU-5	City Hall, Lower Level South	Poor	1955	Original, due for replacement, vertical orientation, lacks airflow
Air Handling Unit AHU-6	City Hall, Upper Level South	Poor to Fair	1955	Original, due for replacement, poor access so will be difficult to replace

Air Handling Unit AHU-7	Children's Library	Fair	1992	Original
Air Handling Unit AHU-8	Civic Center, Lower and Upper Levels	Fair	1992	Original, constant volume
Air Handling Unit AHU-9	Main Library	Fair	1992	Original
Air Handling Unit AHU-10	Library, SE Corner of Lower and Upper Levels	Fair	1992	Original, constant volume
Rooftop Unit RTU-1	City Hall Main Entry	Fair to Poor	2011	Replacement needed with 5 years
Rooftop Unit RTU-2	Civic Center and Library Main Entry	Fair to Poor	2011	Replacement needed with 5 years
Rooftop Unit RTU-3	Library Circulation Desk	Poor	1992?	Due for replacement
Ductless Split	City Hall, Lower Level IT Server Room	Good	--	Appears to be fairly new
Make-up Air Unit MAU-1	City Hall, Lower Level Parking Garage	Poor	1969	Original, constant volume, due for replacement and change to variable volume
Exhaust Fan EF-2	City Hall, Lower Level Parking Garage	Poor	1969	Original, constant volume, due for replacement and change to variable volume
Exhaust Fans	Various	Poor to Fair	1955-1992	Original to the area of the building where they are located, most are due for replacement



AHU-1 and associated return fan



MAU-1 and EF-2 serving parking garage.



AHU-3



AHU-4



AHU-5

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AHU-6



AHU-7 (AHU-8 and AHU-9 similar)



RTU-1 (RTU-2 and RTU-3 similar)



Roof-mounted exhaust fans amongst photovoltaic panels

### Hydronic Systems

The building utilizes two hydronic systems for heating and cooling: chilled water and heating hot water.

The heating water system utilizes three gas-fired boilers as the source for heating the water. The boilers and pumps are located in Boiler Room #1. The room includes an emergency boiler shutoff switch outside the room and there is only one exit from the room where current code would require two exits due to the size of the boilers. The heating water system supply temperature resets between 140 and 180 deg F, based on outside air temperature. The system does not contain any glycol.

Boiler B-1 is no longer operational and has been abandoned. Boiler B-2 is the largest boiler and is a newer cast iron boiler. Boiler B-3 appears to be original and is about half of the size of B-2. Each boiler has an associated primary inline pump (P-6 for B-1, P-7 for B-2, and P-8 for B-3). One of the boilers and pumps was noted to be on backup power so some heating is to the building available on loss of primary power. This allows the building to operate as an emergency operation center, if needed. No cooling is on backup power.

Pumps P-9 and P-10 are redundant secondary distribution pumps for the heating water system to all reheat coils. Pump P-11 serves a tertiary loop that distributes heating water to all perimeter fin tube. All three heating water pumps have VFDs to allow them to vary to flow to meet demand. Having separate distribution loops allows for separate control and temperatures serving the different equipment. Additional smaller inline pumps off of the tertiary loop are located throughout the building and are used to help water flow to end equipment.

Some additional efficiencies could be realized by changing the heating water system setup. When boiler B-3 needs to be replaced, it could be replaced with a condensing boiler and the controls could be set up to provide lower temperature water at low load conditions.

The chilled water system consists of a chiller and cooling tower as the source for chilled water. The chiller is located in Boiler Room #1. The chiller includes a refrigerant leak detection sensor and alarm as required by code at the time, but current code would require additional safeties that would need to be included with any chiller replacement. The chilled water supply temperature resets between 43 and 52 deg F, based on outside air relative humidity.

The cooling tower is located on the roof. The cooling tower had a new VFD installed in 2021 and some piping on the roof has been replaced in the past. Redundant condenser water pumps (P-18 and P-19) are located in Boiler Room #1. A chemical treatment system is also located in this room.

