

Report to/Rapport au:

**OTTAWA PUBLIC LIBRARY BOARD  
CONSEIL D'ADMINISTRATION DE LA BIBLIOTHÈQUE PUBLIQUE D'OTTAWA**

**July 7, 2014  
Le 7 juillet 2014**

**Submitted by/Soumis par :  
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Ref N°: OPLB-2014-0063

**SUBJECT: Main Library Facility Planning**

**OBJET : Planification de la Bibliothèque centrale**

**REPORT RECOMMENDATION**

**That the Ottawa Public Library Board receive the Main Library facility planning information as detailed in this report.**

**RECOMMANDATION DU RAPPORT**

**Que le C.A. de la Bibliothèque publique d'Ottawa prenne connaissance des renseignements concernant la planification de la Bibliothèque centrale, tel que détaillé dans le présent rapport.**

**BACKGROUND**

In November 2012, the Ottawa Public Library Board ("the Board") approved modernizing the Main Library as its preferred option for renewal, redesign, and refreshing of the current facility. Based on information available at that time, it appeared that the approved option would result in necessary infrastructure repairs and renewal, resolution of service delivery deficiencies and accessibility issues, ability to provide

modern library service delivery, and support optimal implementation of RFID technology.

As a result of the approval, next steps in planning for the modernization of the Main Library included developing functional program requirements as well as preliminary conceptual designs, including order of magnitude costs. The functional program requirements were developed to support services provided by a modern Main Library. The preliminary conceptual designs (blocking options) were based on the existing space available at 120 Metcalfe Street/191 Laurier Avenue West.

The purpose of this report is to present the Board with the results of the planning studies (Appendix 1) requested in November 2012.

## DISCUSSION

In fall 2013, external design services (Ajon Moriyama Architect) were engaged to undertake the development of a functional building program for a modernized Main Library. The scope of work included:

- Identification and prioritization of preliminary program requirements for Main Library service delivery;
- Identification of spatial adjacency requirements;
- Validation of program requirements;
- Development of three blocking options (Renewal, Renovation, Redevelopment) responding to program requirements at the existing site; and,
- Class "D" costing (+/- 30%) of the blocking options.

### Project Planning Assumptions

In 2013, OPL ran the *Imagine* campaign which gave customers an opportunity to say what they wanted in their library of the future based on best practices and aligned to central themes of Learning, Leisure, Celebration, Creation, and Community Development. Key results included validation that Ottawa residents view their public libraries as physical spaces first and foremost, with local and community branches as highly-favoured destinations.

The vision for the Main Library, the largest branch in the OPL system, aligns with these findings, serving roles as both a downtown community branch and a city-wide resource.

A modernized Main Library is envisioned as a concept centre or idea exchange focal point, responding to the central themes of the *Imagine* campaign: Learning, Leisure, Celebration, Creation, and Community Development.

The consultant used the following detailed planning assumptions:

- User-friendly, safe, accessible, welcoming, and customer-driven;
- Less space for physical collections;
- More space for the public including programming, learning/collaboration, study spaces, and meeting rooms;
- More multi-purpose spaces designed for customers to access library resources (print and electronic) or work on their own;
- Building design that supports delivery of modern library services;
- Focus on self-service enabled by technology;
- Retail-oriented service with staff roving through public spaces to serve customers;
- Safe and secure space designed on Crime Prevention through Environmental Design (CPTED) principles;
- Fully accessible as per City of Ottawa *Accessibility Design Standards* (OADS) and provincial *Accessibility for Ontarians with Disabilities* (AODA) legislation; and,
- Compliance with the City's Green Building Policy (LEED Silver or better) as approved by Council.

### Development of Functional Program Requirements

In 2007-2008 a planning study was carried out which indicated that then-existing planning standards for central libraries set out an average gross space requirement of 0.45 gft<sup>2</sup> (gross square feet) per capita. However, owing to Ottawa's geography and its more decentralized library system, the study concluded that a new central library with approximately two-thirds of the average, or approximately 0.27 gft<sup>2</sup> per capita, would be

appropriate for Ottawa. As a result, a building envelope of approximately 345,000 square feet was recommended for a new Central Library.

In carrying out the current exercise to establish a functional program requirement for the Main Library, staff noted that recent public library facility trends, wherever significant renovations take place or new facility construction is undertaken, consistently include:

- Less space for collections and more space for the public;
- More group and quiet study spaces;
- More multi-purpose spaces being designed for customers to access Library resources (print and electronic) or work on their own;
- Full WiFi access to support customer use of the Internet on their own devices;
- Increased focus on customer self-service enabled through technology;
- Installation of RFID (radio frequency identification) sorter systems to provide more convenient and efficient handling of returned material; and,
- New customer service models which move staff away from traditional service desks to a single point of service with roving staff.

In identifying the current functional program requirement, staff have taken a different approach than that of the 2007-2008 study.

The functional program project began with a review of current conditions as well as best practices and trends in public library service delivery across Canada. This was followed with a needs analysis, which included identification and prioritization of functional program requirements.

Using current space allocations as a starting point, the Project Steering Committee determined the minimum program requirements to provide the most efficient amount of space required to deliver modern library services in a customer-focused, safe, and welcoming environment. The proposed components and sizes were then validated with staff focus groups, with the total current functional program requirement (gross building floor area) identified as 130,000 square feet, as set out in Table 1 below.



**Table 1: Main Library Functional Program Requirements**

<b>Component</b>	<b>Requirement (square feet)</b>
<b>Entrance/Welcome</b> Primary point of access to the Main Library including orientation information and primary service point, marketing area for OPL resources, community information hub, FOPLA bookstore, exhibition space, security services, and a café.	6,200
<b>Popular and New</b> This function will provide easy access to Express Reads, popular materials, and Holds pickup.	5,000
<b>Children's</b> Includes children's collections, and study, learning, and program spaces for children under 13 years of age. Zones within this space include early literacy, pre-school, middle years, and tweens.	6,000
<b>Teens</b> Includes teen print fiction but emphasis is on technology, gaming, group study, learning, socializing, and creation spaces.	2,500
<b>Reading Space</b> Includes fiction, magazine and newspaper collections, reading spaces, and gathering spaces for such activities as adult book clubs.	15,000
<b>Information Commons</b> Centralized area for public computer and Internet access, electronic device lending, and computer training. Spaces need to be organized in both formal seatings and leisure hubs.	4,300
<b>MakerSpace</b> Technology-driven space that facilitates customer fabrication of items, video, music, and photo editing, videoconferencing, and associated technology training.	1,500
<b>Learning Space</b> Includes non-fiction collections (all formats), quiet work, study (individual and group) spaces, and tutoring spaces and learning labs.	15,000

Component	Requirement (square feet)
<b>Local History and Genealogy</b> Specialized Learning Space which includes collections (print, digitized and non-traditional formats) and work spaces.	4,000
<b>Business and Careers</b> Specialized Learning Space which includes collections (all formats) and work spaces focused on entrepreneurial development.	2,000
<b>Newcomers</b> Specialized Learning Space supporting services to residents who are new to Canada; the space will include collections, gathering spaces, and tutoring spaces.	3,500
<b>Meeting Rooms and Community Spaces</b> A variety of flexible, wired meeting rooms are required to support library, City, and community programs. Some meeting rooms should be available when the library is not open.	9,500
<b>Materials Handling</b> Space enables installation of a large automated sorting system, conveyor belts, book returns (internal and external), and smart bin/book truck storage.	3,000
<b>Building Services</b> Includes external deliveries, shipping and receiving, building operations and maintenance facilities, general storage, FOPLA storage, washrooms, garbage and recycling, and IT, electrical, and mechanical rooms.	13,000
<b>Corporate and Administrative</b> Includes corporate and administrative services, and Main Library work spaces.	20,000
<b>Ancillary and Circulatory Spaces</b>	19,500
<b>Total program requirement</b>	130,000

## Development of Options

### Existing Building Functional Spaces

The Main Library at 120 Metcalfe Street is 90,418 square feet with 80,865 square feet of usable space. OPL also leases 18,240 square feet on the 4<sup>th</sup> and 5<sup>th</sup> floors of the attached Sir Richard Scott Building at 191 Laurier Avenue West, which results in 16,920 square feet of usable space once the elevator, lobbies, and service rooms are excluded. This provides a total of 97,785 usable square feet available for library functions in the current space.

The programming elements identified in Table 1 were used to develop three blocking options in a best-fit configuration to suit the space available in each option. Starting with the most modest option and progressing to the most substantive are Option 1: Renewal, Option 2: Renovation, and Option 3: Redevelopment.

All options require the use of the leased space on the 4<sup>th</sup> and 5<sup>th</sup> floors of 191 Laurier Avenue West to increase public spaces on floors 1-3 of the Main Library and to house corporate, program, and administrative functions. Table 2 provides a summary of the three options.

**Table 2: Main Library Modernization Options**

	<b>Option 1 Renewal</b>	<b>Option 2 Renovation</b>	<b>Option 3 Redevelopment</b>
Approximate Size	109,000 sq. ft.	115,000 sq. ft.	131,000 sq. ft.
Estimated Cost	\$40 million	\$50 million	\$70 million
Life Span	15-20 years	25–35 years	40+ years

### Option 1: Renewal

Option 1 (\$40 million project costs) results in a renewed and refreshed facility that has the same overall look, character, and feel as the current building. There will be a new, fresh look and appearance, as well as updated building systems. The building's exterior will remain essentially unchanged. To summarize:

- Existing footprint is maintained;
- No major changes to the interior, including the basement auditorium, mezzanine area, escalators, main stairs and atrium, or to the exterior facade;
- Renewal of critical building systems and infrastructure undertaken for Heating, Ventilation, Electrical, Fire, and Life Safety systems;
- Complete replacement of all washrooms and new finishes throughout building;
- Program improvements: Children's area moved to 1<sup>st</sup> floor, Maker Space included, and additional meeting rooms added to Floors 1-3;
- Program requirements not met in Children's, Teens, Reading Space, Information Commons, Newcomers, Meeting Rooms and Community Spaces, and Learning Space;
- Most current facility deficiencies including lack of windows and natural light, escalators and elevators are not addressed; other facility deficiencies are not improved while accessibility, technology, and safety and security are satisfactorily improved; and,
- Total floor space provided is approximately 21,000 square feet short of the amount required to fully address all of the identified functional program requirements.

### Option 2: Renovation

Option 2 (\$50 million project costs) results in the renovation of the existing facility through redesigning, expanding, and refreshing the current space. Significant changes are made to the interior of the building to improve delivery of modern library services. This option includes changes to the building entrance and exterior façade, and also includes a minor expansion to the building footprint of 6,170 square feet. To summarize:

- Major renovations to all floors throughout the facility;
- Improved accessible design over Option 1; building systems and infrastructure renewed and updated, auditorium removed and replaced by several meeting rooms, escalators removed and replaced with new interior elevator, existing south elevator relocated to better serve the public, and atrium reconfigured;
- Program area target not met in Teens, Reading Space, Information Commons, Newcomers, and Meeting Rooms and Community Spaces;

- Several current facility deficiencies are satisfactorily addressed (e.g. vertical lifts, technology), accessibility and natural light are improved and, safety and security issues significantly improved; and,
- Total floor space provided is approximately 15,000 square feet short of the amount required to fully address all of the identified functional program requirements.

### Option 3: Redevelopment

Option 3 (\$70 million project costs) offers an enhanced street presence through a maximum expansion of the existing building footprint. The current building would be stripped down to its structural shell resulting in a new façade and an almost like-new building. This would include a 4<sup>th</sup> floor addition that would provide additional meeting and event space with superb street views. Much of the current brutalist-style building would be removed and replaced with a new façade featuring walls of windows allowing much more light into the building while offering views of the Laurier-Metcalf intersection and beyond. At the same time, the design would produce a visual 'WOW' factor from the street level. To summarize:

- Most major renovation and maximum expansion supporting a complete redevelopment of the existing facility;
- Existing footprint expanded by 9,660 square feet, the current 4<sup>th</sup> floor roof area is developed into an additional 12,700 square feet of meeting/event space, for a total expansion of 22,360 square feet;
- Supports best practices implementation of OADS, building systems and infrastructure renewed and updated, auditorium removed and replaced by several meeting rooms, escalators removed and replaced with new interior elevator, existing south elevator relocated to better serve Library, and atrium reconfigured;
- Opportunity for a new street façade on Metcalfe and on Laurier to provide 'WOW' factor and greatest opportunity to allow natural light into the building;
- Service improvements: enhanced Entrance / Welcome Centre with street presence, prominent Exhibition space, expanded Children's area moved to 1<sup>st</sup> floor, added Maker Space, increased number of meeting rooms added to floors 1-4;

- Total floor space provided is approximately the same as that for the identified functional program requirements but program requirements not met by a total of approximately 8,500 square feet in the Reading Space, Information Commons, Newcomers, and Meeting Rooms and Community Spaces components due to existing building constraints and the necessity to provide identified spatial relationships amongst the key public program components; and,
- Majority of current facility deficiencies are addressed with significant improvements to accessibility, natural light, and safety and security.

### Comparison of Options

Table 3 illustrates the degree to which existing facility deficiencies are addressed in each option. The checkmarks below indicate the degree to which the deficiencies are improved, three being the best.

**Table 3: Current Facility Deficiencies Compared by Option**

	<b>Option 1 Renewal</b>	<b>Option 2 Renovations</b>	<b>Option 3 Redevelopment</b>
Accessibility (OADS – AODA)	✓	✓✓	✓✓✓
Infrastructure and building systems	✓	✓	✓✓
Building code deficiencies	✓	✓	✓
Vertical lifts (escalators, elevators)	NR	✓	✓✓
Technology	✓	✓	✓✓
Shipping and receiving access	NR	NR	NR
Lack of windows and natural light	NR	✓✓	✓✓✓
Safety and security	✓	✓✓✓	✓✓✓

*Legend: ✓ = Satisfactory ✓✓ = Better ✓✓✓ = Best NR = Not Resolved*

Option 3: Redevelopment comes closest to addressing current facility deficiencies. None of the options can resolve current limitations to shipping and receiving access.

Table 4 demonstrates how each option responds to the key public components of the functional program requirements. One checkmark (“✓”) indicates that 80% of the program requirement is met; two checkmarks (“✓✓”) indicate that 90% of the

requirement is met; and, three checkmarks (“✓✓✓”) mean that the program requirements are fully met. “NR” indicates that minimum requirements cannot be met.

**Table 4: Key Public Program Components Compared by Option**

Functional Component	Program Requirement (Sq. ft.)	Option 1 Renewal	Option 2 Renovation	Option 3 Redevelopment
Popular and New	5,000	✓✓✓	✓✓✓	✓✓✓
Children’s	6,000	✓✓	✓✓✓	✓✓✓
Teens	2,500	✓	✓	✓✓✓
Reading Space	15,000	NR	NR	NR
Information Commons	4,300	✓	✓	✓
Maker Space	1,500	✓✓✓	✓✓✓	✓✓✓
Local History and Genealogy	4,000	✓✓✓	✓✓✓	✓✓✓
Business and Careers	2,000	✓✓✓	✓✓✓	✓✓✓
Newcomers	3,500	NR	NR	NR
Meeting Rooms and Community Spaces	9,500	NR	NR	✓
Learning Space	15,000	✓✓	✓✓✓	✓✓✓

Option 3: Redevelopment comes closest to meeting service needs. This option includes major changes to both the interior and exterior of the building, an expansion of the building footprint, and construction of additional meeting spaces on a new fourth floor to meet, as closely as possible, identified program needs and provide additional flexibility and usable space.

While the total floor space provided by this maximum expansion option is approximately the same as that for the identified functional program requirement, it still is short of being able to accommodate all of the key public program components by approximately 8,500 square feet. This is due to existing building constraints and the necessity to provide identified spatial relationships amongst the key public program components. This shortfall affects the Reading Space, Information Commons, Newcomers, and

Meeting Room and Community Spaces components. Building deficiencies related to shipping and receiving access cannot be resolved to a satisfactory extent.

### Cost Estimates

Overall project deliverables also included external order of magnitude cost estimates (Class D, +/- 30%) related to construction costs of each option. City of Ottawa Infrastructure Services, Design and Construction Branch used this data to develop estimated total project delivery costs (Appendix 2) for each of the three blocking options. The total estimated project costs include all other project costs (e.g. architectural design, furnishings, moving, relocation, swing space, taxes), and all other 'soft' costs.

While cost estimates have factored in contingencies, there are significant risks and unknowns when renovating an older building. These order of magnitude costs were provided for comparative purposes and are likely to increase, rather than decrease, through subsequent detailed planning and cost refinement.

Rounded cost estimates in 2016 dollars are Option 1: Renewal - \$40 million, Option 2: Renovation - \$50 million, and Option 3: Redevelopment - \$70 million.

### Conclusion

In November 2012, the Board approved modernizing the Main Library as its preferred option through redesign and refreshing of current space. Based on information available then, it appeared that this option would result in necessary infrastructure repairs and renewal, resolution of service delivery deficiencies and accessibility issues, ability to provide modern library service delivery, and support optimal implementation of RFID technology.

The purpose of this report was to present the Board with the results of this work plus recommendations for the next steps in planning for Main Library renewal. Through completion of the functional program project and development of blocking options what has been learned is that:

1. Approximately 130,000 square feet of space is required to meet Main Library functional program requirements;



2. Modernization of current space on the existing site, as envisioned in November 2012, cannot fit in the existing building spaces and respond satisfactorily to the program requirements;
3. Full redevelopment and maximum expansion of the existing site would be necessary to most closely meet all program requirements;
4. Option 3 does still not fully resolve shipping and access deficiencies and continues to fall short of accommodating all of the key public program components by approximately 8,500 square feet total in the Reading Space, Information Commons, Newcomers, and Meeting Room components due to existing building constraints and the necessity to provide identified spatial relationships amongst the key public program components; and,
5. While cost estimates have factored in contingencies, there are significant risks and unknowns when renovating an older building. These order of magnitude costs were provided for comparative purposes and are likely to increase, rather than decrease, through subsequent detailed planning and cost refinement.

Staff are recommending that the Board receive the planning information as set out in this report.

## CONSULTATION

Key OPL and City staff who worked with the consultant on this project included:

- OPL: Division Manager, Facilities and Fleet; Manager, Facilities Development
- City: A/Manager, Design and Construction, Buildings and Parks; A/Program Manager, Design and Construction, Buildings and Parks

Consultation occurred with City of Ottawa staff in Real Estate Partnership and Development Office and Infrastructure Services. Program validation included OPL staff. At this preliminary stage, no public consultation occurred. Public input was based on findings of the 2013 *Imagine Campaign* and the 2012 *Nanos Study Public Opinion on the Ottawa Public Library's Main Branch*. Consultation also occurred with the OPL Board Chair and CEO.

### LEGAL IMPLICATIONS

There are no legal implications associated with Board receipt of this report.

### RISK MANAGEMENT IMPLICATIONS

The Main Library has been identified as the OPL's highest facility risk with respect to aging infrastructure and as its busiest location, receiving more than 16,000 visitors weekly.

### ACCESSIBILITY IMPACTS

There are no accessibility impacts associated with this report.

### TECHNOLOGY IMPACTS

There are no technology impacts associated with this report.

### FINANCIAL IMPLICATIONS

There is no funding available to proceed with implementation of any of the identified options. Existing capital funding is available to undertake investigation in 2014 of the recommended further option analysis as part of the Main Library Modernization capital project. Total funding of \$1,025,000 was approved in the 2014 capital budget for the Main Library Modernization. Funding will be required in 2015 through the budget process to continue planning for the next steps for any of the identified options.

### BOARD PRIORITIES

In May 2012, the Board approved the Main Library as its highest facility renewal priority.

### SUPPORTING DOCUMENTATION

1. [Document 2, Facilities Planning Committee Report, May 14, 2012.](#)
2. [Document 4, Main Library Building Condition Assessment Update, September 10, 2012.](#)
3. [Document 6, Main Library Facility Planning, November 19, 2012.](#)

### DISPOSITION

Staff are recommending that the Board receive the Main Library facility planning information as detailed in this report.

### APPENDICES

1. OPL Main Library Functional Program, June 2014.
2. Project Cost Estimates, June 2014.

# Ottawa Public Library Main Library Functional Building Program Report

Prepared for: Ottawa Public Library + City of Ottawa

Prepared by: Ajon Moriyama [Architect](#)

25 June, 2014

Project Number: CR009800

# Contents

## Document

	Pages
<b>1</b> Executive Summary	1-6
<b>2</b> Program Validation Report	1-28
<b>3</b> Blocking Options	
Option#1 Renewal	1-4
Option#2 Renovation	1-4
Option#3 Redevelopment	1-6
<b>4</b> Class “D” Cost Estimate (Turner & Townsend)	1-19

# Ottawa Public Library Main Library Executive Summary

Prepared for: Ottawa Public Library + City of Ottawa  
Prepared by: Ajon Moriyama [Architect](#)

25 June, 2014  
Project Number: CR009800

## Purpose

“Working with customers, employees and key stakeholders, this project will result in the identification and description of the functional program requirements for the Ottawa Public Library Main Library. The completed functional program requirements will then be used by OPL to inform and facilitate the development of a preliminary design vision and feasibility analysis, including order of magnitude costing.”

- Ajon Moriyama Architect (AMA) was commissioned in November 2013 to prepare a Functional Building Program for the Ottawa Public Library’s Main Library, located at 120 Metcalfe Street in Ottawa. This report investigates the best means to modernize the library by renovating the current space or investigating alternative options for OPL to best achieve their needs. As a result, three options were developed and investigated to address the functional needs of the library. An order of magnitude costing was done for each option.
- Purpose of report:
  - Identify the current condition, the needs and trends of the Main Library.
  - Present options to determine the future of the library.
- Project background: In November 2012, the Ottawa Public Library Board approved the modernization of the Main Library through refreshing or redesigning the current space. In response to that mandate, a Functional Building Program has been developed reflecting the needs of the Main Library today as well as the anticipated needs in 10 years. This report also analyzes the most effective way to address service delivery deficiencies and accessibility issues while creating a modern, welcoming and inviting environment that is technology friendly.
- History: The Main Library opened in 1974 and sits on the site of the original 1906 Carnegie Library. This 90,418 square foot (80,865 usable square feet) library is the largest and most used branch of the Ottawa Public Library’s 33 branches. It has undergone only minor renovations over the past 40 years.

