NewCAL Feasibility Study

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City of Newton

BEYOND ENGINEERING

Bargmann Hendrie+ Archetype, Inc.

PROJECT TEAM

ARCHITECT
Bargmann Hendrie + Archetype, Inc.
9 Channel Center Street
Boston, MA 02210
617 350 0450

GEOTECHNICAL ENGINEER
Professional Service Industry (PSI) / Intertek
480 Neponset Street, Suite 9C
Canton, MA 02021
781 821 2355

STRUCTURAL ENGINEER
Bolton & DiMartino, Inc.
100 Grove Street
Worcester, MA 01605
508 756 8972

HAZARDOUS MATERIALS CONSULTANT
Universal Environmental Consultants
12 Brewster Road
Framingham, MA 01702
508 628 5486

TRAFFIC & PARKING
PARE Corporation
8 Blackstone Valley Place
Lincoln, RI 02865
401 334 4100

COST CONSULTANT
CHA Companies
1 Faneuil Hall Marketplace
South Market Building, Suite 4195
Boston, MA 02109
617 451 2717

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SECTION 1
INTRODUCTION

This feasibility study was commissioned by the City of Newton to explore the selected site for the Newton Center for Active Living (NewCAL). This facility will replace the current Senior Center facility which no longer adequately serves the aging population in Newton. While primarily serving Newton Seniors, when programming schedules allow, NewCAL is envisioned to also serve as a community facility, open for use by other users and groups.

Earlier phases of the project investigated potential sites for the Senior Center proposed by the City. This feasibility study focuses on the existing Senior Center site at 345 Walnut Street in Newtonville which was the finalist preferred site from the earlier site selection study.

NewCAL Goals and Services

The City of Newton is designated as an Age-Friendly Community by the World Health Organization / AARP. In accordance with the community engagement process required under this designation, the community identified the need for a new senior center facility as one of the top four priorities to be addressed. The City of Newton has placed a high priority on serving the growing and changing needs of its senior population and has undertaken the development of the NewCAL project. In order to address these significant needs major renovation and expansion or replacement of the existing Senior Center will be required.

Approximately 19,000 residents, nearly 22% of the City's population are age 60 or above. Newton's over-60 population is projected to reach 30% of the general population by the year 2030. Currently, 40% of Newton households include at least one person over the age of 60.

Each year, the Newton Department of Senior Services, with the support of the Council on Aging, serves approximately 5,000 individuals though the Newton Senior Center. Senior Services consist of 30,000 units of services annually which include social / recreation programs, support groups, health education, physical activities, cultural programs, Medicare counseling, help with benefit applications and related social services, and elder law assistance. Based on the City's research over the past 2 ½ years, to address the growing and changing needs of the senior community, the renovated and expanded or replacement Senior Center requiring between 30,000 and 35,000 square feet of space.

NewCAL Vision Statement

The City of Newton's goal, as an age friendly community, is to build a large, well equipped, comfortable Center to meet the unique interests and needs of older adults, both those currently using the Senior Center and many others who are not. The Center will foster a special sense of community and belonging for this growing group. This facility will be designed to optimize the quality of life for Newton's older adults and those who support them, through welcoming, respectful and meaningful opportunities that engage, value, and empower older adults to remain independent and important assets in our community.

When spaces within this facility are not programmed for older adults, the goal is to offer well managed, quality and enriching community and multigenerational experiences for all residents of Newton.

NewCAL Guiding Principles

1. The Center will be designed to promote and support the Mission Statements of the Senior Services and Parks and Recreation Departments.
2. Spaces within this facility will be clustered and programmed to preserve the wonderful sense of community that exists in the current Senior Center.
3. The Center will be age friendly, welcoming to everyone, and will be designed and programmed to meet the unique needs of seniors as well as the broader community.
4. The Center will ensure safety and accessibility both inside and outside the facility through thoughtful design and operation.
5. The Center will promote social equality and maximize access to programs and services to those who are unserved or underserved.
6. The facility will be environmentally conscious, strive to be carbon neutral, and will leave a legacy of responsible design and operation.

Existing Building

The Senior Center at 345 Walnut Street was built in 1938 as the Newtonville Branch Library, or the John R. Prescott Library, named after its largest contributor. The Classical Revival building was designed by the Boston architecture firm of Robb & Little. In 1981, the Senior Drop-In Center moved into the library. In 1983, an arson fire caused over $100,000 in damage. The building was renovated in 1993 by the Boston firm of Schwartz/Silver Architects and reopened as the new Senior Center. The renovations made some alterations to the building to accommodate the programmatic needs. The two large reading rooms on the main floor became an activities room and a dining wing. On the lower level, the community room was subdivided to create an art studio and a games room; the children's room was subdivided to create a health maintenance suite and library. The current Senior Center facility is over 82 years old with original building systems in poor condition. It is a 2 ½ story,

INTRODUCTION

2 floor building with a mezzanine level. The building gross area is 11,298 square feet. The main heating system was recently converted to natural gas, but the heating distribution system is original from 1938, with a few modifications made in 1993 when the former library building was converted to the current Senior Center. Other than a roof top return air unit, all HVAC distribution systems and equipment have reached their useful life. Electrical and plumbing systems are from 1938 with modifications made in 1993 and have also reached the end of their useful life. The elevator does not meet current elevator code requirements for size and parts are increasingly difficult to obtain. The building walls and roof lack lateral bracing and extensive work is required to bring these up to code requirements which will be required if a major renovation and addition are undertaken. Exterior painted surfaces need repair and repainting. Exterior Windows are original to 1938 and are uninsulated. They have reached their useful life expectancy and should be replaced. The roof is made of both slate and EPDM and along with the copper and bronze/aluminum gutters and downspouts need repair/replacement.

Programming

The City's investment in a new Center for Active Living is an opportunity to help Newton be a livable and age friendly community for all who choose to age here. The Department of Senior Services, through the Senior Center, provides Newton seniors with education, recreation, information, social services, transportation and outreach programs. The mission of the Newton Department of Senior Services is to optimize quality of life for older adults and those who support them through welcoming, respectful and meaningful opportunities that engage and value older people and empower them to remain independent and to be important assets in the community.

The new facility will be designed around five foundational principles (see graphic below).

Alternative Designs

Many alternatives were explored for a new building replacing the existing structure versus adaptively reusing the existing building

Foundations of the Program

Volunteering
Assistance with services & operations and bringing new users

Lifelong Learning & the Arts
Intellectual stimulation, learning, personal growth

Wellness
Healthy active living for different senior age groups

Information
Information and service delivery

Socialization
Casual opportunities for social interaction

in whole or in part. To accomplish this, a comparative analysis of the proposed building plans was undertaken, conceptual site plans were designed and comparative cost estimates were prepared for purpose of enabling the City to make an informed decision about next steps for addressing senior needs in the community.

The design documents contained herein are preliminary, intended to establish a building footprint for testing site feasibility study based on the approved NewCAL program of spaces. The plans show sufficient detail for preparation of the cost estimates. The building footprint, massing and appearance will require further development and refinement in the next phase of design when for example, only one direction will be explored, “All New” or “Add/Reno.” This development occurs through three subsequent stages: Schematic Design and Site Plan Approval, Design Development, and Construction Documents.

The Senior Center’s construction can provide beneficial collateral impacts as have been discussed.

- The entire community benefits when services are provided on a proactive basis resulting in fewer crisis and demands on City Services whether they be health related, property maintenance related or traffic safety.
- The Senior Center can promote quality of life and social engagement by supporting enhanced public transportation options that can help senior access the Center. Improvements in this area can provide potential benefits to others in the community.
- Walkability in the City is a concern among many residents. Factors that improve walkability or site locations that support walkability can also be a benefit to others in the community.
- While Newton Seniors are the priority population to be served, NewCAL provide spaces that may be beneficial to other groups in the Community when scheduling free of conflict or compromise allows.

The study does not make a recommendation as to a preferred solution, “Add/Reno” versus “All New.” The goal of this study is to present data enabling the Working Group as well as various City committees and officials to make an informed decision.

SECTION 2
EXECUTIVE SUMMARY

The existing Senior Center is housed in a former branch public library building that is undersized and no longer serves the needs of Newton's senior residents. It was never an ideal space being primarily two reading rooms with high windowsills and the first-floor level 6 feet above adjacent outside entry grades. Useability and accessibility are compromised. The Senior Center provides two key roles for the Newton community; to promote wellbeing and to provide necessary services to enhance the quality of life. As the senior population will continue to grow, the City must expand upon its programming and services to continue to provide for those residents 60 and older.

Newton would like to be known as a City that promotes an age friendly community for residents to desire to "Age in Place." Construction of a new senior center is an essential step in supporting the residents.

Initial Site Selection Feasibility

BH+A evaluated several sites selected by the City of Newton for consideration. The sites recommended were primarily in park settings and were summarily rejected on that account. A second final site explored was the Newton Triangle parking lot. This site received negative feedback particularly from merchants who depend on the public parking this space provides. The viable site remaining after the initial feasibility work was the existing site at 345 Walnut Street in West Newton. This feasibility focused on the final site at 345 Walnut Street and explored whether an "all New" solution on the site requiring demolition of the existing building or an "Add/Reno" scheme (an adaptive reuse of the existing building)was a better alternative.

All attributes, constraints, and limitations related to each site were identified as well as its capacity to support the programs of service planned for the Senior Center. Various cost drivers for each site were analyzed in a comparative manner.

Conceptual Design, Facility Floor Plan and Site Evaluation

Upon narrowing the site selection to 345 Walnut Street, BH+A developed conceptual floor plans based on partial reuse of the existing building, the "Add/Reno" scheme and an "All New" building replacing a demolished existing building. Both options fully met the basic facility space needs based on the use projections developed by the Council on Aging, Working Group, and consultants. In addition to the floor plan the conceptual design included a site plan showing parking and access for each of the sites.

The site evaluation or due diligence included an initial traffic and parking memo, a geotechnical report, site survey, historic conditions report and renderings of potential approaches for both scenarios studied. BH+A retained an independent cost estimator to prepare a feasibility level cost estimate for each scenario. The estimate includes the cost for construction of the building and/or renovations as well as parking and any unique additional costs required by each site.

Findings

The feasibility study found that the "Add/Reno" and the "All New" schemes could both accommodate NewCAL basic program needs. Because of the location of the existing structure, the "all new" scheme offered better separation of the building mass from the abutting properties, a better parking arrangement and vehicular flow and most significantly, an easily accessible entry with the first-floor level with existing exterior grades. The construction cost for the "Add/Reno" scheme was $2,500,000 higher than the "All New" scheme. The total project cost differential between the options will be between 25% and 30% higher than the construction cost.

SECTION 3
SITE

The following steps were undertaken in completion of the feasibility study.

Soil Characteristics
Intertek, a Geotechnical Engineer, was retained to undertake soil borings and soils analysis at the site. Using the soils data obtained, they prepared a geotechnical report. This report discussed soil bearing capacity, issues related to filling of the site in the past and appropriate foundation, soil removal, and soil compaction approaches that may be necessary to accommodate with construction of a major addition or new building. This information is important as it informed the design narrative and construction cost estimates that are a part of the study.

Traffic and Parking Memo
The site conditions were analyzed by PARE Corporation for driving conditions such as sight lines and parking requirements. Due to the fact that the feasibility study data collection was undertaken during a time when traffic was severely reduced (April through December 2020) a traffic report was not undertaken. The engineer projected parking demand and analyzed proposed and existing parking areas to see how they compared.

Site Survey
Control Point, a licensed professional surveyor, prepared a site survey showing in detail the existing site conditions. These include, existing building location, parking areas, walkways and patios, trees, site grades, and site utilities. The site survey also shows any site easements and environmental conditions such as streams or wetlands that could potentially impact the design options available on the site. The topographic data for the site would indicate if any portion of the site was in a flood plain.

Conformance with Zoning
City construction projects, such as municipal buildings, are typically not permitted by underlying zoning, and as such they are exempt from Zoning By-Laws. However, all City projects work within zoning requirements where feasible while adhering to the program requirements of the project (a school, Fire Station, or Senior Center). City projects are subject to Site Plan Approval in accordance with City Ordinance 5-58.

Community Context and Site Analysis
The team identified site characteristics of 345 Walnut Street relative to the surrounding Newtonville neighborhood in order to study the urban design characteristics of the NewCAL project. The surrounding buildings (abutters), features, landscape elements, street traffic flow, and other physical contexts of the site were studied. Conceptual renderings of the two scenarios were prepared. These renderings are not depicting the final design but rather are intended to describe the potential massing, appearance and contextual relationship of the scenarios.

NewCAL Space Needs Program
A space allocation program had been started in earlier phases of the project. The program was refined during the feasibility study phase to align it to current and post COVID-19 projections that in part impact space allocations for program rooms and common areas as well as technological requirements. The largest adjustment to the program was to reduce the gym size to a single court due to size and cost concerns for the overall building. A room by room furnishings schedule was undertaken to verify that the space allocations will meet the physical requirements.

Conceptual Design
It is important to note that in order to undertake a feasibility study, a building footprint is required. This is especially important when a major assignment of the study is to present an adaptive reuse and an new building for comparison. The designs are needed to show if and how an approach may or may not compromise the program. The team made every effort to “level” the design across the two scenarios studied so that the issue of program compliance would not be a contributing decision factor. Equally important to understand is that the conceptual design for a feasibility study is not the final design. That begins with schematic design, the next step in the process.

Cost Estimate
A feasibility study cost estimate relies on the conceptual design drawings, system narratives, reports, existing conditions, historical data and experience with similar projects. The independent cost estimator retained for the feasibility study has worked with the design team on similar sized Centers for Active Living as both estimator and Owner’s Project Managers. They have completed estimates with the design team for large senior centers in near-by communities providing actual bid data to inform the conceptual estimates. This conglomeration of information is used to prepare reasonably detailed building and site cost estimates for the two scenarios which carry a contingency. The estimating contingency will be reduced by a factor during each design phase as information is added to the project documents.

SITE

Presentation of the Data & Conclusions

The project has been thoroughly presented to the Working Group, City Commissions and Councils, and open Community meetings. Feedback from these meetings has been incorporated into the feasibility study. The feasibility study remained neutral in terms of the preferred scenario as the goal was to objectively present the data and options to enable an informed public consensus to emerge in an organic manner.

SECTION 4
EXISTING CONDITIONS REPORTS SUMMARY

Several existing conditions reports were conducted for the existing Senior Center building at 345 Walnut Street. Following are summaries of the report findings. The full reports can be found in the Appendix of this study.

Building Conditions Assessment Report

The building is interesting for an older building because while it has citizens who highly appreciate it, many also seem to find it oppressive and not attractive. Part of the issue is that the building was designed to be a library so the two major reading rooms have bookshelves with windows high off of the floor. This, combined with a main floor level 6 feet above outside grade, minimizes internal and external views and contributes to the "lack of transparency" that many people have referenced. If the existing window bottoms were lowered, it would permit people in the building to see outwards. However, because the main floor level is 6 feet above outside grade, it would still not allow people outside the building to have any sense of what is happening inside. In addition, the raised floor level is a major obstacle to effective reuse of the existing structure.

Key points from this report include that the exterior is in overall fair condition. The brick walls are sound but the roof has outlived its useful life which is to be expected from a building that is over 80 years old. The typical issues of peeling paint and repointing brick are prevalent. The interior has been well maintained and is in good condition. The systems however have not been modernized for the most part and any renovation and reuse project will require complete heating, cooling, ventilation, plumbing, electrical, voice/data, fiber, and wireless gut and replacement.

Accessibility issues are evident which is to be expected with a building of this vintage and last renovated in 1993. Accessibility is exacerbated by the fact that the main floor level of the building is 6 feet above adjacent outside grade which requires major measures to bring people into the building in a compliant and respectful manner, especially Seniors who may have more mobility issues than a younger cohort.

The full 28-page Building Condition Assessment Report can be found in Section 1 of the Appendix at the end of this study.

Geotechnical Engineering Report

The main takeaway of the Geotechnical Engineering Report is that there is approximately 3 to 8 feet of material classified as fill on the site that is likely related to the original development of this area. The report recommends not bearing on this fill without further assessment or otherwise removing the material and replacing it with structural fill that is compacted. Another alternative is ground improvement which consists of rammed aggregate piers that are placed under the new building and parking areas on a grid system to stabilize the soil. Since some or all of the existing building and its foundations are being removed, removal of the fill is likely to be easier than one would anticipate and the absence of ground water in the soil borings means that this excavation could be done relatively easily. This fill excavation is another reason for why it is beneficial to have the building further removed from the property lines which the "all new" alternative does.

The cost estimates incorporated the data of the geotechnical report. Subsequent phases of the project will determine whether ground improvement or fill removal is the preferred approach for foundation design.

The full 39-page Geotechnical Engineering Report can be found in Section 2 of the Appendix at the end of this study. The preliminary recommendations are discussed on page 5 of the report (or page 97 of the Feasibility Study).

Structural Engineering Report

The key takeaway from the Structural Engineering Narrative and Code Report is that the existing building was constructed in the late 1930's using techniques conventional for the time. The original structure was designed with unreinforced brick exterior bearing walls which are not allowed by the current building code. Since the renovation would be extensive, compliance with current codes would be required including anchoring at the roof and floor levels. The gypsum roof planks do not provide an adequate roof diaphragm and will need to be replaced with metal roof decking as part of a significant renovation or addition. The engineering report anticipates that new structural systems consisting of masonry walls and site bracing will need to be added to the building to resist seismic force loads. The roof will also need to be anchored to the existing masonry walls.

The removal and replacement of the roof and roof structure as well as the reinforcement of the masonry walls are major and costly undertakings that will be captured in the independent cost estimate.

EXISTING CONDITIONS REPORTS SUMMARY

The full 15-page Structural Engineering Narrative and Code Report can be found in Section 3 of the Appendix at the end of this study.

Hazardous Materials Report

The main take away from the Hazardous Materials Report is that there are asbestos containing materials in the current Senior Center. These need to be removed regardless of whether the building is renovated or demolished. The materials are the typical culprits: vinyl floor tile and mastic, insulation, acoustical ceiling tiles and glue dabs, window sealants, foundation sealants, piping, and damproofing.

The cost to remove and properly dispose of the materials is estimated to be in the range of $260,000.

The full 21-page Hazardous Materials Report can be found in Section 4 of the Appendix at the end of this study.

SECTION 5
TRAFFIC AND PARKING MEMO SUMMARY

Due to current COVID-19 conditions, limited observations could be made at the site as the traffic volumes were significantly reduced from pre-Pandemic levels. The key findings of the Traffic and Parking Memo are that between on-site parking, on-street parking and City of Newton public lots, there are approximately 150 eligible, no expense parking spaces within short walking distance of the site. Typical recurring programs or events lead to the conclusion that approximately 97 spaces will be required while the average daily demand for parking will be approximately 71 spaces.

With senior activities primarily taking place between 8:30am and 4:00pm, most trips for senior users will be outside of the commuter peak hours. A single entry point and one-way parking lot will minimize internal conflict. Finally, the sight distances assessed for the two design options are adequate for the speeds of Highland Avenue and it is not anticipated that the expanded use of the site will impact safety along the roadway network.

The full 4-page Traffic and Parking Memo can be found in Section E of the Appendix at the end of this study.

SECTION 6
PROGRAM ANALYSIS

Program Summary

A proposed NewCAL program was developed prior to this feasibility study.

The program requirement has been relatively stable over time, although the gym has been reduced in area due to cost and site constraints of building massing (a double gym in a large single volume). The program, particularly the administration space, was reviewed during the feasibility study phase to verify if the stated requirements were still valid. A post-COVID-19 review of the space and needs is included.

While the program is centered around NewCAL's needs, thought must go into the design to enable other community members to use the building outside of the time the Seniors will be occupying the building. The Gym is the primary space for outside use, but the multi-purpose rooms (including the fitness room and program rooms) could conceivably be desired on a part-time basis by certain community groups or city committees.

NewCAL is anticipated to have expanded hours compared to the existing Senior Center. This is a method to expanding program availability without overbuilding the facility.

Lobby

This space serves as a waiting room, and point of orientation. In the post-COVID-19 environment, locating the lobby so that less traffic passes through the lobby is perceived as beneficial.

Library/ Cafe/Lounge

This is a social area with coffee/tea, a place for patrons and caregivers to socialize. Any opportunity to include adjacent outdoor space is appreciated by patrons. As with the lobby, having less through traffic is desirable.

Multipurpose Room

This is the main room of the senior center program. It is divisible into two smaller rooms with an operable partition. The room serves large events, academic classes, popular speakers, movies or other presentations, lunches, dance or exercise groups, and intergenerational opportunities. In subdivided mode, one side serves as dining space on a daily basis, served directly by the kitchen with adequate acoustical separation. This room needs acoustical treatment, high-end audio/visual and hearing assist technology. It will serve 200 people in chair seating and 160 in table settings.

Kitchen

A commercial-grade kitchen that is "domesticated" for use by both professional and volunteer staff. The kitchen becomes a program and teaching space when properly designed for usability and with proper table space. Suitable for classes and for preparing breakfast or lunch including the packaging of Meals on Wheels, if desired. Appropriate storage space to enable groceries and sundries to be bulk purchased is helpful and allows for certain grant program reimbursement.

Arts & Crafts Room

Dedicated room with appropriate storage for supplies and artwork that can include a sink. This room can be challenging to change uses because certain projects take place over several days time.

Program Rooms (General)

A variety of program spaces from conference room sized (250 SF), small group sized (500 sf), and large program space (750 SF). These rooms can host various group meetings and classes such as bridge lessons, current events group, and support groups. These can also be used for games and a backup for fitness rooms. These rooms have Audio/Visual capacity for online learning and broadcasting of programs.

Fitness Room
This room is for Senior-specific fitness classes such as Yoga, Tai Chi, and strength and balance training. If equipment is desired, it should be in a separate fitness equipment room.

Game Room
This room can accommodate pool tables, ping pong tables, card games, television, and other activities that are not easily set up and taken down and thus not conducive to use in multipurpose spaces. This is a purpose built space that can be less generic than the more flexible spaces in the Center.

Gymnasium
The gym is a large flexible multi-purpose space accommodating accessible fitness or sporting events as well as large meetings. An walking track over hangs the gym floor space. The gym can accommodate three pickle ball courts at a time with a divider curtain. Additionally, the gym can subdivide into two 3,100 SF spaces, each with a half-court basketball court. The gym is envisioned to be available for other community use outside of hours when NewCAL users are not using the space. As a single space, the gym can footprint accommodates a single high school basketball court.

Changing Rooms
Locker rooms with showers are not generally required or desired by users or custodial staff. Most users will come dressed for their activity and then change at home after said activity. However, some accommodation for changing is desired and provided in smaller rooms

Front Desk Reception
This area is designed to welcome participants, provide a notice of daily events, allow class registration, and to answer questions. This should be easily accessible by NewCAL's accessible vans and vehicle drop-off area.

Offices
This suite houses workspace for the executive director, administrative assistant, outreach coordinator, transportation coordinator, and includes workstations for additional staff and volunteers.

Storage Rooms
These rooms are for storing office supplies, housing the copier, printers, and other equipment or supplies.

Coat Closet
Often a large coat closet is provided or can be substituted by closets in each room as often seniors do not like to leave their coats centrally stored and potentially unsecured.

Janitor Closet
This is code-required space for janitor sink and cleaning supplies as well as storage of paper towels, toilet paper, and other disposable supplies.

Multipurpose Storage
This large room stores a portable stage, tables and chairs, mats and other equipment used in the multipurpose room. Ideally, there is a storage room for each half of the multipurpose room to allow set up and take down without disturbing the other half of the space.

Restrooms
Each floor is provided with multiple-fixture restrooms for general use with an accessible stall.

Companion Restroom
This is a single-stall restroom with shower; it is fully accessible for use by disabled patrons or those requiring assistance from an aide or family member.

NewCAL Program Spaces & Areas	Net SF	Sum
Multi-Purpose Activity Spaces		
Fitness/Exercise		
Fitness Exercise Room	1,500	
Fitness Equipment Storage	100	
Multi-Purpose Suite		
Activity Room with coat alcove (shared moveable wall with Dining)	1,500	
Dining with coat alcove (shared moveable wall with Activity Room)	1,500	
Chair Table Storage	200	
Activity Room	400	
Games Room		
Ping Pong Room with coat alcove or combined Games Room	600	
Billiards Room	600	
Art Rooms		
Art Room 1 with coat alcove (shared moveable wall with Art Room	400	
Art Room 2 with coat alcove (shared moveable wall with Art Room	400	
Art Storage Room	50	
Classroom		
Library/Reading Room w/computers	400	
Classroom/Meeting Room medium	450	
Classroom/Meeting Room small	200	
Conference Room / Meeting Room	200	
General MP Storage	100	
Subtotal		**8,600 NSF**
Common Space		
Lobby /Lounge /Art & Cultural Displays	1,000	
Juice Bar/Café	200	
Vending	50	
Library Pick Up/Drop Off Area (sim size to conf table)	50	
Store	100	
Subtotal		**1,400 NSF**

NewCAL Program Spaces & Areas	Net SF	Sum
Kitchen		
Kitchen (commercial / teaching)	500	
Pantry & Food Storage	200	
Receiving & Bulk Storage	100	
Subtotal		**800 NSF**
Admin. / Support Services		
Reception/Sign In (also for volunteer Staff & Customer Service)	250	
Director's Office with small Meeting Area	150	
Shared Work (Executive Admin., Admin Asst., Admin Volunteers)	200	
Parks & Recreation Coordinator	100	
Department of Senior Services Program Coordinator	100	
Department of Senior Services Asst Program Coordinator	100	
Outreach & Engagement Coordinator	100	
Social Work	100	
Support Services: Shine, AARP Tax, Parking Stick., Art Community, etc.)	150	
Volunteer Coordinator + Visiting Staff	100	
Family Conference Room	200	
Health Room	150	
Durable Medical Equipment (DME)	200	
Copy & Work Room, Office Supplies	150	
Coat Closet	50	
Staff Breakout Room	150	
Subtotal		**2,250 NSF**
Support		
Toilet Rms - Accessible (60 sf each, 2 per floor, 4 total)	240	
First Floor Women's Room (4 fixture)	250	
First Floor Men's Room (4 fixture)	250	
Second Floor Women's Room (4 fixture)	250	
Second Floor Men's Room (4 fixture)	250	
Family Toilet with Shower (1)	100	
Staff Restroom	60	

NewCAL Program Spaces & Areas	Net SF	Sum
Women's Shower/Dressing Room (2 at 100 sf each near gym)	200	
Men's Shower Room (2 at 100 sf each near gym)	200	
Mech/Elec/Tel-Data/Sprinkler	800	
Custodial Space	100	
General Storage	500	
Subtotal		**3,200 NSF**
Gymnasium		
Gym (may be used for more than one activity at a time)	6,500	
Gym Walking Track (second Floor)	1,850	
Walking Track Cubbies & Stretching Alcove	100	
Gym Storage	300	
Subtotal		**8,750 NSF**
TOTAL NET SQUARE FOOTAGE		**25,000 NSF**
Grossing Factor for circulation, stairs, elevators, construction thicknesses		7,000
TOTAL BUILDING GROSS SQUARE FOOTAGE		**32,000 BGSF**

SECTION 7
PROPOSED DESIGNS CONSIDERED

"Add/Reno" Scheme Options

All design options for "Add/Reno" assume that the small additions on the west side of the current building will be removed and that some or all of the eastern portion of the building will be retained.