The chilled water pumps (P-16 and P-17) are constant volume and each chilled water coil at the AHUs has 3-way control valves.

The chiller will need to be replaced within the next few years and consideration should be given to adding some redundancy when replacing chiller. For example, installing chillers sized at 50% of the load would allow for chilled water to be available if there was an issue with one of the chillers. Additional energy savings could be realized by converting the chilled water system from constant volume to variable volume.

To take efficiency even further, it was noted that IBC Engineering is currently conducting a study to evaluate utilizing geothermal as a source to replace the boilers and cooling tower, so consideration should be given to the results of that study before determining how to move forward.

There is also an old and abandoned chilled water and boiler plants located in Boiler Room #2. This equipment appears to be original to the 1955 construction and consists of boilers, a chiller, and pumps. Three of the smaller base-mounted pumps appears to still be operational and are constant volume and may have been repurposed as pumps for circulation of heating water at the end of the loop, however, it is unknown what these serve. All abandoned equipment can be removed and this space utilized for other purposes in the future.

DESCRIPTION	AREA SERVED	CONDITION	AGE	COMMENTS
Boiler B-1	All	Poor	1970?	No longer operational
Boiler B-2	All	Good	2014	Cast iron, 3,428,000 Btu/h input, 83% efficient

Boiler B-3	All	Poor to Fair	1955	Flex-tube, 1,500,000 Btu/h input, 80% efficient
Hot Water Pumps P-9 & P-10	Reheat Coils	Fair	1992	Variable volume, 7.5 HP, base-mounted, motors have been replaced
Hot Water Pump P-11	Perimeter Heat	Fair	1992	Variable volume, inline
Chiller	All	Poor	2002	Very loud, needs to be replaced, but waiting for a major remodel
Cooling Tower	Chiller	Fair	2002	VFD for fan recently replaced
Chilled Water Pumps, P-16 & P-17	All	Poor to Fair	2002	Constant volume, 15 HP
Condenser Water Pumps, P-18 & P-19	Cooling Tower & Chiller	Poor to Fair	2002	20 HP, loud



Boilers (left-to-right: B-1, B-2, & B-3)



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*Pumps (Left: P-9 & P-10; Right: P-16, P-17, P-18, & P-19)*



*Chiller*



*Cooling Tower*



*Three pumps in Boiler Room #2 that appear to still be in use.*

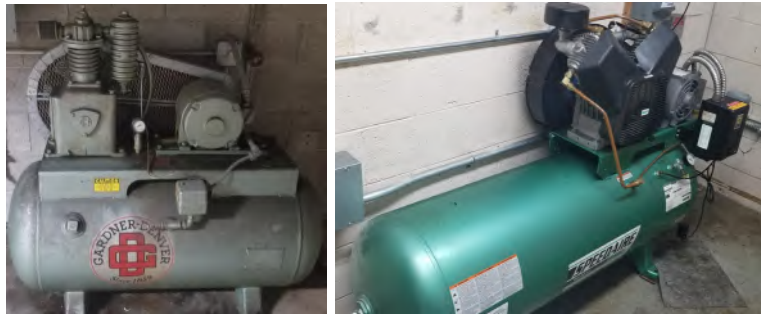
### Building Automation System

The HVAC controls throughout the building are a mix of DDC and pneumatic. In general, central equipment, such as air handling units and hydronic equipment, are all DDC controls and terminal equipment, such as VAVs and heaters, are pneumatic. Some terminal units are being converted to DDC as opportunities arise and it was noted that the VAVs associated with AHU-3 were in the process of being converted to DDC. Many places where DDC wiring was observed, it was not routed in conduit and junction boxes.

Andover (Schneider Electric) Controls are used for the DDC system and ICC is the vendor. Air compressors for the pneumatic controls are located in Mechanical Room #3 (in poor condition and due for

replacement) and the Equipment Room off of Mechanical Room #4 (recently replaced and in good condition). An older air compressor is located near the new air compressor and is not operational and appears to have been abandoned in place.