## Scope

- Identification and prioritization of program requirements.
- Identification of spatial adjacency requirements.
- Validation of the program requirements.
- Development of blocking and stacking options in response to program requirements.
- Order of magnitude costing of the blocking options.
- Presentation of the final report to the OPL Board.

## Method

- Assumptions: the following assumptions were used to develop the functional program:
  - Building is user-friendly, safe, welcoming and customer-driven
  - More space for the public including program, learning/collaboration spaces and meeting rooms
  - More group and quiet study spaces

- More multi-purpose spaces being designed for customers to access library resources (print and electronic) or work on their own
  - Increased focus on customer self-serve technology
  - Less space for collections
  - Installation of an RFID (radio frequency identification) sorting system to provide more convenient and efficient handling of returned materials
  - Customer service delivery models which move staff away from traditional service desks to a single point of service based on roving staff
  - Building design must support delivery of modern library services
  - All spaces designed with Crime Prevention through Environmental Design (CPTED) principles
  - Create more public space through the relocation of staff spaces
  - Wi-Fi access available throughout building
  - Building is fully accessible as per the City of Ottawa Accessibility Design Standards (OADS) and provincial Accessibility for Ontarians with Disabilities (AODA) legislation
  - Building is designed to a minimum LEED standard approved by Council
- Procedure: the process involved a comprehensive site tour and facility assessment; meetings with OPL representatives, City planners and Infrastructure Services representatives.
  - Data was collected through a series of meetings with OPL and fact finding sessions with OPL staff representative of these identified functional areas: Entrance/Welcome Centre, Popular and New, Children's , Teens, Reading Space, Information Commons, Maker Space, Learning Spaces, Local History and Genealogy, Business and Careers, Newcomers, Exhibit Space, Meeting Rooms/ Community Spaces, Materials Handling, Building Services, and, Corporate and Administrative functions.
  - Blocking and stacking studies were produced to identify area allocation, function adjacencies and circulation patterns.
  - Process included analyzing the architectural characteristics of the Main Library in order to create a more inviting space, and an architecturally pleasing building that would bring in much more natural light.
  - Cost analysis by Turner Townsend cmr2 provided costings for the proposed options.

## Findings

- Current state of the Main Library: The Main Library is 90,418 square feet (gross) with additional leased space on the 4th and 5th floors of the Sir Richard Scott Building for Library Administration Space. With this additional 18,240 square feet, the library's total square footage is 108,658 square feet (or 97,785 square feet usable). The investigation of the program requirements determined that a facility of 130,000 square feet would be necessary to facilitate the delivery of all required modern library services. The current facility was designed on a book delivery model and has dated floor plans. As a result, it needs to be updated to incorporate a modern and technology-based delivery model that reflects today's needs.
- Library design today is at a transformative point. A paradigm shift has occurred where most of what we know about library design is no longer relevant. For the first time, physical collections are reducing in size, but the most profound change is a shift from a culture of "library as a quiet space" to a culture that



promotes group activities. Libraries are now gathering hubs for the exchange of ideas, information and knowledge.

- Future Trends: “The best way to predict your future is to create it.” (Abraham Lincoln) This quote is especially appropriate for libraries today. There is no longer a road map that defines what a library is. If libraries do not stay relevant and adapt to future needs, they will become obsolete, or worse, irrelevant. Recent public library trends have been consistent for both renovations and new construction projects. The following are some of the trends that have been incorporated into recent library projects:
  - Collections are shrinking in size
  - Gathering spaces and computer spaces are expanding.
  - There is a strong focus on using design to facilitate customer self-service.
  - RFID technology is becoming commonplace, e.g. OPL is in its second year of a 5 year plan to complete their system wide conversion
  - New customer service models are moving staff away from traditional service desks to a roving system.
  - Single points of service are being integrated into the branch service delivery model.
  - More group and quiet study spaces are being integrated into all areas of the library.
  - More multi-purpose spaces are being designed for users to access resources such as print and electronic information retrieval on their own.
  - Access to library resources via Wi-Fi continues to increase..
  - More personal devices are using Wi-Fi, e.g., smart phones, laptops, iPads.
  - The use of new electronic devices is impacting how public spaces and furniture are being planned and utilized.
  - The demand for learning and creative spaces continues to grow, e.g. Maker Space.
- The functional program requirements were established and validated based on current trends and anticipated future needs of the Main Library through meetings and discussions with OPL. Careful analysis of current and future space requirements, adjacencies and circulation patterns, provided data that informed a series of blocking and stacking studies. Of those block diagrams studies, three “best fit” Options were generated by AMA for the modernization of the Main library.
  - Option 1: Renewal
  - Option 2: Renovation
  - Option 3: Redevelopment
- Option 1: Renewal - This option is primarily a cosmetic improvement to the existing library, giving it a re-freshed and renewed look. The largest impact will be in addressing building lifecycle issues.

Main items for this Option include:

- 15-20 year vision.
- Existing footprint maintained
- No major changes to interior including basement auditorium, mezzanine area, escalators, main stair and atrium.
- Renewal of critical building systems and infrastructure for Heating, Ventilation, Electrical, Fire and Safety systems.

- Replacement of all washrooms and new finishes throughout.
- Some program spaces increasing: Children's space moved to first floor; new Maker Space; additional meeting rooms on Floor 1-3, FOPLA bookstore moved to first floor, expanded Local History and Genealogy, and Business and Careers.
- No major changes to the exterior or the structure of the building other than the removal of the planter on the east side of the library and replacing it with double height glassed in entry foyer space. This space will not go beyond the boundary of the existing planter.

Conclusion: With Option 1, the overall exterior and interior architectural appearance of the building remains the same, including the lower level auditorium. The result is many of the current facility deficiencies are not addressed such as the lack of natural light and the vertical circulation issues. With the existing floor area unchanged, the program requirements cannot be met for the following: Children's, Teens, Reading Space, Newcomers, Information Commons, Meeting Rooms and Community Spaces, and Learning Spaces. The improvements to the interior provide a refreshed look and updated building systems. Accessibility, technology, safety and security are satisfactorily improved. However, modern library services are not delivered, impacting the ability to deliver all the required services.

- Option 2: Renovation - Incorporate OPL's program needs as closely as possible by updating the interior and exterior of the library to meet their vision. This Option includes all aspects of Option 1, plus the following items listed below.

Main items for this Option include:

- 25-35 year vision.
- Major renovation to all floors throughout the facility with removal of all interior partitions (except for the meeting rooms) to provide an open concept.
- Demolition of the southeast corner of the building. Removal of precast panels, replacing them with curtain walls and new precast panels on these portions of the south and east façades, increasing the footprint by 6,170 sf.
- Improved accessible design over Option 1: building systems and infrastructure renewed and updated; auditorium removed and replaced by several meeting rooms; escalators removed and replaced with new centralized interior elevator; existing south elevator relocated to better serve the public; atrium reconfigured.
- Removal of mezzanine on ground floor.
- Some new and/or increased program spaces: Welcome Centre, Children's, Popular and New, Newcomers, Local History and Genealogy

Conclusion: With Option 2, there will be significant changes to the library entrance and the exterior façade. The interior will also be expanded and refreshed. Two of the most significant changes will be the result of the removal of the auditorium and the addition of centralized vertical circulation areas, e.g. elevator. There are improvements to: modern library services, technology, accessibility, natural light and safety and security. With the shortfall of the identified program areas, results in an inability to deliver the required services for: Teens, Reading Space, Information Commons, Newcomers, Meeting Rooms and Community Spaces, and Learning Space.

- Option 3: Redevelopment - Maximize and expand the usable area of the library for public use. Enhance the architectural characteristics of the building to create an open and welcoming place filled with natural light.

Main items for this Option include:

- 40 years and beyond.
- Existing footprint expanded by 9,660 square feet; plus the current 4th floor roof area developed into an additional 12,700 square feet of meeting/event space; total of 22,360 additional square feet.
- Removal of the southeast corner of the building, similar to Option 2. The atrium space and street facades will be rebuilt with new finishes.
- Supports best practices implementation of OADS; building systems and infrastructure renewed and updated; auditorium removed and replaced by several meeting rooms; escalators removed and replaced with new interior elevator; existing south elevator relocated to better serve Library; atrium reconfigured.
- Service improvements: enhanced Entrance / Welcome Centre with street presence; prominent Exhibit space; expanded Children's area moved to 1st floor; added Maker Space; increased number of meeting rooms added to floors 1-3.
- New 4th floor event space.
- Raised floor to maximize flexibility.
- Program area targets best met except in Reading Spaces.

Conclusion: With Option 3, the majority of the current facility deficiencies are significantly improved: accessibility, natural light, and safety and security. By maximizing the built area on this site with the addition of the new 4th floor "events" space, this Option provides the best response to the program requirements with shortfalls for only: the Reading Space, the Information Commons, the Newcomers area, Meeting and Community Spaces. With the interior stripped down to the structure, it is seen as a "clean slate" project that allows for incredible planning flexibility by utilizing a raised floor system. This creates an almost "like new" street presence on both Metcalfe and Laurier to provide the "wow factor" of an iconic building.

## Conclusion

- Functional program requirement:
  - Results of Option 1 and 2 confirm that the program requirements cannot be accommodated. Without an expansion of the building footprint and construction of new additional meeting spaces on the fourth floor, the current building lacks the flexibility and usable space to meet the program needs.
  - Including the area in the Sir Richard Scott Building, the 130,000 square foot program requirement can best be accommodated in Option 3.
- Accessibility:
  - Options 1 and 2 can only provide limited improvements to making the building more accessible.
  - Option 3 can provide a fully accessible building due to the "clean slate" approach.
- Safety and Security:
  - Option 1 delivers limited improvement to safety and security. Option 2 and 3 can deliver safety and security with a more open concept, natural light and translucent partitions.

- Building systems:
  - Renewal of critical building systems and infrastructure will be undertaken for Heating, Ventilation, Electrical, Fire and Life Safety systems in all Options. However, Option 3 can best facilitate this with the construction of a raised floor system while providing unlimited planning flexibility.
  - Option 1 does not result in changes to existing elevators, escalators or stairs.
- Library of the future:
  - Option 1 and 2 provide a short to mid-term vision (15 - 20 and 25 - 35 years)
  - Option 3 offers a long term solution (40 years plus)
  - As collections continue to decrease, the demand to provide gathering and meeting spaces continues to increase. The library must provide as much flexibility as possible to stay relevant. Furthermore, it must adapt to the current trend of an increasing demand for digitized information and eBooks. The new Main Library will not be a traditional book-filled space. It will be a concept centre for idea exchange as its focal point, designed around the central themes of the Imagine campaign - Learning, Leisure, Celebration, Creation, and Community Development. Those themes were based on research and survey data looking at future directions in public libraries, and were validated by Ottawa residents through the Imagine campaign.

## Recommendation

Based on our conclusion for Option 3, we find that the “redevelopment” option best addresses the issues faced by the Main Library today and the long term needs of a modern library. The current library is dark, uninviting, outdated and does not fulfill all the program requirements. Furthermore, it is not fully accessible as per the OADS and AODA standards. With the expanded footprint and the additional 4th and 5th floors, the proposed Option 3 best fits the 130,000 square foot functional program and delivers a fully accessible, safe and secure building with modern library services. The fourth floor “Events” space could provide a venue for literary events for example, and will transform the library into a dynamic community hub. Architecturally, it has the potential of becoming a world class destination benefiting from its prominent location. The two new glass façades will bring in an abundance of natural light filtering through to the back spaces and transforming it into a welcoming comfortable place for people to read, gather research, learn and relax. Lastly, working closely with the OPL and City of Ottawa staff project team, not only was a practical solution established, but more importantly a strong vision for the Main Library was created. Having created that vision, Ajon Moriyama Architect is confident that we can predict an exciting future for the Main Library as a modern, public hub for the exchange of ideas.

# Ottawa Public Library Main Branch Program Validation Report

Prepared for: Ottawa Public Library + City of Ottawa

Prepared by: Ajon Moriyama [Architect](#)

25 June, 2014

Project Number: CR009800

## Program Validation Process

“Inspire and Engage”

Methodology and program validation process:

Following the identification of preliminary functional requirements, program validation occurred through a series of meetings that took place on March 6, 2014 and March 7, 2014. These meetings were headed up by Ajon Moriyama Architect and together with key OPL and City of Ottawa staff representative of the functional areas. The purpose of these meetings was to brainstorm and develop a vision for each functional component while validating current needs and future trends in terms of area and requirements. The space allocation discussions were focused on the short-to-mid term, i.e. 5 to 10 years into the future. The individuals involved in these meetings were representative of the following functions: Entrance/Welcome Centre, Popular and New, Children's, Teens, Reading Space, Information Commons, Maker Space, Learning Space, Local History and Genealogy, Business and Careers, Newcomers, Exhibit Space, Meeting Rooms/Community Spaces, Materials Handling, Building Services, and Corporate and Administrative.

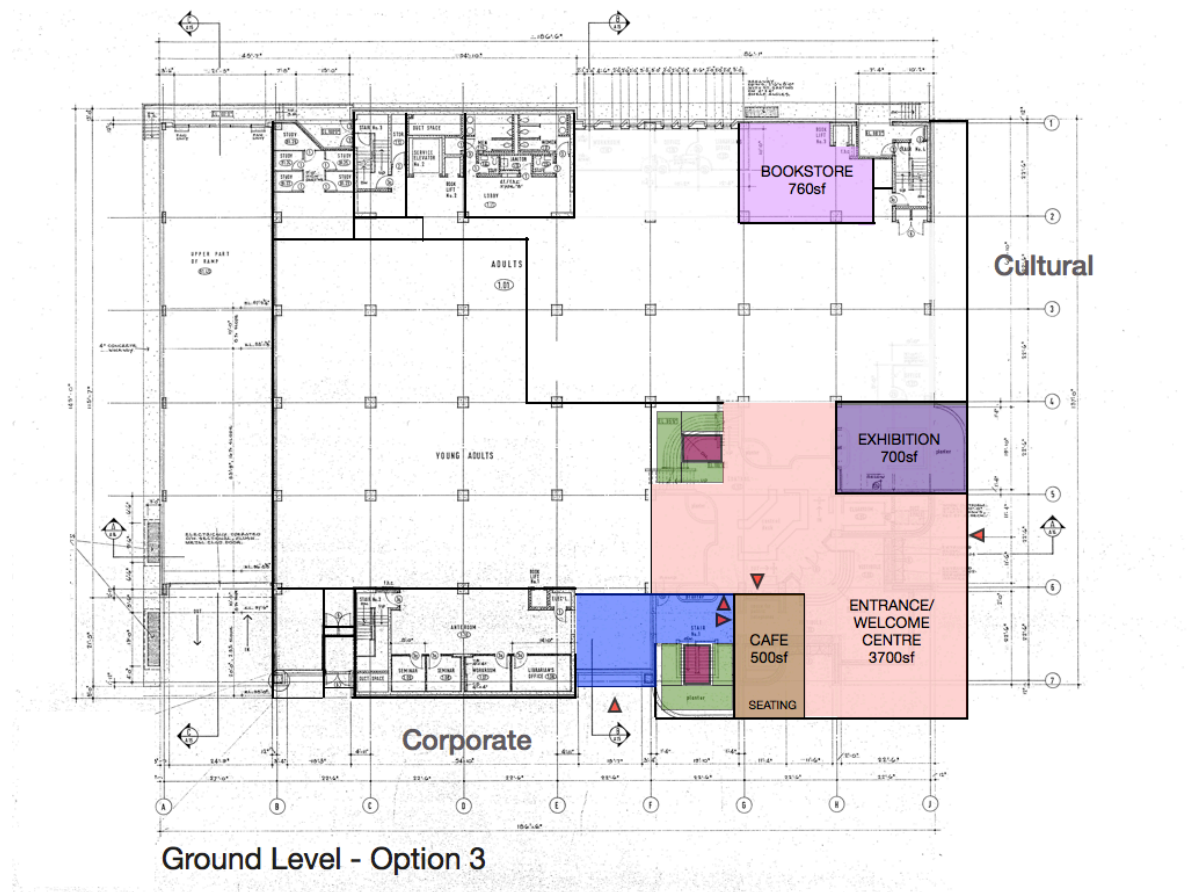
The study was carried out with the following assumptions applying to all options:

- possible relocation of staff spaces to the leased 4<sup>th</sup> and 5<sup>th</sup> floors at 191 Laurier Avenue W.
- shelving height (5' max in adult; 4' max in kids) and use of mobile shelving
- flexible spaces
- parts of the library that will be designed so that they could be open for extended hours
- CPTED principles e.g. open sight lines, no dark corners
- customer self-serve
- move away from large, multiple service points to single point of service
- structural load restrictions have been considered in the placement of functions within the existing floor spaces
- AODA and City of Ottawa Accessible Design Standards compliant
- staff workstations will be shared for public service employees
- more group and quiet study spaces
- more multi-purpose spaces being designed for customers to access library resources (print and electronic) and / or more public spaces for users to work on their own
- increased focus on customer self-service enabled through technology
- less space for collections
- installation of RFID (radio frequency identification) sorting system to provide more convenient and efficient handling of returned materials for the Main Library
- customer service models which move staff away from traditional service desks to a single point of service based on roving staff
- design supports delivery of modern library services
- Wi-Fi access is available throughout building
- building is designed to minimum LEED Silver standard

## 1) Entrance/Welcome Centre

As the first point of contact, the Entrance / Welcome Centre should be an open and welcoming space that lets people know they are entering a library building. The Entrance/Welcome Centre is the primary point of access to the Main Library. Functions included in this component are: orientation information and primary service point; marketing area for OPL resources; community information hub; FOPLA bookstore; exhibition space; community information hub; security services and a café.

Navigation throughout the library can be facilitated by providing a visual connection to all floors of the building. Signage and way-finding signage should be simple and straightforward to guide visitors throughout the library, which encourages them to explore and discover. Where possible, design features such as stacking similar functions, or creating “landmarks” as reference points should help orient visitors as they wander through the library.



Location: First Floor

Size: 3,000 sf  
 Welcome Centre + Café: 2,000sf  
 FOPLA Bookstore: 1,000sf  
 Lobby: TBD

Adjacencies: Metcalfe and Laurier streets, Popular and New, Children's, FOPLA Bookstore and Café.

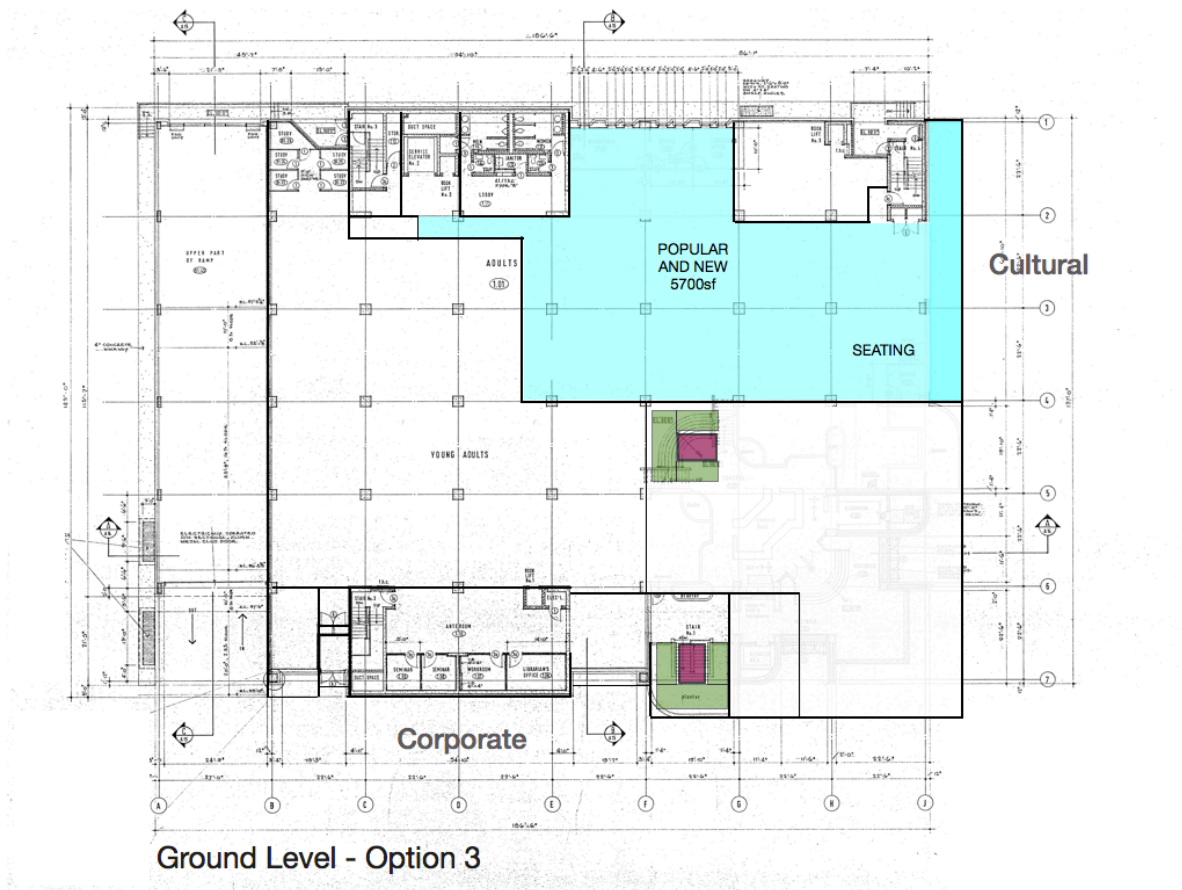
Comments:

- This space must be welcoming during the day, evening or night. It should be well lit and use warm and natural materials.
- Views should be provided as deep into the library as possible. This visual access should not only be from the street before one enters, but once inside it should be both horizontally across the floor as well as vertically up throughout the whole library, including the events space on the 4<sup>th</sup> Floor (see section 10, MEETING ROOMS / COMMUNITY SPACES).
- This area will operate in conjunction with the Popular and New area, therefore will be designed so it could be open extended hours. This will avoid duplication of shared activities such as the self-checkout.
- When the library is closed, it should continue to feel inviting by engaging passersby and enticing them to return when the library is open.
- The security area should be located near the entry point but beyond the Welcome Centre. It should be out of sight when visitors first enter, to avoid feeling intimidated or being watched.
- Some flexible seating is required.
- Way-finding signage should be clear and simple to provide easy navigation throughout the library.
- Self-navigation can be facilitated by stacking similar activities on each floor such as: service hubs, wash-rooms, meeting rooms, copiers, stairs and elevators.
- This will be a noisy space. Noise from this area must be considered and mitigated, especially in the atrium space.
- "Merchandising" must be coordinated with the Popular and New space to develop the best way to promote all of the library activities. This is particularly important after hours when the rest of the library is closed.
- The Café with seating and after-hours access is seen as more desirable than vending machines.