Currently, the Senior Center does not use the original Walnut Street entrance to the building due to issues of accessibility. Outdoor stairs bring users 4 feet above grade level with interior stairs bringing users up 2 more feet to the first floor level to 6 feet above grade. Two of the preliminary designs (Schemes 1 and 2 on the following page) studied how to use the original Walnut Street entrance and make it accessible for users with disabilities. The other 6 preliminary designs studied other possibilities for the building entrance.

There were 4 "Add/Reno" options studied that retained the eastern portion of the current building:

- Retain the south wing and center and wraparound on the north side
- Retain the north wing, center and wraparound on the south side
- Retain only the center and wraparound on both sides
- Retain both the north and south wings and the center, thus preserving as much of the current building as possible

Other "Add/Reno" issues considered were:

- How the first floor level in the addition would be aligned with the first floor level in the current building and would it require the Center's on site parking to be depressed below grade
- Will on site parking be at grade require the first floor level in the addition to be higher than the first floor level in the current building
- Would on site parking have "through passage" from Walnut Place to Highland Avenue

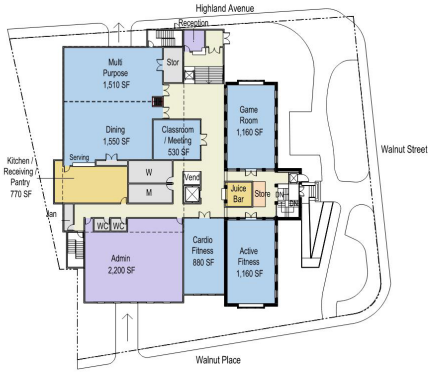
The preliminary designs on the following page consider variations on these considerations.

PROPOSED DESIGNS CONSIDERED

"Add/Reno" Scheme Options

1.

2.



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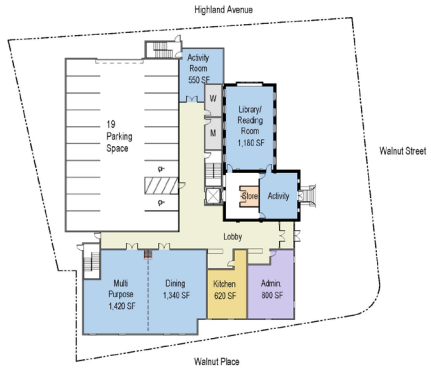

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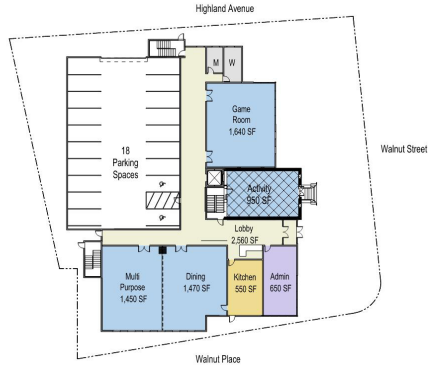

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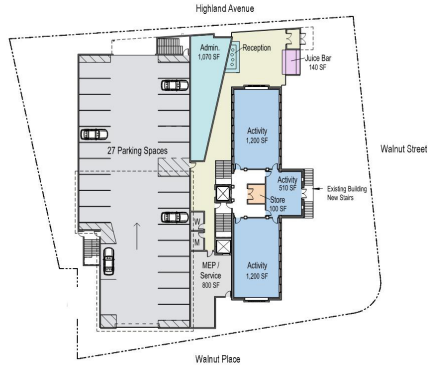


“Add/Reno” Scheme Key

1. New addition floor elevation raised 6 feet to match existing building floor to maximize first floor usable space. Reuse existing entry.

2. New addition floor elevation raised 6 feet to match existing building floor to maximize first floor usable space. Proposed new entry.

3. Retain south wing of existing building with new addition to the north of existing building.

4. Retain north wing of existing building with new addition to the south of existing building.

5. Retain center portion of existing building with new addition “wrapping” around the center wing.

6. Retain both wings of existing building with main entry off Walnut Place.

7. Retain both wings of existing building with main entry off Highland Avenue.

8. Retain both wings of existing building and maximize surface parking.

PROPOSED DESIGNS CONSIDERED

"All New" Scheme Options

The "All New" option makes it easier to solve certain design issues that arise in the "Add/Reno" scheme options. The following are a list some of the design assumptions and considerations made during this process.

Design assumptions:

- We assume that all building entrances will be at grade level and accessible
- We assume that parking will be at grade level and will have one way through passage from Walnut Place to Highland Avenue.
-

Design considerations:

- Determining the optimal setback from Walnut Street to balance concerns for creating a facility with sufficient internal space to accommodate desired programming while still providing outdoor green space in front of the building for relaxation and conversation
- Balancing concerns about building height (3 stories vs. 4 stories), distribution of program spaces within the building, people flow, and proximity to abutters
- Outdoor decks to provide additional open air space
- What materials to use so that the building will become an asset to Newtonville and Walnut Street

The preliminary designs on the following page consider variations on these considerations.

"All New" Scheme Key

1. New 4-story building oriented north/south with main entry at corner of Walnut Street and Walnut Place with main lobby facade facing Walnut Street.

2. New 4-story building oriented north/south with parking to rear of site.

3. New 4-story building oriented north/south with parking at the rear with main entry off Walnut Street and separate entrance off Highland Avenue with main lobby facade facing Walnut Street.

4. New 4-story building oriented east/west with parking to the north with main entry off parking lot and separate entrance off Walnut Place.

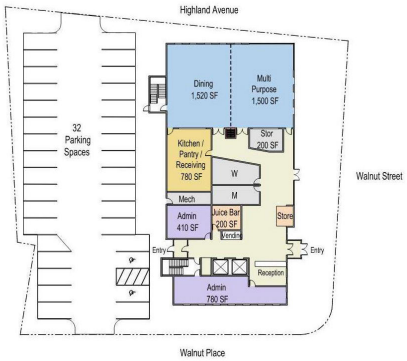
5. New 4-story "L" shaped building with gymnasium over surface parking with main entry off Walnut Street and separate entrance off Highland Avenue.

6. New 4-story "L" shaped building with gymnasium over surface parking with main entry off Walnut Street and separate entrance off Walnut Place.

7. New 3-story "L" shaped building with gymnasium over surface parking and double height entry.

"All New" Scheme Options

1.



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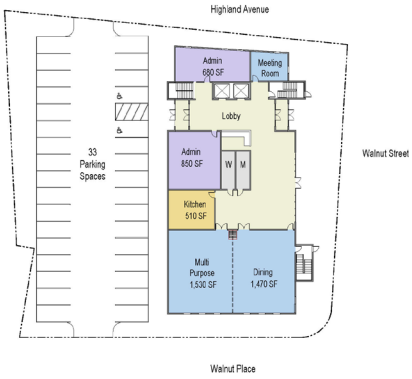

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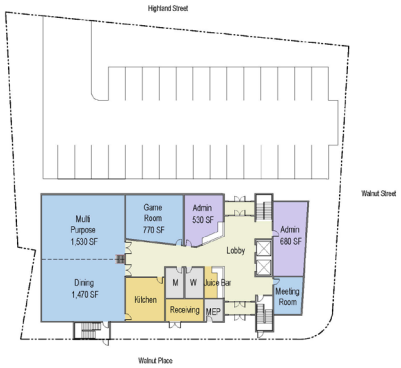

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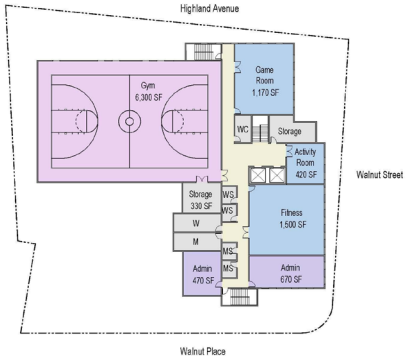

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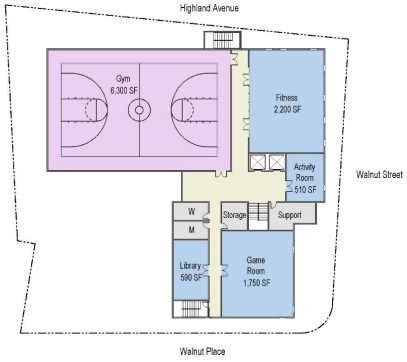

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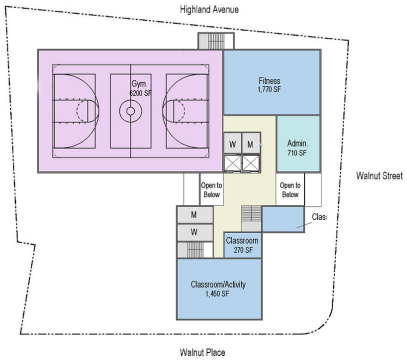


SECTION 8
PREFERRED DESIGN ALTERNATIVES

Two “preferred alternative” designs were created for purposes of this feasibility study.

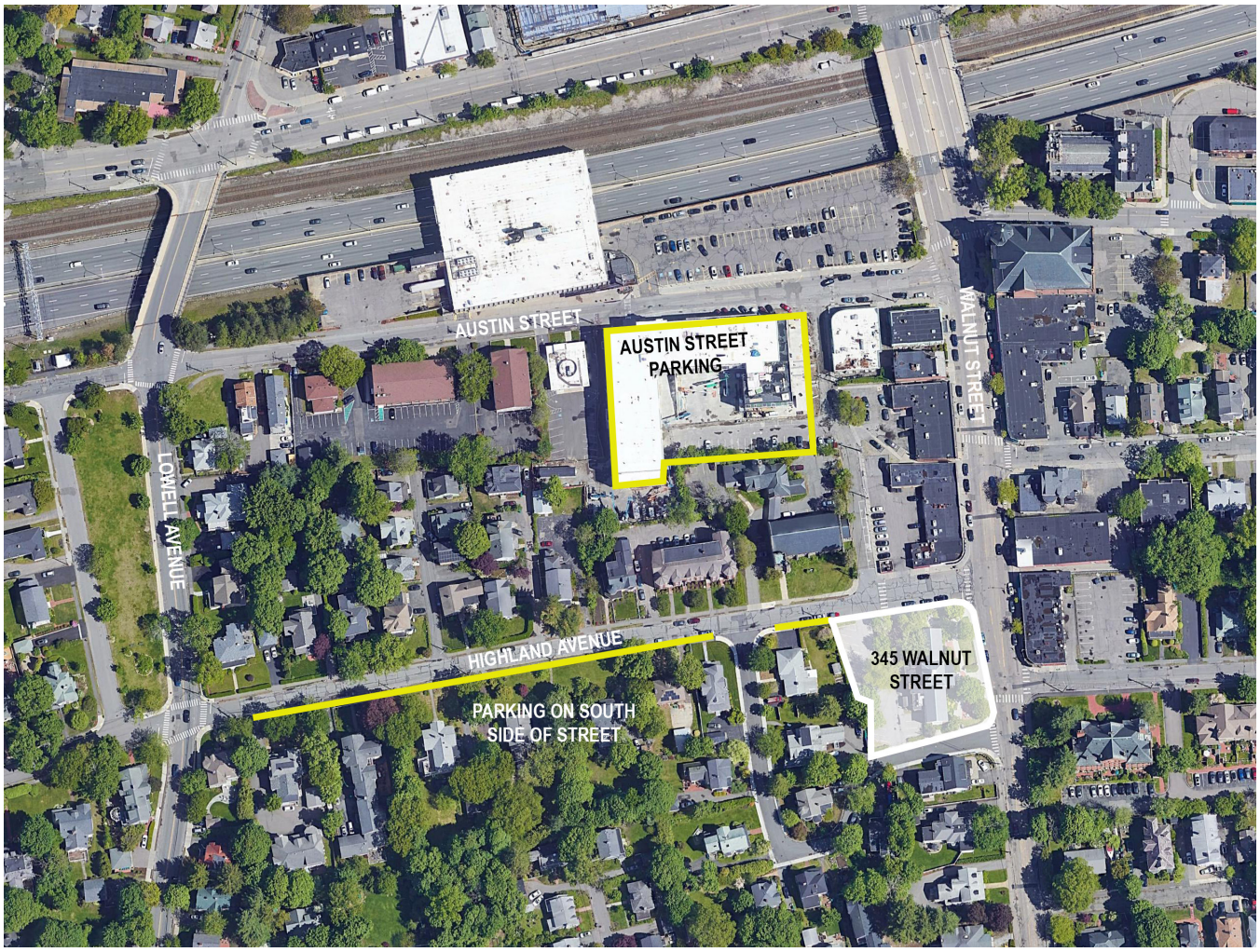
The first option is a plan that retains the major “iconic” portion of the existing Senior Center building. The scheme is termed the “Add/Reno” scheme and required a major addition to the core of the existing building to meet programmatic requirements.

The second option is an “All New” scheme which requires the full demolition of the existing building and construction of a new, larger building.

The plans for the two schemes are intended to be programmatically “leveled,” meaning that the preference of one scheme versus the other does not have to be based on any programmatic decisions. This means that the NewCAL program spaces planned for the two schemes correspond and that each of the corresponding spaces have roughly the same area in square feet. This is a baseline needed for a fair comparison of the two schemes on other more subtle grounds.

By reducing the selection variables, it allows evaluation of the advantages or constraints of a particular scheme on NewCAL’s operations, such as the raised main floor level above exterior grade which occurs in the existing building. Site impacts can also be evaluated free of program implications including such factors as the relationship with abutting properties or siting set back from Walnut street.

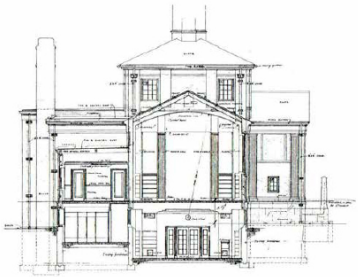
PREFERRED DESIGN ALTERNATIVES



Site location and parking options

Existing Conditions

The small appendages at the rear of the building will be removed leaving the symmetrical front wing along Walnut Street.



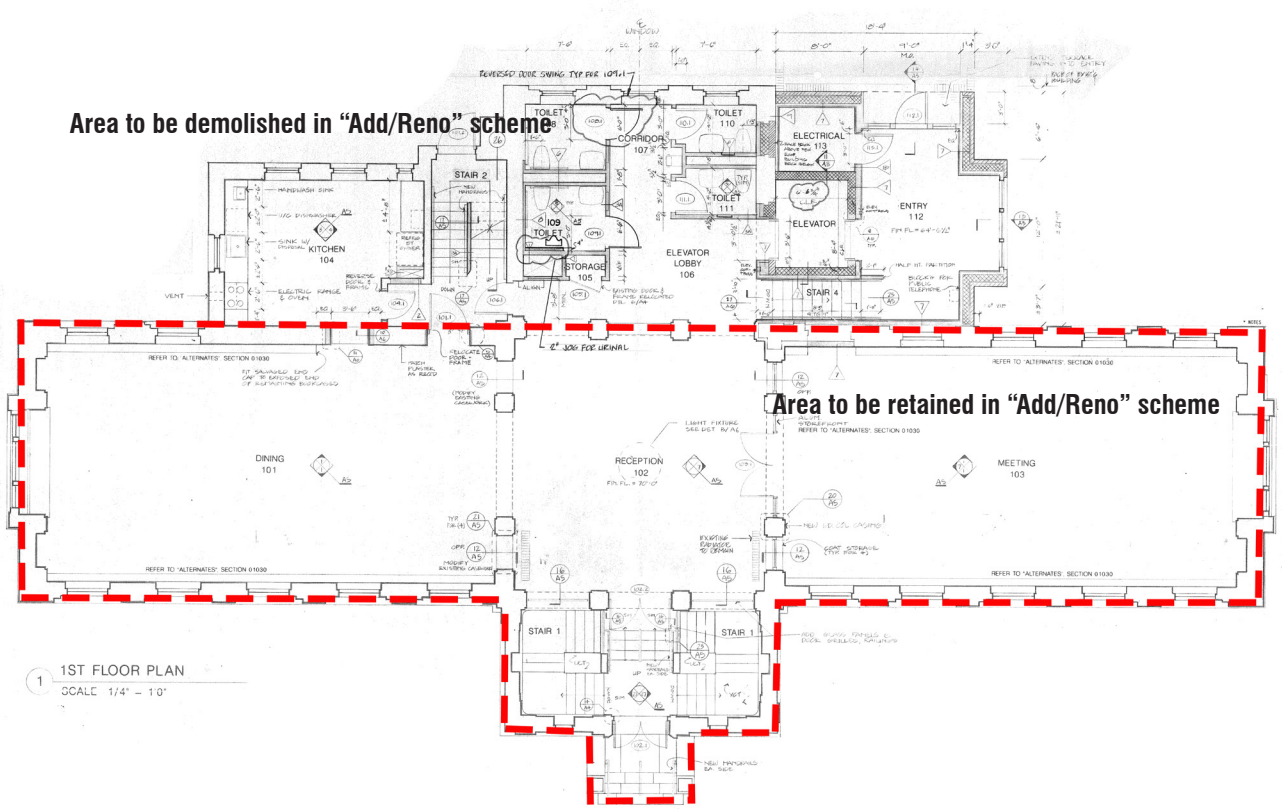
The original cross section drawing of the Library showing the raised main floor level 5 feet above outside grade.

The outside stairs take you up three feet to a landing

Inside stairs take you up the final two feet to the main floor level

One, or both, of the basement level wings would retain their windows in the proposed concepts that do not cover the front façade of the existing building. This could be secondary use space assuming the elevator is brought to that level.

Existing Site Plan



Existing Floorplan

Neighborhood context: Aerial view from Northeast (above); Street view from Southeast (below)

"Add/Reno" Scheme

The "Add/Reno" scheme consists of a new addition and a major renovation of the existing 1930's era building. The retained portion of the existing building is the iconic center portion of what was originally a branch library with the two main reading rooms on either side of the centrally oriented atrium entry space. The intent is to preserve the usable portion of the library building while removing the irregular shaped and secondary rooms on the rear (west) of the building. This allows the new addition to nicely "plug onto" the existing building. In this scheme, the NewCAL program almost occupies the entire rear yard of the site bringing the new building addition close to the property line at the western edge.

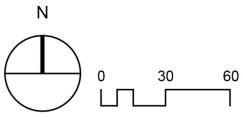
The existing building has the first floor located 6 feet above adjacent exterior grades. The existing central entry enters 2 feet below the main building level creating an accessibility challenge. The building is oriented around a central atrium, a two-story high space with two large high ceiling multipurpose rooms on either side of the atrium. Both rooms have nice stained-glass window features at flanking ends of the building.

Given that the sectional relationship of the first floor of the existing building to exterior grade is about 5-6 feet higher, the design solution is to add on a contiguous floor level matching up to the existing building first floor and thereby creating a large 15,000 square foot floor plate. This large floor plate allows a beneficial amount of contiguous program to be located all on one level.

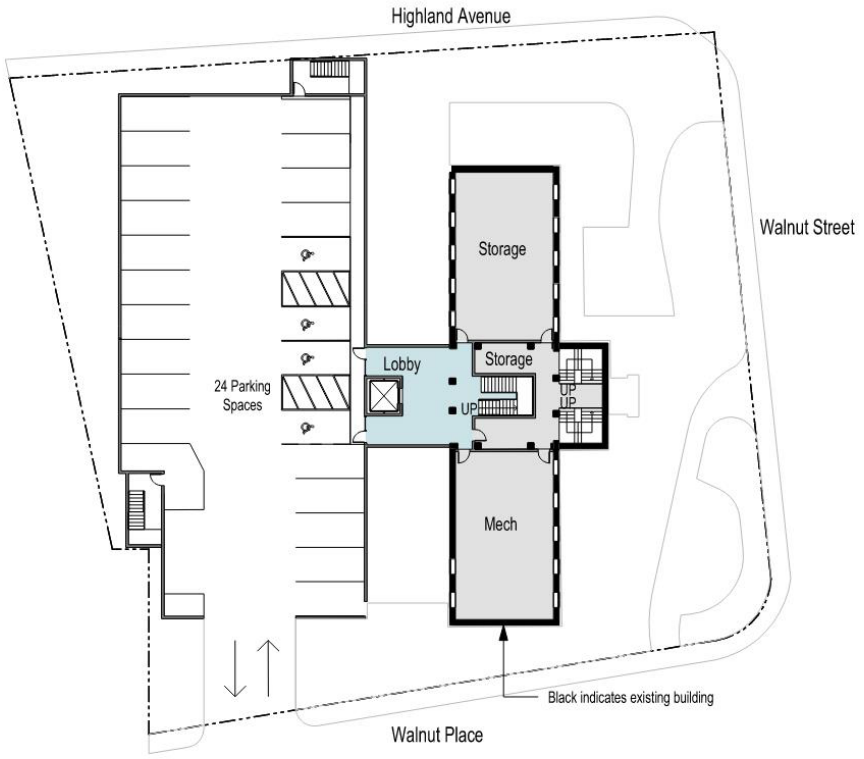
Due to the poor soil conditions on the site with unfit fill that needs to be removed and replaced prior to placing new construction on it, locating a parking area below the 1st floor level is relatively cost effective with minimal excavation. The poor soil needed to be removed regardless of whether the garage was located below the 1st floor level or not. The existing building's basement level which is approximately 6 feet below adjacent outdoor grade makes a natural connection to the new parking deck by allowing a direct, accessible entry from the parking area. By utilizing the higher ceiling in the existing building basement with high windows, the existing basement can be used as storage and mechanical service spaces to avoid yet one more level in the existing building.

The main entry to the building will be sited at ground level at the corner of Highland Avenue and Walnut Street making a prominent connection to the commercial shops in downtown Newtonville. In presenting the iconic Gable end facade of the existing library building to the public, the scheme provides a welcoming main entry at the street level. Upon entry, one rises up immediately whether it be with a grand set of stairs, a lift, or a ramp to the main floor level. The main floor level has activity spaces that are publicly oriented in nature to allow for the more specialized spaces to be remotely located on the second and third floor levels of the building. On the main level, where the most visitors are expected to use the building, public programs of activity, dining, game room, active fitness spaces and administrative spaces are located. The second floor of the building houses the gym and smaller activity spaces such as a classroom, a meeting room, 2 art rooms, and a library. The second floor level has a small outdoor deck (360 SF). The third floor includes the walking track and a classroom as well as 2 outdoor decks (2500 SF and 560 SF).