It is recommended that the conversion from pneumatic to DDC continues, especially as renovations occur in the building, with a goal of eventually phasing out all pneumatics in the building. The operational efficiency of DDC control over pneumatics will save energy and help offset the cost of the conversion over time.



Air compressors for pneumatic controls

**ELECTRICAL POWER SYSTEMS**

Service Entrance/Distribution/Branch Panel Equipment

The facility is comprised of multiple renovations and additions from the mid 1950's to the early 1990's. The facility is comprised of City Hall, Civic Center, and Library.

Currently, the main facility service is brought into the east end of facility from the pad mounted utility transformer to service equipment located on the east exterior wall of the lower level.

SERVICE LOCATION	VOLTAGE	SWITCHBOARD CAPACITY	INSTALLED DATE
LIBRARY – LOWER LEVEL	480Y/277V	2000A	1990

This main service equipment serves 480/277 volt, 3 phase, 4 wire panelboards, equipment, and step down transformer to 208/120 volt, 3 phase, 4 wire 1200 amp distribution equipment. The manufacture of this equipment is Cutler Hammer.

The main service equipment in the east electrical room back-feeds the original facility service equipment at 480/277 Volts located in the lower level of the Civic Center. The 208/120 Volt distribution in the east electrical room also back feeds the original facility 208/120 Volt distribution equipment located next to the original facility service equipment located in the lower level of the Civic Center. Manufacture of this existing back-fed equipment is I-T-E. It should be noted that this equipment is obsolete and no longer manufactured and finding replacement parts may not exist.

The original facility existing 480/277 Volt service equipment and the 208/120 Volt distribution equipment in the lower level of the Civic Center serves distribution equipment and panel boards installed in the mid

1950's late 1960's additions. In these additions, manufacturers of the distribution equipment are Square D and GEO. F. ROHN ELECTRIC CO. who built panelboards utilizing Square D fusible interiors.

The main east service switchboard includes breakers to serve its' loads. There is space for additional breakers to serve new loads. However, due to the location of existing main service and how existing equipment is installed, utilizing switchboard space for new loads may not be feasible. There is little to no room for future loads to leave the existing equipment due to height of equipment and the low structure height.



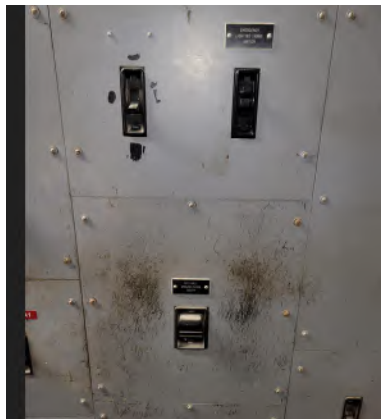
The facility distribution is a mixture of 480/277 Volt and 208/120 Volt. The 480/277 Volt distribution system serves the large mechanical loads such as supply fans, cooling equipment and elevators. The 208/120 Volt distribution serves lighting and receptacle loads with some smaller equipment loads. Overall, the electrical distribution equipment including switchboards, distribution and panelboards appears to be in poor condition for equipment installed prior to the 1990's renovation and in fair condition for equipment installed in the 1990's renovation. The distribution gear is in poor condition is mostly due to age, being obsolete, dust and, in some cases, rust.

During the site walkthrough of the facility, disconnecting mean, combination motor starter/disconnects and starters are of multiple manufacturer's and in some cases are not of the same manufacturer as electrical switchboards, distribution boards, and panelboards. From a maintenance standpoint, multiple manufacturer's create additional costs for repairs and larger spare parts inventory.

Electrical distribution equipment has a published operational life of 25 – 30 years. The published life expectancy for equipment is a good gauge for understanding when it may make sense to replace this equipment in kind. When electrical distribution equipment is kept within a relatively clean environment and is maintained properly, it may be able to operate safely well beyond its published life expectancy, in some cases 50 years and beyond. This is more of an observation than a recommendation to use equipment beyond its published operational life. Even if in good condition, finding spare parts for legacy equipment can be challenging, costly, and sometime replacement parts do not exist.