## 2) Popular and New

This component is the neighbourhood branch for downtown. As a new concept, Popular and New is a customer space that could potentially stay open until midnight. This space will provide easy access to Express material and Holds and promote browsing to help introduce visitors to other activities and services provided by the library. This space will also include: small collection for children, magazines, merchandising and a catalogue station.





Location: First Floor

Size 5,000sf

Adjacencies: Entrance/Welcome Centre, Materials Handling, FOPLA Bookstore, Children's, exterior windows, washrooms & Café.

Comments:

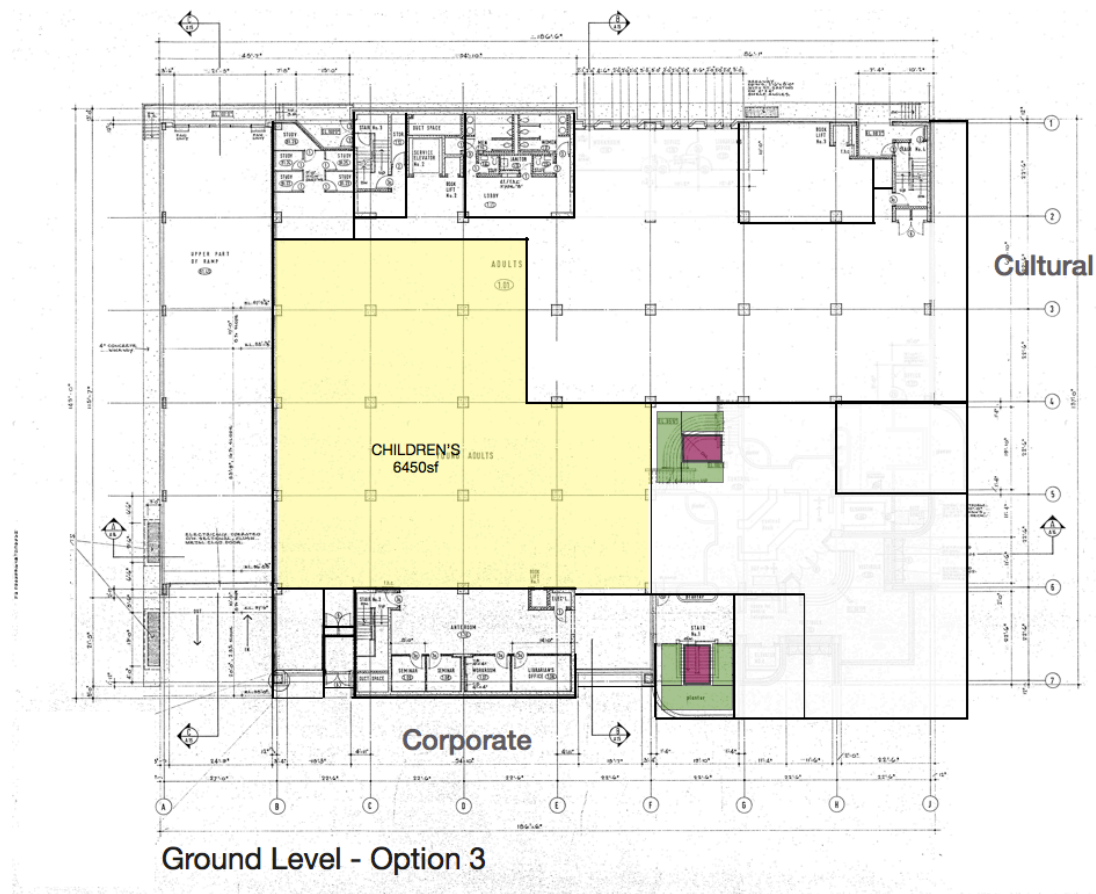
- This area houses popular books and materials from each department along with Express materials.
- Holds would be located here for quick pick-ups. This area should be located at the back of the space to encourage customers to browse as they walk through it. This will help extend their stay and introduce visitors to other services provided by the library.
- With its potential for extended hours, this space must be designed to be physically separated from the rest of the library. However, the goal at all times is to make it feel integrated with the rest of the library.
- It is essential that "merchandising" showcase each collection with thematic displays. They must be engaging to draw visitors to explore the rest of the library and the departments highlighted. This can also be achieved in a digital format.
- Seating should be available. Bar stools or perch seating by the window is preferred. Average sitting time in this area should be less than 1 hour to accommodate the high turnover and high traffic flow.

### 3) Children's

The Children's component will include collections, as well as study, learning and program spaces (wet and dry) for children under 13 years of age. Zones within this space include early literacy, pre-school, middle years and tweens. Stroller parking is required.

The Children's area must offer a fine balance between being visually welcoming while ensuring the safety and protection of the children using it. The perimeter of this area must first prevent children from wandering off on their own and secondly, it must prevent children from being put at risk from people other than their caretakers.

A synergy should be created with the Popular and New area to provide caretakers with easy access to material while in the library with their child/children.



Location: First Floor.

Size: 6,000sf

Adjacencies: Popular and New, Entrance/Welcome Centre, washrooms, natural light.

Comments:

- The design should be inspired by the “Every Child Ready to Read” principles: Talking, Singing, Reading, Writing and Playing.
- Create an inspiring environment that promotes early years study and learning while highlighting the theme of “play”.
- The space should feel bright and airy and maximize daylight. The use of colour is important.
- Windows and glass walls should be translucent to provide a level of privacy for the children and their caretakers.
- This area should be optically open, but must have only one well-controlled entry point.
- Privacy from people looking in is especially important for the Tweens.
- The Early Years section is focused on children up to preschoolers. Picture books are still chosen over e-books for this group.
- The Middle Year children’s collection continues to grow.
- Spaces and activities/tasks should be themed to INSPIRE the children. Creation spaces must go beyond the use of Lego and digital devices. One idea discussed was to have a wall of baskets full of “stuff” to create things with.
- The “things” that the children create should be showcased throughout the library, including in the “merchandising” area in the Welcome Centre. This will help promote this program.
- Wet and Dry areas must be separated.
- It is critical that at least 250sf of storage is accommodated for.
- A family washroom with nursing space and a unisex child size washroom are required.
- Provide designated public internet stations including assistive technology workstation for children and youth.
- Interactive displays can be integrated into this space.
- Listening and viewing stations to be included.
- Stroller parking in the space is essential.
- EDI (Early Development Instrument): at risk children must be accounted for.
- Presently there is a technology divide. It must be assumed that technology based materials will become more popular in the future and as a result the physical collection will continue to get smaller.
- It is believed that this will change in the future.
- The changing family demographics in the downtown area suggest that there may be fewer children in the future. Therefore, it is critical to understand the impact on this department from the Community standpoint. It was also noted that this is a small catchment area from a schools perspective.
- Newcomer families generally will use this space and the other library services when they first arrive to Ottawa. Newcomer grandparents’ needs must also be taken into consideration.

#### 4) Teens

The component for teens includes teen print fiction but the emphasis is on technology, gaming, group study, learning, socializing and creation spaces.

The success of this space is to create a “relaxed” environment for gathering that combines learning with shared teen interests. Using design, the goal is to transform the library into a gathering spot that provides teens with variety and options. This can be achieved by designing a less regimented space that balances a sense of freedom and containment. These spaces will consist of loud, quiet, group, and smaller areas. The design and planning of this space should generally allow teens to be relatively loud. Teens want to be seen and as a result, connection with the outside/windows would be viewed as positive.



Location: Second Floor.

Size: 2,500sf

Adjacencies: Maker Space, windows, visible location and café.

Comments:

- This is a growing area that requires more space than is currently available.
- This should be a relaxed environment where teens are allowed to “loungue-out”.
- Teens want to hang-out as a group. Therefore group activities and group spaces are essential.
- The design should help promote the variety of special interest workshops.
- Display space for teen work should be available in this area as well as in the merchandising space in the Welcome Centre.
- Teen Tech Week can help create a buzz and enthusiasm for this area.
- Accommodate trends such as “HOMAGO”. HO: “Hanging Out”, MA: “Messing Around” and GO: “Geeking Out” – Kids living and learning with new media.
- Public PC's should be able to be configured for group activities.
- This space must develop a collegial spirit amongst the teens. They play games together which develops a community of gaming, and a means for teens to meet each other.
- Technology is important. Therefore the need to develop high-tech digital areas is important. This area could also include a large screen monitor for showing movies. More interactive displays are required.
- Social media continues to be important for teens.
- The collection is changing. There is a decreased demand for non-fiction material in response to school projects changing. This work is being replaced by web-based research.
- The demand for paperbacks is decreasing.
- Graphic novels and big series books are increasingly popular. As a result, collections for 17 – 19 year olds are expanding since they are now seen as being more fashionable.
- Face-out display of material and shelves should be on wheels.
- Teens need access to food and beverage services.

## 5) Reading Space

This function includes fiction, magazines and newspaper collections (all formats), reading spaces, and gathering spaces for such activities as adult book clubs. In this space, the collections are reducing quickly due to the ease and immediate access to this information online. As a result, this space is transforming into more of a gathering and meeting place. With this change, this space offers a more retail feel, and is comfortable and welcoming.

Location: Second Floor.

Size: 15,000sf

Collections:	10,000sf
Gathering and Reading Spaces:	5,000sf

Adjacencies: Newcomers



**Second Level - Option 3**

**Comments:**

- This is a decreasing collection in response to the increased availability of online information.
- The Express books/material will be located in the Popular and New area.
- The Newspaper area should act as a transition area to the Newcomer space and incorporate world language newspapers.
- Window spaces are for the public places to sit, lounge and read.
- There is a need to better define or separate the quiet zones from the group spaces.
- Most meetings are currently one-on-one. Therefore, gathering spaces can be more informal/flexible.
- In 5 years, gathering spaces will be even less structured and there will be a trend to move to more discussion groups such as adult book clubs.
- The gathering areas take up approximately 1/3 of this space. Even though they are interspersed throughout the space, these spaces should be as flexible as possible by using movable partitions, tables on wheels, and chairs that can easily be regrouped and rearranged. An unenclosed area with a retractable projector and screen could provide an informal presentation space in this area.
- Learning Pods in the middle of the space are desirable.
- Glassed-in tutoring/meeting rooms will allow discussions to occur quietly while still remaining visible.
- Some larger workshops may be held in other meeting spaces on the same floor.
- Provide display areas that highlight merchandising throughout library.

## 6) Information Commons

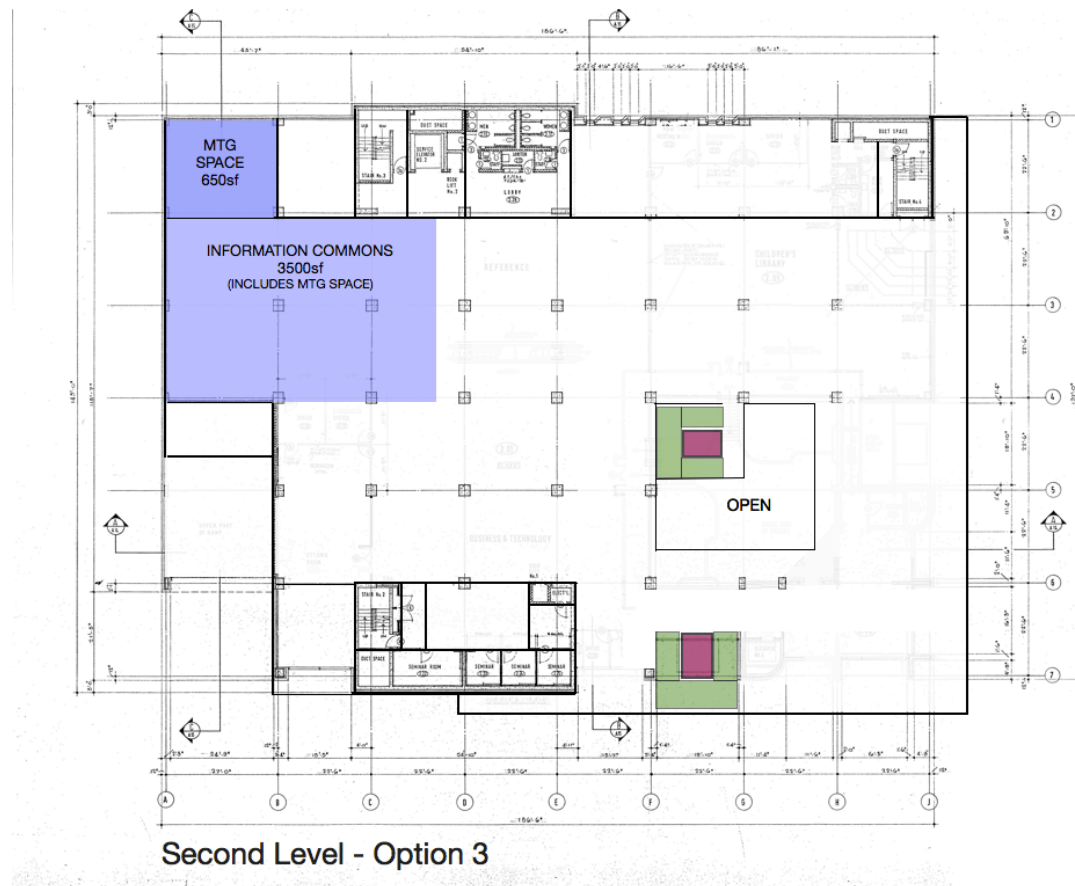
The Information Commons component contains the centralized area for public computer Internet use, electronic device lending and computer training.

Location: Second Floor.

Size: 4,300sf

Public PCs (50):	2,000sf
Electronic device lending:	300sf
Labs:	2,000sf

Adjacencies: Maker Space





Comments:

- There should be two 12 – 14 person enclosed glass learning labs.
- To provide flexibility, movable partitions should be considered.
- Electronic devices are loaned out from this area. They are recharged within an enclosed and secure space.
- Secure storage space should be provided.
- Standing stations should be incorporated in the design.
- Public charging stations for personal devices may be considered.
- This space must be flexible as more people move away from public computers to using their own devices.

## 7) Maker Space

*Maker Space refers to any place, even digital space, that promotes active involvement in making or creating something (both physical and digital). The MakerSpace component is a technology driven space that facilitates customer fabrication of items; video, music and photo editing; videoconferencing; and associated technology training.*

*"During the past year, MakerSpaces have been gaining traction in libraries. A MakerSpace is a place where people come together to design and build projects. MakerSpaces typically provide access to materials, tools, and technologies to allow for hands-on exploration and participatory learning. They are occasionally referred to as fablabs, hacker-spaces or tech shops. MakerSpaces emerged around 2005 as an offshoot of the Do-It-Yourself (DIY) movement. A MakerSpace often includes a 3-D printer, digital media and fabrication software, tools for welding, woodworking, and soldering, traditional arts and crafts supplies, and other electronics. However, MakerSpaces are defined not by specific equipment but by a guiding purpose to provide people with a place to experiment, create, and learn."*

*~ Fisher ES. Makerspaces move into academic libraries. ACRL TechConnect blog.*

Location: Second Floor.

Size: 1,500sf

Adjacencies: Teens, exterior wall for ventilation, windows and prominent location.

Comments:

- This will be a growing service.
- Key concepts for this space: Flexibility, Visibility and Storage.
- The goal is to bring people together through creativity in a place for learning and discovery.
- This space must be enclosed but visually connected (glass box). The glass enclosure is primarily to limit sound transmission.
- This space will be segmented into different zones.
- The space should be modular to provide flexibility to shift things in the future, including furniture. It is critical that the design does not limit future opportunities or the ability to transform.
- Less big projects, but more smaller and individual activities
- The focus will be on more craft oriented things, e.g. making jewelry, creating with Lego, bike repair, etc.
- Large secure storage room is critical to house all of the base material.
- Need for heavy-duty electrical power supply to deal with all of the equipment.
- This area must accommodate a wide range of furniture and equipment such as 3D printers, laser cutters, soldering, large work tables, craft area, sink area with countertops, storage for supplies.
- Wet area with 2 sinks. The sink is where the excess material from the 3-D printer is dissolved.



- Eye wash station.
- Some spaces will require special ventilation such as the laser cutter area.
- There will be light woodworking, but a full wood workshop will not be provided.
- Very good general lighting will be critical. Each specific zone will have task specific lighting.
- The prime function of the Video filming Area is to learn and to understand the process. This digital focused learning will include: video, photo and audio editing to facilitate small-scale films.
- Provide a studio zone with sound recording.
- Green screen.
- Light control is critical.
- Sound dampening not sound proofing this area is important.
- In order to control the peripheral light contamination, blinds/black out screens should be provided.
- There is an interest in robotics.
- Wall-talkers: white board wall coverings. Provide white walls with clear film on them and/or glass partitions that allow you to draw on.
- The space should also accommodate the younger users, 6 - 18 years old. Plan for creation spaces and activities for kids and teens.



## 8) Learning Space

The Learning Space functional component includes non-fiction collections (all formats), quiet work, study (individual and group) spaces, tutoring spaces, and learning labs.

These spaces should be made as flexible as possible to accommodate changing needs.



Location: Third Floor.

Size: 15,000sf:

Collections = 10,000sf

Study, Tutoring and Labs = 5,000sf

Adjacencies: Business and Careers, Local History and Genealogy, meeting rooms.

## Comments:

- Questions are asked differently than they were historically.
- There is an increasing need for one-on-one sessions.
- This space should be as open as possible and have a boutique aesthetic.
- Offering different types of seating options is important.
- Enclosures should be translucent. This will provide a level of privacy for conversations while ensuring safety and proper conduct for people in those spaces.
- There is a need for a Program Room for a minimum of 30 people. This room should be very flexible in the way that it can be laid out. It should accommodate several seating configurations, e.g. classroom seating, boardroom seating.
- There should be more book display capacity, including face out display on the end of each of the stacks.
- Shelves should be a maximum of 3 shelves high (5 feet) and mobile shelving will be incorporated.
- Consumer Health is a very popular section which could be a focal area.
- Even though there is a general shift towards eBooks, there are presently not many eBooks formatted for reference material and, as a result, the public is still requesting printed material.
- The non-fiction print collection will continue to reduce in size.

## 8.1) Local History and Genealogy

This is a specialized Learning Space which will include collections (print, digitized and non-traditional formats) and work spaces (individual or 2-person appointments). Genealogy and Local History are much appreciated and complementary services. They should be kept together, in order to accommodate their continued growth in use. There is a shift for this area to be open and easily accessible by customers.

Location: Third Floor.

Size: 4,000sf

Adjacencies: Learning Space, program rooms, learning labs.

## Comments:

- This collection will continue to grow, therefore flexibility will be important.
- This space does not need to be showcased in the same manner as other sections of the library. The current location of the local history section (the Ottawa Room) is acceptable. Note that the genealogy component would be moved up one floor to join it.
- Provide distinct furniture in the "Ottawa Room" to make this space unique and stand out.
- Presently, the Ottawa Room is closed when there is no staff. This space should be much more open and connected to the rest of the library. In order to achieve this, stacks and/or display cases can be used to help define this space and open it up more without building more walls. This will also help draw people in.
- It will be possible to open up this section it is does not represent a high risk. Most of the valuable items are securely displayed or are stored.

- Objects can be showcased in display cases within this space as well as in other spaces within the library, such as the Merchandising area.
- The Genealogy Society holds talks at the library which can be offered in program space.
- There are two components to the Genealogy Department:
  - o Regular Genealogy
  - o Ottawa Genealogy
- There is a need for a program room/space as well as gathering and seminar spaces.
- More tutoring spaces for genealogy are needed to accommodate the high level of privacy required for the one-on-one discussions with staff. There is lots of consultation especially with the genealogical associations.
- Quiet spaces should be enclosed with translucent glass at least to waist height.
- There are regular events that should be kept within this space if possible. It was discussed that a retractable screen and projector could be installed to allow for informal events to occur by simply moving tables out of the way and dropping them down.