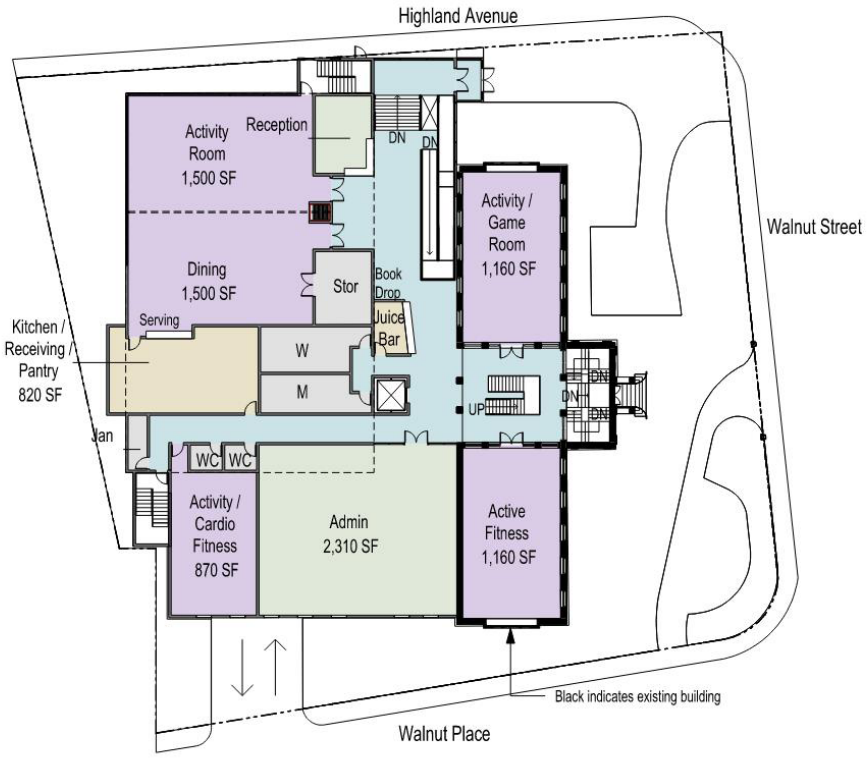
"Add/Reno" Scheme



"Add/Reno" Scheme - Reuse of and Addition to the Main Portion of the Existing Building

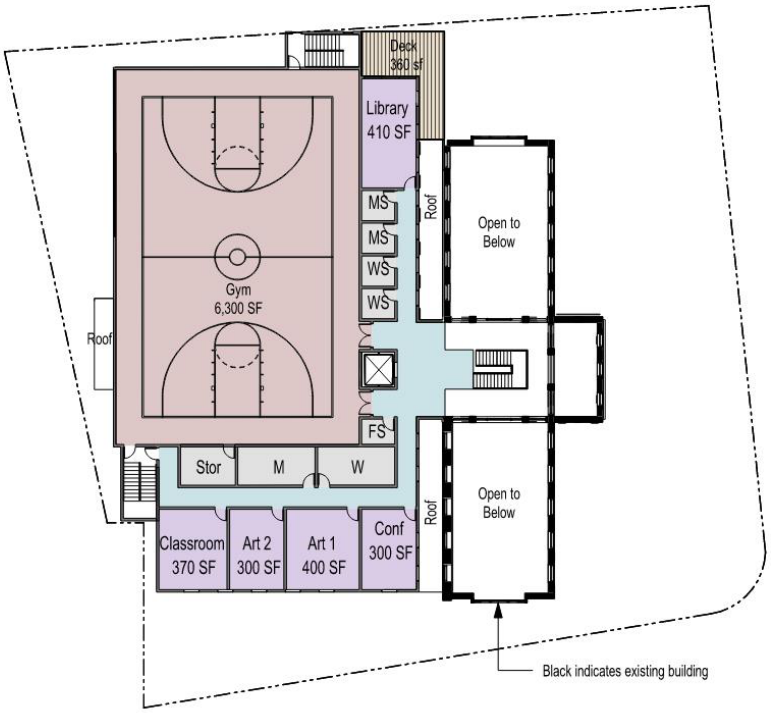


"Add/Reno" Scheme - Basement Level

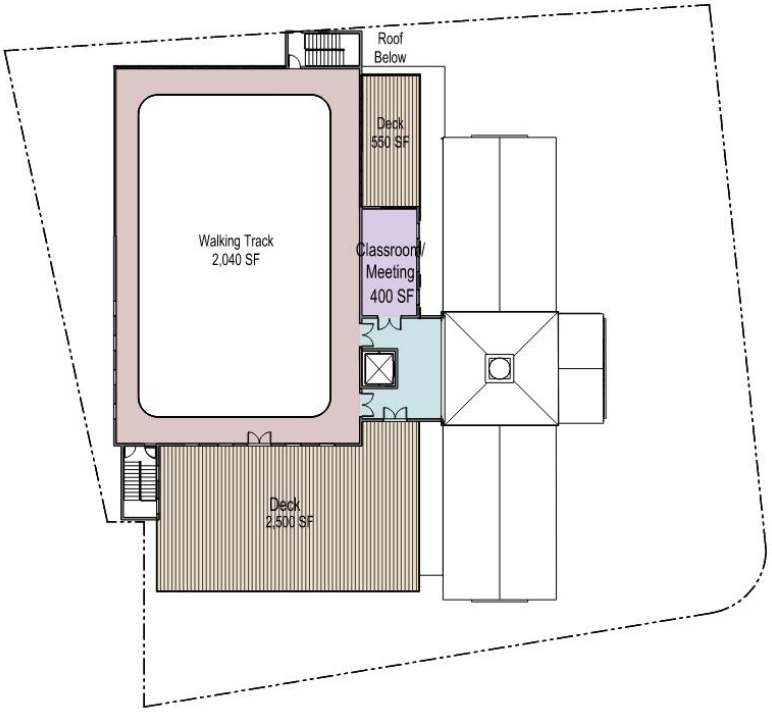


"Add/Reno" Scheme - Level 1

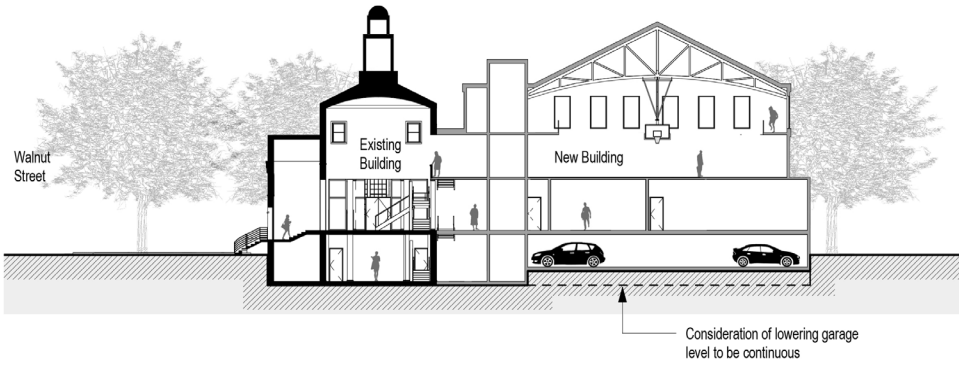
PREFERRED DESIGN ALTERNATIVES



"Add/Reno" Scheme - Level 2



"Add/Reno" Scheme - Level 3



"Add/Reno" Scheme - Section

PREFERRED DESIGN ALTERNATIVES

"Add/Reno" Scheme - Aerial View from Northeast

"Add/Reno" Scheme - Street View from Northeast

"Add/Reno" Scheme - Street View from Southeast


NEWCAL

"All New" Scheme

The "All New" scheme replaces the existing building in its entirety with a new building. This allows the new building to be more flexibly located on the site. The new building can be sited closer to Walnut Street to provide greater separation on the west side of the property and increase the buffer distances between adjacent abutters.

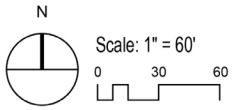
As with the "Add/Reno" scheme, the main entry to the building is positioned near the corner of Highland Avenue and Walnut Street in order to take advantage of the strong urban connection to the commercial shops in downtown Newtonville. With the new building approach, this option allows the main building entrance to be at the same street level without barrier. Upon entering the building, major public rooms are immediately accessible: dining activities space, active fitness, lobby, and some administrative spaces. The surface parking that houses thirty-three (33) total spaces is behind the building in this scheme in a one-way parking lot that enters from Walnut street and exits onto Highland Avenue. Twelve (12) parking spaces are under cover including all the handicapped accessible spaces.

The new building option also allows for the new building lobby to have more transparency and open to Walnut Street and the public. This transparency allows the passing public to have a visual connection into the new building and the activities within.

The "All New" building option places the larger gymnasium block of the building towards the rear of the site (west) and steps down with a two story, smaller massing towards Walnut Street. This stepping down of the massing will help to continue the urban fabric along Walnut Street.

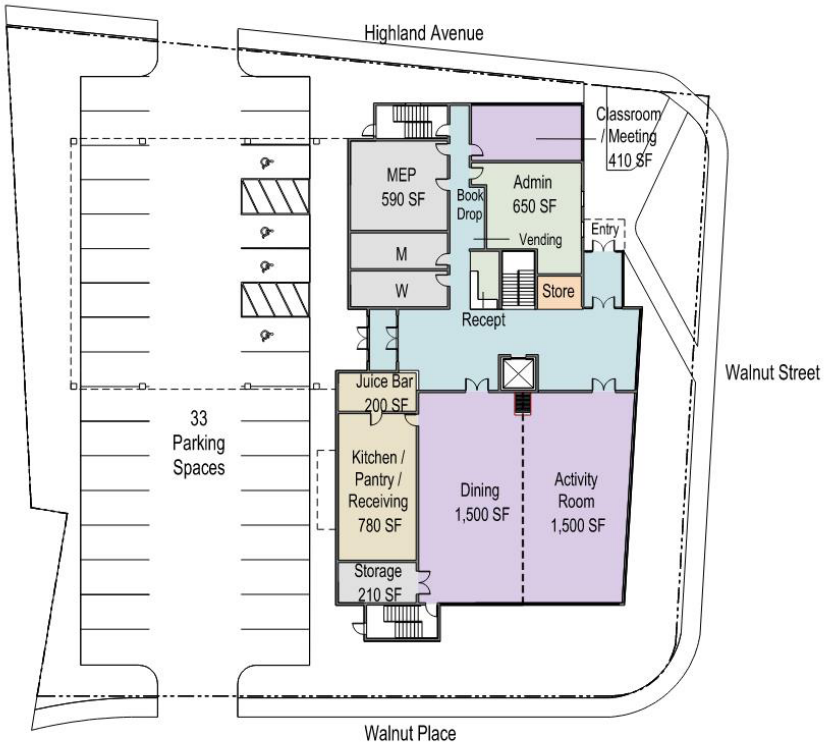
The second floor of the building is similar to the "Add/Reno" option in that the gym is located on this level along with restroom support, fitness room, and activity rooms. The third floor of the building includes the walking track which hangs above the gym level. Contiguous to this walking track on this level are 2 art rooms, a computer/meeting room, a library, and an outdoor deck (2400 SF).

"All New" Scheme



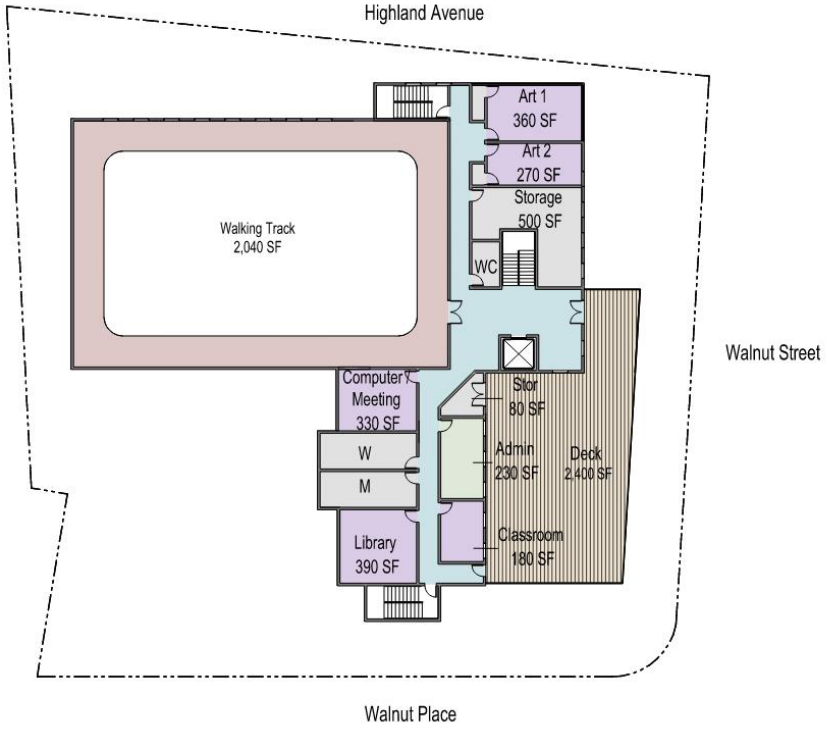
"All New" Scheme - Site Plan

PREFERRED DESIGN ALTERNATIVES

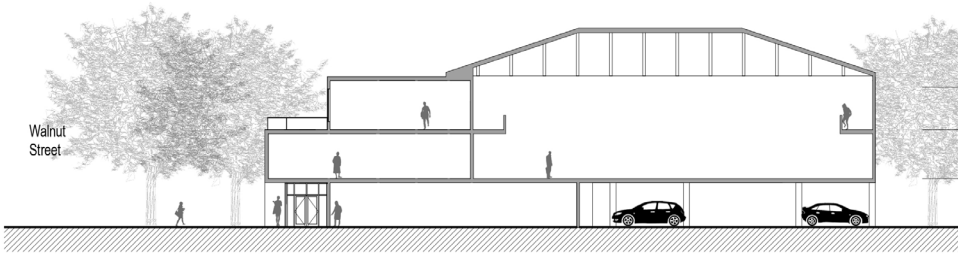


"All New" Scheme - Level 1

"All New" Scheme - Level 2



"All New" Scheme - Level 3



"All New" Scheme - Section

"All New" Scheme - Aerial View from Northeast

"All New" Scheme - Street View from Northeast

"All New" Scheme - Street View from Southeast

PREFERRED DESIGN ALTERNATIVES

SECTION 9
SUSTAINABILITY

Sustainability and NewCAL

This section is intended to provide a broad outline for the project in regards to sustainability features. In general, sustainable features will be further defined as the project emerges from the feasibility study phase. It is clear that as a public facility, the overriding goal of the sustainability program will be to create a high-performance building to reduce operating costs. In the long run, doing so creates a more financially sustainable NewCAL for the community allowing financial resources to instead be directed to programs and people.

An overall goal of a Net Zero or Passive House model is a reasonable and achievable target. Both approaches would not add an "extreme" premium to the project as new Massachusetts energy code standards are bringing buildings closer to the Net Zero Energy goal naturally.

From a baseline perspective, the building will have a high-performance wall system with well insulated continuous exterior insulation on the walls and roof. Window performance will be a point of study as these perform poorly when compared to the walls energy performance. Ideally triple paned windows would be used. Because of certain program components, such as the gym, keeping the building wall surface to less than 30% glass is an achievable factor without compromising the daylight and transparency that are very important points of discussion at public meetings.

HVAC systems for the building are envisioned to be "fossil fuel free" systems. A variable refrigerant flow system is all electric offering room by room zoning as well as the ability to switch from heating to cooling at any time. This flexibility is a great asset where spaces may be multi-purpose and seniors are involved. Best of all, VRF systems allow for the redistribution of heating and cooling in the building; if one room needs cooling and one room needs heating, the excess energy in one space can be moved to the other space via the VRF system. Energy recovery systems will reduce the energy required to heat or cool make up air.

With a commercial kitchen and meals program, domestic hot water will be in higher demand. Newer heat pump water heaters are available at a commercial level and will heat water without the use of fossil fuel. A by-product of the heat pump water heater is cool exhaust air that can be directed for use elsewhere in the building. Commercial cooking is generally done with gas, so the use of electric cooktops in the kitchen will be a point of discussion. The required range hood with its high level of exhaust air will also be a point of focus in the design.

Embodied Carbon Differences in "Add/Reno" Vs. "All New"

Carbon flows through almost every building process. Carbon deposits become the ore and fiber of construction. The building industry is estimated to account for well over half of the world's extraction and consumption of carbon-based material and hydrocarbon energy. Thus, monitoring carbon use in NewCAL will be a relevant task.

One way to look at decarbonizing construction is to look at the use of timber and other bio-based building assemblies. Using wood for the building structure and finishes from potentially sustainably managed forests could reduce carbon emissions while creating a carbon sequestration system via the incorporation of sustainable wood products. There is no reason that NewCAL's structural system could not be mass timber as opposed to steel.

One aspect of reducing carbon content is to evaluate the adaptive reuse of existing structures. Embodied carbon has been raised by a few people during the public outreach of NewCAL alternatives. Is the embodied carbon contained in the existing structure valuable in reducing the carbon footprint of the project? While a carbon content comparison between the "Add/Reno" and "All New" alternatives is beyond the scope of this feasibility study some general considerations are worth discussion.

In part, an answer to the question of which approach results in less embodied carbon depends on the time frame one is evaluating carbon use. The embodied carbon is typically measured in four ways: 1) the carbon embodied in the building materials through raw material extraction and building material production; 2) the carbon embodied or released as part of on-site construction of the building; 3) the carbon embodied and released through operation and maintenance of the building and lastly; 4) carbon that is utilized but not "embodied" through demolition of the existing building. With each component above there is a related transportation carbon use.

In concept, with regards to embodied carbon in building materials, the renovated portion of 345 Walnut Street contains embodied carbon in the brick walls and foundation system. The embodied carbon in the roofing and substrate will be lost as the roofing shingles and the roof structure need to be removed and replaced as part of the renovation. The roof structure consists of gypsum panels which offer no lateral bracing for the roof. To meet current building codes, these panels need to be removed and replaced with steel decking and then new shingles, insulation and underlying materials need to be installed. The steel supporting structure will be reused.

SUSTAINABLITY

The material value of the existing building primarily lies in the brick walls. In theory, that is a savings compared to new walls. However, the existing walls need new seismic bracing if the structure is to be reused. Thus, a portion of the embodied carbon savings is minimized by the need to add reinforcement to the existing building. Secondarily, with regards to the exterior wall system, the windows are single paned glass and energy inefficient. For a 50-year building, we would install new, thermally insulated windows in place of the existing or, for historic preservation purposes, one might consider interior storm windows to increase the insulating value of restored existing windows. Either method utilizes new building material that will have embodied carbon equal or close to equal to that of the new construction.

We also need to remember that the existing windows have a sill that is six feet above the floor level. The windowsills should be lowered to 2 or 3 feet above the floor slab when the building is reused. Not being able to directly see out of the windows will be an annoying feature to live with and was identified as an issue to overcome during public outreach. This will necessitate use of new windows and these windows will negate any potential savings on embodied carbon. The "Add/Reno" and "All New" options will both ultimately incorporate new windows and similarly an equal amount of new embodied carbon.

Lowering the windowsills in an existing mass masonry wall is no easy feat. It requires equipment and manpower. In general, an "Add/Reno" scheme will involve additional manpower as compared to an "All New" scheme. In the case of 345 Walnut Street, the "Add/Reno" scheme is approximately $2M more costly than the "All New" building. Typical building costs are distributed 50-50 between materials and labor. Thus, one can expect to spend $1M on additional labor on the "Add/Reno" scheme. This translates to an additional 1,250-man days of labor on the site. If one is to assume that each worker travels an average of 40 miles per day and their vehicles average 25 mpg, a total of 40 tons of additional CO_2 is released into the environment with the additional labor cost related to the "Add/Reno" scheme.

Embodied carbon measurements must consider the carbon used to heat and cool NewCAL once the building is open for use. The 3,000sf of effective space in the "Add/Reno" scheme is an uninsulated, high volume brick structure. Typically, insulation for buildings is located on the outside face of the structure to eliminate any thermal bridging from the exterior to the interior. With the building at 345 Walnut, wrapping the exterior is not an option; while wrapping the interior is theoretically possible, it is not recommended for mass masonry building. Thermal bridging is not eliminated and this often leads to condensation forming on certain surfaces. Worse, insulation on the inside face of the exterior wall at 345 Walnut will be potentially detrimental to the performance of mass masonry walls that are constructed without cavities for the drainage of water getting that gets into the brick walls. These uninsulated walls were designed to "dry out" by virtue of heat loss from the building escaping to the exterior. With insulation on the interior surface, this migration of heat is curtailed and trapped moisture in the brick can freeze. The impact of this action is brick spalling and the jacking of window lintels over time.

Since best practices are to leave the masonry exterior walls uninsulated and, since the spaces in the existing building are much higher than necessary, the volume of air and the temperature differential of the air will lead to a significantly higher cost to heat and cool the existing building than should this area be replicated with a high-performance new building and this needs to be factored into the "life cycle embodied carbon" analysis.

The point of the above discussion is that a reduction of embodied carbon is not necessarily an automatic result from saving the existing structure. Generally, one can assume a reduced embodied carbon amount for and "Add/Reno" type project over an initial 5 to 10 years. Over a 50-year life cycle, the total carbon footprint measured by material and use will likely be significantly less for a new, high performance structure.

Certification

The philosophy of sustainable design is applied step-by-step with the design process and often uses LEED, Enterprise Green Communities, or Passive House. These provide a framework and reference to the developing concepts. The value of a LEED or other certification is utilized through the decision making process and into the implementation, but the real payoff comes from the commissioning, verification and follow up, as construction is completed and the building is occupied. For many reasons, many but not all communities use the process to create certifiable projects without going through the expense of actually certifying their projects.

Next Steps

For those interested in how the sustainability process develops, we work with a third party facilitator such as The Green Engineer to define and incorporate needs. The project definition is determined through an analysis that includes the following steps.

1. Project Vision & Sustainability Goals
    a. What does success look like?
    b. Owner Requirements
    c. Performance Targets – EUI/carbon/other
    d. Certification Considerations
2. Net Zero Energy - Opportunities & Challenges
    a. Building Envelope
    b. Mechanical system
    c. Ventilation
    d. Kitchen Design
    e. Lighting design; target improvement beyond code
    f. Domestic hot water system and plumbing fixtures
    g. Energy analysis/modeling
    h. OPR/Cx
    i. Renewables
3. Other Sustainability Goals
    a. Site design
    b. Water conservations (interior & exterior)
    c. Materials & Waste
    d. Indoor Air Quality
    e. Health & Wellness
    f. Social Equity
4. What major decisions are still being considered?
5. Energy Code
6. Utility Incentives

SECTION 10
COST ESTIMATES

Cost estimates were prepared by an independent cost consultant, CHA Consulting, Inc. CHA has estimated several BH+A Senior Centers and Centers for Active Living, including ones in Needham, Randolph, Falmouth, Scituate, Andover, Sandwich, and Chatham. The results from these projects help to inform NewCAL's cost estimates which we based on design, bid, build Massachusetts Chapter 149 bidding regulations and wage rates. A Chapter 149A Construction Manager At Risk project may vary from this price. Given the size of the project, we anticipate Chapter 149 with pre-qualified bidding will be the method of procurement.

The cost baseline is January 2021. The anticipated start of construction has not been finalized. Thus, the escalation factor is shown on the cost estimating worksheet so that related costs can be escalated at the same rate. Current COVID-19 market conditions are anticipated to be short term in nature and once public building resumes at its normal pace, pricing is expected to return to pre-COVID-19 levels.

For each approach studied ("Add/Reno" or "All New"), we have summarized the cost on the following pages.

1. The "Leveling Summary" chart summarizes the two approaches in comparison with each other.
2. The "Detail Leveling" chart compares the two approaches in detail to see where the cost delta originates.
3. The "Cost Summary" chart summarizes the approaches.
4. The Detail Summary" shows each approach broken down by renovation, new construction, and site work.
5. The last page is a detailed analysis of site work. Note that the parking for the all new construction scheme is included within the site work cost. For the "Add/Reno" scheme, parking is below the building in a garage space and thus included with building cost. The difference in how parking is categorized explains why site costs are higher for the "All New" approach.

Furniture and Audio Visual requirements represent an additional cost for NewCAL. A feasibility level program and budget for these items was developed and is attached following the building cost estimate. The "year of the pandemic" demonstrated the opportunity to reach home bound seniors with technology. While not a substitute for in-person activities, the program rooms at NewCAL will be outfitted with Audio Visual technology for "broadcasting" on site programs and events to Newton home users as well as increasing online programming opportunities.

COST ESTIMATES

Newton CAL - Leveling Summary

	Add / Reno		All New		Delta
	Cost	$/SF	Cost	$/SF	Cost
		36,346		32,300	
Direct Trade Costs					
Sitework	762,615	20.98	1,008,683	31.23	(246,068)
Renovation	2,273,395	62.55	-	-	2,273,395
New Construction	11,538,276	317.46	11,637,807	360.30	(99,531)
Subtotal	**14,574,286**	**400.99**	**12,646,490**	**391.53**	**1,927,796**
Design and Pricing Contingency					
Design and Pricing Contingency (10.00%)	1,459,000	40.14	1,265,000	39.16	194,000
Subtotal	**1,459,000**	**40.14**	**1,265,000**	**39.16**	**194,000**
Indirect Trade Costs					
General Conditions (10.00%)	1,605,000	44.16	1,392,000	43.10	213,000
General Liability (1.25%)	222,000	6.11	193,000	5.98	29,000
Performance and Payment Bonds (1.00%)	180,000	4.95	156,000	4.83	24,000
Fee (3.00%)	543,000	14.94	471,000	14.58	72,000
Subtotal	**2,550,000**	**70.16**	**2,212,000**	**68.48**	**338,000**
Total w/o Escalation	**18,583,286**	**511.29**	**16,123,490**	**499.18**	**2,459,796**

Newton CAL - Detail Leveling

	Add / Reno		All New		Delta	
	Cost	$/SF	Cost	$/SF	Cost	$/SF
		36,346		32,300		32,300
02 - Existing Conditions	359,231	9.88	370,000	11.46	(10,769)	(0.33)
03 - Concrete	1,388,736	38.21	742,073	20.42	646,663	20.02
04 - Masonry	458,360	12.61	274,067	7.54	184,293	5.71
05 - Metals	2,005,363	55.17	1,781,299	49.01	224,064	6.94
06 - Woods, Plastics, and Composites	817,260	22.49	608,873	16.75	208,387	6.45
07 - Thermal and Moisture Protection	1,606,451	44.20	1,192,571	32.81	413,880	12.81
08 - Openings	1,035,220	28.48	1,046,725	28.80	(11,505)	(0.36)
09 - Finishes	1,534,779	42.23	1,437,697	39.56	97,082	3.01
10 - Specialties	285,194	7.85	279,865	7.70	5,329	0.16
11 - Equipment	250,300	6.89	269,600	7.42	(19,300)	(0.60)
12 - Shades and Entrance Mats	43,736	1.20	81,268	2.24	(37,532)	(1.16)
14 - Conveying Equipment	340,000	9.35	240,000	6.60	100,000	3.10
21 - Fire Suppression	253,305	6.97	243,070	6.69	10,235	0.32
22 - Plumbing	585,298	16.10	581,400	16.00	3,898	0.12
23 - HVAC	1,253,216	34.48	1,103,400	30.36	149,816	4.64
26 - Electrical	1,365,673	37.57	1,160,800	31.94	204,873	6.34
31 - Earthwork	423,874	11.66	423,820	11.66	54	0.00
32 - Exterior Improvements	229,098	6.30	417,707	11.49	(188,609)	(5.84)
33 - Utilities	339,193	9.33	392,255	10.79	(53,062)	(1.64)
Direct Work Subtotal	14,574,287	400.99	12,646,490	391.53	1,927,797	59.68
Design & Pricing Contingency (10%)	1,459,000	40.14	1,265,000	39.16	194,000	6.01
General Conditions (10%)	1,605,000	44.16	1,392,000	43.10	213,000	6.59
General Liability (1.25%)	222,000	6.11	193,000	5.98	29,000	0.90
P&P Bonds (1%)	180,000	4.95	156,000	4.83	24,000	0.74
Fee (3%)	543,000	14.94	471,000	14.58	72,000	2.23
Project Total w/o Escalation	18,583,287	511.29	16,123,490	499.18	2,459,797	76.15

"Add/Reno" Scheme

Newton CAL - Add / Reno Cost Summary

	Sitework	Reno	New	Total
Direct Trade				
Building Construction		2,273,395	11,538,276	13,811,671
Sitework	762,615			762,615
Subtotal	**762,615**	**2,273,395**	**11,538,276**	**14,574,286**
Design & Pricing Contingency				
Pricing Contingency (10%)	77,000	228,000	1,154,000	1,459,000
Subtotal	**839,615**	**2,501,395**	**12,692,276**	**16,033,286**
Indirect Trade				
General Conditions (10%)	84,000	251,000	1,270,000	1,605,000
General Liability (1.25%)	12,000	35,000	175,000	222,000
P&P Bonds (1%)	10,000	28,000	142,000	180,000
Fee (3%)	29,000	85,000	429,000	543,000
Total Project w/o Escalation	**974,615**	**2,900,395**	**14,708,276**	**18,583,286**