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Although still functional, given the age of the equipment throughout, it is recommended that this equipment be replaced in kind in the near future. Some of the major equipment is located within dedicated rooms or other back of house spaces which should allow for straight forward replacement. Unfortunately, these spaces do not have much room to install new equipment near the existing so, in most cases, existing gear will need to be removed to make space for the new unless space can be designated for this use. Regardless of the replacement plan implemented, the process will require shutdowns that affect large areas of the facility. Many of the original field panelboards installed throughout the facility are mounted in walls and many times in public locations so the interiors of these panels should be replaced to preserve the current wall construction, if desirable, or new panel locations should be chosen.



DESCRIPTION	CONDITION	COMMENTS
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Distribution Equipment, late 1960's and prior Addition & Renovations	Poor	Obsolete panels, but still in operable condition. Recommended for replacement in the near future.
Distribution Equipment, 1990 and later Addition & Renovations	Good	Good condition other than age. Should be considered for upgrade as part of future renovations.

During the replacement of the electrical gear, replacement of the conductors between these pieces of equipment as well as field devices is recommended since life expectancy for wiring is approximately 70 years. During conductor replacement, dedicated grounding conductor would be installed in each feeder to ensure proper grounding and not only relying on raceway as the grounding path/means.

Solar Power

Solar system has been installed on the roof as well as the solar system inverters as of April 2021. Current solar system is a net metering set-up rated at 300 kW and offsets the current facility electrical use by approximately 40%. It should be noted that under a significant renovation project the existing roofing system should be replaced with new which means the solar system would need to be removed and stored to allow new roofing system to be installed then re-installed.



Emergency Power

There are two emergency generators for this facility. The original facility 15 kW Kohler natural gas generator is still potentially operational but is no longer connected, tested/ran and used for emergency power. The current generator is 480/277 Volt, 3 phase, 4 wire 100 kW Kohler diesel generator in a weathertight enclosure with a base tank. Generator is located on the southwest corner of facility near garage entrance. The 150 amp 480/277 volt emergency feeder is routed through the garage to the loading dock area to a 200 amp generator power panel board. From the generator panel board there is a 480 volt feeder to a 15 kVA step down transformer that serves the existing transfer switch and emergency panels (NEC Article 700 - Emergency Systems) that was previously served by the 15kW generator. The loads appear to be mainly lighting loads but may have some receptacle loads. From the generator panel

board there is a second feeder to a 30 kVA step down transformer that serves a 100-amp transfer switch and emergency panels (NEC Article 701 Legally Required Standby Systems). From this branch of generator power, the loads appear to be panels that serve IT/Server/Phone/Emergency Management Service Room receptacle and lighting loads, the generator battery charger, generator block heater and other selective mechanical loads. From the generator panel board there is a third feeder to a 480 volt, 100-amp transfer switch and panel board (NEC Article 702 – Optional Standby System). From this branch of generator power, the loads appear to be HVAC equipment for specialty rooms such as IT server room, hot water pumps, air handling unit, and boiler.

The current installation of generator power distribution does not meet current National Electric Code requirements for distribution as the Article 700, 701, and 702 branches all originate in the same panel board and are not separated by a barrier. From site walk-through, it was noted that the emergency feeder from the generator was not clearly identified and marked throughout the routing in the facility.

Emergency generators typically have an operational life of 15 – 25 years. The published life expectancy for equipment is a good gauge for understanding when it may make sense to replace this equipment in kind. When generators within a relatively clean environment and are maintained properly, they may be able to operate safely well beyond the published life expectancy, in some cases 30 years and beyond. This is more of an observation than a recommendation to use equipment beyond its published operational life. Generators are typically supporting critical loads so replacement may be necessitated by the risk of losing power to the loads they serve making replacement at the end of life more critical.