Third Level - Option 3

## 8.2) Business and Careers

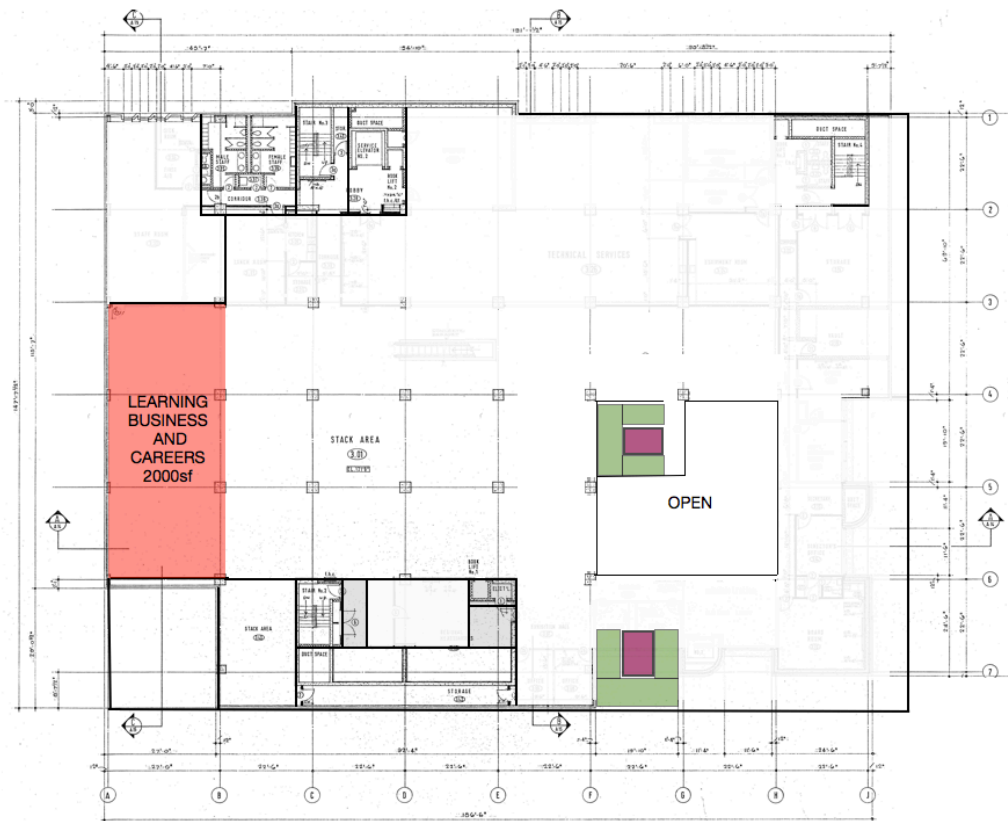
This is a specialized Learning Space which includes collections and work spaces (for individuals and for 2-person appointments).

OPL provides a job search service to find work to those looking for employment, including new graduates. This function also helps other groups, e.g., real estate agents, to further their knowledge base for their specific profession. This service also provides job seminars and workshops. Much information is available online, e.g. comprehensive business databases. With expanding job search methods now using social media, this space may be able to be reduced in the future.

Location: Third Floor.

Size: 2,000sf

Adjacencies: Learning Space, program space



Third Level - Option 3

## Comments:

- A large meeting room on the floor or within this space is required to accommodate workshops.
- Job seminars and workshops are marketed within the library as well as on the website.
- One-on-one meeting rooms require network and Internet access.
- The tutoring rooms should be enclosed with one or more glass walls.

### 8.3) Newcomers

This is a specialized Learning Space which includes collections, gathering spaces and tutoring spaces which supports services to residents new to Canada. By providing flexible meeting and gathering spaces, the goal is to make the Newcomers' functional component a community space and multicultural hub. This service provides space for conversation groups to meet during all hours of opening.

Location: Second Floor.

Size: 3,500

Collections, Gathering and Tutoring Spaces: 2,000sf  
Program Room: 1,500sf

Adjacencies: Newspapers to create a transition space with Reading Space.



Comments:

- This collection continues to decrease, but the demand to provide gathering and meeting spaces continues to increase.
- This space must provide as much flexibility as possible to stay relevant.
- This is a front line customer service that provides resources for the rest of the city. There are programs that are organized inside and outside Main Library.
- The services provided are volunteer and/or partner based programs.
- There are 16 to 18 groups that currently meet weekly. It is important that this space has a sense of openness and is welcoming.
- One meeting room should accommodate 25 - 30 people. It should have glass wall(s) to provide security and to draw people in. This room should include a projector, laptop and speakers and black-out capabilities.
- Break-out spaces should be included beside the large meeting room.
- The tutoring rooms can be shared, if necessary. The need for one-on-one language tutoring rooms continues to increase.
- This collection is primarily comprised of books, CDs and magazines, and continues to grow. Other information is found online.
- Conversation groups are quiet and noisy, so a mix of spaces is required.
- Digital signs will help visitors feel welcomed in their native language.
- This space is also utilized by those learning English or French as a Second Language.

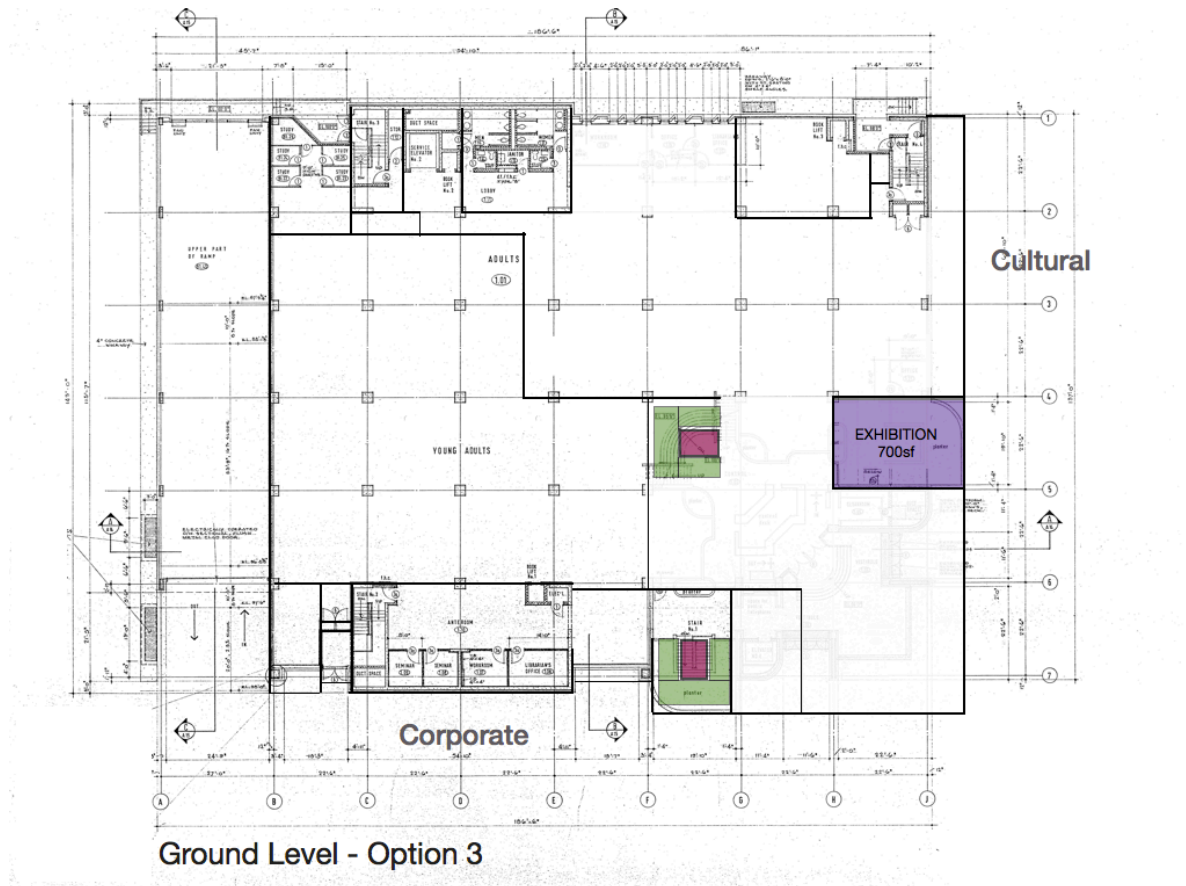
## 9) Exhibition Space

Library exhibition space should be a centrally located function.

Location: First Floor

Size: 1,000sf

Adjacencies: Entrance/ Welcome Centre, Popular and New and Exterior, Café.



#### Comments:

- This is to be a flexible and secure space that can showcase art and other crafts from either within OPL's collection or curated shows to be brought in. If possible, the design should be able to accommodate after-hours events without impacting the security of the rest of the library.
- Higher quality exhibits will also require a higher level of security.
- The location of this space needs to be carefully considered. The amount of glass must be thought-out carefully. The space should be welcoming and entice people to enter. Limiting natural light and the amount of glass is critical in providing flexibility for this space.
- The location of this space was discussed and there is some flexibility to where it goes; the preference is on the first floor.



## 10) Meeting Rooms / Community Spaces

A variety of flexible, wired meeting rooms are required to support library, City and community programs. Some meeting rooms should be available when the library is not open. Tutoring rooms are not within scope of this function.

As libraries continue to increasingly transform into gathering and learning places, meeting rooms have become a more critical part of today's library service. Some meeting rooms must be function specific, e.g. children's program area, but most will be designed to provide flexibility and multiple uses.

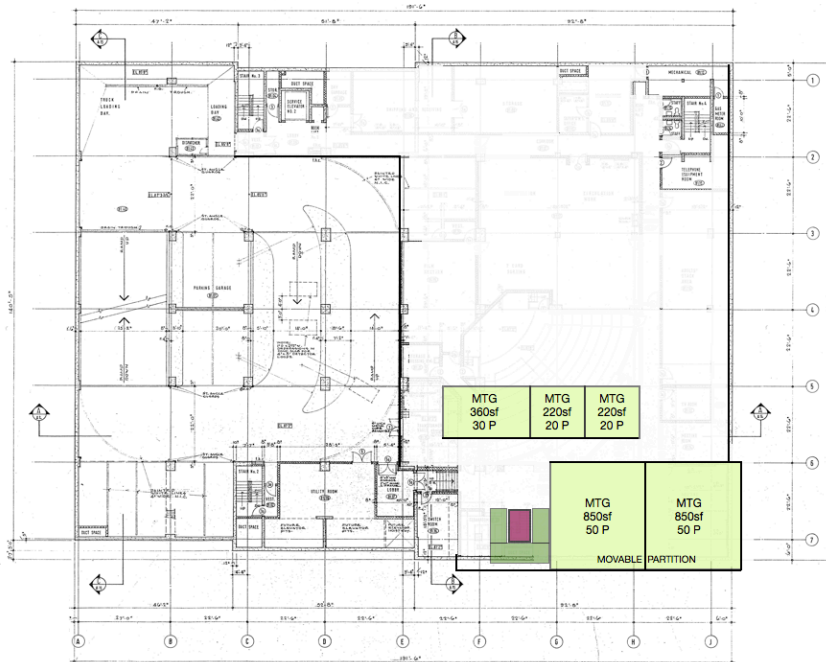
Location: All floors.

Size: 9,500sf

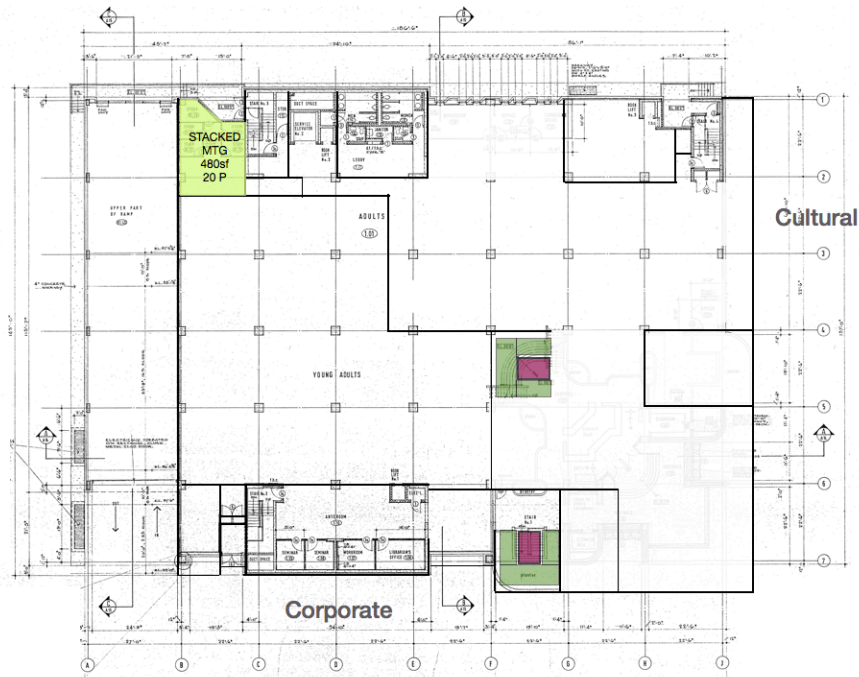
Adjacencies:

Comments:

- All meeting rooms will support wired and wireless technologies including smart boards, LCD projectors, etc.
- It was noted that the 100 person room may need to move out of B1 due to the limited ceiling height which is not seen as being appropriate for a room of this size. If it is moved, it was discussed that it could be moved to a newly constructed space on the fourth floor. If this space is kept in the basement, it will be divided into two 50-person rooms with a movable partition between them.
- It was discussed that a fourth floor "Events" space will be designed to accommodate larger events in a proper meeting/conference setting. This space will showcase the rest of the library by having visitors experience it as they move up the elevators or stairs to the fourth floor. This new space will primarily be used for community and OPL events and could be a new revenue source.



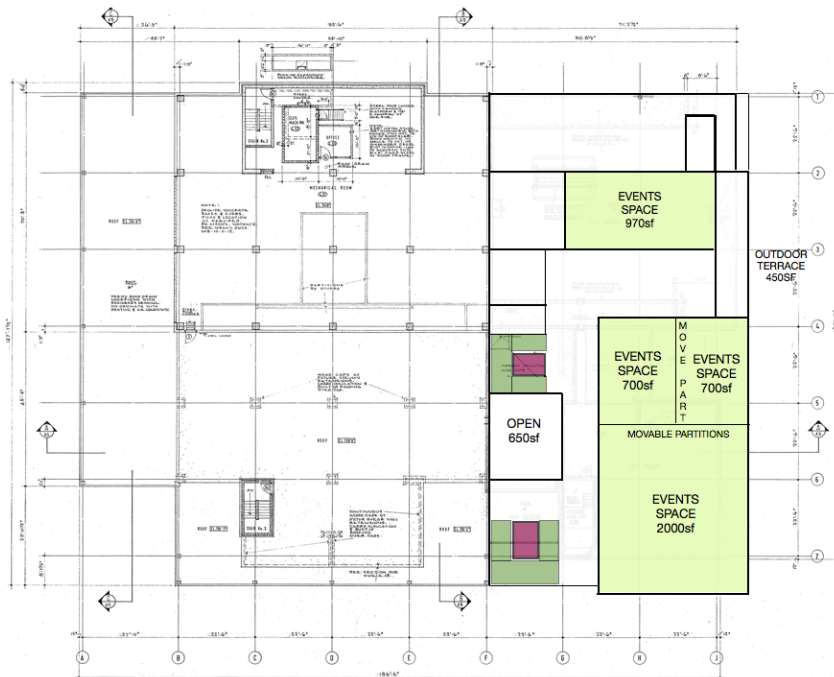
B1 Level - Option 3



Ground Level - Option 3



Second Level - Option 3



Fourth Level - Option 3

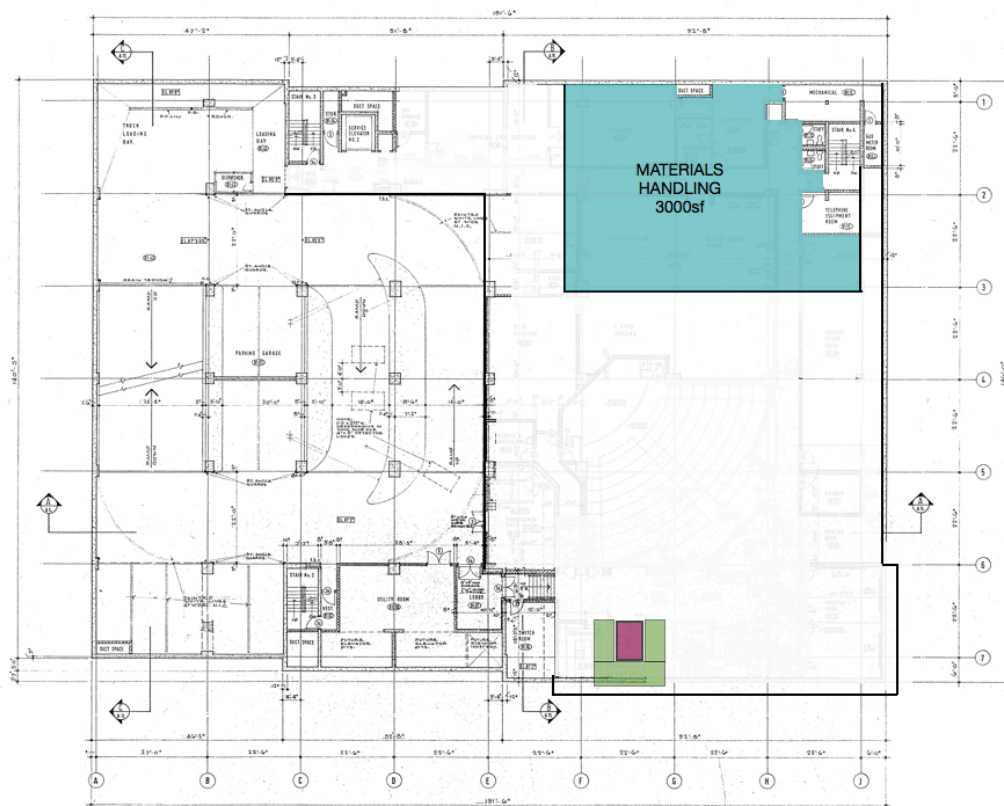
## 11) Materials Handling

The Materials Handling function will increase to support installation of a large (15 bins) automated sorting system; conveyor belts, book returns (internal and external) and smart bin/book truck storage.

Location: Basement.

Size: 3,000sf

Adjacencies: Popular and New and Holds



**B1 Level - Option 3**

### Comments:

- Book drop will be on Metcalfe Street. It should be located near the entrance to provide both an internal and external drop-off in a similar location. The sorter will remain in the basement; this is not ideal but there is no space available on the first floor. It is critical that the materials handling function be housed in a single space to allow for the most efficient sorting process to occur.
- Although it is considered optimal to have deliveries on ground level, it was concluded that the existing situation is still a more favourable option than addressing the circulation issues due to the ceiling height and the width of ramp in the garage.

- With the time restrictions on the elevators, there are limited options to streamline the delivery process to 191 Laurier Ave. W.
- There should be a minimum of 50sf of storage with shelves on each floor near the service elevator for managing the movement of materials between floors.
- Space is also required for IT and printers on each floor.
- Collections are getting smaller, but the demand on Holds is going up which continues to drive the importance and size requirement of the materials handling function. The Holds service has been increasing; this is not likely to change until e-books become more widely available and popular. At that time, there may be a need to change the sorting process.

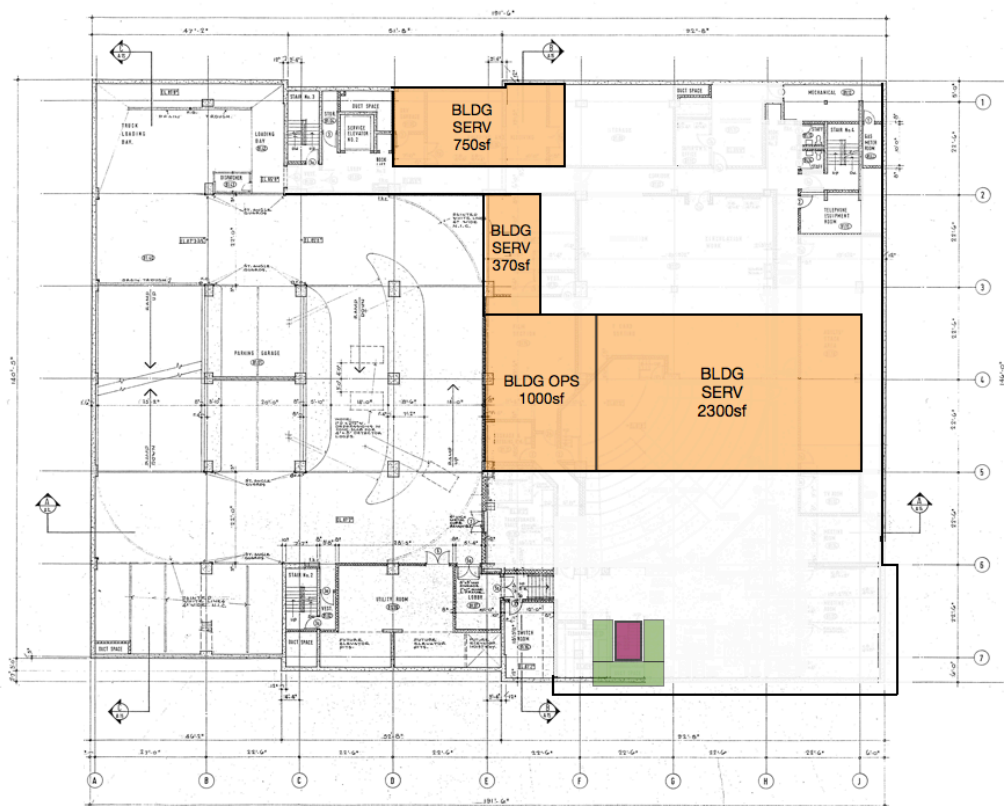
Components of this space:

- Internal and External book drop entry points feed directly onto a conveyor traveling into the automated sorter system.
- Materials Delivery (materials for Main Library from all other branches) physical entry point allowing for shipping bin delivery off of delivery truck.
- Materials Delivery staging area for incoming shipping bins (to be fed into the sorter)
- Materials Delivery staging area for outgoing shipping bins (filled by the sorter for pickup and delivery to other branches)
- Automated Sorter System (conveyors and sorter bins) scans and sorts library materials (from Internal and External Book Drops and from incoming Materials Delivery) into sorter bins designated for specific location destinations in Main Branch and into bins for other OPL Branches. As bins are filled they are removed from the sorter and are either placed on book trucks for delivery within Main Library or taken to the staging area for outgoing Materials Delivery branch materials.
- Empty book trucks staging area – waiting to be filled with processed materials.
- Sorter bins processing work areas with small desks and PCs where sorter bins are emptied and library materials are sorted onto book trucks, and any processing requirements occur on a PC.
- Filled book truck staging area – waiting to be taken into the library and shelved.
- Current vehicles are 1 1/2 ton high cube vans; height clearance for the vehicle is 135 inches; overall body length would be about 24-26 feet; width clearance, while backing up is 120 inches. Increase to 130 inches width clearance when parked to allow for door openings.
- Loading dock/surface needs to be 38 inches from road level to allow for easy delivery of materials off of trucks. Ideally the dock should have a metal plate attached which can be flipped over onto truck bed. A dock leveler would be nice but probably a prohibitive expense.
- If no loading dock then space needs to be made for the rear gate to be raised and lowered with shipping containers.
- Essentially the truck is unloaded first and then reloaded afterwards.
- Logistically it works best if it is located on one floor and in one area. However, the book returns have to be on the ground floor and the Materials Delivery Shipping deliveries may have to enter from the basement level. Depending on space we see 3 ways of splitting it between floors:
- 1) At a simplistic level the book returns can be fed into a conveyor system that travels to the basement where all the sorter functions occur. This results in all materials having to be sorted in the basement and then moved via elevator to all Main Library collection levels.
- 2) Another way to split it would be to have the ground floor allow for some sorting of material from the internal and external book returns with a possible focus on automated sorting of some materials for Main, for example all items whose destination is on the ground floor. All remaining materials would continue down a conveyor into the basement for their automated sorting.
- 3) The third method would be sort all Main branch library materials on the ground floor and send all other materials to the basement for further sorting. This would focus attention in the basement on materials destined for other branches. It would also mean that materials delivered by Materials Delivery for Main would have to be transported to the ground floor for automated sorting.