Newton CAL - Add Reno Detail Summary

	Renovation		New Construction		Sitework		Total	
	Cost	$/SF	Cost	$/SF	Cost	$/SF	Cost	$/SF
		3,825		36,346		-		32,300
02 - Existing Conditions	64,251	16.80	294,980	8.12	-	-	359,231	11.12
03 - Concrete	65,000	16.99	1,323,736	36.42	-	-	1,388,736	42.99
04 - Masonry	172,534	45.11	285,826	7.86	-	-	458,360	14.19
05 - Metals	456,014	119.22	1,549,349	42.63	-	-	2,005,363	62.09
06 - Woods, Plastics, and Composites	232,306	60.73	584,954	16.09	-	-	817,260	25.30
07 - Thermal and Moisture Protection	414,621	108.40	1,191,830	32.79	-	-	1,606,451	49.74
08 - Openings	297,365	77.74	737,855	20.30	-	-	1,035,220	32.05
09 - Finishes	143,750	37.58	1,391,029	38.27	-	-	1,534,779	47.52
10 - Specialties	18,204	4.76	266,990	7.35	-	-	285,194	8.83
11 - Equipment	6,500	1.70	243,800	6.71	-	-	250,300	7.75
12 - Shades and Entrance Mats	18,738	4.90	24,998	0.69	-	-	43,736	1.35
14 - Conveying Equipment	-	-	340,000	9.35	-	-	340,000	10.53
21 - Fire Suppression	32,513	8.50	220,792	6.07	-	-	253,305	7.84
22 - Plumbing	30,600	8.00	554,698	15.26	-	-	585,298	18.12
23 - HVAC	160,650	42.00	1,092,566	30.06	-	-	1,253,216	38.80
26 - Electrical	145,350	38.00	1,220,323	33.58	-	-	1,365,673	42.28
31 - Earthwork	15,000	3.92	214,550	5.90	194,324	-	423,874	13.12
32 - Exterior Improvements	-	-	-	-	229,098	-	229,098	7.09
33 - Utilities	-	-	-	-	339,193	-	339,193	10.50
Direct Work Subtotal	2,273,395	594.35	11,538,276	317.46	762,615	-	14,574,286	451.22

"All New" Scheme

Newton CAL - All New Cost Summary

	Sitework	Reno	New	Total
Direct Trade				
Building Construction		-	11,637,807	11,637,807
Sitework	1,008,683			1,008,683
Subtotal	**1,008,683**	**-**	**11,637,807**	**12,646,490**
Design & Pricing Contingency				
Pricing Contingency (10%)	101,000	-	1,164,000	1,265,000
Subtotal	**1,109,683**	**-**	**12,801,807**	**13,911,490**
Indirect Trade				
General Conditions (10%)	111,000	-	1,281,000	1,392,000
General Liability (1.25%)	16,000	-	177,000	193,000
P&P Bonds (1%)	13,000	-	143,000	156,000
Fee (3%)	38,000	-	433,000	471,000
Total Project w/o Escalation	**1,287,683**	**-**	**14,835,807**	**16,123,490**

Newton CAL - All New Detail Summary

	Renovation		New Construction		Sitework		Total	
	Cost	$/SF	Cost	$/SF	Cost	$/SF	Cost	$/SF
		3,825		32,300		-		32,300
02 - Existing Conditions	-	-	370,000	11.46	-	-	370,000	11.46
03 - Concrete	-	-	742,073	22.97	-	-	742,073	22.97
04 - Masonry	-	-	274,067	8.49	-	-	274,067	8.49
05 - Metals	-	-	1,781,299	55.15	-	-	1,781,299	55.15
06 - Woods, Plastics, and Composites	-	-	608,873	18.85	-	-	608,873	18.85
07 - Thermal and Moisture Protection	-	-	1,192,571	36.92	-	-	1,192,571	36.92
08 - Openings	-	-	1,046,725	32.41	-	-	1,046,725	32.41
09 - Finishes	-	-	1,437,697	44.51	-	-	1,437,697	44.51
10 - Specialties	-	-	279,865	8.66	-	-	279,865	8.66
11 - Equipment	-	-	269,600	8.35	-	-	269,600	8.35
12 - Shades and Entrance Mats	-	-	81,268	2.52	-	-	81,268	2.52
14 - Conveying Equipment	-	-	240,000	7.43	-	-	240,000	7.43
21 - Fire Suppression	-	-	243,070	7.53	-	-	243,070	7.53
22 - Plumbing	-	-	581,400	18.00	-	-	581,400	18.00
23 - HVAC	-	-	1,103,400	34.16	-	-	1,103,400	34.16
26 - Electrical	-	-	1,160,800	35.94	-	-	1,160,800	35.94
31 - Earthwork	-	-	225,099	6.97	198,721	-	423,820	13.12
32 - Exterior Improvements	-	-	-	-	417,707	-	417,707	12.93
33 - Utilities	-	-	-	-	392,255	-	392,255	12.14
	-	-	11,637,807	360.30	1,008,683	-	12,646,490	391.53

Newton CAL
Budget Estimate
Newton, MA 02460

February 4, 2021

Concept Estimate

Architect:
Bargmann Hendrie + Archetype, Inc.
9 Channel Center Street, Suite 300
Boston, MA 02210
(617) 350 0450

Cost Consultant:
CHA Consulting Inc
1 Faneuil Hall Marketplace
South Market Bldg, Suite 4195
Boston, MA 02109
(617) 451-2717

Newton CAL
Budget Estimate
Newton, MA 02460

INTRODUCTION

Project Description:

The project consists of options for a new active living facility in Newton, MA.

Add/Reno: Retain existing building

36,346 New facility GSF

3,825 Renovate existing facility GSF

Including site development

All New: New facility

32,300 New facility GSF

Including site development

Project Particulars:

Concept documents prepared by Bargmann Hendrie + Archetype, Inc. dated 12-04-2020

CHA Consulting Inc experience with similar projects of this nature

Design intent and scope review discussions with Bargmann Hendrie + Archetype, Inc.

Project Assumptions:

The project will be constructed under a single prime contract in accordance with the requirements of Massachusetts General Laws Chapter 149

Our costs assume that there will be at least three subcontractors submitting unrestricted bids in each trade bid category

Direct trade unit rates include escalation to mid-point of construction duration and prevailing wage labor rates. These unit rates continue to be updated during the design period

Operation during normal working hours

Building will be unoccupied during construction

Temporary electrical and water site utility connections will be available. General Conditions value includes utility connections

Lay-down/storage area, jobsite shed and trailers, and construction entrance will be located adjacent to Project area

Noise and vibration disturbances are anticipated and will be minimized or avoided during normal business hours

Subcontractor's markups are included in each unit rate. These markups cover field and home office overhead and subcontractor's profit

Design and Pricing Contingency markup is an allowance for unforeseen design issues, design detail development and specification clarifications during the design period. This allowance typically reduces during the design period, to more accurately reflect the designed scope of work progress

General Conditions covers supervision, general facilities to support Project, and site office overheads that are not attributable to the direct trade costs

Anticipated start of construction is Spring 2022

Newton CAL
Budget Estimate
Newton, MA 02460

Construction Cost Estimate Exclusions:

- Irrigation
- Work beyond the boundary of the site
- Unforeseen conditions contingency
- Construction Contingency
- Rock excavation and dewatering
- Site or existing condition surveys and investigations
- Architectural/Engineering; Designer and other professional fees, testing, printing, surveying
- Owner's administration; legal fees, advertising, permitting, Owner's insurance, administration, interest expense
- Project costs; utility company back charges prior to construction, construction of swing space and temporary facilities, program related phasing, relocation
- Owner's site representation and project administration
- Third Party testing and commissioning
- Police details and street/sidewalk permits
- Environmental permitting
- Building permit fees

"Add/Reno" Scheme

Newton CAL
Newton, MA 02460

RENOVATION AND ADDITION - MAIN SUMMARY BUDGET

ELEMENT		Sitework	Renovation		New Construction	
Direct Trade Details						
Building Construction			$2,273,395	$594.35	$11,538,276	$317.46
Sitework		$762,615				
Direct Trade Details Subtotal		**$762,615**	**$2,273,395**	**$594.35**	**$11,538,276**	**$317.46**
Design and Pricing Contingency	10.00%	$77,000	$228,000	$59.61	$1,154,000	$31.75
Direct Trade Details Subtotal		**$839,615**	**$2,501,395**	**$653.96**	**$12,692,276**	**$349.21**
General Conditions	10.00%	$84,000	$251,000	$65.62	$1,270,000	$34.94
General Liability Insurance	1.25%	$12,000	$35,000	$9.15	$175,000	$4.81
Performance and Payment Bonds	1.00%	$10,000	$28,000	$7.32	$142,000	$3.91
Fee	3.00%	$29,000	$85,000	$22.22	$429,000	$11.80
Estimated Construction Cost Total		**974,615**	**$2,900,395**	**$758.27**	**$14,708,276**	**$404.67**
Escalation	3.50%	35,000	$102,000	$26.67	$515,000	$14.17
Estimated Construction Cost Total		**1,009,615**	**$3,002,396**	**$784.94**	**$15,223,276**	**$418.84**
Approximate break-out values for work zones						
CAL Center			$2,501,395	$653.96 /GSF	$10,695,156	$356.20 /GSF
Gym			$0	$0.00 /GSF	$1,997,120	$316.00 /GSF
Mark-ups and contingencies			$501,001	20.03%	$2,531,000	19.94%
Estimated Construction Cost Total		**$1,009,615**	**$3,002,396**	**$ 784.94 /GSF**	**$15,223,276**	**$ 418.84 /GSF**
OPTION #1 - TOTAL COST (Site, Renovation and New)					**$19,235,287**	**$ 478.84 /GSF**

COST ESTIMATES

"Add/Reno" Scheme

Newton CAL

DIRECT TRADE COST SUMMARY

Budget Estimate

ELEMENT	Filed Sub-Bids	Renovation		New Construction	
02 40 00 Demolition		$64,251	$16.80	$34,980	$0.96
02 40 00 Abatement		$0	$0.00	$260,000	$7.15
02-EXISTING CONDITIONS		**$64,251**	**$16.80**	**$294,980**	**$8.12**
03 30 00 Cast-in-Place Concrete		$65,000	$16.99	$1,323,736	$36.42
03-CONCRETE		**$65,000**	**$16.99**	**$1,323,736**	**$36.42**
04 00 01* Masonry	$458,360	$172,534	$45.11	$285,826	$7.86
04-MASONRY		**$172,534**	**$45.11**	**$285,826**	**$7.86**
05 00 01* Miscellaneous Iron	$454,625	$61,279	$16.02	$393,346	$10.82
05 12 00 Structural Steel		$394,735	$103.20	$1,156,003	$31.81
05-METALS		**$456,014**	**$119.22**	**$1,549,349**	**$42.63**
06 10 00 Rough Carpentry		$199,669	$52.20	$305,843	$8.41
06 40 20 Interior Architectural Woodwork		$32,638	$8.53	$279,111	$7.68
06-WOODS, PLASTICS, AND COMPOSITES		**$232,306**	**$60.73**	**$584,954**	**$16.09**
07 00 01* Waterproofing Dampproofing and Caulkin	$354,501	$13,388	$3.50	$341,113	$9.39
07 00 02* Roofing and Flashing	$788,228	$378,283	$98.90	$409,945	$11.28
07 21 00 Thermal Insulation		$13,388	$3.50	$139,226	$3.83
07 46 10 Cementitious Siding		$0	$0.00	$171,878	$4.73
07 42 13 Metal Wall Panels		$0	$0.00	$104,226	$2.87
07 84 10 Firestopping		$9,563	$2.50	$25,442	$0.70
07-THERMAL AND MOISTURE PROTECTION		**$414,621**	**$108.40**	**$1,191,830**	**$32.79**
08 00 01* Glass & Glazing	$116,170	$37,000	$9.67	$79,170	$2.18
08 11 13 Hollow Metal Doors and Frames		$1,190	$0.31	$11,345	$0.31
08 14 16 Flush Wood Doors		$0	$0.00	$22,780	$0.63
08 31 00 Access Doors and Panels		$700	$0.18	$5,950	$0.16
08 33 10 Overhead Coiling Doors		$0	$0.00	$21,000	$0.58
08 41 13 Aluminum-Framed Entrances and Storefronts		$74,200	$19.40	$433,500	$11.93
08 54 13 Fiberglass Windows		$175,875	$45.98	$103,360	$2.84
08 71 00 Door Hardware		$1,900	$0.50	$47,750	$1.31
08 90 00 Louvers and Vents		$6,500	$1.70	$13,000	$0.36
08-OPENINGS		**$297,365**	**$77.74**	**$737,855**	**$20.30**
09 00 01* Tiling	$189,074	$15,000	$3.92	$174,074	$4.79
09 00 02* Acoustical Panel Ceilings	$173,338	$19,797	$5.18	$153,541	$4.22
09 00 03* Resilient Flooring	$163,310	$40,636	$10.62	$122,674	$3.38
09 00 04* Painting and Coating	$173,543	$20,915	$5.47	$152,627	$4.20
09 21 16 Gypsum Board Assemblies		$45,902	$12.00	$373,488	$10.28
09 64 60 Sport Flooring				$278,675	$7.67
09 67 10 Epoxy Flooring		$0	$0.00	$10,530	$0.29
09 68 00 Carpeting		$1,500	$0.39	$27,540	$0.76

"Add/Reno" Scheme

Newton CAL
Budget Estimate

DIRECT TRADE COST SUMMARY

ELEMENT	Filed Sub-Bids	Renovation		New Construction	
09 84 30 Sound-Absorbing Panels		$0	$0.00	$97,880	$2.69
09-FINISHES		**$143,751**	**$37.58**	**$1,391,029**	**$38.27**
10 14 10 Signage		$2,104	$0.55	$34,940	$0.96
10 21 10 Toilet Compartments		$0	$0.00	$35,000	$0.96
10 26 00 Wall and Door Protection		$5,000	$1.31	$55,000	$1.51
10 26 10 Operable Partition		$0	$0.00	$95,400	$2.62
10 28 10 Toilet Accessories		$0	$0.00	$27,250	$0.75
10 44 00 Fire Protection Specialties		$1,100	$0.29	$4,400	$0.12
10 99 10 Miscellaneous Specialties		$10,000	$2.61	$15,000	$0.41
10-SPECIALTIES		**$18,204**	**$4.76**	**$266,990**	**$7.35**
11 31 00 Appliances		$0	$0.00	$5,000	$0.14
11 40 00 Food service equipment		$0	$0.00	$121,800	$3.35
11 52 10 Projection Screen		$6,500	$1.70	$13,000	$0.36
11 66 23 Gymnasium Equipment		$0	$0.00	$104,000	$2.86
11-EQUIPMENT		**$6,500**	**$1.70**	**$243,800**	**$6.71**
12 24 00 Shades		$14,238	$3.72	$9,248	$0.25
12 48 10 Entrance Mats		$4,500	$1.18	$15,750	$0.43
12-FURNISHINGS		**$18,738**	**$4.90**	**$24,998**	**$0.69**
14 20 00 Elevator		$0	$0.00	$340,000	$9.35
14-CONVEYING EQUIPMENT		**$0**	**$0.00**	**$340,000**	**$9.35**
21 00 00* Fire Suppression	$253,304	$32,513	$8.50	$220,792	$6.07
21-FIRE SUPPRESSION		**$32,513**	**$8.50**	**$220,792**	**$6.07**
22 00 00* Plumbing	$585,298	$30,600	$8.00	$554,698	$15.26
22-PLUMBING		**$30,600**	**$8.00**	**$554,698**	**$15.26**
23 00 00* HVAC	$1,253,216	$160,650	$42.00	$1,092,566	$30.06
23-HVAC		**$160,650**	**$42.00**	**$1,092,566**	**$30.06**
26 00 00* Electrical	$1,365,673	$145,350	$38.00	$1,220,323	$33.58
26-ELECTRICAL		**$145,350**	**$38.00**	**$1,220,323**	**$33.58**
31 20 00 Earth Moving		$15,000	$3.92	$214,550	$5.90
31-EARTHWORK		**$15,000**	**$3.92**	**$214,550**	**$5.90**
Direct Trade Details Subtotal	**$6,328,639**	**$2,273,395**	**$594.35**	**$11,538,276**	**$317.46**

"Add/Reno" Scheme

Newton CAL
Newton, MA 02460

SITEWORK DIRECT TRADE COST SUMMARY

	COST
31-EARTHWORK	$194,324
32-EXTERIOR IMPROVEMENTS	$229,098
33-UTILITIES	$339,193
Direct Trade Details Subtotal	**$762,615**

"All New" Scheme

Newton CAL
Newton, MA 02460

NEW CONSTRUCTION - MAIN SUMMARY BUDGET

ELEMENT		Sitework	New Construction	
Direct Trade Details				
Building Construction			$11,637,807	$360.30
Sitework		$1,008,683		
Direct Trade Details Subtotal		**$1,008,683**	**$11,637,807**	**$360.30**
Design and Pricing Contingency	10.00%	$101,000	$1,164,000	$36.04
Direct Trade Details Subtotal		**$1,109,683**	**$12,801,807**	**$396.34**
General Conditions	10.00%	$111,000	$1,281,000	$39.66
General Liability Insurance	1.25%	$16,000	$177,000	$5.48
Performance and Payment Bonds	1.00%	$13,000	$143,000	$4.43
Fee	3.00%	$38,000	$433,000	$13.41
Estimated Construction Cost Total		**1,287,683**	**$14,835,807**	**$459.31**
Escalation	3.50%	46,000	$520,000	$16.10
Estimated Construction Cost Total		**1,333,683**	**$15,355,807**	**$475.41**
Approximate break-out values for work zones				
CAL Center			$10,747,807	$416.58 /GSF
Gym			$2,054,000	$316.00 /GSF
Mark-ups and contingencies			$2,554,000	19.95%
Estimated Construction Cost Total		**$1,333,683**	**$15,355,807**	**$ 475.41 /GSF**
OPTION #2 - TOTAL COST (Site and New Building)			**$16,689,490**	**$ 516.70 /GSF**

"All New" Scheme

Newton CAL
Budget Estimate

DIRECT TRADE COST SUMMARY

ELEMENT	Filed Sub-Bids	New Construction	
02 40 00 Demolition		$110,000	$3.41
02 40 00 Abatement		$260,000	$8.05
02-EXISTING CONDITIONS		**$370,000**	**$11.46**
03 30 00 Cast-in-Place Concrete		$742,073	$22.97
03-CONCRETE		**$742,073**	**$22.97**
04 00 01* Masonry	$274,067	$274,067	$8.49
04-MASONRY		**$274,067**	**$8.49**
05 00 01* Miscellaneous Iron	$434,290	$434,290	$13.45
05 12 00 Structural Steel		$1,347,009	$41.70
05-METALS		**$1,781,299**	**$55.15**
06 10 00 Rough Carpentry		$351,243	$10.87
06 40 20 Interior Architectural Woodwork		$257,630	$7.98
06-WOODS, PLASTICS, AND COMPOSITES		**$608,873**	**$18.85**
07 00 01* Waterproofing Dampproofing and Caulkin	$252,624	$252,624	$7.82
07 00 02* Roofing and Flashing	$545,431	$545,431	$16.89
07 21 00 Thermal Insulation		$110,088	$3.41
07 46 10 Cementitious Siding		$158,346	$4.90
07 42 13 Metal Wall Panels		$103,472	$3.20
07 84 10 Firestopping		$22,610	$0.70
07-THERMAL AND MOISTURE PROTECTION		**$1,192,571**	**$36.92**
08 00 01* Glass & Glazing	$88,820	$88,820	$2.75
08 11 13 Hollow Metal Doors and Frames		$13,315	$0.41
08 14 16 Flush Wood Doors		$27,470	$0.85
08 31 00 Access Doors and Panels		$7,000	$0.22
08 33 10 Overhead Coiling Doors		$21,000	$0.65
08 41 13 Aluminum-Framed Entrances and Storefronts		$83,160	$2.57
08 54 13 Fiberglass Windows		$732,260	$22.67
08 71 00 Door Hardware		$60,700	$1.88
08 90 00 Louvers and Vents		$13,000	$0.40
08-OPENINGS		**$1,046,725**	**$32.41**
09 00 01* Tiling	$172,576	$172,576	$5.34
09 00 02* Acoustical Panel Ceilings	$134,715	$134,715	$4.17
09 00 03* Resilient Flooring	$153,799	$153,799	$4.76
09 00 04* Painting and Coating	$154,373	$154,373	$4.78
09 21 16 Gypsum Board Assemblies		$370,868	$11.48
09 64 60 Sport Flooring		$311,225	$9.64

"All New" Scheme

Newton CAL
Budget Estimate

DIRECT TRADE COST SUMMARY

ELEMENT	Filed Sub-Bids	New Construction	
09 67 10 Epoxy Flooring		$9,885	$0.31
09 68 00 Carpeting		$25,626	$0.79
09 84 30 Sound-Absorbing Panels		$104,630	$3.24
09-FINISHES		**$1,437,696**	**$44.51**
10 14 10 Signage		$32,715	$1.01
10 21 10 Toilet Compartments		$35,000	$1.08
10 26 00 Wall and Door Protection		$55,000	$1.70
10 26 10 Operable Partition		$100,800	$3.12
10 28 10 Toilet Accessories		$37,500	$1.16
10 44 00 Fire Protection Specialties		$3,850	$0.12
10 99 10 Miscellaneous Specialties		$15,000	$0.46
10-SPECIALTIES		**$279,865**	**$8.66**
11 31 00 Appliances		$5,000	$0.15
11 40 00 Food service equipment		$147,600	$4.57
11 52 10 Projection Screen		$13,000	$0.40
11 66 23 Gymnasium Equipment		$104,000	$3.22
11-EQUIPMENT		**$269,600**	**$8.35**
12 24 00 Shades		$65,518	$2.03
12 48 10 Entrance Mats		$15,750	$0.49
12-FURNISHINGS		**$81,268**	**$2.52**
14 20 00 Elevator		$240,000	$7.43
14-CONVEYING EQUIPMENT		**$240,000**	**$7.43**
21 00 00* Fire Suppression	$243,070	$243,070	$7.53
21-FIRE SUPPRESSION		**$243,070**	**$7.53**
22 00 00* Plumbing	$581,400	$581,400	$18.00
22-PLUMBING		**$581,400**	**$18.00**
23 00 00* HVAC	$1,103,400	$1,103,400	$34.16
23-HVAC		**$1,103,400**	**$34.16**
26 00 00* Electrical	$1,160,800	$1,160,800	$35.94
26-ELECTRICAL		**$1,160,800**	**$35.94**
31 20 00 Earth Moving		$225,099	$6.97
31-EARTHWORK		**$225,099**	**$6.97**
Direct Trade Details Subtotal	**$5,299,365**	**$11,637,807**	**$360.30**

"All New" Scheme

Newton CAL
Newton, MA 02460

SITEWORK DIRECT TRADE COST SUMMARY

	COST
31-EARTHWORK	$198,721
32-EXTERIOR IMPROVEMENTS	$417,707
33-UTILITIES	$392,255
Direct Trade Details Subtotal	**$1,008,683**

NewCAL Feasibility Study Phase
February 8, 2021

NOTES TO THE COST ESTIMATE DR NOTES

1. The "Existing Conditions" cost category contains demolition and hazardous materials abatement. The Add/Reno and All-New buildings are roughly equivalent in this category. While the Add/Reno scheme has less demolition, the demolition involved needs to be more carefully done as portions of the existing building are featured interior spaces. It is termed "Selective Demolition". Hazardous materials need to be abated regardless of if the building is demolished or reused.
2. "Concrete" cost varies because the Add/Reno scheme has an underground parking area that is constructed of concrete.
3. "Masonry" is a category that can be explored in greater detail in the next design iterations. There has been an expressed desire for brick to be contextual with the Newtonville neighborhood, The Add/Reno version includes a cost for masonry restoration of the existing building. Because of the nature of the existing building, it was thought that new portions of the building would also have to have more masonry than the All-New building. The "assumption" regarding masonry at the addition can be evaluated in subsequent designs for either building as other façade materials can be less expensive?
4. "Metals" includes miscellaneous metalwork and structural steel. Steel is more expensive on the Add/Reno because the metal roof deck replacing the existing building sagging gypsum panels are carried in the metals category. There is also structural steel inserted into the existing building to brace the masonry structure. There is a large ramp in the renovation scheme with extensive railings. Existing stair railings are also upgraded in the Add/Reno scheme.
5. "Wood, Plastics and Composites" includes both rough and finish carpentry such as millwork and stairs. Finishes are higher for the Add Reno due to the costs associated with restoration of the existing building. There is not a lot of "fancy" interior "restoration" required but there is extensive exterior work to be restored if the building is retained.
6. "Thermal and Moisture Protection" includes the roof, insulation, siding and other waterproofing details. This category is higher for the Add/Reno due to the "slate shingle" roof for the existing building. The roof work in general is more complicated due to the multiple setbacks of the Add/Reno building. The Add/Reno design incorporates more complicated insulation to insulate the existing building and the roof void space. Building siding that is not masonry is also carried in this category.
7. "Openings" includes windows and doors, hardware and items such as louvers in the exterior façade. This category is relatively equal between the two plans. The gyms for example are nearly the same. While there are some large windows in the existing building to be replaced or restored, there are rather extensive areas of glass in the All-New building to increase the transparency of the program spaces.
8. "Finishes" include materials from paint to tile, carpet, wall board and the range of sports flooring used in the buildings. This cost category is similar between the Add/Reno and All-New schemes although there is a small premium for restoration of existing finishes in the Add/Reno building and these are generally more costly. The sports flooring includes the gym floor, track surface and fitness room flooring.
9. "Specialties" includes the moveable partition in the multi=purpose room, toilet partitions, marker boards, signage, and similar items. Specialties are a similar cost for both versions of the plan.
10. "Equipment" includes all the gym equipment such as motorized backboards and the motorized divider curtain. Kitchen equipment is also in this category along with secondary appliances for the staff room. This category again is similar between both versions as the program spaces utilizing the equipment are equivalent between the two schemes.
11. The category "Shades and Entrance Mats" is self-explanatory. The All-New option has a major exterior entry from both sides of the property, and this explains one reason the cost will be higher for this option. The All-New plan also anticipates greater use of glass for transparency and thus, the total cost of this category is higher for the All-New scheme.
12. "Conveying Equipment" includes the elevator and lifts. The Add/Reno option includes a second lift at the entry for easy access from grade to the first floor. The Add/Reno option also has two more elevator stops than the All-New scheme. Each stop adds to the elevator cost. For the cost estimates, we included two elevators in the plan of each building plan in response to comments from reviewers (one elevator is shown on the floor plans and this will be updated in subsequent phases.)