The 150 kW generator is exercised regularly. If new loads are added as part of any renovation, the current load for each of these generators should be measured and reviewed with any proposed new loads to ensure capacity is available. The distribution equipment for emergency power is the same as used for normal power and is in similar condition to the normal power equipment for the facility.

DESCRIPTION	CONDITION	COMMENTS
Emergency Distribution Equipment, late 1960's and prior Addition & Renovations	Poor	Obsolete panels, but still in operable condition. Recommended for replacement in the near future.
Emergency Distribution Equipment, 1990 and later Addition & Renovations	Fair to Good	Good condition other than age. Should be considered for upgrade as part of future renovations.



### Electrical Branch Circuits

The branch circuit wiring throughout the facility appears to be in fair condition. Due to age of facility and wiring methods at time of original facility construction as well as the additions, branch circuits typically would share neutral conductors. Current NEC allows shared neutrals however breakers must have handle ties on all circuits that share the same neutral conductor for a common trip. These handle ties on breakers do not exist today. It is recommended that as part of any renovation project, branch circuit to be installed with each circuit having a dedicated neutral to keep from utilizing handle tie breakers.

The existing branch raceway systems appear to be in fair condition as well. The branch circuit raceway serves as the primary means of grounding as there would not be a separate grounding conductor installed in the raceway. Branch raceways, circuits and receptacles in renovated areas are recommended to be replaced with new.

DESCRIPTION	CONDITION	COMMENTS
Branch Devices	Poor to Fair	Replacement of devices is recommended in renovation areas.
Branch Raceways	Fair	Replacement of raceways recommended in renovation areas
Branch Circuit Code Compliance	Fair	Bring up to current codes under renovations.

### ELECTRICAL LIGHTING SYSTEMS

#### Interior Lighting

The interior lighting in the facility is predominantly fluorescent style fixture housings with single pole switches for control. Majority of the fluorescent fixtures with 4 foot linear lamps have had the fluorescent lamps replaced with retrofit LED linear lamps. A few storage areas have had their lighting replaced with LED fixtures and have had vacancy sensors installed. Light fixtures not installed as part of the 1990 Library Addition are in poor condition and need to be replaced to provide a better quality of light in the spaces installed. Many of the fixtures in maintenance and other back-room spaces have exposed lamps which may be susceptible to damage during routine maintenance. There are compact fluorescent downlight fixtures throughout the facility that are not as energy efficient as the new LED downlights and are recommended to be replaced.

Converting to LED technology fixtures would liven up the feel of the facility with adequate light distribution and result in additional cost savings above what the already LED retrofit lamps in fluorescent fixtures provides on the electric bill. This additional cost savings would be due to the removal of fluorescent ballasts that are still connected in the fixtures. Current Focus on Energy programs also provide opportunities for credits to offset some of the costs of replacement. Depending on the type of fixtures being replaced, credits ranging from \$5 to \$15 per fixture are potentially available.

Electronic ballasts have an expected life 10-15 years and will require maintenance similar to the lamps in the fixtures that can have a 20,000+ hour life. LED technology has become the industry standard for new lighting installations. LED provides long life usually 50,000+ hours per manufacturer testing and field reports from the installed base. They also provide energy savings and lower maintenance costs compared to fluorescent. The cost of LED has also become very competitive with fluorescent especially when factoring in some of these other benefits. In many cases, LED is a less expensive option. For any future renovations, it is recommended that LED technology be used. Furthermore, a future comprehensive lighting replacement project should be considered regardless of plans for any renovations.

In general, most spaces include single level switching for full light output control. The corridors are controlled by keyed switches in some locations and standard switches in other locations. Most of the other spaces are controlled through local switches and in some cases dual level switching to allow partial lighting to be illuminated within a given space. Common practice for today is to install automatic controls using occupancy sensors to meet the requirements of modern energy codes. These modern controls help save energy and improve longevity for light fixtures. For any future renovations, occupancy (auto-on, occupancy stay on) and vacancy (manual-on, occupancy stay on) based controls are recommended and, in many cases, will be required.