## 12) Building Services

The Building Services function includes external deliveries; mailroom; building operations and maintenance facilities; general storage; FOPLA storage; washrooms; garbage and recycling; IT, electrical and mechanical rooms.

These spaces must have easy, convenient access to the shipping and receiving area for the Main Library. The issue is made more complicated as it is required to handle both 191 Laurier Ave. W. (the "Tower") and the Main Library. The fundamental challenge is that the needs for the two areas are very different. There were some preliminary discussions about moving the Materials Handling function to the ground level to alleviate this issue. Unfortunately, a workable solution was not possible due to space and delivery access limitations.



**B1 Level - Option 3**

Location: All Floors.

Size: 13,000sf

Adjacencies: Elevator, service elevator and street.

## Comments:

- In general, deliveries to the building are an issue. It was never designed for what actually happens. Trucks are forced to park partially on the entrance/exit ramp to the underground parking garage. Deliveries to the Tower are problematic since all items are required to be moved across the garage from the Delivery and Receiving area on the north end of the garage to be manually taken through the doors on the south end of the garage. Due to the impact on the parked cars, any major moving must be done after hours.
- This also means that it is difficult for couriers to make deliveries during the day.
- Building Operations should be in the basement. This group also serves other City facilities and should be located where they can easily access their vehicles and their tools.
- Building Operations require 1000sf.
- Staff amenities, e.g. lunch area, are included in the function.
- The size of the phone room can be reduced now that VOIP is in place.
- FOPLA to be adjacent to the recycle area.
- 50sf storage room on each floor.
- 250sf storage room in the children's area.
- 25sf janitor room on each floor.

### 13) Corporate and Administrative

Although staff spaces are typically included in/adjacent to related functional components, due to space restrictions in the Main Library, a minimum of staff spaces will be located there. This component includes corporate services, e.g. Service OPL, as well as work space for staff providing service in the Main Library. Most of the requirement for space will be met using the leased 4<sup>th</sup> and 5<sup>th</sup> floors of the Tower building, with a minimal amount of staff space in the Main Library.

Location: 191 Laurier Avenue W. plus all floors

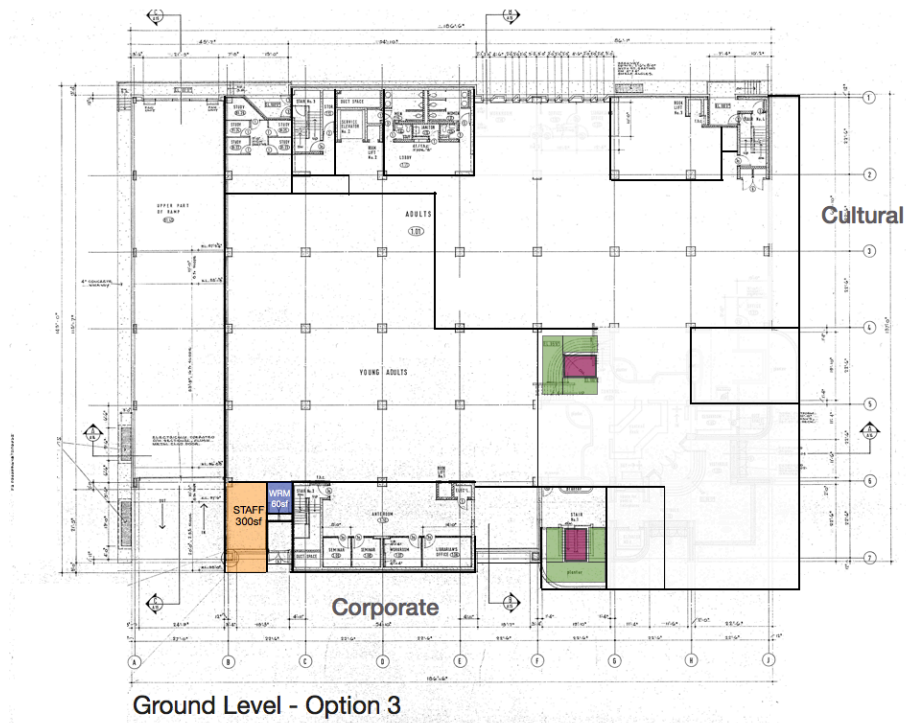
Size: 20,000sf

Adjacencies: None

## Comments:

There is a shift away from staff having their work spaces directly adjacent to their departments. Two or three shared hoteling spaces will be on each floor to assist staff to do their work that requires immediate direct contact with material, but other work and administrative work can be done remotely. As a result of the shortage of space in the library, the Main Library staff offices and work spaces will be shifted into the Tower. It should be noted that in a number of instances staff space in the existing Main Library utilizes perimeter window space on Metcalfe and Laurier. The overall program has made a point of reassigning this space to public usage to bring light, views and optimal reading areas into the overall design concept.





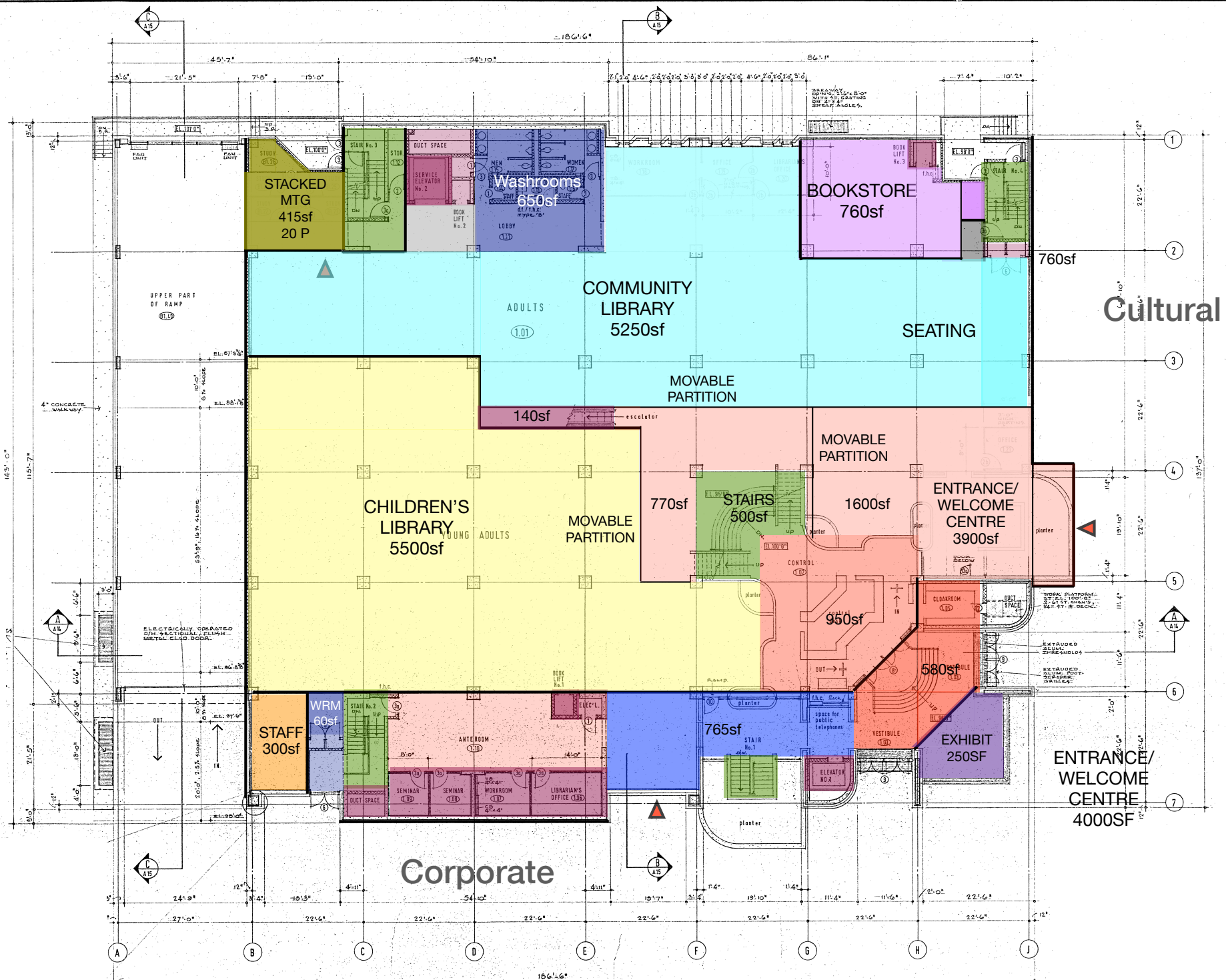




Third Level - Option 3

We would like to thank the staff of Ottawa Public Library and the City of Ottawa for their hard work and dedication to provide us the information and direction to make this report possible:



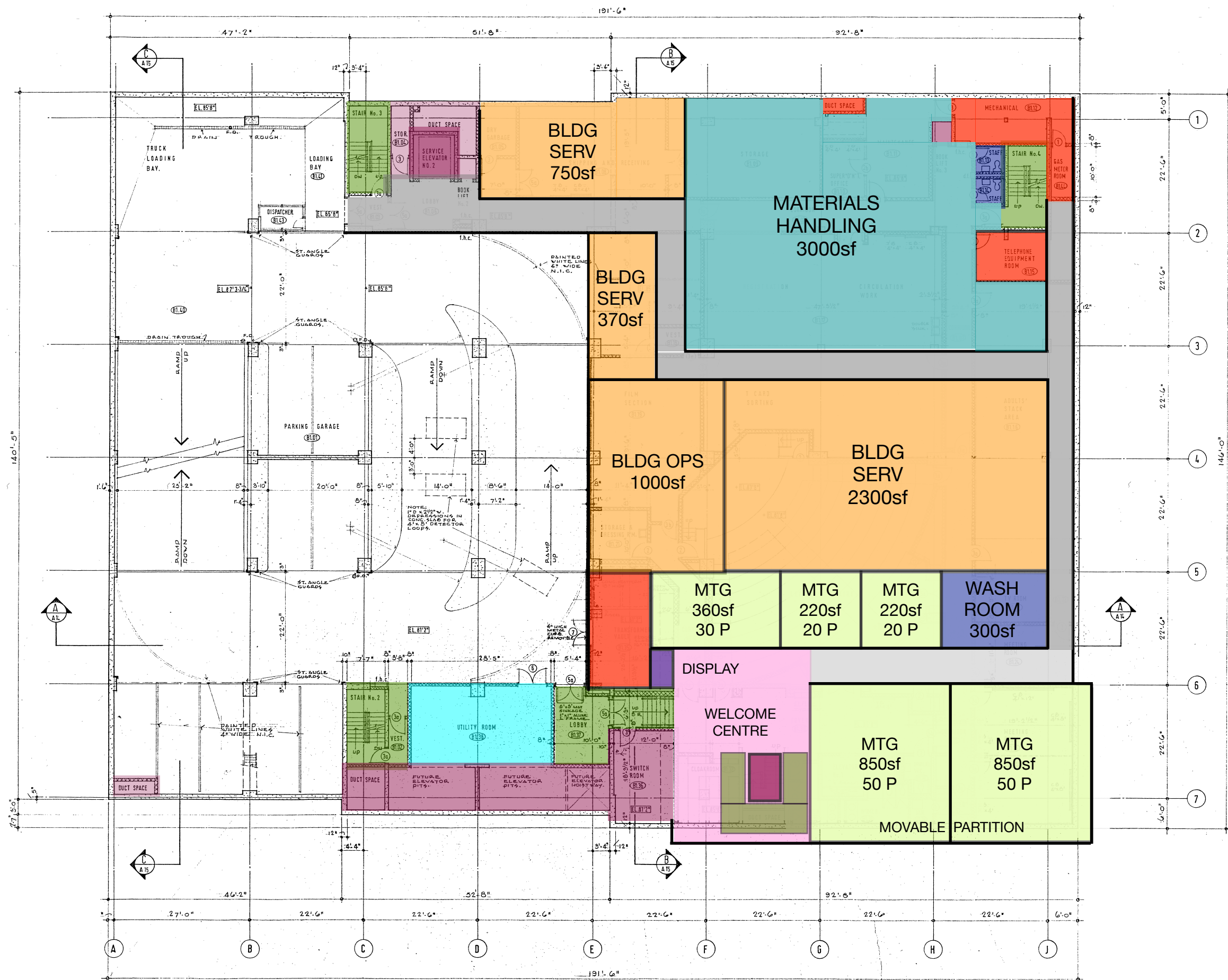


Ground Level - Option 1 (140625)



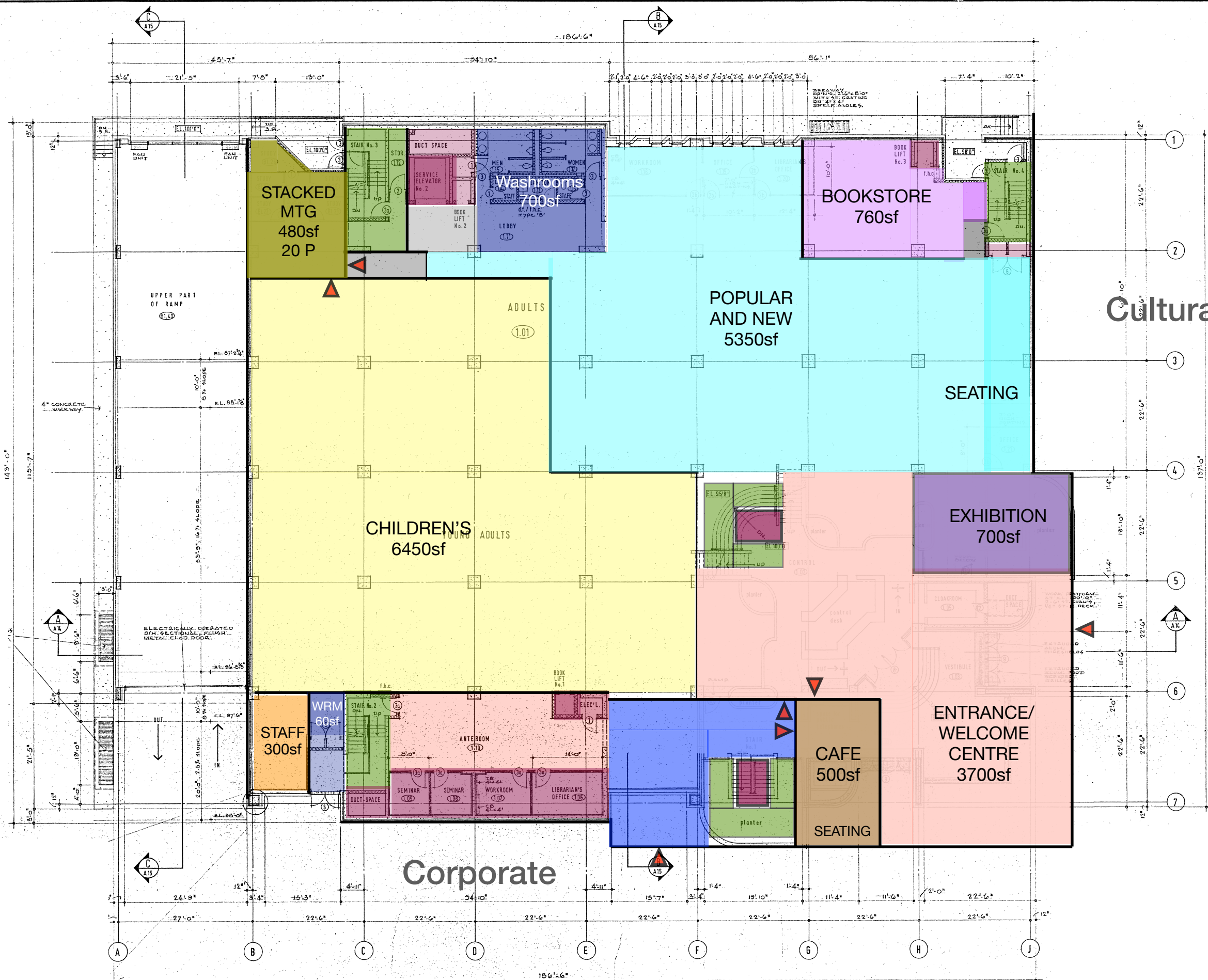




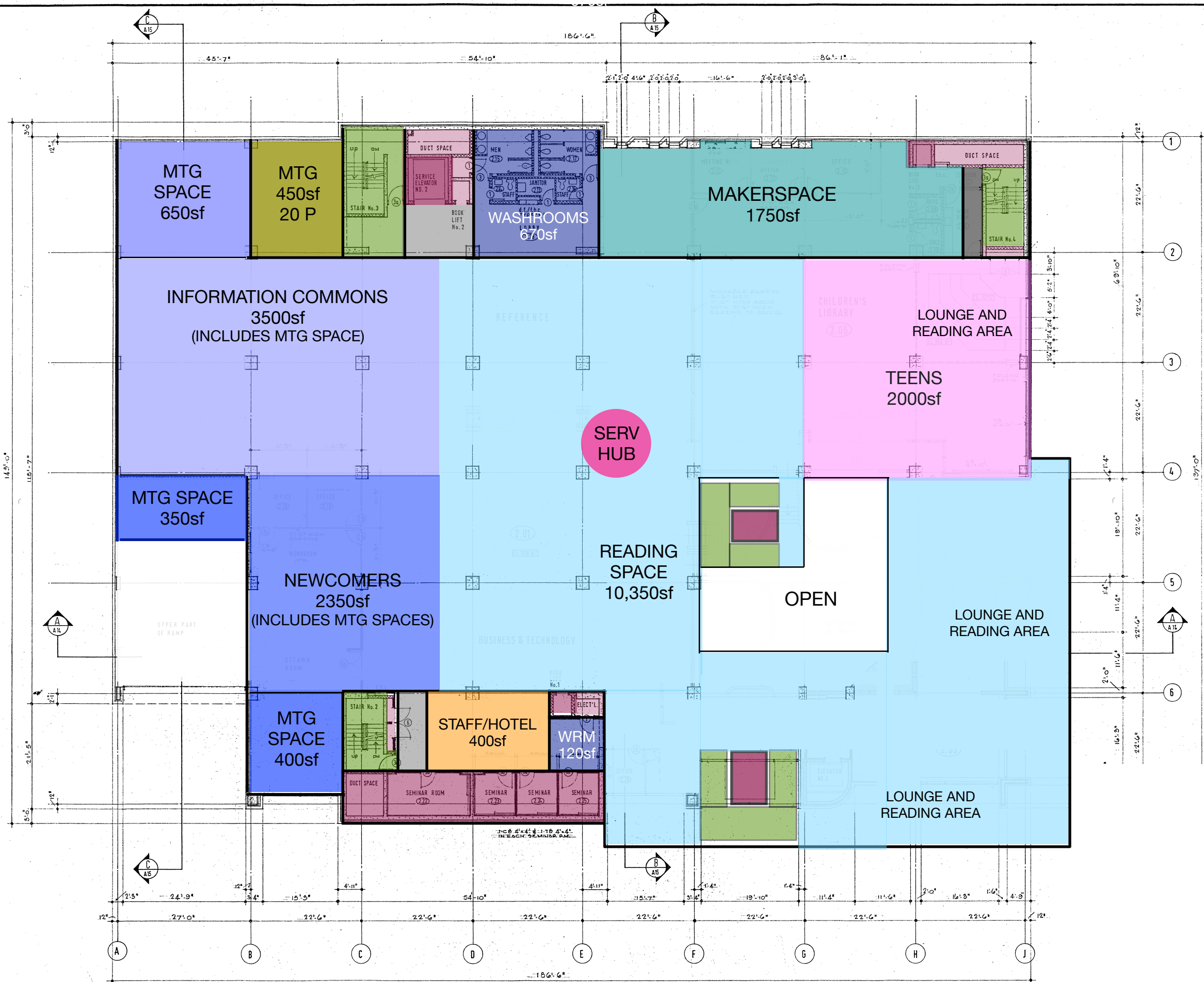


B1 Level - Option 2 (140625)