COST ESTIMATES

NewCAL: Furniture (FF&E), Audio Visual (AV) and Technology Schedule and Budget

January 11, 2021

	room	area	FF&E items	qty	item cost	extension	room cost	AV items	item cost	room cost	Technology Item	qty	item cost	extension	room cost
	Multi-Purpose Activity Spaces														
1	Group Exercise Room	1,500 sf	check-in workstation	1	1,500	$1,500		flat screens			phone & intercom				
			credenza file	1	$1,000	$1,000		room sound			wall clock				
			task chair	1	$350	$350		hearing assist system							
			yoga / workout chairs	30	$50	$1,500		broadcast / distance learning							
			cork & white boards	3	$500	$1,500		wireless instructor control							
			cubbies	30	$150	$4,500									
			instructor platform	1	$3,500	$3,500									
			waste / recycle	1	$100	$100									
							$13,950			$8,000					
2	Fitness / Cardio Room		fitness equipment	1	$25,000	$25,000		flat screen			phone & intercom				
			waste / recycle	1	$100	$100		sound bar							
							$25,100			$3,000					
3	Large Activity Room (adjacent dining)	1,500 sf	round tables	12	$500	$6,000		projection or flat screens			phone & intercom				
	50% chairs w/out arms		stack seating & dolly	100	$250	$25,000		room sound (two channel)							
			card tables	10	$150	$1,500		hearing assist system							
			podium	1	$400	$400		broadcast / distance learning							
			waste / recycle	1	$200	$200		podium technology/rack							
							$33,100			$50,000					
4	Dining (adjacent large activity)	1,500 sf	round dining tables	12	$500	$6,000		projection or flat screens			phone & intercom				
	50% chairs w/out arms		stack seating & dolly	100	$250	$25,000		sound (single & combined channel)							
			waste / recycle	1	$200	$200		hearing assist system							
								broadcast / distance learning		inc w/ above					
							$31,200								
5	Activity Room	400 sf	moveable tables	4	$1,000	$4,000		flat screen			phone & intercom				
			chairs	16	$250	$4,000		sound bar							
			podium	1	$350	$350		podium technology							
			waste / recycle	1	$100	$100									
							$8,450			$7,000					
6	Games Room	600 sf	ping pong table	2	$700	$1,400		flat screen			phone & intercom				
	(Ping Pong Room or combined)		stools	2	$150	$300		sound bar							
			card tables	2	$400	$800									
			chairs	8	$250	$2,000									
			soft seating	4	$1,000	$4,000									
			coffee table	1	$650	$650									
			area rug	1	$1,000	$1,000									
			waste / recycle	1	$100	$100									
							$10,250			$5,500					
7	Billiards Room	600 sf	billiard table	2	$6,500	$13,000		flat screen			phone & intercom				
	(suggest combining with above)		stools	6	$150	$900		sound bar							
			felt games table	1	$3,000	$3,000									
			chairs	8	$550	$4,400									
			waste / recycle	1	$100	$100									
							$21,400			$5,500					
8	Art Room 1 (moveable wall with Art Room 2	500 sf	art tables	2	$1,000	$2,000		flat screen			phone & intercom				
			chairs	10	$250	$2,500		sound bar							
			instructor podium	1	$500	$500		broadcast / distance learning							
			waste / recycle	1	$100	$100									
							$5,100			$7,000					
9	Art Room 2 (moveable wall with Art Room 1	500 sf	art tables	2	$1,000	$2,000		flat screen			phone & intercom				
			chairs	10	$250	$2,500		sound bar							
			pottery wheel	1	$1,500	$1,500									
			pottery kiln	1	$5,000	$5,000									
			waste / recycle	1	$100	$100									
							$11,100			$3,000					
10	Art Storage Room	60 sf	wire shelving	4	$150						phone & intercom				
11	Library/Reading Room & Computer Access	400 sf	reading tables	1	$1,000	$1,000		flat screen			phone & intercom				
	include sight assist equipment		chairs	6	$400	$2,400		sound bar							
			table lamps	3	$150	$450									
			soft seating	4	$950	$3,800									
			coffee table	3	$650	$1,950									
			shelving	20	$500	$10,000									
			visual adaptive equip	1	$10,000	$10,000									
			computer stations	3	$500	$1,500									
			task chairs	3	$350	$1,050									
			waste / recycle	1	$100	$100									
							$32,250			$3,000					
	~~Computer Lab Room / Meeting Use with coat alcove~~														
12	Classroom/Meeting Room	450 sf	large table	1	$1,000	$1,000		flat screen			phone & intercom				
			conference chairs	12	$250	$3,000		sound bar							
			waste / recycle	1	$100	$100		broadcast / distance learning							
							$4,100			$7,000					
13	Classroom/Meeting Room	150 sf	small table	1	$400	$400		flat screen			phone & intercom				
			chairs	6	$250	$1,500		sound bar							
			waste / recycle	1	$100	$100									
							$2,000			$3,000					
14	Conference Room / Meeting Room	180 sf	small table	1	$400	$400		flat screen			phone & intercom				
			conference chairs	6	$450	$2,700		sound bar							
			waste / recycle	1	$100	$100									
							$3,200			$3,000					
15	General MP Storage	70 sf	wire shelving	4	$150	$600									
							$600								
	Common Space														
16	Lobby /Lounge /Art & Cultural Displays	1,000 sf	lounge chair	4	$950	$3,800		daily calendar flatscreen			phone & intercom				
			sofa	1	$2,250	$2,250		includes upper lobbies							
			side tables	4	$600	$2,400									
			display system	1	$5,000	$5,000									
			cork & white boards	3	$500	$1,500									
			area rug	1	$2,000	$2,000									
							$16,950			$6,500					
17	Juice Bar/Café	200	stools	4	$100	$400					phone & intercom				
							$400								
18	Vending														
19	Library Pick Up/Drop Off Area	50 sf	drop off table	1	$500	$500									
			library book return	1	$5,000	$5,000									
							$5,500								

20	Store	100 sf	merchandise tables	4	$400	$1,600			cash out equipoment
			misc allowance	1	$1,500	$1,500			
			stools	2	$150	$300			
							$3,400		
	Kitchen								
21	Kitchen (commercial / teaching)	500 sf	instructional table	1	$2,500	$2,500			cash out equipment
			chairs	9	$250	$2,250			phone & intercom
			counter stool	1	$150	$150			
							$4,900		
22	Pantry	200 sf	wire shelving	6	$150	$900			
							$900		
23	Receiving	80 sf	chef workstation	1	$500	$500			phone & intercom
			task chair	1	$350	$350			
			file	1	$350	$350			
			waste / recycle	1	$100	$100			
							$1,300		
	Admin. / Support Services								
24	Reception, Volunteers & Customer Service)	250 sf	task chairs	3	$300	$900		daily calendar flatscreen	phone & intercom
			files	6	$350	$2,100			my senior center computer
			waste / recycle	1	$100	$100			
							$3,100	$3,000	
25	Dir Office with Conf./Meeting Area	150 sf	"u" workstation	1	$3,500	$3,500			phone & intercom
			task chairs	1	$350	$350			
			small conf table	1	$250	$250			
			visitor chair	3	$250	$750			
			file	1	$350	$350			
			waste / recycle	1	$100	$100			
							$5,300		
26	Shared Work (Exec. Admin., Admin Asst., Admin Volunteers)	200 sf	"l" workstation	3	$1,500	$4,500			phone & intercom
			task chairs	3	$350	$1,050			copier?
			file	2	$350	$700			fax?
			visitor chair	2	$250	$500			
			waste / recycle	1	$100	$100			
							$6,850		
27	Parks & Recreation Coordinator	100 sf	"l" workstation	1	$1,500	$1,500			phone & intercom
			task chairs	1	$350	$350			
			file	1	$350	$350			
			visitor chair	1	$250	$250			
			waste / recycle	1	$100	$100			
							$2,550		
28	Senior Services Program Coordinator	100 sf	"l" workstation	1	$1,500	$1,500			phone & intercom
			task chairs	1	$350	$350			
			file	1	$350	$350			
			visitor chair	1	$250	$250			
			waste / recycle	1	$100	$100			
							$2,550		
29	Senior Services Asst Program Coordinator	100 sf	"l" workstation	1	$1,500	$1,500			phone & intercom
			task chairs	1	$350	$350			
			file	1	$350	$350			
			visitor chair	1	$250	$250			
			waste / recycle	1	$100	$100			
							$2,550		
30	Outreach & Engagement Coordinator	100 sf	"l" workstation	1	$1,500	$1,500			phone & intercom
			task chairs	1	$350	$350			
			file	1	$350	$350			
			visitor chair	1	$250	$250			
			waste / recycle	1	$100	$100			
							$2,550		
31	Social Work	100 sf	"l" workstation	1	$1,500	$1,500			phone & intercom
			task chairs	1	$350	$350			copier?
			file	1	$350	$350			fax?
			visitor chair	1	$250	$250			
			waste / recycle	1	$100	$100			
							$2,550		
32	Support Services: Shine, Tax, Parking, Art	150 sf	"u" workstation	1	$1,500	$1,500			phone & intercom
			task chairs	1	$350	$350			copier?
			small conf table	1	$350	$350			fax?
			visitor chair	1	$250	$250			
			file	1	$100	$100			
			waste / recycle			$0			
							$2,550		
33	Vol Coordinator + Visiting Staff	100 sf	"l" workstation	1	$1,500	$1,500			
			task chairs	1	$350	$350			
			file	1	$350	$350			
			visitor chair	1	$250	$250			
			waste / recycle	1	$100	$100			
							$2,550		
34	Family Conference Room	100 sf	small conf table	1	$400	$400			
			conf chairs	4	$450	$1,800			
			waste / recycle	1	$100	$100			
							$2,300		
35	Health Room	150 sf	Workstation	1	$1,500	$1,500			phone & intercom
			task chairs	1	$350	$350			copier?
			visitor chair	2	$250	$500			fax?
			file	1	$350	$350			medical refrigerator?
			waste / recycle	1	$100	$100			locked storage?
							$2,800		
36	Durable Medical Equipment (DME)	150 sf							
37	Copy Work Room	150 sf	waste / recycle	1	$300	$300			phone & intercom
									copier?
									fax?
38	Coat Closet	50 sf							
39	Staff Lounge	150 sf	table	1	$600	$600			phone & intercom
			chairs	6	$150	$900			refrigerator
			waste / recycle	1	$100	$100			2-microwave
							$1,600		
	Support								
40	Toilet Rooms Accessible (55 sf each, 2 per floor, 4 total)	220 sf	misc.	1	$100	$100			emergency call chain
41	First Floor Women's Room	240 sf		1	$100	$100			emergency call chain

COST ESTIMATES

42	First Floor Men's Room	240 sf		1	$100	$100			emergency call chain
43	Second Floor Women's Room	240 sf		1	$100	$100			emergency call chain
44	Second Floor Men's Room	240 sf		1	$100	$100			emergency call chain
45	Family Toilet with Shower (1)	85 sf		1	$100	$100			emergency call chain
46	Staff Restroom	55 sf		1	$100	$100			emergency call chain
47	Women's Shower/Dressing Room (2 at 55 sf each near gym)	110 sf		1	$100	$100			emergency call chain
48	Men's Shower Room (2 at 55 sf each near gym)	110 sf		1	$100	$100			emergency call chain
49	Mech/Elec/Tel-Data/Sprinkler	800 sf	facilities workstation	1	$500	$500			phone & intercom
			task chair	1	$350	$350			
			file	1	$350	$350			
			plan file	1	$750	$750			
			waste / recycle	1	$100	$100			
50	Custodial Space	100 sf		1	$100	100			
51	General Storage	500 sf							
						$3,050			
	Gymnasium								
52	Gym		gym equip allow	1	$25,000	$25,000	sound system		phone & intercom
			cubbies	50	$50	$2,500	hearing assist		
			portable platfomr	1	$5,000	$5,000			
			floor cleaner	1	$2,000	$2,000			
						$34,500		$20,000	
53	Gym Walking Track (second Floor)		cubbies	20	$50	1,000			phone & intercom
						$1,000			
54	Gym Storage		wire storage shelving	4	$150	600			
						$600			
55	Outdoor Deck		deck furniture allow	1	$10,000	$10,000	low level sound system		
						$10,000	hearing assist		
								$5,000	
	Total Purchase					$324,100		$134,500	$0
	Freight & Delivery	15%				$48,615			$0
	Contingency	10%				$37,272		$13,450	$0
	TOTAL COST					**$409,987**		**$147,950**	**$0**

SECTION 11
APPENDIX

a. BUILDING CONDITIONS ASSESSMENT REPORT

Newton Senior Center
Newton, Massachusetts

Building Conditions Assessment Report

Prepared by

Bargmann Hendrie + Archetype, Inc.
Boston, Massachusetts

For

City of Newton, Massachusetts
December, 2020

Newton Senior Center
Existing Conditions Assessment Report
City of Newton, Massachusetts
December 2020

INTRODUCTION AND EXECUTIVE SUMMARY

The City of Newton has retained as one of its key municipal facilities the building that was dedicated in 1939 as the Newtonville Branch Library. This building, constructed in the Classical Revival style, was a state-of-the-art facility in its day. The brick façade is notable for its prominent center pedimented entry and cupola, the large windows that hint at the reading room functions inside, and the stained glass custom designed for the library use. The interior is highlighted by the balconied central hall that is flanked by the original reading rooms, and the Deco-inspired detail. The building has served the city in multiple roles. Its current function as the Newton Senior Center is a hub of activity in the midst of Newtonville and is a reminder of the city's proud history. Its scale and charm help retain the village-like feel of Newtonville. The building has aged, however, and its systems have become obsolete. The City of Newton has been looking at how to provide a modern facility to house the senior and other functions, and the suitability of this existing structure as part of that function is being considered.

The purpose of this report is to provide information that will assist in the process of assessing the feasibility of reusing the current building by renovating it and expanding it to serve as the NewCAL facility. The scope here covers a preliminary review of existing building conditions, based on a cursory visual inspection as well as review of documents form previous renovations.

This document is not intended to identify specific programmatic deficiencies or to propose design solutions. The intent is to provide background information that assists in determining the historic value of the building and of select components within it. The intent is also to identify the condition of materials in a way that can be used to help identify costs related to potential renovation work. The major decision to be made on the project is what, if anything, of the existing building is to remain, and what new construction will be erected on the site along with or in place of this building. The NewCAL process to date has involved looking at several possible sites, and the decision has been made that this site is the selected location for NewCAL in some form.

If the city decides to retain and renovate this building, a more detailed analysis of conditions will be performed as part of the design effort. If the decision is to provide a completely new building for NewCAL, something will be done to provide a lasting memory of this building on the site.

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Conditions Assessment

Exterior

The building exterior is in overall fair condition. Brick is sound, with some need for repointing masonry joints. The slate roof is missing slates, and related copper gutters and flashings are worn. The slate roofing has outlived its useful life. Windows are double hung wood windows, with added exterior storm panels. These look to be in good condition, though a check of operability and condition has not been done. Wood trim elements have peeling paint, which likely indicates there is rotted wood that needs replacement before a more lasting repainting is possible.

The original front entry at Walnut Street is not accessible and currently is not used as an entry into the building. The current main entrance is at the parking lot side, where a grade-level entrance was added as part of the 1993 renovations. This includes glass doors and sidelights that create a vestibule with double doors and an air-lock to help protect the interior from the elements. This piece was designed in 1993. The entrance, as well as the elevator shaft, are visible changes relative to the original rear façade.

Original Walnut Street entry is currently not used

Brick and glass added at rear as part of 1993 renovation.

As the potential reintroduction of the Walnut Street original main entrance as the entrance to a renovated and expanded building is something that might be pursued, it is worth pointing out that what is there now is not the original steps and grade. The photo taken soon after the building opening shows four risers up to the landing, then one more at the door. The current photo shows six risers up to the landing, then the step at the door. This detail shows that the grade in front of the building was lowered by about a foot at some point. The newer, gray-colored granite also extended to the base of the building wall, as seen behind the ends of the railings. A comparison of these photos also shows that originally there was no handrail, and that the light fixtures on the limestone posts were originally octagonal in shape. The existing globes are also not original.

Early photo (Source: Digital Commonwealth)

East door in 2020

Interior

The interior is generally in good condition and shows evidence of having been well maintained. Then main first floor spaces include tile flooring, built-in wood shelves, and plaster walls. There is little in the way of visible deterioration. The barrel-vaulted ceilings, however, have acoustic material that does not look to be original.

The center space retains its original detailing, with metal railings, wood columns. This space as the former reading rooms retain original light fixtures. Fixtures still function, at least in part, but do not have LED lamping.

The 1993 renovation that changed the building's use to be utilized as the Senior Center included reconfiguring some spaces to accommodate needs such as a commercial grade kitchen, conference, and office spaces, and it provided new finishes at most areas. The work added an elevator, accessible toilet rooms, and a reception area at the new grade-level west entry, making it comply with MAAB requirements of the time.

The original terrazzo stairs remain at the original entry area, though the north stair has been covered over with the addition of an office space. The rear stair, providing circulation up to the mezzanine as well as down to the parking lot and continuing to the ground floor, also includes terrazzo treads and is in good condition.

The ground floor includes finished spaces that also show little deterioration. Some partitions were added in 1993, and a renovation likely would include removal of the partitions and reconfiguring of the spaces. It is assumed there are no historic finishes to retain.

Site

The street side, north side and west entrance area include multiple landscapes seating areas that are in good condition. Newton is in the process of making changes to the sidewalks and curbs along Walnut Street in front of the building. This work is part of a larger plan to make Newtonville a more pedestrian-friendly area.

The parking lot at the rear of the building currently provides 15 parking spaces for users, with access from the side streets at the north and south. Four of the existing parking spaces are accessible. The paving is in fair condition.

Services

Mechanical, electrical, plumbing and fire protection services date to 1993 or earlier. It is assumed that a major renovation would call for removal of these and providing new as part of the larger building. Care would be needed to rout piping and ductwork in a way that avoids disrupting original finishes that might be called for to remain.

See separate conditions assessments that address the building structure, hazardous materials, geotechnical, and traffic.

Historical Review

The building contributes to the National Register's Newtonville Historic District, but it is not part of Newton's Newtonville Historic District. A potential demolition or partial demolition/renovation will need to take into consideration the status of the building. Per the 1987 description as part of the National Register Application, the building has historical significance as one of five branch libraries constructed in the late 1920's and 30's. The important architectural characteristics of the building were described as follows:

> *The Newtonville branch library is a handsome brick Classical Revival structure whose symmetrical façade is organized around a pedimented pavilion with a third story and cupola rising behind it. The pavilion is trimmed with pilasters carrying a frieze which reads: NEWTON FREE LIBRARY. The double-leaf entry is headed by an entablature carrying an urn. The flanking wings have five bays each, defined by recessed panels containing 16/12 double hung windows. This is the largest and most elaborate of Newton's several branch libraries.*

The Massachusetts Historical Commission (MHC) and the Newton Historical Commission are the two primary entities that may be involved in reviewing potential changes. The MHC's involvement is only triggered by state or federal funding. The review process for this is outlined in this report. The Demolition Delay Ordinance review in Newton is triggered by the building being over 50 years old, so that process will undoubtably will take place if any changes to the exterior are proposed. The Newton Historical Commission manages the Demolition Delay Ordinance and comments on projects and provides advice from a preservation perspective. The Demolition Delay process can take up to 18 months given that the building is "historic". There is no up-front criteria with either group dictating that any elements or the building in full must remain. There will be pros and cons in terms of potential reuse of this building as part of NewCAL (versus complete demolition), and the process will involve looking at alternatives with the goal of avoiding, minimizing or mitigating adverse effects and avoiding needless destruction.

Project Options and Design Guidelines

While the two extreme options for moving forward with the design include retaining the existing building in full or demolishing the building completely, there are a range of options that involve retaining portions of the existing structure, spaces and material details.

Preservation and Addition

If the building is retained, the balance between program expectations, functional realities and preservation goals will need to be studied further as part of the design phase. Clear overall project goals as well as a list of priorities for what is most important to keep of the library structure should be part of the process. This can be somewhat subjective, but an approach could be to establish these categories to aid in the decision-making process:

1. Building components or details that are integral and unique to the building's architectural character or history and must remain and be preserved or restored.

2. Building elements that contribute to the overall character, but can receive some design intervention without losing the overall character of the design or space and without detracting from the overall preservation of the original building.

3. Elements that are original, but do not contribute to the essence of the building and can be removed.

4. Materials that are not original to the building and can be removed.

The approach to the design of an addition would be part of the overall design guidelines, and the design of an addition would have different guidelines than a complete new building within the historic district. As the National Park Service explains for additions in general:

> "National Register listing does not mean that a building or district is frozen in time and that no change can be made without compromising the historical significance. It does mean, however, that a new addition to a historic building should preserve its historic character. The new work shall be differentiated from the old and shall be compatible with the massing, size, scale, architectural features to protect the historic integrity of the property and its environment."

If the renovation/addition approach is selected, and the design for the reuse of the existing building is developed, evaluating various elements in terms of where they stand in the hierarchy likely will need to be an ongoing discussion with the Newton Historical Commission and others who are involved in the design and use of the facility. Some preliminary examples of the kinds of decisions that will need to be made or confirmed relative to the categories listed above are these:

- The east (Walnut St.) façade and north/south façade volumes must remain, including the center pavilion/cupola and reading room wings. The building's library identity would be lost without these.
- Ideally all original window configurations and other exterior elements seen from Walnut St. would be retained, but if some modifications are needed, that could be done without losing the overall character of the building. (This could include enlarging or eliminating existing openings, etc.)
- The entry pavilion could have some interventions (ramp, etc.) to make it accessible. The preference is to avoid having an unusable front door that still looks like an entry. If the entry is not made accessible it cannot be used as an entry.
- The west rooms that originally housed stacks and the librarian's office are not important to retain since they were not primary public spaces and are not visible at the main street side. Those volumes, as well as the 1993 entry and elevator projections, can be removed and the west façade completely changed.
- The interior double-height lobby and original reading room wings should be retained without the addition of partitions that would break up the volumes of the individual spaces.
- Original finishes could be preserved or reintroduced, but new finish materials and colors cold be used. The preservation of the original library interior is not as important as the volumes. (Library shelves could be eliminated, for example.)
- The entry vestibule, with the Art Deco railings and stairs, ideally would be kept, but reconfiguring the area would be acceptable if that were to be necessary to make the building circulation functional and accessible.
- The basement spaces while originally significant public areas, are not critical to the character of the building.

Demolition and Selective Salvage

If it is determined that the existing building is not compatible with project needs, and the best option is to demolish the existing building, something can and should be done to preserve the memory of the building:

- Some of the character-defining elements can be salvaged and incorporated into the new building. This could include items such as the art glass at the north/south windows (or possibly including the full windows), pendant and chandelier light fixtures, portions of the aluminum guardrails, the full cupola from the roof, the aluminum stars from the original exterior building sign that were already salvaged once for use with the Newton Senior Center signage, and the fluted, square oak columns from the lobby space.
- A display of images can be created in a gallery-type space or to be located throughout the building. There is a good amount of documentation of the original building, its construction and events that have occurred there. This approach was taken at the Angier School when the original building was demolished to allow for a new state-of-the-art facility.

BUILDING CONDITIONS ASSESSMENT REPORT

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BUILDING HISTORY

The Newtonville Library was the fifth branch library built during the 1920's and 30's at the encouragement of local residents. Although the branches in West Newton, Auburndale, Waban and Newton Centre were paid for entirely by subscription, the Newtonville branch was funded in part by a PWA (Public Works Assistance) grant, which covered 45% of the cost. The site, formerly that of the Newton Club, was purchased by community subscription and the remainder of the cost was made up by the city. The library was conceived as an important resource for Newton High School students and was therefore larger than might otherwise have been needed for branch service. The library was designed by Newtonville resident E. Donald Robb, a member of the firm of Robb & Little. Stained glass windows were designed by the Connick Studio, whose founder Charles Connick was also a resident of Newtonville. The building was dedicated on December 1, 1939.

Construction photo (source: Google)

Early photos of front and rear of building (source: Google)

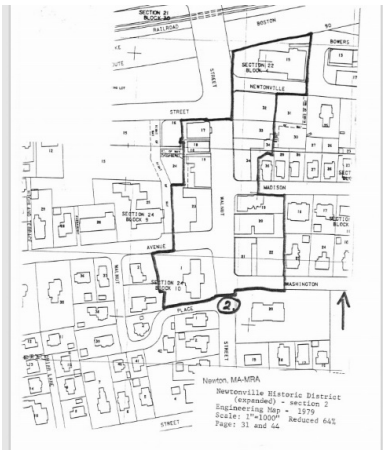
Photo of south reading room, date unknown (source: Google)

The bulding functioned as a library, and at some point (late 1980's?) one wing of the lower level was allocated for seniors as a "drop-in center". This was one of several buildings with this "senior" use, with others being at the Lincoln Eliot School and in Nonantum. Once Newton's new Newton Free Library opened in 1991, the Newtonville branch was no longer needed as a library. Newton received a Community Development Block Grant (CDBG), and the 1993 renovation of this

building into the centralized Senior Center was the first CDBG public facility renovation in Newton. Swartz Silver was the architectural firm responsible for the design, which updated the building to be accessible, in addition to other limited renovations to accommodate the Senior Center. Subsequent work has included revised landscaping around the building, some of which was paid for through a CPA grant to make the Walnut Street side a community resource. Currently the building is also used by non-profit groups such as arts organizations and gets rented out.

Historic Designations

The Newtonville Historic District was added to the National Register in 1986. That area included 143 residential properties located south of the Turnpike. This original district did not, however, include the library. In 1988 there was an amended application that added the library as well as some commercial buildings along Walnut Street, and that application was approved in 1990. The building currently has a historic designation as part of the National Register District and National Register MRA (Multiple Resource Area) for the Newtonville Historic District.



Newtonville Historic Area Expanded and photo included in 1990 National Register application (Source: MHC)

The City of Newton's Newtonville Local Historic District includes an area of residential properties north of the turnpike. The current Senior Center building is not part of that district and is not a Newton Landmark Preservation Site, and thus has no local historic designation.

State Review Process

The following description applies only if state or federal funding is involved, so this information is included to describe what would happen should the project meet that criteria.

The Massachusetts Historic Commission (MHC) is the entity that reviews National Register projects in MA. The Introduction on their web site states as follows:

> *"Any new construction projects or renovations to existing buildings that require funding, licenses, or permits from any state or federal governmental agencies must be reviewed by the Massachusetts Historical Commission (MHC) for impacts to historic and archeological properties. It is the nature of the federal or state agency involvement that triggers MHC review, not listing in the National or State Registers of Historic Places. A listing in either register does not necessarily require review and likewise, lack of listing does not eliminate the need for review."*

(Note that the State Register of Historic Places is a list of properties that have received local, state, or national designations, so this building is considered to be on the State Register in MA. There is no separate State landmark or district designation.)

Federal review is a process that requires review in compliance with Section 106 of the National Historic Preservation Act of 1966, the purpose of which is to take into account the effects of their actions on historic properties. The process identifies and evaluates historic properties, assesses adverse affects to the propeties, and takes prudent and feasible measures to avoid, minimize, or mitigate those effects.The review is done in consultation with the State Historic Preservation Officer (SHPO). In Massachusetts, the MHC is the SHPO. Local historical commissions are also consulted.

The regualtions that guide MHC review of state funded, licensed or permitted projects are published in 950 CMR 71. These regulations set up a process that mirrors the federal "Section 106" regulations: identification of historic properties; assessment of effect; and consultation among interested parties to avoid, minimize, or mitigate any adverse effects.