LED fixtures are also inherently dimmable. Costs for dimming controls and ballasts used to be cost prohibitive so they were used sparingly. However, it is common practice today to include dimming capabilities in all occupied spaces such as offices and conference rooms. Like automatic lighting controls, the ability to change light levels within a space so that full output is a user decision rather than automatic is more consistent with today's energy codes. For any future renovations, use of dimming controls is recommended and, in many cases, will be required.

#### Exterior Lighting

In general, the exterior lighting fixtures is dated and in poor condition. There is pedestrian style stresscrete concrete poles (~12 feet tall) alongside walks and area style stresscrete concrete poles (~25 feet tall) in the parking area with square post top style luminaries with high pressure sodium/metal halide lamps. Most of the exterior doors do not have light fixture(s) at the egress points to comply with today's egress lighting requirements which also require these lights to be backed up with a generator or battery source for at least 90 minutes. For the doors that do not have a light fixture above or in the immediate vicinity, addition of a fixture is recommended for egress and public safety. Most of the exterior lighting on/along the facility have a metal halide source which does not meet egress requirements since it usually takes more than 10 seconds to come to full light output after a power outage (i.e. transition time from outage to generator starting).

Due to age and light quality, it is recommended that the exterior fixtures be replaced with LED equivalent fixtures to improve overall light distribution and quality around the perimeter of the facility and the parking lot. Furthermore, exterior fixtures mounted to the facility at egress points should be installed and served from an emergency power source. Due to overall physical condition of the fixture housings, replacement of exterior lighting should be considered as part of any exterior facility or surface improvements.

#### Exit/Emergency Lighting

Generator backed lighting is provided throughout all areas of the facility. The overall coverage of the interior emergency lighting system and exit signs appears to be adequate. The emergency lights and exit signs are in poor to fair condition mainly due to age.

Most of the exit signs have been replaced over the years with LED exit lights. There are a mixture of LED exit sign styles and lit panel colors (Green or Red) throughout the facility. Replacement of exit signs should be considered for any renovation project and to consist of a single color of lit panel throughout for maintenance and consistency.

**TECHNOLOGY AND SAFETY SYSTEMS**

Fire Alarm System

The facility is supported by a Notifier NFS-640 ONYX series addressable fire alarm system with a remote annunciator located at the main facility entry installed during the 1990 library addition/renovation. The fire alarm panel currently serves the zone initiation devices and notification devices in the older portion of the facility and serves addressable initiation devices and notification devices in the 1990 library renovation and later additions. The fire alarm control panel currently has its interior cover removed and is set aside but is functional. The Notifier fire alarm panel is still supported, replacement components and expansions are readily available.

For initiation, the fire alarm system has manual actuation via pull stations at all the exit/entry points. There is automatic detection for elevator recall, surrounding entry lobby, civic spaces, library area, mechanical/electrical spaces, corridors, telecommunications server room and telecommunication spaces. For notification, the fire alarm system uses horn devices for audible notification with strobes for visual notification. From facility walk through, it was observed that spaces may not be adequately protected with initiation and notification devices. Current minimum code requirements would require additional visual announcement in multi-occupant spaces such as corridors, restrooms, conference rooms, copy rooms, office suites, etc. It was observed in open to structure areas that fire alarm notification devices were served with conductors in raceways and the initiation devices were serve with free flown cabling. Free flown cabling for fire alarm may be allowed by code but would recommend that all fire alarm wiring to be installed in raceway for protection. Though not witness tested, it is anticipated that the horn system provides fair to adequate audible annunciation for the facility.