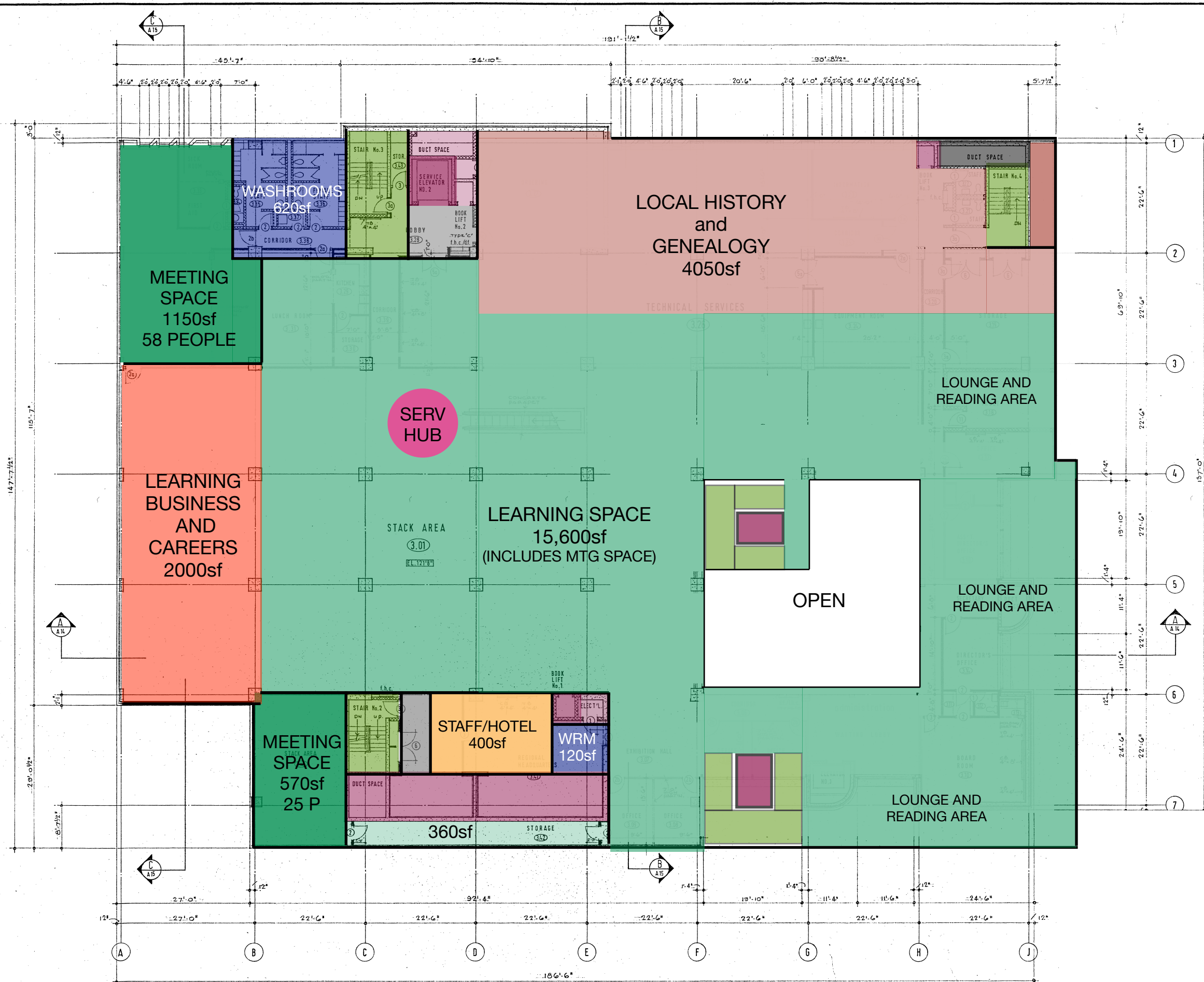


Ground Level - Option 2 (140625)



Second Level - Option 2 (140625)



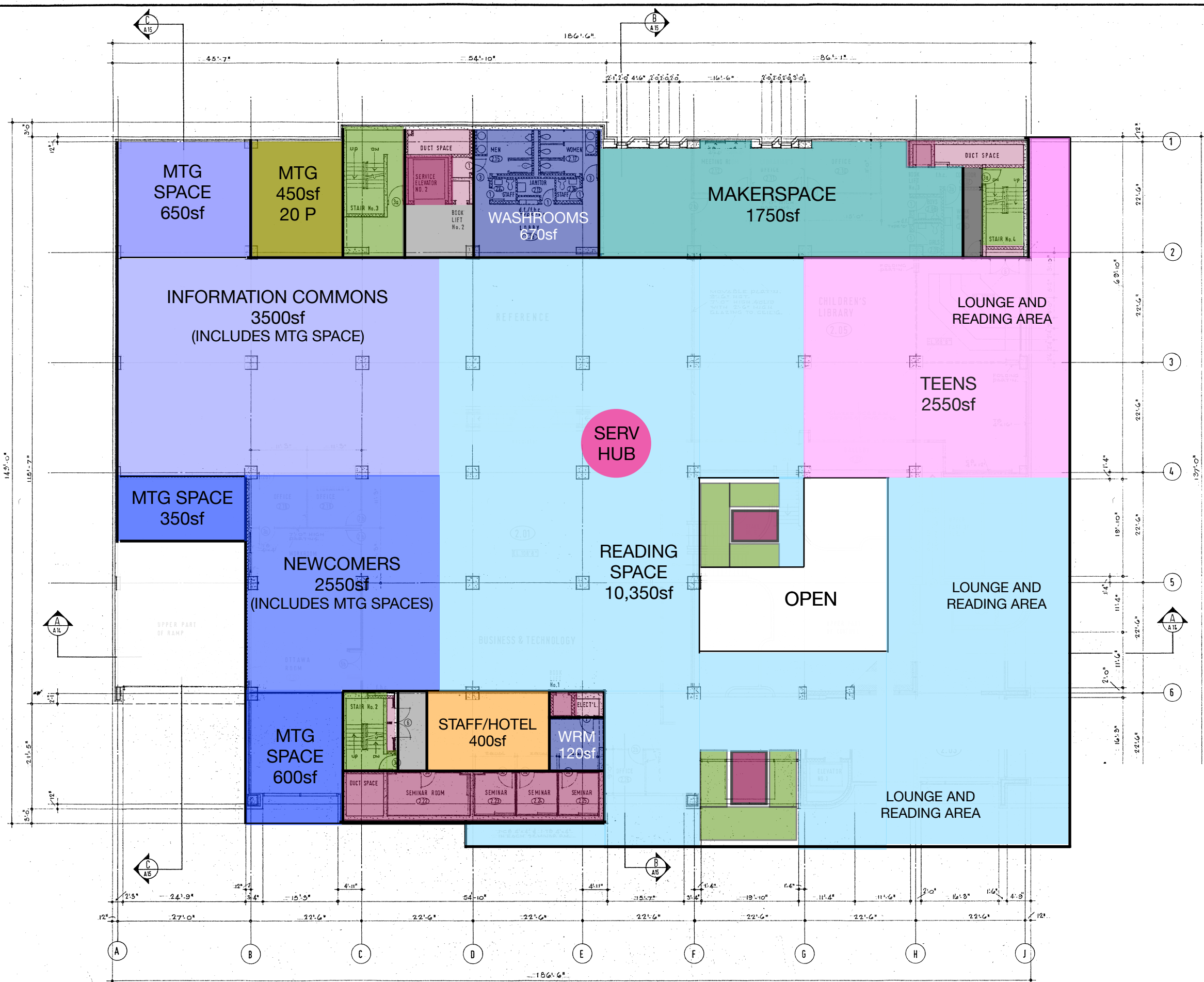


Third Level - Option 2 (140625)





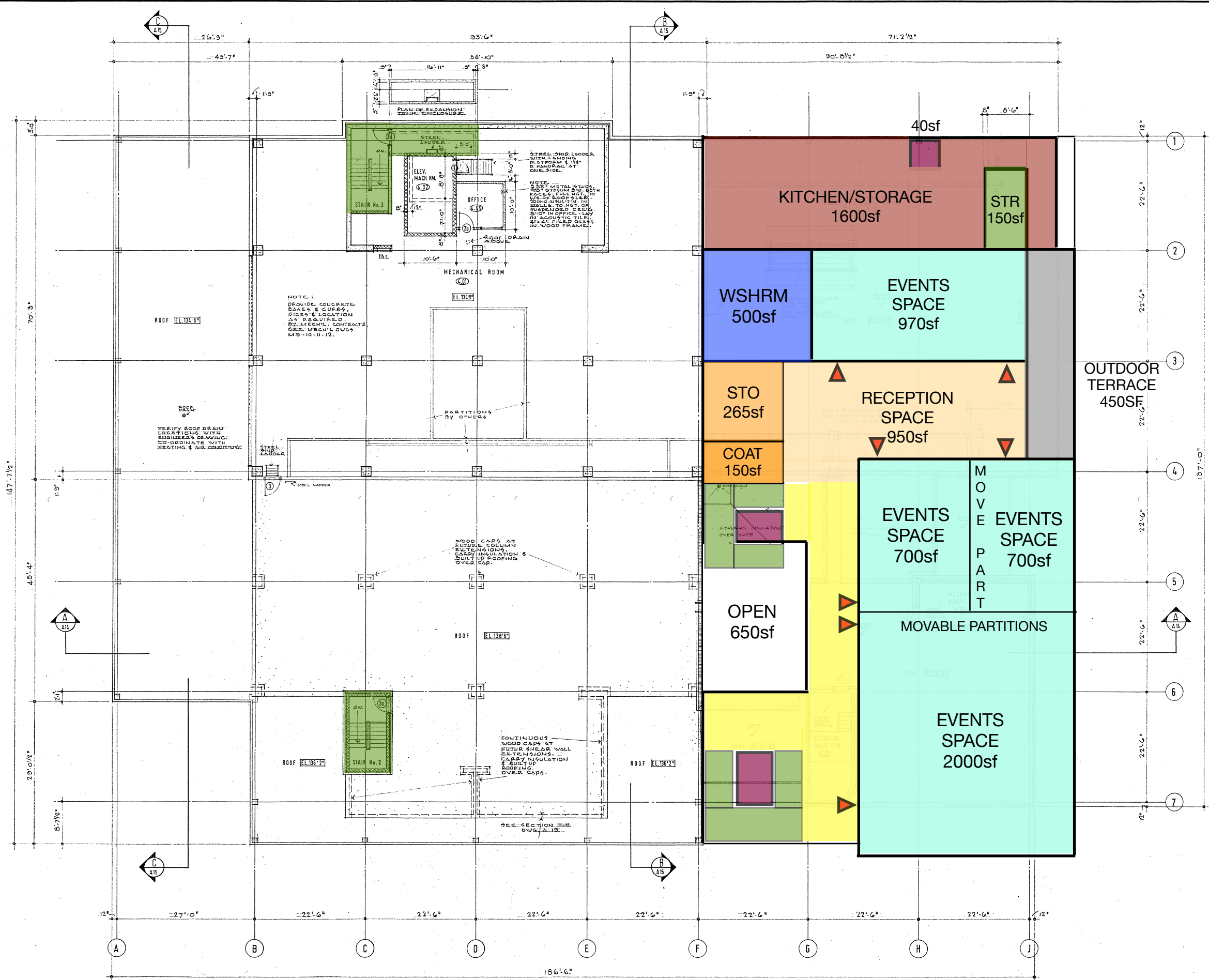




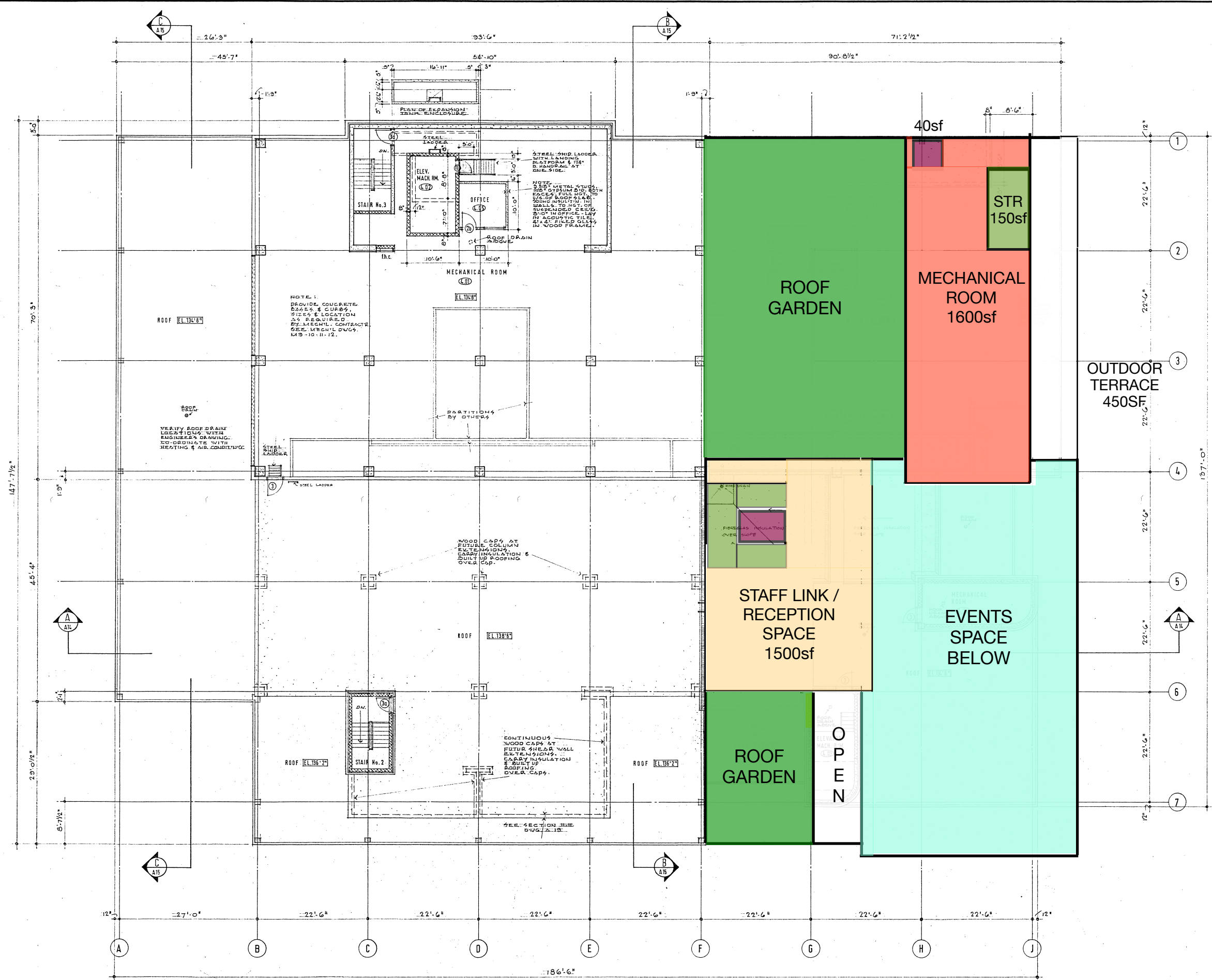
Second Level - Option 3 (140625)



### Third Level - Option 3 (140625)



Fourth Level - Option 3 (140625)



Fifth Level - Option 3 (140625)



Turner & Townsend

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Associate Director

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Ottawa Public Library –  
Ottawa, ON





May 8<sup>th</sup> 2014

**Ref no. 20940**

City of Ottawa  
Infrastructure Services – Buildings and Parks  
100 Constellation Crescent,  
Ottawa, ON  
K2G 6J8

**For the attention of Richard Fouchard**

Dear Richard,

**OTTAWA PUBLIC LIBRARY  
FEASIBILITY DESIGN ORDER OF MAGNITUDE CONSTRUCTION COST PLAN**

We enclose our Order of Magnitude Cost Estimate for the above-noted based on the documentation provided to us, listed in Section 4 of this report.

Please refer to our Executive Summary, Section 1, for specific qualifications and assumptions associated with this Cost Report.

We trust this meets with your approval. Should you have any questions please do not hesitate to contact us.

Yours faithfully

**Neil Kelsey**  
Assoc Director  
Turner & Townsend  
e: [neil.kelsey@turntown.com](mailto:neil.kelsey@turntown.com)

- 1 EXECUTIVE SUMMARY
- 2 ELEMENTAL COST ANALYSIS (OPTION 1, 2A, 2B AND 3)
- 3 AREA SUMMARY
- 4 DOCUMENTATION

Rev	Originator	Approved	Date
0	Neil Kelsey	Neil Kelsey	May 8 <sup>th</sup> 2014
© Turner & Townsend All rights reserved May 14 This document is expressly provided to and solely for the use of City of Ottawa and must not be quoted from, referred to, used by or distributed to any other party without the prior consent of Turner & Townsend who accept no liability of whatsoever nature for any use by any other party			

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# 1 EXECUTIVE SUMMARY

## 1.1 Introduction

Turner and Townsend is retained to provide an Order of Magnitude Construction Cost Estimate based on the drawings and documents listed in Section 4 of this Report. This has also been supplemented by discussions with the appointed Architect for the project, Ajon Moriyama.

We have included for the options provided, which for the purposes of clarity, are stated below: -

- Option 1 – Renovation of existing Library with creation of 2 new Entrances
- Option 2A – Renovation and Expansion to front of existing building
- Option 2B – Renovation and expansion of existing building & Vertical expansion to 4<sup>th</sup> Floor
- Option 3 – Renovation and expansion of existing building, replacement of existing curtain walling and Vertical expansion to 4<sup>th</sup> Floor

This Estimate is for the “hard” Construction Cost component of the project only and does not include for any project soft costs.

We have included for an Allowance of \$100,000 for removal of hazardous material. We received the Hazardous Materials Report only on Monday May 5<sup>th</sup>, 2014 and it is an Allowance within the Report for this reason. As the design progresses, we would recommend that the removal of these hazardous materials is investigated further.

From discussions with the Architect, we understand that the start date is anticipated for the 2<sup>nd</sup> Quarter 2016 and as such, have included for Escalation to this point.

## 1.2 Procurement and Schedule

The Construction Cost Estimate is inclusive of all direct construction costs and contractor’s overhead and profit. It assumes that the project will be procured on a **stipulated sum basis**, and that bids will be received from a minimum of five pre-qualified general contractors. We have assumed that reputable general contractors will be approached to tender for the works and that sufficient interest in the project will generate five tender returns. We also assume that the project will be completed in a reasonable time frame and have not included any premiums required for “fast-tracking” the project.

## 1.3 Risk Assessment

We have allowed for both Estimating Allowance and a Post-Contract Contingency (i.e. for Change Orders that may arise during construction) within the Estimate. There are associated risks with unknown conditions, when working in an existing building and the associated renovation work involved. The Estimating Allowance is at 15% to cover for unknown conditions and as is reflective of the current Feasibility design stage. This cost is included within the Elemental Summary of each Option.

We have also allowed a Contingency of 15% for post-contract Change Orders, to cover for potential changes that may occur on site, which is typical of renovation works of this nature.

#### **1.4 Annual Maintenance Budget Allowance**

We have included costs in association with the Life Cycle Renewals costs included within the Main Library Condition Assessment Update Report, dated September 10, 2012, prepared by Morrison Hershfield. These costs have been prepared by Morrison Hershfield and cover for maintenance of the building from a period of 2012 – 2022. We note that this Report is therefore 2 years out of date and some of the recommended maintenance may have been undertaken.

To clarify, the value of the total maintenance cost is \$6,376,100 for the 10 year period.

#### **1.5 Level of Documentation**

The estimate is based on the drawings and information provided as listed in Section 4 of this Report. It is reflective of rates as at 2Q 2016 and is representative of market/local conditions to Ottawa.

The estimate includes an Estimating/Design Contingency Allowance to account for increases in cost as a result of design development through to 100% complete documentation. This is at a rate of 15% which has been applied to the estimate for the construction cost.

#### **1.6 Market Conditions**

The estimate is based on normal competitive conditions and is intended to fall within a range of bids received from a number of competitive contractors, a minimum of five as stated in Section 1.2 above. Adverse local and extremely competitive market conditions, proprietary specifications, single-sourcing of materials and equipment, or lack of bidders may cause bids to vary from reasonable estimates based on normal competitive conditions.

The tender date is forecast is for 2<sup>nd</sup> Quarter 2016.

#### **1.7 Assumptions/Exclusions**

Please refer to Page 4 for specific Exclusions and to our detailed elemental back-up for specific assumptions.

We have allowed a separate 'stand alone' mechanical and electrical services installation for the vertical 4<sup>th</sup> Floor expansion. The interior renovations cost allows for renovation of the existing services and is separate from any of the maintenance costs included.

#### **1.8 Limitation of Scope**

Turner & Townsend is not retained to prepare any additional estimates, following the completion of this Report. We advise of our recommendations in the Next Steps section below.

## **1.9      Next Steps**

The City of Ottawa may wish to investigate the potential cost of replacement of the some of the items included within the Annual Maintenance Requirements. This will reduce the maintenance budget, but will increase the capital construction cost. The advantage of doing this is that the City can reduce their maintenance budget over the next 10 or 20 years.

As mechanical and electrical systems become older, the replacement parts may become difficult to find or can become obsolete. In some instances, new installations can be more economical. Should the City wish to identify those items that could be transferred into the capital construction cost, we can undertake a revised estimate along with an updated life cycle cost exercise.