The summary on the MHC web site states:

> *"These laws and regulations set up processes to ensure that government agencies "look before they leap." They do not necessarily stop government from acting, but ensure that government actions are studied in consultation with interested parties, and that proposed actions be modified, if feasible, so that public funds are not used in ways that cause needless destruction to our heritage. In short, they promote responsible and responsive government."*

- The process begins with the submission of a Project Notification Form to the MHC, and MHC will respond within 30 days.
- If a project is found to have an adverse effect to a significant historic property, MHC enters into consultation with the project proponents and, as warranted, other government agencies and other interested parties. There may be a requirement to submit an analysis of alternatives.
- The end of the consultation process is the developing and signing of a Memorandum of Agreement (MOA) between the proponent, MHC, the state or federal funding, permitting, or licensing agency, and other participating parties as warranted.
- If the MHC does not respond to the initial PNF submission, or if there is a determiniation of no adverse effect, the process ends.
- If no state or federal funding is involved, there is no requirement to submit a PNF and there is no MHC review required.

Local Review Process

As noted above, there is no local (Newton) historic designation for this building. The project will still be required, however, to be reviewed by the Planning and Development Department's Preservation Planners. Structures over 50 years old, if proposed to be altered or demolished, go through Demolition Review if proposed changes exceed the stated minimum threshold.

- The Request for Demolition Review notes that "partial" demolition is defined as "the alteration or removal of over 50% of any single exterior wall surface or roof structure. Each is calculated by square footage." A comprehensive renovation and addition to this building would meet this criteria.
- The process involves submission of project documents as part of an application for General Permit. Timelines are strict, with documents required fifteen (15) days before the scheduled meeting date. The Department then determines within fifteen (15) days whether the structure for which the demolition review is requested is historically significant, and whether or not further review by the Newton Historical Commission is required.
- If the property is found to be significant, the Department shall schedule the application for a public hearing before the Commission.

- A delay of up to eighteen (18) months is possible for a building listed in the National Register, as opposed to the typical timeframe of twelve (12) months.
- The demolition delay begins on the date of the Newton Historical Commission's decision that the building is found to be "preferably preserved" and is in effect until it expires or a waiver is granted.
- After four (4) months, or six (6) months for National Register properties, the owner may request that the demolition delay be waived based on proposed plans. The owner may also seek a partial demolition, which can be heard at the next regularly scheduled meeting. An owner seeking a waiver of the demolition delay is encouraged to speak with a Planner prior to submitting such a request.
- As part of the process, applicants are advised to consult the City of Newton Historic Preservation Design Guidelines.

If there were to be significant opposition to the demolition of the building, a possibility would be for the Newton Historical Commission and City officials to designate the building as a Newton Landmark Preservation Site. The purpose of Newton's Local Landmark Ordinance is to recognize and protect buildings, structures, landscapes, and places, which are architecturally and/or historically significant resources within the City and provide them with the highest level of protection. This would be an extreme measure, but could presumably happen toward the end of the Demolition Review period and would recognize certain features of the exterior and even the interior as important to retain, if the proposed solution were not already doing so.

The Request for Demolition Review form, found on Newton's web site, includes instructions that advise applicants to schedule a Development Review Team (DRT) meeting early on in the process to meet with City staff from several departments in order to address issues early on. The follow-up to this meeting is typically a checklist for next steps and handouts further explaining the review and approval process. Given that multiple departments are likely to use the proposed building, and there could be multiple options for funding sources, some of which may trigger additional reviews, this meeting is advisable.

BUILDING ASSESSMENT AND RECOMMENDATIONS

The building conditions portion of the report is based on visual inspections. The expectation is that the information here will be suitable for preparing conceptual cost estimates and allowing for a scope determination to be made. Once the desired scope of work has been identified, a more detailed review of some elements will be required. That might include removal of some materials, detailed documentation of conditions and dimensions, and access to upper regions of the building to inspect areas that are difficult to see from below. This more detailed information will inform future cost estimates and the bid documents.

Definitions for terms used in the condition assessment:

- *Excellent condition*: Element is in new or equivalent condition. No work needed other than routine maintenance.
- *Good condition*: Element is performing its intended function or is otherwise serviceable, although it may show signs of wear. No repair required other than routine maintenance.
- *Fair condition*: Element may require work, usually minor, to better perform its intended function, bring to a maintainable state, or return to a condition resembling its historic appearance.
- *Poor condition*: Major work needed to for element to perform its intended function or to bring item to a maintainable state.
- *Original*: Dates to the period of initial construction.

Substructure, Floor, Wall and Roof Structure

See Bolton & DiMartino Structural Engineering report for a description of the building's structure and conditions. Structure generally consists of concrete, concrete-encased steel, and unreinforced masonry walls. The roof structure consists of steel trusses covered with gypsum plank decking.

Building Exterior

Exterior Walls

The red brick at the walls is generally in good condition. Bricks are sound, with minimal cracking or spalling. There is some staining of the brick and spatters from previous painting work. Mortar joints are in fair condition. The mortar color is quite uniform, indicating little has been done to repoint over time. While there are not significant areas of missing mortar that would dictate a complete repointing is now needed, a close-up review indicates there are areas where mortar is cracked and allowing water in. These conditions are located near windows that have rusting steel lintels.



General view of brick, close-up, and detail showing deteriorated mortar joints and rusted lintels.

CONDITION: Fair.
RECOMMENDATION: Clean brick. Cut out and repoint a percentage of joints.

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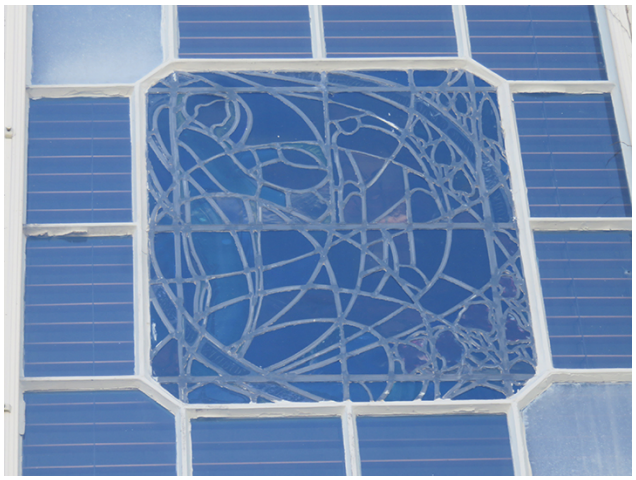
Exterior Windows

There are several sizes and types of windows on the building. Access did not permit a review of window operation, but it appears windows have not been opened or closed in recent years, and most are likely painted shut. The original drawings show “double-glazed sash”, with an added exterior piece of glass as having been part of the design for thermal reasons.

The most distinctive windows on the building are at the north and south ends, where wood-framed, multi-lite windows at the ends of the reading rooms are highlighted by leaded glass art panels. Wood and glass appear to be generally intact, though some areas of replacement glass are evident. The art glass looks to be in excellent condition.


South façade


Detail of art glass at north window

The most prominent windows on the main façade are those at the reading rooms. These double-hung wood windows look to be largest of the windows, those at the reading rooms, look to be the original wood double-hung windows with wood muntins and individual glass lites. These windows have had aluminum storm windows added at the exterior.


Front façade with reading room windows at the right side.


Close-up of window.

Other smaller windows include the basement windows, small casement windows at the entry area, and windows at the west façade. Smaller windows have no added exterior storm panels. Conditions are good, with the exception of peeling paint and some mismatched replacement glass. If windows throughout are to remain, a minimal scope would be stripping of paint, some wood repairs, repainting ,re-glazing, and re-caulking.

Basement window.

Window next to east entry doors.

CONDITION: Fair.
RECOMMENDATION: Retain and restore existing windows. Strip paint at exterior and repaint.

Entry Pavilion

The center three-bay pavilion is the main focus of the Walnut Street façade. In addition to the steps and entry door, the façade includes lantern lights on limestone posts, fluted, painted wood pilasters, painted wood frieze and pediment, with upper story (original stack level that is now offices) and cupola visible behind. The woodwork throughout is peeling, and likely is deteriorated to the point that it will not accept repainting without first stripping and doing repairs.

Pedimented center pavilion, letters from 1993 renovation, and original decorative metal above entry.

The “Newton Senior Center” letters, according to the 1993 drawings, include salvaged aluminum stars from the original library signage.

CONDITION: Fair.
RECOMMENDATION: Strip paint at all wood. Assume some wood requires replacement. Retain decorative aluminum stars for reuse. Retain and repair wrought aluminum ornament. Restore lantern lights.

Exterior Doors

The painted wood doors at the original east entry look like they might be original but, if so, have been significantly altered over time. The doors are used only for emergency egress, if at all, but their appearance detracts from the front façade due to retrofit panels, peeling paint, and visible weatherstripping. Other doors at the building exterior also suffer from peeling paint that reveals deteriorated wood. None of the doors look to be salvageable.

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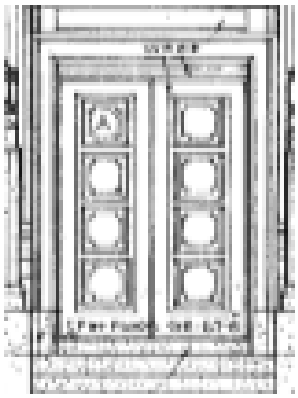

Main entry doors at east façade, along with drawing of original doors.

Grade-level door at west egress stair.

CONDITION: Poor
RECOMMENDATION: Remove all existing doors. Provide painted wood doors to match the original at the east façade, whether entry is used or not.

Exterior Stairs

The main entry stairs were originally granite. These have been repaired over time and some granite has crisp, unworn edges and looks to be relatively new. Joints are open throughout, however, and some stones have shifted. There have been multiple handrails over the years, none of which are original. The rust stains and cut-off steel posts are residual from the 1993 work.

View of east entry.

Granite steps have open joints and residue from metal railings.

CONDITION: Fair.
RECOMMENDATION: Reset and clean granite steps. Remove existing railings and provide new railings if this is to be used as an entry or emergency exit. Coordinate with approach to accessibility identified in Executive Summary.

Roofing

The roofing on the building is quite worn, and for that reason is assumed to be original. This includes slate shingles along with copper gutters and trim.

View of slate roofs.

Missing and broken slates.

Copper gutter and deteriorated wood below.

Detail of underside of gutter.

CONDITION: Poor.
RECOMMENDATION: Remove existing slate and copper gutters, along with related trim. Provide slate and copper to match. Provide new flat roofing over Kitchen if this wing remains.

Cupola

This is one of the character-defining elements of the building. It is a four-sided painted wood structure, with painted wood urns, and cap. Currently the upper portion has acrylic panels and an exhaust duct at the upper faces. All materials except the acrylic/duct look to be original, matching the early photos. The early photos indicate that the panels may have been clock faces. As the original drawings show an octagonal cupola with louvers at the top, and an octagonal shape, those drawings do not provide information regarding what was completed as part of the initial construction. The original drawings identify the cupola material being aluminum for all except a copper spike-shaped lightning rod at the top, where the existing has a sphere.

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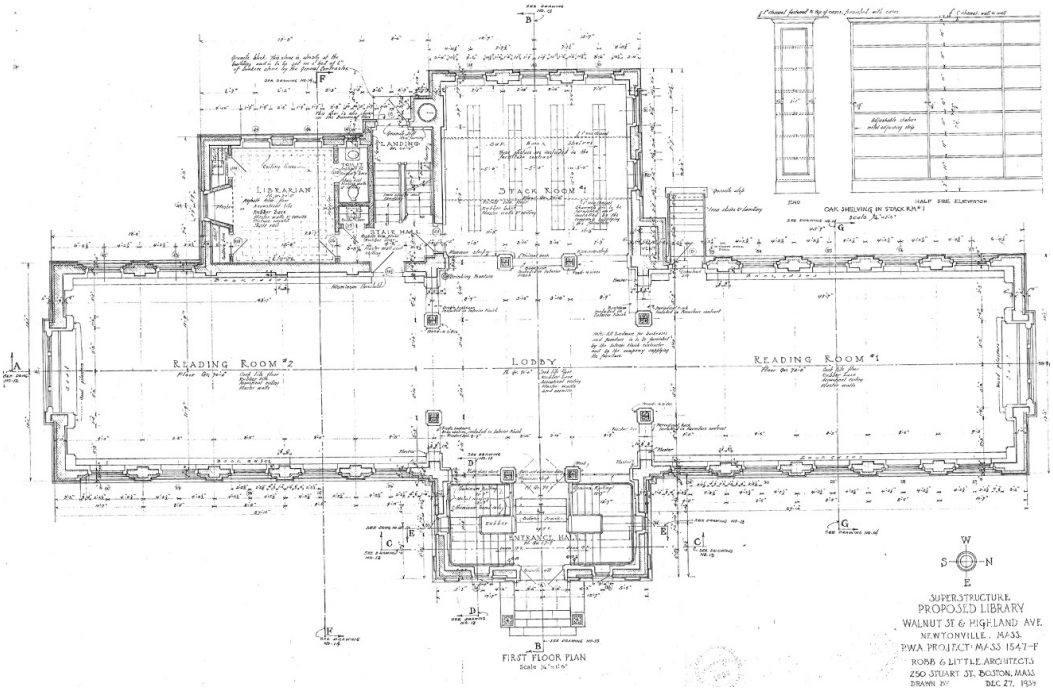
View of cupola from the east.


Detail view from southwest.

CONDITION: Fair.
RECOMMENDATION: Strip paint, repair wood. Remove retrofit plastic panels and reintroduce original louvers.

Building Interior
A renovation of this building will likely require significant removal of finishes as well as some partitions in order to better accommodate the revised program and large addition. This section will focus on the more significant spaces, where a determination regarding the materials that should remain is what is most relevant. For spaces not addressed here, see the structural analysis, which speaks to the condition of the substrate and structure. Assume if these lesser spaces remain they will be stripped to the structure and get all new finishes.

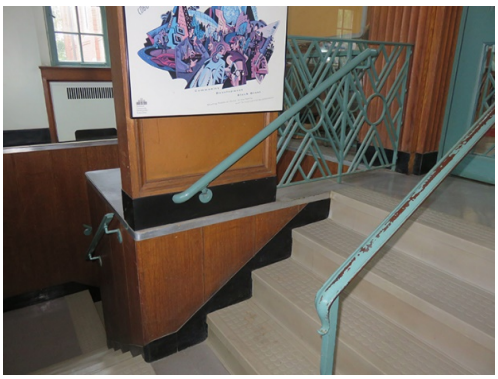
First Floor
The first floor of the building is set approximately six feet above what was the original grade level at the front of the building. This level initially housed the primary library spaces, with the main entry stairwell, double height lobby, and reading rooms flanking the lobby. To the west side were the stack area and a librarian's office off the south reading room. The original plan illustrates the simplicity of the building structure and layout and illustrates the classical-style focus on symmetry of the main spaces. What the exterior and the plan do not indicate at all is the Art Deco detailing that is found at the interior. This detail, including the aluminum materials, abstracted shapes, was popular in the 1920's and 30's. It's incorporation in this building gave the library a modern feel. As it is not yet known how much of the interiors will be retained, it should be noted that some of the most unique elements of the interior are the Art Deco light fixtures and ornamental guardrails and painted stenciling. These could be salvaged and incorporated into the new design of the larger project.



Original plan of the 1st floor.

Entry Stair

The main entry stairwell retains much of its original character, though some materials have been covered over or removed. The south stair remains usable, connecting the ground and first floors. Treads have been covered with rubber, but oak plywood walls, decorative aluminum railings and guardrail remain. Handrail ends do not comply with code requirements and guardrails do not meet code for height. A renovation would require modifying these elements.



Entry landing with stairs up and down.

South stair at ground floor level has rubber treads.

The first floor level doors at the stairwell include the same decorative detail as the guardrails, though hardware has had some retrofit work. The north stair has had an inter-floor installed at the first floor level (a post 1993 renovation to add a security office), though it appears that the stair is intact below. Removal of this floor would be possible. The original guardrail remains.

Doors separate stairwell from Lobby.

Added office at north stair includes a glass wall.

CONDITION: Fair.
RECOMMENDATION: Assess feasibility of retaining stairwell as part of building entry or egress. Remove rubber treads/risers to expose or replicate original materials. Remove office floor and partitions at north. Retain decorative railing and door elements while modifying to make code compliant.

Lobby

The Lobby is a high space with a laylight at the ceiling. It is open at all four sides to the adjacent spaces, creating what was once a grand foyer and point of orientation for people entering the building. Now that the usable building entry is at grade at the west side of the building, and people need go up a level and turn the corner to get to this space, it has lost the “orientation” quality.

Lobby looking east to entry.

Lobby looking west to mezzanine.

The detailing of this space includes square-shaped fluted oak columns, painted stenciling at the upper walls, and decorative aluminum guardrail at the mezzanine. Metal panels below windows, as is the case in the stairwell, include grilles for the heating system. The focal point of the space is the chandelier fixture that hangs below the skylight.

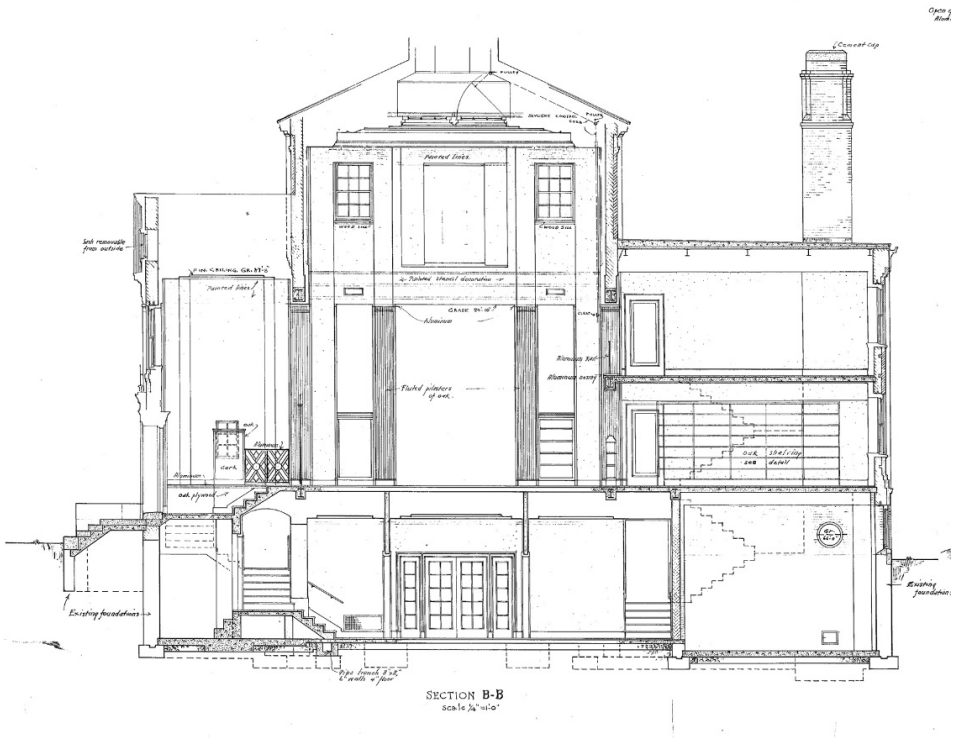
Upper wall and ceiling at Lobby.

Detail of upper wall and chandelier.

CONDITION: Good.
RECOMMENDATION: Remove existing vct flooring and provide cork or other suitable flooring. Restore chandelier and retrofit with LED lamping. Conceal HVAC system and reuse original grilles.

BUILDING CONDITIONS ASSESSMENT REPORT

Newton Senior Center
Existing Conditions Assessment Report
City of Newton, Massachusetts
December 2020



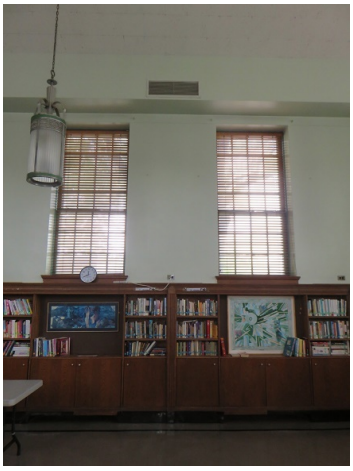
Transverse section from original drawings shows relationship of street-level grade (left), five steps up to the interior vestibule, four steps up to the lobby space (center). Two levels of stacks are at the right.

Dining Room (south) and Meeting Room (north)

Both of these rooms, which originally were the main reading rooms of the library, are for the most part intact and retain their original character, if not all detail. The design of these rooms originally was identical, with oak shelving lining the east and west walls below the large single-hung windows, cork tile flooring, plaster walls, and acoustic barrel vaulted ceilings.

Shelving remains, though modified in some areas to house items other than books. Woodwork details include some fluting that mimics that of the large columns. Then interiors of the windows are in very good condition. Wood sills include grilles that provide heat from ducts concealed in the walls.


North reading room.

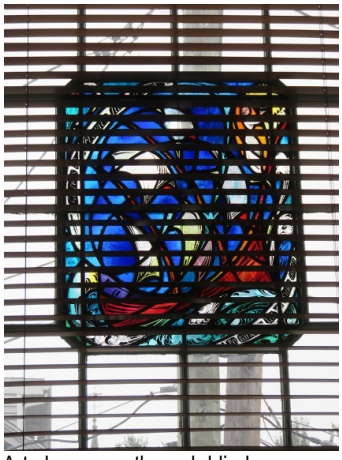

Original shelving at east wall.

The current flooring is vinyl composite tile, in 12" squares, which may have been installed over the original cork that was indicated on the original drawings. The material is in good condition but would presumably be replaced as part of a restoration.

The acoustic tile at the ceiling may be the original. It is not clear how well the acoustics in these spaces function, and a full renovation likely will require access above the ceilings for systems. New tile or other acoustic ceiling might be needed.

The colored, leaded glass panels at the north and south ends, as noted in the Windows section of the report, are important pieces, and most noticeable at the interior. These were designed by Connick Studios, based on Robert Frost's "Mending Wall" and Emily Dickinson's "There is no Frigate like a Book". The piece based on Robert Frost's poem was installed during the building dedication in 1939, with Robert Frost in attendance. These glass panels look to be in good condition but should be assessed further and care taken to preserve them.


South reading room.


Art glass seen through blinds.

Detail originally included stenciling at the upper walls, though that was eliminated when duct soffits were added in 1993. If the spaces are to be restored, duct soffits could possibly be eliminated and stenciling reintroduced.

The original pendant light fixtures remain, and at least some are functional. These, along with the art glass at the end windows, are the most distinctive elements in the spaces.


Pendant light fixture lit.


Detail of aluminum fixture.

CONDITION: Good.
RECOMMENDATION: Remove existing vct flooring and provide cork or other flooring. Restore pendants and retrofit with LED lamping. Conceal HVAC system and reuse original grilles. Remove duct soffits and reintroduce stenciling. Retain shelving. Salvage lights and shelves for reuse elsewhere if spaces are not retained.

Elevator Lobby

The original stack area at the first floor was converted in the 1993 renovation for use as the elevator lobby, toilet rooms, and access from the new west entry. Partitions were added and all finishes removed and replaced with new. This space does not retain any of its original interior.

Elevator lobby with stair up from west entry area.

Entry space looking to glass vestibule at rear of building.

CONDITION: Good.
RECOMMENDATION: Retaining these spaces is likely infeasible as part of a renovation/addition. Nothing in these spaces is important to keep.

Kitchen

The space to the west of the Dining space is currently a kitchen, housing commercial level equipment and finishes appropriate for that use. A renovation would dictate full removal down to the structure, regardless of the new use.

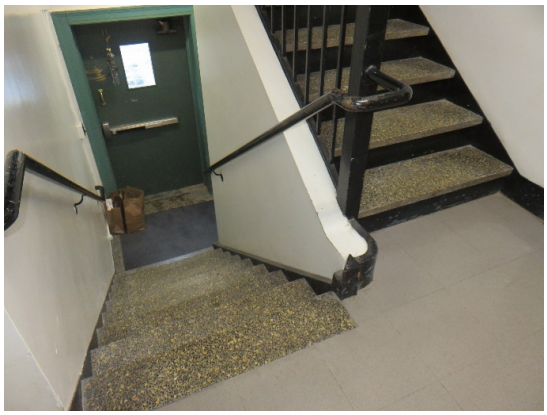

Commercial equipment in Kitchen.

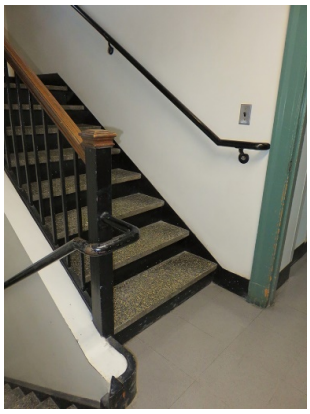

Original windows and casings remain.

CONDITION: Fair.
RECOMMENDATION: This one-story space likely would be removed as part of the project. If it were to be retained, it would be stripped down to structure. The windows could possibly be retained, similar to other exterior windows.

West Stairwell

This stair connects the three levels of the library floors as well as providing egress at grade level at the west. Terrazzo treads look to be original and are in good condition. Wall-side railings added in 1993 in order to comply with code.

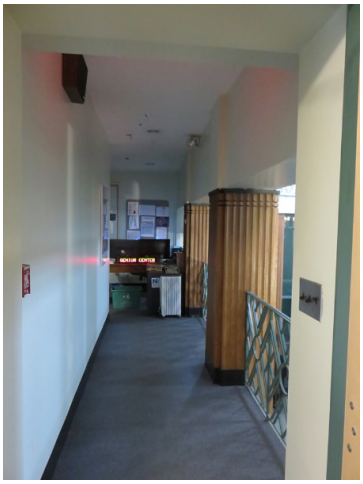

Stair down to grade at west.


Added handrail at wall.

CONDITION: Good.
RECOMMENDATION: If this is retained, some upgrades to comply with code requirements may be needed.

Mezzanine

The mezzanine area originally was the upper level of the stacks and is now used as offices. The small office area has drywall finishes and fluorescent lighting. The one distinctive element of the mezzanine area is the open railing overlooking the Lobby space. The railing is not a code-compliant height and would require a supplemental railing as part of a renovation. The elevator does access this level. The overall occupancy of this level is minimal, so the one egress stair is code- compliant.



Hallway at mezzanine.

Office area with windows to the west.

CONDITION: Good.
RECOMMENDATION: If this is retained, an additional railing of some sort would be required to meet code requirements of 42" in height.