Although not mandated by current codes, for any significant renovation of facility, it is recommended that the existing fire alarm system and devices be replaced with a new addressable system and devices to provide code required coverage. Due to the different space types throughout the facility, occupant loads and varying public demographics a voice-based fire alarm system should be considered. Voice capability allows the fire alarm system to provide enhanced instructions to the occupants during a fire event. Today's modern fire alarm systems with voice annunciation also allow the system to be used for mass notification purposes should there be an event other than fire that presents danger to the facility occupants. Fire alarm speakers and speaker strobes would be located throughout the facility for occupant notification. Any audible devices currently installed would need to be replaced with speaker type devices. The replacement may not necessarily be a one for one device swap since voice communication requires more devices so signals can be heard clearly and interpreted properly by the recipient.

The detection and initiation devices throughout the facility appear to be in fair to good condition. Commercial detection devices have a typical service life of 10-15 years after which time they should be replaced. The facility does not have a sprinkler system, so detection of smoke and fire is even more important for the protection of facility occupants and property. Additional fire detection devices are recommended to limit the impact of fire conditions and to provide early warning for facility occupants. One example of additional detection may be to provide corridor smoke detection coverage throughout the facility.

DESCRIPTION	CONDITION	COMMENTS
Main Fire Alarm Control Panel	Fair to Good	Addressable system with horn type notification appears to be functioning adequately. Control panel is in fair to good condition. Voice fire alarm system is recommended.
Fire Alarm Initiation/Notification	Fair	Detection devices that are 10 -15 years or older should be replaced. Additional detection and notification recommended.
Fire Alarm Code Compliance	Fair	Additional fire detection devices are recommended to cover more of the facility footprint for early warning. Additional notification devices would be required to comply with today's codes.





### Voice/Data Systems

The facility main Server Room, original phone room, and IT offices is located on the ground floor east of the garage area and interior loading dock area. The IT office area is a dedicated space with controlled access required to the telecommunications equipment. The Server Room, original phone room, and IT offices have their own cooling. These spaces are connected to the generator power system. The Server Room also has uninterruptible power supply to support critical equipment. Additional low voltage distribution is provided throughout the facility using wall fields and cabinets in mechanical spaces, and remote wall mounted racks in other areas of the facility.

The Server Room has copper lines and fiber lines coming in from the utilities. At the time of walk through the copper pair and fiber pair count was not able to be verified.

Telecom cabling is distributed from these rooms and spaces noted above to field devices. Cables in each of these locations are routed into the plenum space and dispersed to serve the facility. Some cable management was found in the telecom rooms in the form of cable tray or cable runway. In older existing spaces, wall fields with punch down blocks and copper conductors appear unused/abandoned in place with wiring left hanging making it difficult to know what is active vs. de-activated. Removing the unused cable would be beneficial to cleaning up the pathway for future work. Very little cable management was found outside the telecom rooms to support the data cabling for the telecommunications network. Permanent information jacks are installed in many locations including copy rooms and offices but some of the facility also has telecommunication service via Wireless Access Points (WAPs).

The overall condition of the telecommunication equipment in the facility appears to be in good condition. Most of the installed cable appeared to be a mixture of CAT 5, 5e and 6 cabling. In one of the older IT spaces, some cabling appears to be CAT 3 and still active. Although the bandwidth capabilities of CAT 5

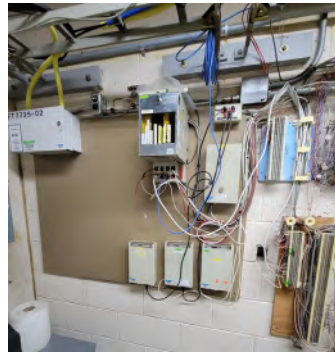
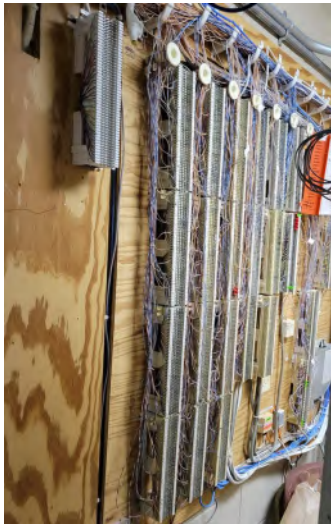
family cables fall behind modern CAT 6 counterparts, the cables should be fair to adequate for most office functions.