OTTAWA PUBLIC LIBRARY  
INTERIOR RENOVATION

EXECUTIVE SUMMARY

Option 1	GFA (sf)	\$/sf	Amount
1 Renovation + 2 New Entrances	81,220	\$ 141	\$11,483,000
	<b>Sub-total</b>		<b>\$11,483,000</b>
2 Escalation Allowance - 2nd Quarter 2016 (6%)			\$689,000
3 Construction Contingency Allowance - Post Contract (15%)			\$1,722,000
4 Allowance for Hazardous Material Removal (Allowance only)			\$100,000
5 Annual Budget Requirement till Year 2022			\$6,376,100
<b>Total Estimated Construction Cost (excl. HST)</b>	<b>81,220</b>	<b>\$ 251</b>	<b>\$20,370,000</b>

Option 2A	GFA (sf)	\$/sf	Amount
1 Renovation + Expansion	91,004	\$ 170	\$15,515,000
	<b>Sub-total</b>		<b>\$15,515,000</b>
2 Escalation Allowance - 2nd Quarter 2016 (6%)			\$931,000
3 Construction Contingency Allowance - Post Contract (15%)			\$2,327,000
4 Allowance for Hazardous Material Removal (Allowance only)			\$100,000
5 Annual Budget Requirement till Year 2022			\$6,376,100
<b>Total Estimated Construction Cost (excl. HST)</b>	<b>91,004</b>	<b>\$ 277</b>	<b>\$25,249,000</b>

Option 2B	GFA (sf)	\$/sf	Amount
1 Renovation + Expansion	91,004	\$206	\$18,792,000
2 New Build - 4th Floor	10,986	\$490	\$5,384,000
	<b>Sub-total</b>		<b>\$24,176,000</b>
3 Escalation Allowance - 2nd Quarter 2016 (6%)			\$1,451,000
4 Construction Contingency Allowance - Post Contract (15%)			\$3,626,000
5 Allowance for Hazardous Material Removal (Allowance only)			\$100,000
6 Annual Budget Requirement till Year 2022			\$6,376,100
<b>Total Estimated Construction Cost (excl. HST)</b>	<b>91,004</b>	<b>\$ 393</b>	<b>\$35,729,000</b>

Option 3	GFA (sf)	\$/sf	Amount
1 Renovation + Expansion	94,406	\$ 215	\$20,287,000
2 New Build - 4th Floor	10,986	\$490	\$5,384,000
	<b>Sub-total</b>		<b>\$25,671,000</b>
3 Escalation Allowance - 2nd Quarter 2016 (6%)			\$1,540,000
4 Construction Contingency Allowance - Post Contract (15%)			\$3,851,000
5 Allowance for Hazardous Material Removal (Allowance only)			\$100,000
6 Annual Budget Requirement till Year 2022			\$6,376,100
<b>Total Estimated Construction Cost (excl. HST)</b>	<b>94,406</b>	<b>\$ 398</b>	<b>\$37,538,000</b>

**The following has been specifically excluded:**

- 1 Land and associated cost
- 2 Professional and Specialist Consultants Fees
- 3 Project Management Fees
- 4 Permit and Development Charges
- 5 Financing Costs / Fundraising Costs
- 6 HST
- 7 Furniture, Furnishings and Equipment (other than general allowance detailed in the estimate)
- 8 Owner's Administration Expenses
- 9 Premium Associated with Single-Sourcing if any
- 10 Testing and Inspection
- 11 Furniture, blinds, projection screens, shelving, office
- 12 Sidewalk permitting fees
- 13 Special foundations ie. Piling
- 14 Rock removal, if any
- 15 Impact of district energy services
- 16 Grey water system
- 17 Preaction system
- 18 Control infrastructure - Fibre optic link from central utilities to new building
- 19 Fuel oil system
- 20 Security equipment, devices & wiring
- 21 Communications active hardware
- 22 P.A. system
- 23 A/V equipment
- 24 Heating, cooling plant to Renovation areas
- 25 Underpinning if required
- 26 Air Handling Units to Renovation areas
- 27 Perimeter radiation to Renovation area

## 2 ELEMENTAL COST ANALYSIS – Ottawa Public Library



**CONCEPT DESIGN CONSTRUCTION COST ESTIMATE**



**INTERIOR RENOVATION  
OPTION 1**

Project: Ottawa Public Library  
Location: Ottawa, ON  
Owner/Client: City of Ottawa  
Architect: Ajon Moriyama Architect

Cat: 730  
File: NK-OoM-R1  
Date: May 8, 2014  
Project Number: 20940  
Gross Floor Area: 81,220 sf

Element	Ratio to GFA	Elemental Quantity	Elemental Unit Rate	Elemental Amount	Cost/sf	Amount	
<b>A SHELL</b>							
<b>A1 SUBSTRUCTURE</b>					<b>\$0.62</b>		
A11 Foundation	0.18	14,465 sf	\$3.46	\$50,000	\$0.62		
A12 Basement Excavation	0.00	0 cy	\$0.00	\$0	\$0.00	\$50,000	0%
<b>A2 STRUCTURE</b>					<b>\$5.75</b>		
A21 Lowest Floor Construction	0.18	14,465 sf	\$2.49	\$36,000	\$0.44		
A22 Upper Floor Construction	0.82	66,755 sf	\$5.50	\$367,000	\$4.52		
A23 Roof Construction	0.32	25,600 sf	\$2.50	\$64,000	\$0.79	\$467,000	4%
<b>A3 EXTERIOR ENCLOSURE</b>					<b>\$6.57</b>		
A31 Walls Below Grade	0.00	0 sf	\$0.00	\$0	\$0.00		
A32 Walls Above Grade	0.00	0 sf	\$0.00	\$0	\$0.00		
A33 Windows & Entrances	0.00	0 sf	\$0.00	\$0	\$0.00		
A34 Roof Covering	0.00	0 sf	\$0.00	\$0	\$0.00		
A35 Projections	1.00	81,220 sf	\$6.57	\$534,000	\$6.57	\$534,000	5%
<b>B INTERIORS</b>							
<b>B1 PARTITIONS &amp; DOORS</b>					<b>\$10.28</b>		
B11 Partitions	0.30	24,291 sf	\$24.58	\$597,000	\$7.35		
B12 Doors	0.00	110 No	\$2,163.64	\$238,000	\$2.93	\$835,000	7%
<b>B2 FINISHES</b>					<b>\$17.04</b>		
B21 Floor Finishes	0.90	73,098 sf	\$8.00	\$585,000	\$7.20		
B22 Ceiling Finishes	0.90	73,098 sf	\$8.69	\$635,000	\$7.82		
B23 Wall Finishes	1.35	109,647 sf	\$1.50	\$164,000	\$2.02	\$1,384,000	12%
<b>B3 FITTINGS &amp; EQUIPMENT</b>					<b>\$11.60</b>		
B31 Fittings & Fixtures	1.00	81,220 sf	\$10.00	\$812,000	\$10.00		
B32 Equipment	0.00	0 sf	\$0.00	\$20,000	\$0.25		
B33 Conveying Systems	0.00	2 stp	\$55,000.00	\$110,000	\$1.35	\$942,000	8%
<b>C SERVICES</b>							
<b>C1 MECHANICAL</b>					<b>\$27.05</b>		
C11 Plumbing & Drainage	1.00	81,220 sf	\$5.13	\$417,000	\$5.13		
C12 Fire Protection	1.00	81,220 sf	\$3.11	\$253,000	\$3.11		
C13 H.V.A.C.	1.00	81,220 sf	\$15.80	\$1,283,000	\$15.80		
C14 Controls	1.00	81,220 sf	\$3.00	\$244,000	\$3.00	\$2,197,000	19%
<b>C2 ELECTRICAL</b>					<b>\$17.00</b>		
C21 Service & Distribution	1.00	81,220 sf	\$1.99	\$162,000	\$1.99		
C22 Lighting, Devices & Heating	1.00	81,220 sf	\$7.01	\$569,000	\$7.01		
C23 Systems & Ancillaries	1.00	81,220 sf	\$8.00	\$650,000	\$8.00	\$1,381,000	12%
<b>NET BUILDING COST (Excluding Site)</b>					\$95.91	\$7,790,000	68%
<b>D SITE &amp; ANCILLARY WORK</b>							
<b>D1 SITE WORK</b>					<b>\$0.37</b>		
D11 Site Development	1.00	81,220 sf	\$0.37	\$30,000	\$0.37		
D12 Mechanical Site Services	0.00	0 sf	\$0.00	\$0	\$0.00		
D13 Electrical Site Services	0.00	0 sf	\$0.00	\$0	\$0.00	\$30,000	0%
<b>D2 ANCILLARY WORK</b>					<b>\$6.17</b>		
D21 Demolition	1.00	81,220 sf	\$5.55	\$451,000	\$5.55		
D22 Alterations	0.00	0 sf	\$0.00	\$50,000	\$0.62	\$501,000	4%
<b>NET BUILDING COST (Including Site)</b>					\$102.45	\$8,321,000	
<b>Z GENERAL REQUIREMENTS &amp; ALLOWANCES</b>							
<b>Z1 GEN. REQ. &amp; FEE 20.0%</b>					<b>\$20.49</b>		
Z11 General Requirements 15.0%				\$1,248,000	\$15.37		
Z12 Fee 5.0%				\$416,000	\$5.12	\$1,664,000	14%
<b>TOTAL CONSTRUCTION ESTIMATE (Excluding Allowances)</b>						\$9,985,000	87%
<b>Z2 ALLOWANCES 15.0%</b>					<b>\$18.44</b>		
Z21 Estimating Allowance 15.0%				\$1,498,000	\$18.44		
Z22 Escalation Allowance 0.0%		EXCLUDED		\$0	\$0.00		
Z23 Construction Allowance 0.0%		EXCLUDED		\$0	\$0.00	\$1,498,000	13%
<b>GOOD &amp; SERVICES TAX 0.0%</b>		EXCLUDED		\$0	\$0.00	\$0	0%
<b>TOTAL CONSTRUCTION ESTIMATE (Including Allowances)</b>						\$11,483,000	100%
<b>GFA</b>	<b>81,220 sf</b>				<b>Cost/sf</b>	<b>\$141</b>	

**CONCEPT DESIGN CONSTRUCTION COST ESTIMATE**



**INTERIOR RENOVATION  
OPTION 2A**

Project: Ottawa Public Library  
Location: Ottawa, ON  
Owner/Client: City of Ottawa  
Architect: Ajon Moriyama Architect

Cat: 730  
File: NK-OoM-R1  
Date: May 8, 2014  
Project Number: 20940  
Gross Floor Area: 91,004 sf

Element	Ratio to GFA	Elemental Quantity	Elemental Unit Rate	Elemental Amount	Cost/sf	Amount	
<b>A SHELL</b>							
<b>A1 SUBSTRUCTURE</b>					<b>\$1.67</b>		
A11 Foundation	0.25	23,194 sf	\$5.48	\$127,000	\$1.40		
A12 Basement Excavation	0.00	250 cy	\$100.00	\$25,000	\$0.27	\$152,000	1%
<b>A2 STRUCTURE</b>					<b>\$9.14</b>		
A21 Lowest Floor Construction	0.26	23,336 sf	\$10.11	\$236,000	\$2.59		
A22 Upper Floor Construction	0.58	52,947 sf	\$9.08	\$481,000	\$5.29		
A23 Roof Construction	0.29	26,827 sf	\$4.29	\$115,000	\$1.26	\$832,000	5%
<b>A3 EXTERIOR ENCLOSURE</b>					<b>\$14.82</b>		
A31 Walls Below Grade	0.01	730 sf	\$60.27	\$44,000	\$0.48		
A32 Walls Above Grade	0.10	8,982 sf	\$12.02	\$108,000	\$1.19		
A33 Windows & Entrances	0.10	8,784 sf	\$130.01	\$1,142,000	\$12.55		
A34 Roof Covering	0.01	1,011 sf	\$29.67	\$30,000	\$0.33		
A35 Projections	1.00	91,004 sf	\$0.27	\$25,000	\$0.27	\$1,349,000	9%
<b>B INTERIORS</b>							
<b>B1 PARTITIONS &amp; DOORS</b>					<b>\$12.53</b>		
B11 Partitions	0.44	40,415 sf	\$20.98	\$848,000	\$9.32		
B12 Doors	0.00	140 No	\$2,085.71	\$292,000	\$3.21	\$1,140,000	7%
<b>B2 FINISHES</b>					<b>\$17.92</b>		
B21 Floor Finishes	0.90	81,904 sf	\$8.00	\$655,000	\$7.20		
B22 Ceiling Finishes	0.90	81,904 sf	\$8.91	\$730,000	\$8.02		
B23 Wall Finishes	1.35	122,855 sf	\$2.00	\$246,000	\$2.70	\$1,631,000	11%
<b>B3 FITTINGS &amp; EQUIPMENT</b>					<b>\$16.81</b>		
B31 Fittings & Fixtures	1.00	91,004 sf	\$10.00	\$910,000	\$10.00		
B32 Equipment	0.00	1 sf	\$40,000.00	\$40,000	\$0.44		
B33 Conveying Systems	0.00	11 stp	\$52,727.27	\$580,000	\$6.37	\$1,530,000	10%
<b>C SERVICES</b>							
<b>C1 MECHANICAL</b>					<b>\$27.04</b>		
C11 Plumbing & Drainage	1.00	91,004 sf	\$5.13	\$467,000	\$5.13		
C12 Fire Protection	1.00	91,004 sf	\$3.11	\$283,000	\$3.11		
C13 H.V.A.C.	1.00	91,004 sf	\$15.80	\$1,438,000	\$15.80		
C14 Controls	1.00	91,004 sf	\$3.00	\$273,000	\$3.00	\$2,461,000	16%
<b>C2 ELECTRICAL</b>					<b>\$17.00</b>		
C21 Service & Distribution	1.00	91,004 sf	\$2.00	\$182,000	\$2.00		
C22 Lighting, Devices & Heating	1.00	91,004 sf	\$7.00	\$637,000	\$7.00		
C23 Systems & Ancillaries	1.00	91,004 sf	\$8.00	\$728,000	\$8.00	\$1,547,000	10%
<b>NET BUILDING COST (Excluding Site)</b>					\$116.94	\$10,642,000	69%
<b>D SITE &amp; ANCILLARY WORK</b>							
<b>D1 SITE WORK</b>					<b>\$0.49</b>		
D11 Site Development	1.00	91,004 sf	\$0.49	\$45,000	\$0.49		
D12 Mechanical Site Services	0.00	0 sf	\$0.00	\$0	\$0.00		
D13 Electrical Site Services	0.00	0 sf	\$0.00	\$0	\$0.00	\$45,000	0%
<b>D2 ANCILLARY WORK</b>					<b>\$6.10</b>		
D21 Demolition	1.00	91,004 sf	\$5.55	\$505,000	\$5.55		
D22 Alterations	0.00	0 sf	\$0.00	\$50,000	\$0.55	\$555,000	4%
<b>NET BUILDING COST (Including Site)</b>					\$123.53	\$11,242,000	
<b>Z GENERAL REQUIREMENTS &amp; ALLOWANCES</b>							
<b>Z1 GEN. REQ. &amp; FEE 20.0%</b>					<b>\$24.71</b>		
Z11 General Requirements 15.0%				\$1,687,000	\$18.54		
Z12 Fee 5.0%				\$562,000	\$6.18	\$2,249,000	14%
<b>TOTAL CONSTRUCTION ESTIMATE (Excluding Allowances)</b>						\$13,491,000	87%
<b>Z2 ALLOWANCES 15.0%</b>					<b>\$22.24</b>		
Z21 Estimating Allowance 15.0%				\$2,024,000	\$22.24		
Z22 Escalation Allowance 0.0%		EXCLUDED		\$0	\$0.00		
Z23 Construction Allowance 0.0%		EXCLUDED		\$0	\$0.00	\$2,024,000	13%
<b>GOOD &amp; SERVICES TAX 0.0%</b>		EXCLUDED		\$0	\$0.00	\$0	0%
<b>TOTAL CONSTRUCTION ESTIMATE (Including Allowances)</b>						\$15,515,000	100%
<b>GFA</b>	<b>91,004 sf</b>				<b>Cost/sf</b>	<b>\$170</b>	

**CONCEPT DESIGN CONSTRUCTION COST ESTIMATE**  
**INTERIOR RENOVATION**  
**OPTION 2B**



Project: Ottawa Public Library  
 Location: Ottawa, ON  
 Owner/Client: City of Ottawa  
 Architect: Ajon Moriyama Architect

Cat: 730  
 File: NK-OoM-R1  
 Date: May 8, 2014  
 Project Number: 20940  
 Gross Floor Area: 91,004 sf

Element	Ratio to GFA	Elemental Quantity	Elemental Unit Rate	Elemental Amount	Cost/sf	Amount	
<b>A SHELL</b>							
<b>A1 SUBSTRUCTURE</b>					<b>\$1.67</b>		
A11 Foundation	0.25	23,194 sf	\$5.48	\$127,000	\$1.40		
A12 Basement Excavation	0.00	250 cy	\$100.00	\$25,000	\$0.27	\$152,000	1%
<b>A2 STRUCTURE</b>					<b>\$9.57</b>		
A21 Lowest Floor Construction	0.25	23,194 sf	\$10.18	\$236,000	\$2.59		
A22 Upper Floor Construction	0.75	67,810 sf	\$7.64	\$518,000	\$5.69		
A23 Roof Construction	0.30	27,472 sf	\$4.26	\$117,000	\$1.29	\$871,000	5%
<b>A3 EXTERIOR ENCLOSURE</b>					<b>\$15.93</b>		
A31 Walls Below Grade	0.01	1,170 sf	\$59.83	\$70,000	\$0.77		
A32 Walls Above Grade	0.10	8,982 sf	\$12.02	\$108,000	\$1.19		
A33 Windows & Entrances	0.10	8,784 sf	\$130.01	\$1,142,000	\$12.55		
A34 Roof Covering	0.01	1,011 sf	\$29.67	\$30,000	\$0.33		
A35 Projections	1.00	91,004 sf	\$1.10	\$100,000	\$1.10	\$1,450,000	8%
<b>B INTERIORS</b>							
<b>B1 PARTITIONS &amp; DOORS</b>					<b>\$12.53</b>		
B11 Partitions	0.44	40,415 sf	\$20.98	\$848,000	\$9.32		
B12 Doors	0.00	140 No	\$2,085.71	\$292,000	\$3.21	\$1,140,000	6%
<b>B2 FINISHES</b>					<b>\$17.92</b>		
B21 Floor Finishes	0.90	81,904 sf	\$8.00	\$655,000	\$7.20		
B22 Ceiling Finishes	0.90	81,904 sf	\$8.91	\$730,000	\$8.02		
B23 Wall Finishes	1.35	### sf	\$2.00	\$246,000	\$2.70	\$1,631,000	9%
<b>B3 FITTINGS &amp; EQUIPMENT</b>					<b>\$41.37</b>		
B31 Fittings & Fixtures	1.00	91,004 sf	\$10.00	\$910,000	\$10.00		
B32 Equipment	1.00	91,004 sf	\$25.00	\$2,275,000	\$25.00		
B33 Conveying Systems	0.00	11 stp	\$52,727.27	\$580,000	\$6.37	\$3,765,000	20%
<b>C SERVICES</b>							
<b>C1 MECHANICAL</b>					<b>\$27.04</b>		
C11 Plumbing & Drainage	1.00	91,004 sf	\$5.13	\$467,000	\$5.13		
C12 Fire Protection	1.00	91,004 sf	\$3.11	\$283,000	\$3.11		
C13 H.V.A.C.	1.00	91,004 sf	\$15.80	\$1,438,000	\$15.80		
C14 Controls	1.00	91,004 sf	\$3.00	\$273,000	\$3.00	\$2,461,000	13%
<b>C2 ELECTRICAL</b>					<b>\$17.00</b>		
C21 Service & Distribution	1.00	91,004 sf	\$2.00	\$182,000	\$2.00		
C22 Lighting, Devices & Heating	1.00	91,004 sf	\$7.00	\$637,000	\$7.00		
C23 Systems & Ancillaries	1.00	91,004 sf	\$8.00	\$728,000	\$8.00	\$1,547,000	8%
<b>NET BUILDING COST (Excluding Site)</b>					\$143.04	\$13,017,000	69%
<b>D SITE &amp; ANCILLARY WORK</b>							
<b>D1 SITE WORK</b>					<b>\$0.49</b>		
D11 Site Development	1.00	91,004 sf	\$0.49	\$45,000	\$0.49		
D12 Mechanical Site Services	0.00	0 sf	\$0.00	\$0	\$0.00		
D13 Electrical Site Services	0.00	0 sf	\$0.00	\$0	\$0.00	\$45,000	0%
<b>D2 ANCILLARY WORK</b>					<b>\$6.10</b>		
D21 Demolition	1.00	91,004 sf	\$5.55	\$505,000	\$5.55		
D22 Alterations	0.00	0 sf	\$0.00	\$50,000	\$0.55	\$555,000	3%
<b>NET BUILDING COST (Including Site)</b>					\$149.63	\$13,617,000	
<b>Z GENERAL REQUIREMENTS &amp; ALLOWANCES</b>							
<b>Z1 GEN. REQ. &amp; FEE 20.0%</b>					<b>\$29.93</b>		
Z11 General Requirements 15.0%				\$2,043,000	\$22.45		
Z12 Fee 5.0%				\$681,000	\$7.48	\$2,724,000	14%
<b>TOTAL CONSTRUCTION ESTIMATE (Excluding Allowances)</b>						\$16,341,000	87%
<b>Z2 ALLOWANCES 15.0%</b>					<b>\$26.93</b>		
Z21 Estimating Allowance 15.0%				\$2,451,000	\$26.93		
Z22 Escalation Allowance 0.0%		EXCLUDED		\$0	\$0.00		
Z23 Construction Allowance 0.0%		EXCLUDED		\$0	\$0.00	\$2,451,000	13%
<b>GOOD &amp; SERVICES TAX 0.0%</b>		EXCLUDED		\$0	\$0.00	\$0	0%
<b>TOTAL CONSTRUCTION ESTIMATE (Including Allowances)</b>						\$18,792,000	100%
<b>GFA</b>	<b>91,004 sf</b>				<b>Cost/sf</b>	<b>\$206</b>	