"Ground Floor"

The "ground floor" area is actually 6' below street grade. It was designed originally to hose the Children's Reading Room and the Community Room, so these were finished spaces and the entry stair provided clear circulation to get there. Some of the original millwork detail remains at areas such as the central space that is currently used for computers. This includes wood doors with glass lites and painted wood casings, along with wainscoting at the walls. Wood windows also remain, with interiors in very good condition. The sills of these windows are approximately 7'-6" above the floor level.

The quality of the finished spaces is good where there is some access to natural light. Floor-to-floor height is 12'-6". Ceilings are in the range of 9-6" to 10'-6", so currently usable and potentially acceptable as part of a renovation.

Little of the original finishes remain at the rest of the basement. The 1993 renovations added partitions, new finishes, etc. to make this space usable as art and recreation spaces, conference rooms, computer areas, etc. The far south room was retained as a library space.

At the west, the space under the stacks housed the mechanical space, and the space under the current Kitchen housed toilet rooms. These areas contain additional toilet rooms and back-of-house spaces such as mechanical and storage.

View from center area toward east stairwell.


Original closet is now as office.


South corridor.


Art room with windows facing onto Walnut Street.


Library space at south end.


Original wood window sill with heat grille.

CONDITION: Fair.
RECOMMENDATION: Remove all finishes and partitions down to the basic structure and provide all new.

Code Issues

The Structural Report identifies applicable codes that would be relevant to a renovation of this building, and notes that requirements would depend on the scope of the renovation and addition to be done. Some sections above reference elements that are non-compliant at handrails and guardrails. A few key code issues that would likely apply to a renovation of this building are as follows:

Accessibility

- If the construction costs related to renovating this building exceed 30% of the value of the building, the requirement is that the entire building be made compliant with the current Massachusetts Architectural Access Board (MAAB) requirements.
- All public entries to the building must be accessible, with either grade-level doors, ramps, or lifts/elevators. The Walnut Street entry has stairs at the exterior and more up to the main level, and it would be a challenge to make this accessible. It could remain an exit out of the building without being accessible.
- Accessibility requirements were in place in 1993, and that is why the west entry was created, toilet rooms changed, and interior stairs given added railings. The current MAAB code is more strict in some regards, so items such as handrail extensions at the west stair, which were already incorporated, might require further modifications to meet current requirements.

Egress

- Distances to building exits from any point in the building will need to meet current codes as part of a renovation, as will stairs, handrails and egress paths.
- The existing guardrails at stairs and the mezzanine are too low and would need to be modified.
- If the Walnut Street stairs are retained as “exit only” stairs, handrails must comply with code requirements and might require modifications.
- The west stair is currently not enclosed in a way that separates it from other spaces and might need to be enclosed as part of the renovation.

Energy Conservation

- The Energy Conservation Code that applies to new construction would also typically apply to the renovation of the existing building. The fact that this building is designated “historic” allows for some relief to those requirements.
- While in the past there was a blanket exemption from the energy code for “historic” buildings, the requirement now is that the design professional writes a letter that is submitted with the application for building permit, describing how making modifications to meet the code would be detrimental to the structure.
- The possible relief would be for items such as the solid masonry walls and the roof, where insulation would not need to be added, and for existing windows that might not meet the current Energy Code.

Obtaining variances from the Building Department and/or from the MAAB are sometimes an option. If any items are proposed to be retained without meeting the current code, a review with officials should be done early in the process.

AVAILALBE INFORMATION ON THE NEWTONVILLE BRANCH LIBRARY

As noted elsewhere in this report, the research done to date has identified quite a bit of valuable information regarding the building that has been and will be useful in considering the building's future.
The following is a list of what has been identified to date:

- Prints of 1938 original drawings.
- Prints of 1993 renovation drawings.
- Images of early photographs found via internet searches.
- The Newton Public Library has 12 boxes of archived material relating to the Newtonville Branch Library. A review of these boxes has identified several categories of items. These can be scanned as might be useful:
    - Newton Free Library Annual Reports 1977-81
    - The Newton Free Library: A Pictorial History 1870-1991
    - List of Contributors to the Building Fund, 1936-1939
    - Needs Assessment: Proposed Senior Center, 1991
    - Friends of the Newton Free Library Events Posters
    - Boxes of photos from construction, just after completion, and from the 1950's
    - Scrapbook of the Newtonville Branch Library
    - Article from Library Journal, April 1, 1940
    - Campaign documents and List of Board of Trustees
    - Newspaper articles from 1938
- Digital Commonwealth, a non-profit collaborative organization that provides resources and services to support the creation, management, and dissemination of cultural heritage materials held by Massachusetts libraries, museums, historical societies, and archives, has on its web site approximately 100 items relevant to the Newtonville Branch Library. This digital content overlaps with some of the items found in hard copy at the Newton Public Library.

A detailed review of these items can be done as part of moving forward with the renovation or for purposes of gathering and selecting information for an educational display in remembrance of the building, should it be determined that the building will be demolished to allow for a completely new facility. There are some other sources that might have additional information, such as the City Archives at the City Clerk's Office, Historic Newton at the Jackson Homestead and Museum, Inspectional Services (for prior renovation drawings) and other locations that might be identified during the process.

b. GEOTECHNICAL ENGINEERING REPORT

October 1, 2020

Mr. Joel Bargmann
Bargmann Hendrie + Archetype, Inc.
9 Channel Center Street, Suite 300
Boston, MA 02210
Phone: 617-456-2227
E-mail: JBargmann@bhplus.com

Subject: **Preliminary Geotechnical Engineering Report**
Proposed New Center for Active Living
345 Walnut Street, Newtonville, MA 02460
PSI Project No.: 04461013

Dear Mr. Bargmann:

Thank you for choosing Professional Service Industries, Inc. (PSI), an Intertek company, as your consultant for the above referenced project. PSI is pleased to submit this report presenting the results of the preliminary geotechnical engineering studies regarding the proposed Center for Active Living in Newtonville, Massachusetts. Our services were conducted in accordance with PSI's Proposal No. 0446-320483 (Rev. 1) dated September 3, 2020.

The services presented herein were developed to provide geotechnical recommendations for the three options being considered for this facility. When the design option has been finalized and detailed design information is provided, a final geotechnical report will be submitted.

Should there be any questions regarding this report, please do not hesitate to call our office at (781) 821-2355. PSI would be pleased to continue providing geotechnical services throughout design and construction of the project, and we look forward to working with you and your organization on this and future projects.

Respectfully submitted,
Professional Service Industries, Inc.

Brianna Hansen
Project Manager

Stephen M. Simonette, P.E.
Principal Consultant

PRELIMINARY GEOTECHNICAL ENGINEERING REPORT

For the Proposed

New Center for Active Living
345 Walnut Street
Newtonville, MA 02460

Prepared for

Bargmann Hendrie + Archetype, Inc.
9 Channel Center Street, Suite 300
Boston, MA 02210

Prepared by

Professional Service Industries, Inc.
480 Neponset Street, Suite 9C
Canton, MA 02021
Telephone: (781) 821-2355
Fax: (781) 821-6276

PSI PROJECT NO. 04461013

October 1, 2020

Brianna Hansen
Brianna Hansen
Project Manager

COMMONWEALTH OF MASSACHUSETTS
STEPHEN M. SIMONETTE
CIVIL
No. 55632
REGISTERED PROFESSIONAL ENGINEER

10/01/20
Stephen M. Simonette, P.E.
Principal Consultant

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APPENDIX A

1.0 PROJECT INFORMATION

1.1 PROJECT AUTHORIZATION

Authorization to proceed with this project was provided by Mr. Joel Bargmann with Bargmann Hendrie + Archetype, Inc. by signing the Acceptance of Proposal on September 3, 2020 included with PSI's Proposal No. 0446-320483 (Rev. 1).

1.2 PROJECT DESCRIPTION

Project information provided to PSI included the Bargmann Hendrie + Archetype, Inc. "NewCAL Project Update" document dated August 26, 2020, which included preliminary information and schematics for three options as follows.

- Retain and renovate a portion of existing building; New construction of 3-story building
- Demolition of existing building; New construction of 3-story building
- Demolition of existing building; New construction of 4-story building

Per the Client, the design team has narrowed down the options to include retaining and renovating a portion of the existing building and constructing a new 3-story addition or demolishing the existing building and constructing a new 4-story building. A below-grade basement level is not planned within the new construction footprints. The new addition or free-standing structure footprints are understood to be on the order of 9,000 to 10,000 square feet. Structural loading information was not provided. Therefore, this report is based on column loads not exceeding 150-kips, uplift load not exceeding 15-kips, wall loads not exceeding 3-klf, and slab loads not exceeding 150-psf. Additionally, grading information was not provided; therefore, PSI will base our recommendations on grading cuts/fills not exceeding 2-feet from existing grade.

Should any of the information identified herein be incorrect or should supplemental information become available, PSI must be notified and have the opportunity to reassess conditions and amend the report where necessary.

PSI understands that the site layouts provided by the Client are preliminary and the final building construction option has not yet been determined. The objective of the exploration program described herein was to obtain profiles of the subsurface materials within the overall area of the potential new construction and development of geotechnical recommendations. Upon final selection by the design team and receipt and review of detailed design information, PSI will provide a final geotechnical report for the project, which may include modifications to the recommendations presented here.

1.3 SITE DESCRIPTION

The referenced site (42° 20' 57.05" N, 71° 12' 25.92" W) is located at 345 Walnut Street in Newtonville, Massachusetts, as shown in *Figure 1, USGS Site Location Plan*.

The site consists of an existing Newton Senior Center building with associated bituminous concrete pavements. The overall surface topography is relatively flat. Information contained on Google Earth indicates existing surface grades of approximately EL 55 to 56 feet, NAVD.

The existing building structure consists of 2 above grade stories and a basement, with the main level approximately 5 feet above outside grade. There are stairwells at the two corners of the west side of the building leading down to the basement to a depth of approximately 7½ feet below grade.

1.4 EXPLORATION PROGRAM

PSI conducted a preliminary geotechnical exploration program at the site in conformance with generally accepted geotechnical engineering practices to provide subsurface information about the site. This information was utilized to develop preliminary geotechnical engineering recommendations for members of the design team for use on this project.

The subsurface exploration program consisted of the performance of Standard Penetration Test (SPT) borings to assess the depth and characteristics of the underlying material. PSI marked out the exploration locations using the provided Site Plan and notified Dig Safe System, Inc. for public utility clearance prior to drilling. The exploration locations were also scanned by a private utility location service, Ground Penetrating Radar Systems LLC, prior to performing the explorations at the site.

Soil X Corporation of Leominster, MA drilled four soil test borings on September 23, 2020 at the approximate locations shown in *Figure 2, Boring Location Plan*. The borings were drilled near or within the proposed building footprint. Due to the proposed building footprint being within part of the existing building footprint, the borings were located as close to the proposed building footprint as feasible. A PSI representative observed the exploration activities for this project, retrieved soil samples for classification and testing, and prepared the attached Soil Test Boring Logs.

The borings were advanced by flush joint casing using a Geoprobe 7822DT drill rig equipped with a DH103 automatic hammer to depths of approximately 17 to 22 feet below the existing ground surfaces (bgs), where the borings encountered refusal (Boring B-3: Approximately 17 feet bgs) or were terminated at the scheduled depths. Standard Penetration Test (SPT) and split spoon samples were retrieved at approximate 2-foot intervals to depths of approximately 7 to 12 feet bgs and at approximate 5-foot intervals thereafter. The number of hammer blows required to drive the sampler into the soil in 6-inch increments is recorded on the Soil Test Boring Logs attached in the Appendix for reference. The sum of the hammer blows for the second and third interval provides the Standard Penetration Resistance (N) and is a measure of soil strength. Three soil samples retrieved from the borings were selected for laboratory testing to assist in classifying the material. The remaining samples will be stored in our laboratory and disposed of after 6 months.

PSI classified the soil strata shown in the Soil Test Boring Logs based upon its interpretation of the subsurface conditions encountered at the boring locations. The stratifications shown on the Soil Test Boring Logs represent the conditions only at the actual boring locations and variations will occur and should be expected at other locations. It is also possible that there could be thin layers of material lying between the sampling intervals that are not described on the logs and which might not become known until construction. Likewise, the depth to each soil stratum is approximate and may be more gradual or different in the field.

2.0 SITE AND SUBSURFACE CONDITIONS

2.1 SUBSURFACE CONDITIONS

2.1.1 LOCAL GEOLOGY

Based on the "Plate 5 Surficial Geologic Map of the Newton Quadrangle, Massachusetts" compiled by C.M. Brankman in 2004, the surficial geology of the project site is glacio-fluvial deposits, which consists of primarily sand and gravel with cobbles, as shown in *Figure 3, Surficial Geology*. The subsurface conditions encountered below the fill material at this site generally fits the geologic description.

Based on the "Bedrock Geologic Map of Massachusetts," compiled by Zen, E-an, Goldsmith, Richard, Ratcliffe, N.M., Robinson, Peter, Stanley, R.S., Hatch, N.L., Shride, A.F., Weed, E.G.A., and Wones, D.R. in 1983, the bedrock geology generally consists of Roxbury Conglomerate, which consists of conglomerate, sandstone, siltstone, argillite, and melaphyre. Refusal was encountered at a depth of approximately 17 feet bgs at Boring B-3, however, the material was not cored for classification.

2.1.2 SOIL TEST BORINGS

The subsurface conditions encountered at the specific boring locations for the proposed building addition and new building options are presented as individual soil profiles and descriptions on the Soil Test Boring Logs in the Appendix. The stratification presented is based on a visual assessment of the recovered soil samples and the interpretation of field logs by a PSI representative. The Standard Penetration Test values (N-values), which are shown on the Soil Test Boring Logs, have been empirically correlated with various soil properties and are indicative of the relative density of cohesionless soils.

A brief description of the soils encountered at the site is presented in this section. Details are shown in the Soil Test Boring Logs.

BITUMINOUS CONCRETE – Approximately 3 to 4 inches of surficial Bituminous Concrete pavement was encountered at Borings B-1 and B-4. Note that the actual thickness of bituminous concrete may vary within the site and may be greater or lesser. The contractor should determine the depth of bituminous concrete pavement to quantify depths for removal purposes.

TOPSOIL – At Borings B-2 and B-3, approximately 4 to 6 inches of surficial Topsoil was encountered. Note that the actual amount of topsoil may vary widely between boring locations. The contractor should determine the depth of topsoil to quantify depths for removal purposes.

FILL – Approximately 3 to 8 feet of material classified as Fill was encountered immediately below the surficial Bituminous Concrete at Borings B-1 and B-4 and the surficial Topsoil at Borings B-2 and B-3. The Fill material is most likely the result of original site development (possibly site grading). The general material description is dark brown, fine to coarse sand, little silt, with trace to some gravel and orange brown to brown, fine to coarse sand, trace to little silt, with little to some gravel. At Boring B-4, pieces of brick and trace fibrous organics (twigs) were present in the recovered samples, indicating the material to be Fill. The Standard Penetration Test (SPT) N-values ranged from 9 blows per foot (bpf) to 50 or more blows for 1 to 5 inches of sampler penetration, indicating loose to very dense relative densities, although the majority of the N-values were in the medium dense relative density range.

It should be stressed however that in miscellaneous fill, the N-values can be erratic, reflecting the variable composition of the fill material. The presence of obstruction and/or cobbles within fill can result in locally high N-values, even in a very loose soil. Other obstructions may be present in a miscellaneous uncontrolled fill and may not be readily detectable with exploratory drill rig methods.

SAND AND GRAVEL – At each boring location, Sand and Gravel soils were encountered below the Fill material and extended to depths of approximately 17 to 22 feet bgs, where Boring B-3 encountered refusal and where Borings B-1, B-2, and B-4 were terminated at the scheduled depths. The general material description is brown, fine to coarse sand, trace silt, with little to some gravel. The SPT N-values ranged from 36 bpf to 50 or more blows for 1 to 5 inches of sampler penetration, indicating dense to very dense relative densities, although the majority of the N-values were in the very dense relative density range.

REFUSAL – Macrocore refusal was encountered at Boring B-3 at a depth of approximately 17 feet bgs, which is believed to be caused by a large boulder/cobble. The material was not cored for classification.

2.2 GROUNDWATER CONDITIONS

At the time of the borings (September 2020), groundwater infiltrating the boreholes was not encountered during drilling and sampling operations. For safety purposes, all the borings were backfilled upon completion of drilling and sampling.

The observations represent the groundwater condition (or absence of) at the time of measurement and may not be indicative of other times. The level of groundwater below the ground surface fluctuates based on conditions such as season, temperature, and amount of precipitation that might be different from the time when the observations were made. Therefore, the groundwater levels can be higher or lower during construction and during the life of the structure. This fact must be taken into consideration when developing earthwork procedures.

2.3 SOIL LABORATORY TESTING

2.3.1 LABORATORY RESULTS

PSI tested soil samples for moisture content and gradation to assist in classifying the material and determining the percent fines (percent passing the Number 200 sieve). The material test reports for the samples are in the Appendix of this report and results are summarized in the following table.

Boring No.	Sample No.	Sample Depth (feet)	USCS Classification[1]	Moisture Content (%)	Fines Content (%)
B-4	S1	0.5'-2.5'	Poorly-Graded Sand with Silt and Gravel (SP-SM)	2.9	9.1
B-4	S2	2.5'-4.5'	Well-Graded Sand with Silt and Gravel (SW-SM)	9	12
B-3	S3	5'-7'	Well-Graded Sand with Silt and Gravel (SW-SM)	1.8	8
[1]For USCS Soil Classification definitions, refer to the Soil Classification Chart in the APPENDIX					

2.3.2 REUSE OF EXCAVATED SOIL

Based on the results of the laboratory testing, PSI anticipates that the excavated orange brown to brown Fill soils and the Sand and Gravel natural soils may meet the specific gradation requirements for Granular or Structural Fill. This material will be acceptable for reuse provided that the material continues to meet the project specifications and can be compacted to the required degree of compaction.

The dark brown Fill material may meet the gradation requirements for Granular or Structural Fill, however, pieces of brick and fibrous organics (twigs) were observed within some soil samples, which might eliminate reusing the material. Fill soil containing deleterious materials should not be reused. If there are any contamination concerns within the materials excavated, it should be addressed by a qualified environmental consultant. Specific environmental studies were not part of our scope of services. PSI's branch which provides environmental consultation could be engaged for further studies during site development and construction.

3.0 PRELIMINARY RECOMMENDATIONS

3.1 GENERAL

The following preliminary geotechnical design recommendations have been developed for the proposed building addition and new building options based on the previously described project information, the currently planned building and pavement area layouts, and subsurface conditions encountered at this site.

Note that these findings are preliminary and may not be sufficient for final design. Additional explorations, especially within the proposed final building footprint, may be necessary to provide additional information to develop final design recommendations. If the additional explorations reveal differing conditions, PSI reserves the right to amend the recommendations presented below.

The subsurface conditions encountered at this site within the proposed building footprint consist of approximately 3 to 8 feet of loose to very dense Fill material underlain by dense to very dense Sand and Gravel soils to the depths explored.

The Fill material is undocumented and may be associated with previously placed general fill or placed as backfill around underground utilities. Undocumented fill is fill material in which no information was provided regarding the procedures that might have been used to backfill and compact the material to satisfactory engineering standards.

3.2 Removing Existing Foundations

PSI understands the existing Newton Senior Center building may be demolished in part or whole. Based on the schematic drawings provided by the Client, proposed portions of the new Center for Active Living building footprint may be constructed within portions of the footprint of the existing building.

Where the new construction encroaches into the existing building's footprint, the existing building and foundations must be entirely removed to a lateral distance defined by a 1:1 slope extending downward from the outer edge of the new exterior footings to the bottom of the cut or to a lateral distance of 10 feet beyond the perimeter of the new building, whichever is greater. All excavations resulting from demolition operations should be backfilled in accordance with the recommendations in Section 4 of this report.

Once the existing building and foundations are demolished and required backfill is complete, the subgrade soils at design finished subgrades and prior to placement of any additional new fill to attain design finished subgrades must be proof-compacted to densify soil that might be loose. Densifying the soil is important to provide relatively uniform compact conditions and to test for potentially weak areas.

Excavations resulting from demolition and overexcavations to remove yielding soils following proof-compacting should be backfilled with Structural or Granular Fill that meets the specified material requirements. Structural Fill should be used below footing grade, while Granular Fill can be used above footing grade. Lifts must be controlled so that they do not exceed 6-inches in confined areas and 8-inches in open areas where larger compactors can be used, and the material must be compacted to at least 95% of the maximum dry unit weight determined in accordance with ASTM D1557 at plus/minus 2% of the optimum moisture content. At a minimum, a 10,000-pound self-propelled vibratory drum compactor should be used vibrating at least 25 hertz or greater and making at least 6 passes over the backfill in perpendicular directions.

3.3 FOUNDATIONS

3.3.1 EXCAVATE AND REPLACE FILL

The site within the area of the proposed new building consists of approximately 3 to 8 feet of Fill. The area with the deepest depth of Fill material was at Boring B-4, performed near the stairwell leading down to the basement level of the existing structure. Due to the potential variability and potential for deleterious inclusions of human-placed fill, total and differential settlement predictions for foundations supported on undocumented fill carry with it less confidence and, therefore, more risk. Therefore, foundations should not bear directly on the Fill material without further assessment or otherwise removing the material and replacing with Structural Fill compacted to the required degree of compaction. Generally, it is our experience that removal and replacement is a feasible economic alternative when the removal depth is less than 10 feet deep, especially when space is available for open cuts and dewatering is not anticipated at the site.

The recommended alternative includes removing the existing Fill entirely down to undisturbed natural material. In accordance with OSHA, the sidewalls of excavation should be sloped to prevent cave in and to protect on-site workers. The lateral extent of excavation at the bottom of the cut should be defined by a line extending down on a 1:1 slope from the exterior edge of the perimeter footings to the bottom of the Fill or 5 feet, whichever is greater.

Once the existing Fill is excavated and the subgrade densified, the excavation should be backfilled with Structural or Granular Fill that meets the specified material requirements. Fill material below footings should be Structural Fill material, while Granular Fill can be used below pavement subgrade and above footing bearing levels. Lifts must be controlled so that they do not exceed 6-inches in confined areas and 12-inches in open areas where larger compactors can be utilized and the material must be compacted to at least 95% of the maximum dry density determined in accordance with ASTM D1557 at plus/minus 2% of the optimum moisture content.

3.3.2 FOOTINGS

Exterior footings should be placed at least 4 feet below the lowest adjacent exterior finished grade for frost protection and interior footings should be placed at the nominal depth below the floor slab as required by the Building Code.

PSI anticipates that footings will bear upon the natural, undisturbed Sand and Gravel soils or properly compacted Structural Fill depending upon the actual design grades. Conventional footing foundations bearing in approved natural soils and new, properly compacted, Structural Fill may be proportioned using a maximum allowable net bearing pressure of 2 tsf (4,000 psf). These pressures are acceptable if the minimum foundation width is 3 feet. For widths less than 3 feet, the design pressure recommended above should be reduced by a factor of B/3, where B is the actual footing width. For this pressure, settlements should be within tolerable limits of 1-inch total and ½-inch differential over 20 feet.

PSI recommends that wall footings have a minimum width of 18 inches and that column footings have a minimum width of 24 inches, regardless of the actual bearing pressure. Wall footings should be provided with continuous longitudinal steel reinforcement, as determined by the structural engineer, for greater bending strength so they can span across small areas of loose or soft soils that may go undetected during construction.

All foundation bearing materials should be proof-compacted to densify these materials as a result of the excavation process or if loose in their natural state. Densifying the soil below the footing grade is important to provide relatively uniform compact conditions and to test for potentially weak areas.

After excavating and compacting the foundation soils, the contractor may elect (means and methods) to place a 4 to 6-inch layer of ¾-inch angular crushed stone over the footing subgrade to provide a firm working surface, reduce the possibility of disturbing the footing subgrade, and to provide a drainage layer to remove water that might accumulate due to groundwater or precipitation. Footings bearing on new, properly placed and compacted Structural Fill do not require a stone layer below the footing.

Footing reinforcement and concrete should be placed as soon as practical following completion of excavation to final grade and proof-compacting the footing subgrade. Once the footing concrete is placed, the foundations should be backfilled with Structural or Granular Fill as soon as the concrete has cured to an acceptable degree to allow backfilling. The backfill serves to protect the footing as a component of overturning resistance and prevents accumulation of water around the foundations which can soften and weaken the bearing soils. The ground surface near the completed foundations should be sloped to drain away from the foundations throughout construction to avoid accumulation of moisture in the subgrade soils.

The foundation subgrade should be observed by the geotechnical engineer of record or a representative prior to formwork to document that the foundation materials are consistent with this report.

3.4 Concrete Slab

Due to the potential variability and potential for deleterious inclusions of human-placed fill, total and differential settlement predictions for grade-supported concrete floor slabs supported on undocumented fill carry with it less confidence and, therefore, more risk. The degree of acceptable risk of excessive total and differential settlement must be evaluated and accepted by the Owner. Provided the risk of settlement of unremoved fill is acceptable by the Owner and all subgrade soils exhibiting yielding or rutting under proofroll equipment loads are corrected, the floor slabs may be designed as grade-supported slabs.

However, in order to completely eliminate the risk of settlement, the existing Fill would have to be removed and replaced. Subsurface soil conditions are suitable for supporting a slab-on-grade for the building after excavating and filling to the base course subgrade layer and proof-rolling the footprint to densify the subgrade soil. Fill required to raise the site to the slab base course grade should be compacted Structural or Granular Fill.

The slab subgrade should be proof-rolled to verify that the soil is firm prior to constructing the slab base course layer. A vibratory drum compactor (10-ton minimum weight at the drum) should be used, making at least 5 passes over the subgrade at the bottom of the excavation. Soft soils exhibiting yielding and/or rutting conditions under proof-roll equipment loads should be overexcavated to a dense underlying stratum and replaced with compacted Structural or Granular Fill.

To reduce the possibility of capillary rise of groundwater and moisture into the floor slab, PSI recommends that the concrete floor slabs be constructed over a 4-inch thick layer of compacted, freely draining base course material such as the ¾-inch angular Crushed Stone or a 6-inch thick layer of Dense Graded Crushed Stone, both as specified herein. Base course soil material must be compacted to at least 95% of the maximum dry density determined in accordance with ASTM D1557. Crushed Stone must be tamped into firm interlock so that it is firm and stable.

PSI recommends that a continuous vapor retarder of at least 10-mil thick, or as specified by the structural engineer, be installed between the slab and the base course to reduce migration of moisture.