The facility has little cable management, i.e. cable tray, for routing of the voice/data cabling throughout the facility. Cabling is supported either by the ceiling grid, raceways/piping, and in open structure areas with some j-hooks.

The City Hall portion of the facility also contains the emergency communications center. Room contains its own dedicated rack with servers and emergency equipment. Room appears to be a tight working space. It is recommended under significant renovations the space location, layout and size of the space requirements be evaluated to provide an adequate working space.

It is recommended for renovations that a new Entrance Facility Room be established to be the main demark room for the entire facility which would house the main utility copper and fiber services and become the main server room for critical functions. Recommend that new Telecommunications Rooms be strategically placed throughout facility under renovations to serve new individual drop locations. These new Telecommunication Rooms would be served from the new Entrance Facility Room with new copper and fiber cables. The goal would be to eliminate unused cables, old cable types and organize system layouts to facilitate future changes. The existing equipment in the affected rack(s) and wall cabinets should be reviewed at the time of renovation to assess if the equipment or any specific components should be replaced including the cabling. It is also recommended that all future projects include modern cabling constructions such as those in the CAT 6 family or greater.

DESCRIPTION	CONDITION	COMMENTS
Telecom Rooms	Fair to Good	Main rooms are dedicated to telecom installations. They include controlled access as well as their own cooling and UPS backup. Some cable tray cleanup would be beneficial.
Telecom Equipment	Fair to Good	Replacement of equipment including cabling should be considered for renovated areas
Telecom Pathways	Poor	Minimal cable tray or other pathways for future changes







**Access Control/Camera System**

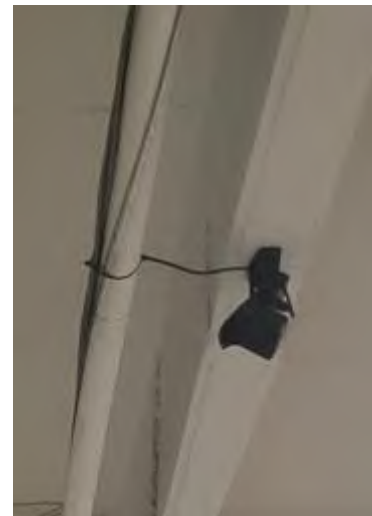
The facility currently has an access control system installed by BAYCOM. At this time there are about 12 doors being controlled throughout the facility by the access control system which ranges from department interior doors, entry, and IT spaces. There is also a security keypad at the main entry.

Extending card access to interior doors is also becoming more common in public buildings. This allows access to be granted and revoked more readily without the necessity of tracking keys. Depending on the system selected and how the door card terminals are programmed, doors could also be locked simultaneously should an event necessitate this feature for protection of facility occupants or property. It is recommended that safety protocols and procedures be reviewed to see if a modern, comprehensive security system is a high priority for departments and other doors as well as all exterior doors.

There are very minimal cameras installed in the facility. There are projector type security cameras installed at the main entry. Overall, the camera layout at the main entry captures the entry points but does not necessarily provide a comprehensive view of the entry corridor area. There is a camera located in the IT/Server Area corridor as you enter/leave the corridor space. There is also a camera in the garage area to view vehicles as they enter and leave. The cameras appear to be in fair condition.

Camera system technology has advanced significantly over the past several years. For any expansive remodel efforts, replacement of existing camera monitoring or expansion to increase total area coverage should be considered. Raceway infrastructure is recommended to be installed out to the parking lot area for future addition of area cameras.

DESCRIPTION	CONDITION	COMMENTS
Access Control	Fair	Additional doors interior and exterior could be added to enhance the overall coverage of the system
Cameras	Fair	Camera layout is limited to main entry points, garage and IT/Server areas. Ongoing replacements should continue to take advantage of new technology.



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