**CONCEPT DESIGN CONSTRUCTION COST ESTIMATE**



**INTERIOR RENOVATION  
4TH FLOOR EXPANSION OPTION 2B**

Project: Ottawa Public Library  
Location: Ottawa, ON  
Owner/Client: City of Ottawa  
Architect: Ajon Moriyama Architect

Cat: 730  
File: RN-CD-R0  
Date: May 2, 2014  
Project Number: 20940  
Gross Floor Area: 10,986 sf

Element	Ratio to GFA	Elemental Quantity	Elemental Unit Rate	Elemental Amount	Cost/sf	Amount	
<b>A SHELL</b>							
<b>A1 SUBSTRUCTURE</b>					<b>\$0.00</b>		
A11 Foundation	0.00	0 sf	\$0.00	\$0	\$0.00		
A12 Basement Excavation	0.00	0 cy	\$0.00	\$0	\$0.00	\$0	0%
<b>A2 STRUCTURE</b>					<b>\$63.35</b>		
A21 Lowest Floor Construction	0.00	0 sf	\$0.00	\$0	\$0.00		
A22 Upper Floor Construction	1.00	10,986 sf	\$13.38	\$147,000	\$13.38		
A23 Roof Construction	1.00	10,986 sf	\$49.97	\$549,000	\$49.97	\$696,000	13%
<b>A3 EXTERIOR ENCLOSURE</b>					<b>\$100.58</b>		
A31 Walls Below Grade	0.00	0 sf	\$0.00	\$0	\$0.00		
A32 Walls Above Grade	0.14	1,546 sf	\$60.17	\$93,000	\$8.47		
A33 Windows & Entrances	0.56	6,182 sf	\$102.23	\$632,000	\$57.53		
A34 Roof Covering	1.00	10,986 sf	\$30.04	\$330,000	\$30.04		
A35 Projections	1.00	10,986 sf	\$4.55	\$50,000	\$4.55	\$1,105,000	21%
<b>B INTERIORS</b>							
<b>B1 PARTITIONS &amp; DOORS</b>					<b>\$30.95</b>		
B11 Partitions	0.70	7,636 sf	\$39.42	\$301,000	\$27.40		
B12 Doors	0.00	20 No	\$1,950.00	\$39,000	\$3.55	\$340,000	6%
<b>B2 FINISHES</b>					<b>\$19.12</b>		
B21 Floor Finishes	0.90	9,887 sf	\$7.99	\$79,000	\$7.19		
B22 Ceiling Finishes	0.90	9,887 sf	\$11.02	\$109,000	\$9.92		
B23 Wall Finishes	1.35	14,831 sf	\$1.48	\$22,000	\$2.00	\$210,000	4%
<b>B3 FITTINGS &amp; EQUIPMENT</b>					<b>\$44.15</b>		
B31 Fittings & Fixtures	1.00	10,986 sf	\$10.01	\$110,000	\$10.01		
B32 Equipment	1.00	10,986 sf	\$25.03	\$275,000	\$25.03		
B33 Conveying Systems	0.00	2 stp	\$50,000.00	\$100,000	\$9.10	\$485,000	9%
<b>C SERVICES</b>							
<b>C1 MECHANICAL</b>					<b>\$51.98</b>		
C11 Plumbing & Drainage	1.00	10,986 sf	\$7.92	\$87,000	\$7.92		
C12 Fire Protection	1.00	10,986 sf	\$3.64	\$40,000	\$3.64		
C13 H.V.A.C.	1.00	10,986 sf	\$34.41	\$378,000	\$34.41		
C14 Controls	1.00	10,986 sf	\$6.01	\$66,000	\$6.01	\$571,000	11%
<b>C2 ELECTRICAL</b>					<b>\$40.05</b>		
C21 Service & Distribution	1.00	10,986 sf	\$10.01	\$110,000	\$10.01		
C22 Lighting, Devices & Heating	1.00	10,986 sf	\$22.03	\$242,000	\$22.03		
C23 Systems & Ancillaries	1.00	10,986 sf	\$8.01	\$88,000	\$8.01	\$440,000	8%
<b>NET BUILDING COST (Excluding Site)</b>					\$350.17	\$3,847,000	71%
<b>D SITE &amp; ANCILLARY WORK</b>							
<b>D1 SITE WORK</b>					<b>\$0.00</b>		
D11 Site Development	0.00	0 sf	\$0.00	\$0	\$0.00		
D12 Mechanical Site Services	0.00	0 sf	\$0.00	\$0	\$0.00		
D13 Electrical Site Services	0.00	0 sf	\$0.00	\$0	\$0.00	\$0	0%
<b>D2 ANCILLARY WORK</b>					<b>\$5.01</b>		
D21 Demolition	1.00	10,986 sf	\$5.01	\$55,000	\$5.01		
D22 Alterations	0.00	0 sf	\$0.00	\$0	\$0.00	\$55,000	1%
<b>NET BUILDING COST (Including Site)</b>					\$355.18	\$3,902,000	
<b>Z GENERAL REQUIREMENTS &amp; ALLOWANCES</b>							
<b>Z1 GEN. REQ. &amp; FEE</b>	<b>20.0%</b>				<b>\$71.00</b>		
Z11 General Requirements	15.0%			\$585,000	\$53.25		
Z12 Fee	5.0%			\$195,000	\$17.75	\$780,000	14%
<b>TOTAL CONSTRUCTION ESTIMATE (Excluding Allowances)</b>						\$4,682,000	87%
<b>Z2 ALLOWANCES</b>	<b>15.0%</b>				<b>\$63.90</b>		
Z21 Estimating Allowance	15.0%			\$702,000	\$63.90		
Z22 Escalation Allowance	0.0%	EXCLUDED		\$0	\$0.00		
Z23 Construction Allowance	0.0%	EXCLUDED		\$0	\$0.00	\$702,000	13%
<b>GOOD &amp; SERVICES TAX</b>	<b>0.0%</b>	<b>EXCLUDED</b>		\$0	\$0.00	\$0	0%
<b>TOTAL CONSTRUCTION ESTIMATE (Including Allowances)</b>						\$5,384,000	100%
<b>GFA</b>							
<b>10,986 sf</b>							
						<b>Cost/sf</b>	
						<b>\$490</b>	

**CONCEPT DESIGN CONSTRUCTION COST ESTIMATE**  
**INTERIOR RENOVATION**  
**OPTION 3**



Project: Ottawa Public Library  
 Location: Ottawa, ON  
 Owner/Client: City of Ottawa  
 Architect: Ajon Moriyama Architect

Cat: 730  
 File: NK-OoM-R1  
 Date: May 8, 2014  
 Project Number: 20940  
 Gross Floor Area: 94,406 sf

Element	Ratio to GFA	Elemental Quantity	Elemental Unit Rate	Elemental Amount	Cost/sf	Amount	
<b>A SHELL</b>							
<b>A1 SUBSTRUCTURE</b>					<b>\$2.30</b>		
A11 Foundation	0.25	23,194 sf	\$8.28	\$192,000	\$2.03		
A12 Basement Excavation	0.00	250 cy	\$100.00	\$25,000	\$0.26	\$217,000	1%
<b>A2 STRUCTURE</b>					<b>\$10.85</b>		
A21 Lowest Floor Construction	0.31	29,113 sf	\$8.86	\$258,000	\$2.73		
A22 Upper Floor Construction	0.69	65,293 sf	\$9.24	\$603,000	\$6.39		
A23 Roof Construction	0.29	27,611 sf	\$5.90	\$163,000	\$1.73	\$1,024,000	5%
<b>A3 EXTERIOR ENCLOSURE</b>					<b>\$20.77</b>		
A31 Walls Below Grade	0.01	1,170 sf	\$59.83	\$70,000	\$0.74		
A32 Walls Above Grade	0.16	15,510 sf	\$12.06	\$187,000	\$1.98		
A33 Windows & Entrances	0.16	15,312 sf	\$100.90	\$1,545,000	\$16.37		
A34 Roof Covering	0.02	1,970 sf	\$29.95	\$59,000	\$0.62		
A35 Projections	1.00	94,406 sf	\$1.06	\$100,000	\$1.06	\$1,961,000	10%
<b>B INTERIORS</b>							
<b>B1 PARTITIONS &amp; DOORS</b>					<b>\$12.08</b>		
B11 Partitions	0.43	40,415 sf	\$20.98	\$848,000	\$8.98		
B12 Doors	0.00	140 No	\$2,085.71	\$292,000	\$3.09	\$1,140,000	6%
<b>B2 FINISHES</b>					<b>\$17.90</b>		
B21 Floor Finishes	0.90	84,965 sf	\$8.00	\$680,000	\$7.20		
B22 Ceiling Finishes	0.90	84,965 sf	\$8.89	\$755,000	\$8.00		
B23 Wall Finishes	1.35	### sf	\$2.00	\$255,000	\$2.70	\$1,690,000	8%
<b>B3 FITTINGS &amp; EQUIPMENT</b>					<b>\$41.14</b>		
B31 Fittings & Fixtures	1.00	94,406 sf	\$10.00	\$944,000	\$10.00		
B32 Equipment	1.00	94,406 sf	\$25.00	\$2,360,000	\$25.00		
B33 Conveying Systems	0.00	11 stp	\$52,727.27	\$580,000	\$6.14	\$3,884,000	19%
<b>C SERVICES</b>							
<b>C1 MECHANICAL</b>					<b>\$27.04</b>		
C11 Plumbing & Drainage	1.00	94,406 sf	\$5.13	\$484,000	\$5.13		
C12 Fire Protection	1.00	94,406 sf	\$3.11	\$294,000	\$3.11		
C13 H.V.A.C.	1.00	94,406 sf	\$15.80	\$1,492,000	\$15.80		
C14 Controls	1.00	94,406 sf	\$3.00	\$283,000	\$3.00	\$2,553,000	13%
<b>C2 ELECTRICAL</b>					<b>\$17.00</b>		
C21 Service & Distribution	1.00	94,406 sf	\$2.00	\$189,000	\$2.00		
C22 Lighting, Devices & Heating	1.00	94,406 sf	\$7.00	\$661,000	\$7.00		
C23 Systems & Ancillaries	1.00	94,406 sf	\$8.00	\$755,000	\$8.00	\$1,605,000	8%
<b>NET BUILDING COST (Excluding Site)</b>					\$149.08	\$14,074,000	69%
<b>D SITE &amp; ANCILLARY WORK</b>							
<b>D1 SITE WORK</b>					<b>\$0.58</b>		
D11 Site Development	1.00	94,406 sf	\$0.58	\$55,000	\$0.58		
D12 Mechanical Site Services	0.00	0 sf	\$0.00	\$0	\$0.00		
D13 Electrical Site Services	0.00	0 sf	\$0.00	\$0	\$0.00	\$55,000	0%
<b>D2 ANCILLARY WORK</b>					<b>\$6.06</b>		
D21 Demolition	1.00	94,406 sf	\$5.53	\$522,000	\$5.53		
D22 Alterations	0.00	0 sf	\$0.00	\$50,000	\$0.53	\$572,000	3%
<b>NET BUILDING COST (Including Site)</b>					\$155.72	\$14,701,000	
<b>Z GENERAL REQUIREMENTS &amp; ALLOWANCES</b>							
<b>Z1 GEN. REQ. &amp; FEE</b>	<b>20.0%</b>				<b>\$31.14</b>		
Z11 General Requirements	15.0%			\$2,205,000	\$23.36		
Z12 Fee	5.0%			\$735,000	\$7.79	\$2,940,000	14%
<b>TOTAL CONSTRUCTION ESTIMATE (Excluding Allowances)</b>						\$17,641,000	87%
<b>Z2 ALLOWANCES</b>	<b>15.0%</b>				<b>\$28.03</b>		
Z21 Estimating Allowance	15.0%			\$2,646,000	\$28.03		
Z22 Escalation Allowance	0.0%	EXCLUDED		\$0	\$0.00		
Z23 Construction Allowance	0.0%	EXCLUDED		\$0	\$0.00	\$2,646,000	13%
<b>GOOD &amp; SERVICES TAX</b>	<b>0.0%</b>	<b>EXCLUDED</b>		\$0	\$0.00	\$0	0%
<b>TOTAL CONSTRUCTION ESTIMATE (Including Allowances)</b>						\$20,287,000	100%
<b>GFA</b>	<b>94,406 sf</b>				<b>Cost/sf</b>	<b>\$215</b>	

**CONCEPT DESIGN CONSTRUCTION COST ESTIMATE**



**INTERIOR RENOVATION  
4TH FLOOR EXPANSION OPTION 3**

Project: Ottawa Public Library  
Location: Ottawa, ON  
Owner/Client: City of Ottawa  
Architect: Ajon Moriyama Architect

Cat: 730  
File: RN-CD-R0  
Date: May 2, 2014  
Project Number: 20940  
Gross Floor Area: 10,986 sf

Element	Ratio to GFA	Elemental Quantity	Elemental Unit Rate	Elemental Amount	Cost/sf	Amount	
<b>A SHELL</b>							
<b>A1 SUBSTRUCTURE</b>					<b>\$0.00</b>		
A11 Foundation	0.00	0 sf	\$0.00	\$0	\$0.00		
A12 Basement Excavation	0.00	0 cy	\$0.00	\$0	\$0.00	\$0	0%
<b>A2 STRUCTURE</b>					<b>\$63.35</b>		
A21 Lowest Floor Construction	0.00	0 sf	\$0.00	\$0	\$0.00		
A22 Upper Floor Construction	1.00	10,986 sf	\$13.38	\$147,000	\$13.38		
A23 Roof Construction	1.00	10,986 sf	\$49.97	\$549,000	\$49.97	\$696,000	13%
<b>A3 EXTERIOR ENCLOSURE</b>					<b>\$100.58</b>		
A31 Walls Below Grade	0.00	0 sf	\$0.00	\$0	\$0.00		
A32 Walls Above Grade	0.14	1,546 sf	\$60.17	\$93,000	\$8.47		
A33 Windows & Entrances	0.56	6,182 sf	\$102.23	\$632,000	\$57.53		
A34 Roof Covering	1.00	10,986 sf	\$30.04	\$330,000	\$30.04		
A35 Projections	1.00	10,986 sf	\$4.55	\$50,000	\$4.55	\$1,105,000	21%
<b>B INTERIORS</b>							
<b>B1 PARTITIONS &amp; DOORS</b>					<b>\$30.95</b>		
B11 Partitions	0.70	7,636 sf	\$39.42	\$301,000	\$27.40		
B12 Doors	0.00	20 No	\$1,950.00	\$39,000	\$3.55	\$340,000	6%
<b>B2 FINISHES</b>					<b>\$19.12</b>		
B21 Floor Finishes	0.90	9,887 sf	\$7.99	\$79,000	\$7.19		
B22 Ceiling Finishes	0.90	9,887 sf	\$11.02	\$109,000	\$9.92		
B23 Wall Finishes	1.35	14,831 sf	\$1.48	\$22,000	\$2.00	\$210,000	4%
<b>B3 FITTINGS &amp; EQUIPMENT</b>					<b>\$44.15</b>		
B31 Fittings & Fixtures	1.00	10,986 sf	\$10.01	\$110,000	\$10.01		
B32 Equipment	1.00	10,986 sf	\$25.03	\$275,000	\$25.03		
B33 Conveying Systems	0.00	2 stp	\$50,000.00	\$100,000	\$9.10	\$485,000	9%
<b>C SERVICES</b>							
<b>C1 MECHANICAL</b>					<b>\$51.98</b>		
C11 Plumbing & Drainage	1.00	10,986 sf	\$7.92	\$87,000	\$7.92		
C12 Fire Protection	1.00	10,986 sf	\$3.64	\$40,000	\$3.64		
C13 H.V.A.C.	1.00	10,986 sf	\$34.41	\$378,000	\$34.41		
C14 Controls	1.00	10,986 sf	\$6.01	\$66,000	\$6.01	\$571,000	11%
<b>C2 ELECTRICAL</b>					<b>\$40.05</b>		
C21 Service & Distribution	1.00	10,986 sf	\$10.01	\$110,000	\$10.01		
C22 Lighting, Devices & Heating	1.00	10,986 sf	\$22.03	\$242,000	\$22.03		
C23 Systems & Ancillaries	1.00	10,986 sf	\$8.01	\$88,000	\$8.01	\$440,000	8%
<b>NET BUILDING COST (Excluding Site)</b>					\$350.17	\$3,847,000	71%
<b>D SITE &amp; ANCILLARY WORK</b>							
<b>D1 SITE WORK</b>					<b>\$0.00</b>		
D11 Site Development	0.00	0 sf	\$0.00	\$0	\$0.00		
D12 Mechanical Site Services	0.00	0 sf	\$0.00	\$0	\$0.00		
D13 Electrical Site Services	0.00	0 sf	\$0.00	\$0	\$0.00	\$0	0%
<b>D2 ANCILLARY WORK</b>					<b>\$5.01</b>		
D21 Demolition	1.00	10,986 sf	\$5.01	\$55,000	\$5.01		
D22 Alterations	0.00	0 sf	\$0.00	\$0	\$0.00	\$55,000	1%
<b>NET BUILDING COST (Including Site)</b>					\$355.18	\$3,902,000	
<b>Z GENERAL REQUIREMENTS &amp; ALLOWANCES</b>							
<b>Z1 GEN. REQ. &amp; FEE</b>	<b>20.0%</b>				<b>\$71.00</b>		
Z11 General Requirements	15.0%			\$585,000	\$53.25		
Z12 Fee	5.0%			\$195,000	\$17.75	\$780,000	14%
<b>TOTAL CONSTRUCTION ESTIMATE (Excluding Allowances)</b>						\$4,682,000	87%
<b>Z2 ALLOWANCES</b>	<b>15.0%</b>				<b>\$63.90</b>		
Z21 Estimating Allowance	15.0%			\$702,000	\$63.90		
Z22 Escalation Allowance	0.0%	EXCLUDED		\$0	\$0.00		
Z23 Construction Allowance	0.0%	EXCLUDED		\$0	\$0.00	\$702,000	13%
<b>GOOD &amp; SERVICES TAX</b>	<b>0.0%</b>	<b>EXCLUDED</b>		\$0	\$0.00	\$0	0%
<b>TOTAL CONSTRUCTION ESTIMATE (Including Allowances)</b>						\$5,384,000	100%
<b>GFA</b>							<b>Cost/sf</b>
<b>10,986 sf</b>							<b>\$490</b>

### 3 AREA SUMMARY

# AREA SUMMARY

	Enclosed (sf)	Void (sf)	GFA (sf)	GFA (m <sup>2</sup> )	Per. (lf)
<b>Above Grade</b>					
B1	14,465	0	14,465	1,344	913
Ground	21,464	0	21,464	1,994	692
Second	22,961	1,945	21,016	1,952	717
Third	25,600	1,325	24,275	2,255	709
<b>Total</b>	<b>84,490</b>	<b>3,270</b>	<b>81,220</b>	<b>7,545</b>	<b>3,031</b>



# AREA SUMMARY

	Enclosed (sf)	Void (sf)	GFA (sf)	GFA (m <sup>2</sup> )	Per. (lf)
<b>Above Grade</b>					
Level B1	17,197	0	17,197	1,598	721
Level 1	23,194	0	23,194	2,155	651
Level 2	25,576	974	24,602	2,286	688
Level 3	27,472	1,461	26,011	2,416	687
Level 4	11,599	549	11,050	1,027	708
<b>Total</b>	<b>105,038</b>	<b>2,984</b>	<b>102,054</b>	<b>9,482</b>	<b>3,456</b>

# AREA SUMMARY

	Enclosed (sf)	Void (sf)	GFA (sf)	GFA (m <sup>2</sup> )	Per. (lf)
<b>Above Grade</b>					
B1	17,152	0	17,152	1,593	720
Ground	24,421	0	24,421	2,269	659
Second	27,651	971	26,680	2,479	687
Third	27,611	1,458	26,153	2,430	685
Fourth	12,197	541	11,656	1,083	710
<b>Total</b>	<b>109,032</b>	<b>2,970</b>	<b>106,062</b>	<b>9,854</b>	<b>3,462</b>

## 4 DOCUMENTATION

[illegible]

	OPTION 1	OPTION 2	OPTION 3
DESCRIPTION	RENEWAL	RENOVATION	REDEVELOPMENT
	109,000 SQ. FT.	115,000 SQ. FT.	131,000 SQ. FT.
LIBRARY CONSTRUCTION COST	\$20,085,000.00	\$24,360,500.00	\$35,100,000.00
4TH & 5TH FLOOR OFFICES CONSTRUCTION COSTS	\$2,436,500.00	\$2,436,500.00	\$2,436,500.00
SUBTOTAL	\$22,521,500.00	\$26,797,000.00	\$37,536,500.00
CONSTRUCTION CONTINGENCIES	\$3,378,000.00	\$4,019,500.00	\$5,635,500.00
CONSTRUCTION COST WITH CONTINGENCIES	\$25,899,500.00	\$30,816,500.00	\$43,172,000.00
MOVING, PACKING, OFF-SITE STORAGE, SWINGSPACE RENTAL - LIBRARY	\$50,000.00	\$2,700,000.00	\$4,000,000.00
MOVING, PACKING, OFF-SITE STORAGE, SWINGSPACE RENTAL - 4TH & 5TH FLOOR OFFICE SPACE	\$50,000.00	\$350,000.00	\$350,000.00
SOFT COSTS - LIBRARY	\$13,163,000.00	\$15,200,000.00	\$19,160,000.00
SOFT COSTS - 4TH & 5TH FLOOR OFFICE SPACE	\$971,500.00	\$1,015,500.00	\$1,015,500.00
PROJECT BUDGET HARD & SOFT COST ESTIMATE	\$40,134,000.00	\$50,082,000.00	\$67,697,500.00