For subgrade prepared as recommended and properly compacted Granular or Structural Fill, a modulus of subgrade reaction, *k* value, of 150 pounds per cubic inch (pci) may be used in the grade slab design based on values typically obtained from 1 ft. x 1ft. plate load tests. However, depending on how the slab load is applied, the value will have to be geometrically modified. The value should be adjusted for larger areas using the following expression for cohesive and cohesionless soil:

Modulus of Subgrade Reaction, $k_s = \left(\frac{k}{B}\right)$ for cohesive soil and

$k_s = k\ \left(\frac{B+1}{2B}\right)^2$ for cohesionless soil

where: k_s = coefficient of vertical subgrade reaction for loaded area
k = coefficient of vertical subgrade reaction for 1x1 square foot area
B = width of area loaded, in feet

Cosmetic cracking of slabs-on-grade is normal and should be expected. Cracking can occur not only as a result of heaving or compression of the underlying soil, but also as a result of concrete curing stresses. To reduce the potential for cracking, the following listed precautions should be closely followed for construction of all slabs-on-grade:

- PSI recommends installing construction joints between the floor slab and the walls and columns to account for differential settlement between the footings and slab. Concrete slabs should be jointed according to the American Concrete Institute (ACI) requirements, or other suitable code.
- All backfill in areas supporting slabs should be moisture conditioned and compacted. Backfill in all interior and exterior water and utility line trenches should be carefully compacted to match adjacent soils.

- Exterior slabs should be isolated from the building. These slabs should be constructed to function as independent units. Movement of these slabs should not be transmitted to the building foundation or superstructure.

3.5 SEISMIC CONSIDERATIONS

Subsurface conditions beginning at the surface of the site within the building footprint consist of loose to very dense Fill material underlain by dense to very dense Sand and Gravel soils to the depths explored. At Boring B-3, macrocore refusal was encountered at a depth of approximately 17 feet bgs, which is interpreted as a large boulder/cobble.

Based on the preliminary explorations, it is PSI's opinion that the site should be classified as Site Class C as defined in the Building Code and using the available information, if necessary, for design. Seismic values based on Site Class C are presented in the following table.

2015 International Building Code and Massachusetts Amendments	Reference	Equation	Value
City – Newton, MA			
Site Class Definition	1613.3.2	C	
Earthquake Design Factors (short)	Table 1604.11	S_S	0.208
Earthquake Design Factors (1 -sec)	Table 1604.11	S_1	0.068
Site Coefficient - F_a	Table 1613.3.3(1)	F_a	1.2
Site Coefficient - F_v	Table 1613.3.3(2)	F_v	1.7
Max EQ spectral response - S_{MS}	Eq 16-37	F_a*S_S	0.250
Max EQ spectral response - S_{M1}	Eq 16-38	F_v*S_1	0.116
Design spectral response acceleration - S_{DS}	Eq 16-39	2/3*S_{MS}	0.167
Design spectral response acceleration - S_{D1}	Eq 16-40	2/3*S_{M1}	0.077

The subsurface conditions to the depths explored at the site were also assessed for its liquefaction potential using the guidance provided in the 2015 International Building Code. It is PSI's opinion that the site is not susceptible to liquefaction to the depths explored.

4.0 CONSTRUCTION CONSIDERATIONS

4.1 EARTHWORK

In the preceding sections, PSI has outlined several recommendations for earthwork. There are additional recommendations provided herein which should be incorporated into the structural design and Contract Documents.

1. Following initial demolition (removal of existing pavements, concrete, utilities to be abandoned/relocated) and removal of all surficial vegetation, topsoil, root mat, shrubbery, and trees (including root systems and root balls) at the design finished subgrades in planned cut areas and prior to placement of new fill (if needed), the exposed subgrades should be proof-rolled using a minimum 10-ton, smooth-drum roller. Proof-rolling should be performed in the presence of a representative of PSI. Subgrade materials exhibiting yielding and/or rutting conditions should be scarified, aerated, and re-compacted, removed and replaced, or stabilized in place through addition of geo-grid and/or coarse aggregate.

2. Soil compaction criteria requires compaction of at least 95 percent of the maximum dry density determined in accordance with ASTM D1557 at plus/minus 2% of the optimum moisture content. Lifts must be controlled so that they do not exceed 6 inches in confined areas and 12 inches in open areas where larger compactors can be utilized. Use hand-operated equipment within 10 feet behind retaining walls and do not over-compact the backfill material. All fill placed within and below the structure must be compacted in accordance with ASTM D1557.

3. All excavations shall be stabilized by cutting back the side slopes or using shoring and bracing as required by 29 CFR 1926 Subpart P, Excavations. Plans and specifications should refer to this requirement so that contractors are aware of their responsibility.

4. Drainage must not be directed onto adjacent property either during construction or as part of the design grading, especially if this would affect groundwater and / or moisture conditions on the adjacent parcel.

5. Proof-compact the foundation soil at each footing excavation to verify that the material is firm and compact.

4.2 CONSTRUCTION DEWATERING

Groundwater was not observed within the borings during the field exploration program at the site. Therefore, excavations are not expected to encounter groundwater.

Should groundwater or wet conditions be encountered, it is PSI's opinion that dewatering can be handled by pumping from the bottom of the excavation. If dewatering is necessary, the contractor is solely responsible for designing all dewatering systems and maintaining a groundwater level that is at least 24 inches below the bottom of the excavation so that the bottom of the excavation remains firm and dry to allow placing and compacting of fill.

The contractor is responsible for maintaining a dewatered and firm subgrade condition and is solely responsible for selecting the method of groundwater control, designing, and maintaining the system. PSI recommends that this requirement be stated in the project specifications.

4.3 MATERIALS

PSI recommends that the following material gradations and names be used for consistency on the drawings and in the earthwork specifications. All material must be well graded between the limits shown herein and be capable of being compacted to the required degree of density. The material shall have sufficient fines so that it does not shove and remains stable.

PSI also recommends that the specifications not allow the use of recycled material such as reprocessed building demolition material. Material having more than 30 percent retained on the ¾-inch sieve may be difficult to test for compaction. Therefore, PSI recommends that the material selected also be satisfactory for compaction testing purposes.

Common Borrow

Friable, natural soil containing no gravel greater than 2/3 loose lift thickness and free of trash, snow, ice, organics, roots, and tree stumps and no more than 35 percent passing the No. 200 sieve. Common borrow can be used as general site backfill provided it can be compacted and stabilized for the intended purpose.

Structural Fill (recommended for over-excavation backfill below footing grade):

Natural or processed materials meeting the following grading ranges.

Sieve Size	Percent Finer
3-inches	100
½-inches	50 - 100
No. 4	30 - 85
No. 10	20 - 75
No. 40	5 - 35
No. 200	0-10

Granular Fill (recommended for general site fill and backfill above footing grade):

Natural or processed materials meeting the following grading ranges.

Sieve Size	Percent Finer
2-inches	100
No. 10	30 - 95
No. 40	10 - 70
No. 200	0 - 15

Dense Graded Crushed Stone (recommended as the granular base for floor slabs):

Dense graded crushed rock meeting the following grading ranges.

Sieve Size	Percent Finer
2-inch	100
1½-inch	70 - 100
¾-inches	50 - 85
No. 4	30 - 55
No. 50	8 - 24
No. 200	3 - 10

Crushed Stone:

The crushed stone should meet the requirements for material M2.01.4 (3/4-inch gradation) stated in the Massachusetts Highway Department Standard Specifications for Highways and Bridges.

5.0 GEOTECHNICAL RISK

The concept of risk is an important aspect of the geotechnical evaluation. The primary reason for this is that the analytical methods used to develop geotechnical recommendations do not comprise an exact science. Site exploration identifies actual subsurface conditions only at those points where samples are taken.

A geotechnical report is based on conditions that existed at the time of the subsurface exploration. The analytical tools which geotechnical engineers use are generally empirical and must be used in conjunction with engineering judgment and experience. Therefore, the solutions and recommendations presented in the geotechnical evaluation should not be considered risk-free and, more importantly, are not a guarantee that the interaction between the soils and the proposed structure will perform as planned. The engineering recommendations presented in the preceding sections constitute PSI's professional estimate of those measures that are necessary for the proposed structure to perform according to the proposed design based on the information generated and referenced during this evaluation, and PSI's experience in working with these conditions.

6.0 REPORT LIMITATIONS

PSI's professional services have been performed and our preliminary findings presented in accordance with generally accepted geotechnical engineering principles and practices. PSI is not responsible for the conclusions, opinions, or recommendations made by others based on this data. No other warranties are implied or expressed. As stated previously, our recommendations are made based on the limited information available.

The scope of explorations was intended to assess soil conditions within the influence of the proposed foundations. The analyses and preliminary recommendations submitted in this report are based upon the data obtained from the soil borings performed at the locations indicated. If subsoil variations become evident during this project, a re-assessment of the recommendations contained in this report will be necessary after we have had an opportunity to observe the characteristics of the conditions encountered. The applicability of the report should also be reviewed in the event significant changes occur in the design, nature, or location of the proposed structure.

The scope of our services does not include any environmental assessment or investigation for the presence or absence of hazardous or toxic materials in the soil, groundwater, or surface water within or beyond the site studied. Any statements in this report regarding odors, staining of soils, or other unusual conditions observed are strictly for the information of our Client.

PSI did not provide any service to investigate or detect the presence of moisture, mold or other biological contaminate in or around any structure, or any service that was designed or intended to prevent or lower the risk of the occurrence of the amplification of the same. Mold is ubiquitous to the environment with mold amplification occurring when building materials are impacted by moisture. Site conditions are outside of PSI's control, and mold amplification will likely occur, or continue to occur, in the presence of moisture. As such, PSI cannot and shall not be held responsible of the occurrence or recurrence of mold amplification.

After the new construction option is selected and upon receipt of detailed design drawings, PSI should be retained and provided the opportunity to review the design plans, perform additional borings and laboratory testing if deemed necessary, and provide a final geotechnical evaluation and report.

FIGURES

Figure 1: USGS Site Location Plan

Figure 2: Boring Location Plan

Figure 3: Surficial Geology

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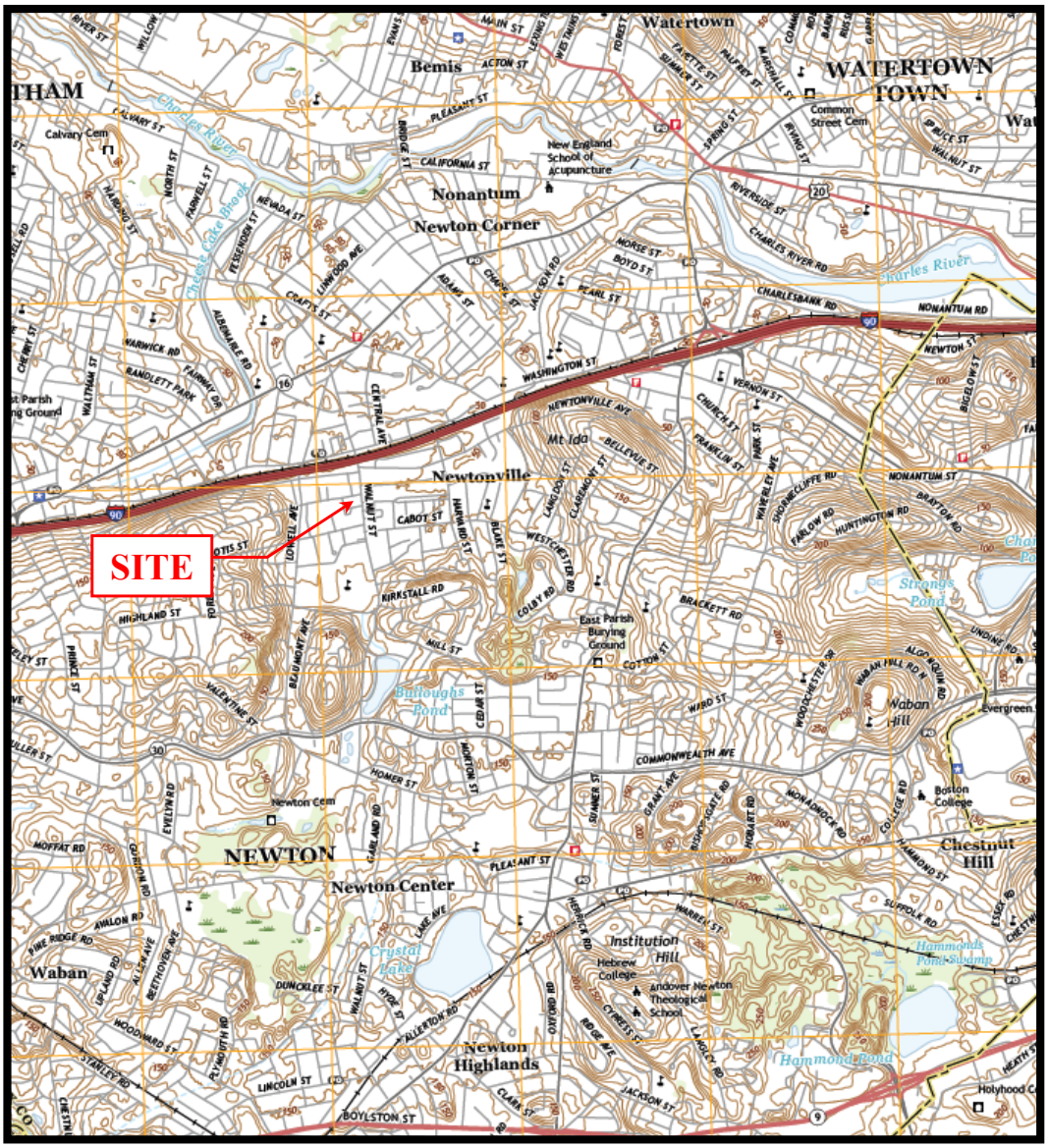


REFERENCE: U.S.G.S. "NEWTON, MA" 7.5' QUADRANGLE MAP
ISSUED: 2018

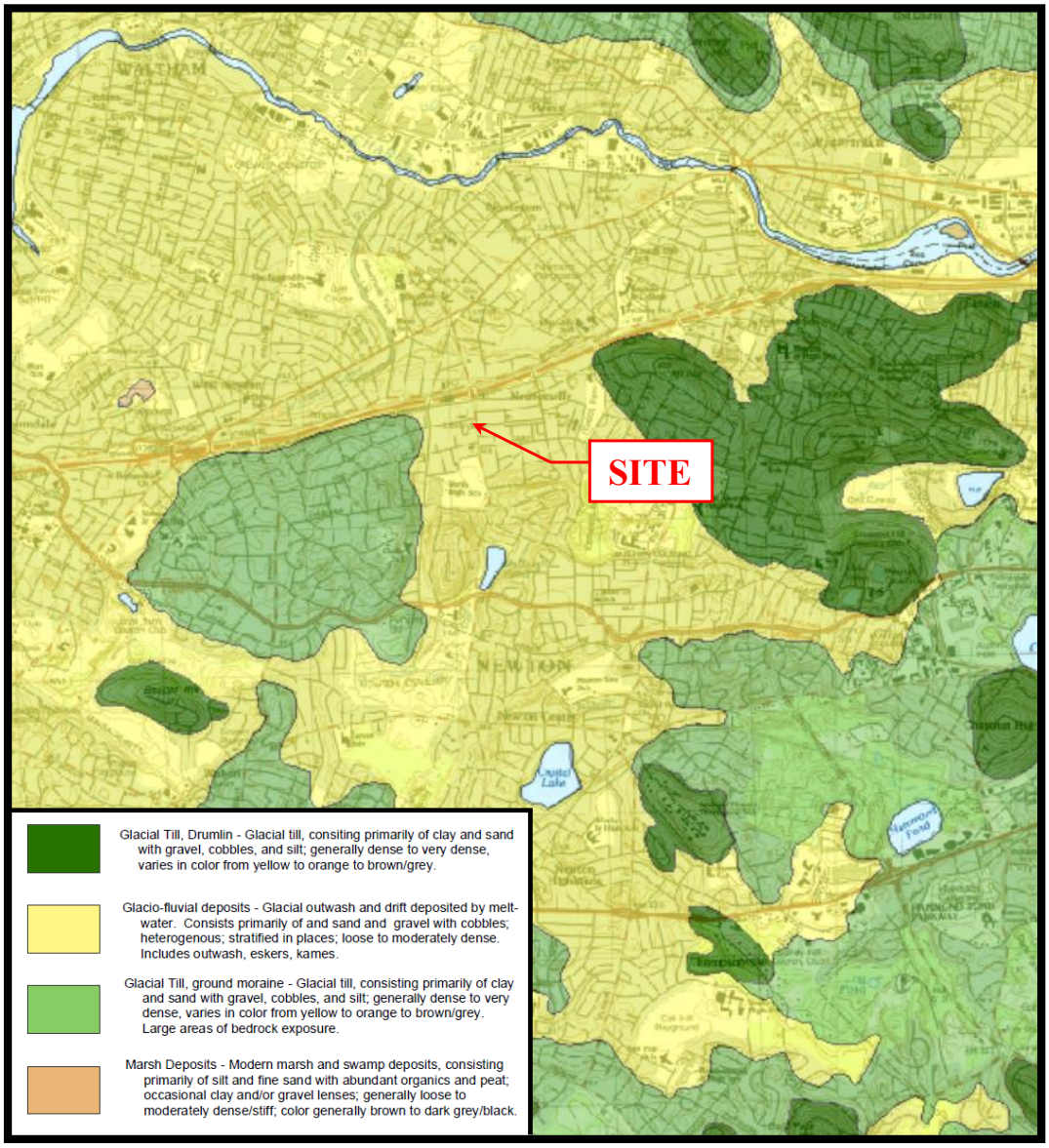
FIGURE 1: USGS SITE LOCATION PLAN		PSI Project No.	Date	Scale
PROJECT NAME: Proposed New Center for Active Living 345 Walnut Street Newtonville, MA 02460		04461013	September 2020	N.T.S.

● Boring Location

- Base Plan is Newtonville New Construction: 4 Stories Site Plan (dated 8/26/20) provided by Client.
- Borings were located in the field by PSI. Locations are approximate.
- Borings drilled on September 23, 2020 by Soil X Corp. of Leominster, MA.

FIGURE 2: BORING LOCATION PLAN	PSI Project No.	Date	
PROJECT: Proposed New Center for Active Living 345 Walnut Street Newtonville, MA 02460	04461013	September 2020	N

intertek psi



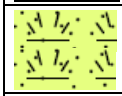
REFERENCE: "Plate 5 Surficial Geologic Map of the Newton Quadrangle, Massachusetts" Compiled by C.M. Brankman - 2004

FIGURE 3: SURFICIAL GEOLOGY		PSI Project No.	Date	Scale
PROJECT NAME: Proposed New Center for Active Living 345 Walnut Street Newtonville, MA 02460		04461013	September 2020	N.T.S.

APPENDIX

Boring Logs

Legend for Graphic Log

	**Bituminous Concrete**
	**Topsoil**
	**Fill**
	**Sand and Gravel**

BORING B-1

DATE STARTED:	9/23/20	**DRILL COMPANY:**	Soil X Corp.
DATE COMPLETED:	9/23/20	**DRILLER:** Don Leger	**LOGGED BY:** Intertek-PSI
COMPLETION DEPTH	22.0 ft	**DRILL RIG:**	Geoprobe 7822
BENCHMARK:	N/A	**DRILLING METHOD:**	Flush Joint Casing
ELEVATION:	55 ft	**SAMPLING METHOD:**	SS
LATITUDE:		**HAMMER TYPE:**	Automatic
LONGITUDE:		**EFFICIENCY**	N/A
STATION: N/A	**OFFSET:** N/A	**REVIEWED BY:**	Brianna Hansen

Water: Dry

BORING LOCATION:

REMARKS: Ground elevation based on information contained on Google Earth

Elevation (feet)	Depth, (feet)	Sample No.	Recovery (inches)	MATERIAL DESCRIPTION	USCS Classification	SPT Blows per 6-inch (SS)	Moisture, %	Additional Remarks
	0			Approximately 4" of bituminous concrete				
		1	10	Medium dense Brown, fine to coarse sand, trace silt, little gravel **(Fill)**		13-10-8-9 N=18		
		2	8	Bottom 5"- Orange brown to dark brown, fine to medium sand, trace coarse sand, little silt, trace roots **(Fill)**		16-50/5"		
				Very dense, brown, fine to coarse sand, trace to little silt, little to some gravel **(Fill)**				
50	5	3	0	Very dense, no recovery		65/2"		
45	10	4	8	Very dense, brown, fine to coarse sand, trace silt, some gravel **(Glaciofluvial Deposits)**		66-35-50/2"		
40	15	5	24	Very dense, brown, fine to coarse sand, trace silt, some gravel **(Glaciofluvial Deposits)**		53-52-49-50 N=101		
35	20	6	24	Dense, brown, fine to coarse sand, trace silt, little to some gravel **(Glaciofluvial Deposits)**		23-18-18-18 N=36		
				Boring terminated at approx. 22 feet bgs				

STANDARD PENETRATION TEST DATA
N in blows/ft ◎
× Moisture ◪ PL ✚ LL
0 25 50
STRENGTH, tsf
▲ Qu ✳ Qp
0 2.0 4.0

intertek psi
Professional Service Industries, Inc.
480 Neponset Street, Suite 9C
Canton, MA 02021
Telephone: (781) 821-2355

PROJECT NO.: 04461013
PROJECT: Newtonville Center for Active Living
LOCATION: 345 Walnut Street
Newtonville, MA 02460

The stratification lines represent approximate boundaries. The transition may be gradual.

Sheet 1 of 1

BORING B-2

DATE STARTED:	9/23/20	**DRILL COMPANY:**	Soil X Corp.
DATE COMPLETED:	9/23/20	**DRILLER:**	Don Leger
COMPLETION DEPTH	22.0 ft	**LOGGED BY:**	Intertek-PSI
BENCHMARK:	N/A	**DRILL RIG:**	Geoprobe 7822
ELEVATION:	55 ft	**DRILLING METHOD:**	Flush Joint Casing
LATITUDE:		**SAMPLING METHOD:**	SS
LONGITUDE:		**HAMMER TYPE:**	Automatic
STATION:	N/A	**EFFICIENCY**	N/A
OFFSET:	N/A	**REVIEWED BY:**	Brianna Hansen

Water Dry

BORING LOCATION:

REMARKS: Ground elevation based on information contained on Google Earth

Elevation (feet)	Depth, (feet)	Graphic Log	Sample Type	Sample No.	Recovery (inches)	MATERIAL DESCRIPTION	USCS Classification	SPT Blows per 6-inch (SS)	Moisture, %	STANDARD PENETRATION TEST DATA N in blows/ft; Moisture; PL; LL; STRENGTH, tsf; Qu; Qp	Additional Remarks
	0					Approximately 4" of topsoil					
				1	12	Medium dense, dark brown, fine to coarse sand, little silt, trace to little gravel **(Fill)**		4-10-17-15 N=27			
						Very dense, dark brown, fine to coarse sand, little silt, trace gravel **(Fill)**					
				2	16	Very dense, brown, fine to coarse sand, trace silt, little gravel **(Glaciofluvial Deposits)**		16-21-30-32 N=51		>>	
50	5			3	15	Very dense, brown, fine to coarse sand, trace silt, some gravel **(Glaciofluvial Deposits)**		59-47-38-38 N=85		>>	
45	10			4	17	Very dense, brown, fine to coarse sand, trace silt, some gravel **(Glaciofluvial Deposits)**		29-30-28-27 N=58		>>	
40	15			5	24	Very dense, brown, fine to coarse sand, trace silt, some gravel **(Glaciofluvial Deposits)**		39-30-29-30 N=59		>>	
35	20			6	15	Very dense, brown, fine to coarse sand, trace silt, some gravel **(Glaciofluvial Deposits)**		40-55-60/5"			
						Boring terminated at approx. 22 feet bgs					

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LOCATION: 345 Walnut Street
Newtonville, MA 02460

The stratification lines represent approximate boundaries. The transition may be gradual.

Sheet 1 of 1

BORING B-3

DATE STARTED:	9/23/20	**DRILL COMPANY:**	Soil X Corp.
DATE COMPLETED:	9/23/20	**DRILLER:**	Don Leger
LOGGED BY:	Intertek-PSI		
COMPLETION DEPTH	17.0 ft	**DRILL RIG:**	Geoprobe 7822
BENCHMARK:	N/A	**DRILLING METHOD:**	Flush Joint Casing
ELEVATION:	55 ft	**SAMPLING METHOD:**	SS
LATITUDE:		**HAMMER TYPE:**	Automatic
LONGITUDE:		**EFFICIENCY**	N/A
STATION:	N/A	**OFFSET:**	N/A
REVIEWED BY:	Brianna Hansen		

Water Dry

BORING LOCATION:

REMARKS: Ground elevation based on information contained on Google Earth

Elevation (feet)	Depth, (feet)	Graphic Log	Sample Type	Sample No.	Recovery (inches)	MATERIAL DESCRIPTION	USCS Classification	SPT Blows per 6-inch (SS)	Moisture, %	STANDARD PENETRATION TEST DATA N in blows/ft ◎ × Moisture ◪ PL ✚ LL (0, 25, 50) STRENGTH, tsf ▲ Qu ✳ Qp (0, 2.0, 4.0)	Additional Remarks
	0					Approximately 6" of topsoil					
				1	15	Medium dense, dark brown, fine to coarse sand, little silt, some gravel **(Fill)**		7-8-14-13 N=22			
				2	9	Medium dense Dark brown, fine to coarse sand, little silt, little gravel **(Fill)** Orange brown, fine to coarse sand, trace to little silt, little gravel **(Fill)**		10-11-14-22 N=25			
50	5			3	15	Very dense, brown, fine to coarse sand, trace silt, some gravel **(Glaciofluvial Deposits)**		41-39-50-29 N=89		>>◎	
45	10			4	19	Very dense, brown, fine to coarse sand, trace silt, little to some gravel **(Glaciofluvial Deposits)**		38-33-33-55 N=66		>>◎	
40	15			5	5	Very dense, brown, fine to coarse sand, trace silt, some gravel **(Glaciofluvial Deposits)**		60/5"		>>◎	
						Macrocore refusal encountered at ~17 ft bgs					

intertek psi
Professional Service Industries, Inc.
480 Neponset Street, Suite 9C
Canton, MA 02021
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PROJECT: Newtonville Center for Active Living
LOCATION: 345 Walnut Street
Newtonville, MA 02460

The stratification lines represent approximate boundaries. The transition may be gradual.

Sheet 1 of 1

BORING B-4

DATE STARTED:	9/23/20	**DRILL COMPANY:**	Soil X Corp.
DATE COMPLETED:	9/23/20	**DRILLER:** Don Leger	**LOGGED BY:** Intertek-PSI
COMPLETION DEPTH	22.0 ft	**DRILL RIG:**	Geoprobe 7822
BENCHMARK:	N/A	**DRILLING METHOD:**	Flush Joint Casing
ELEVATION:	56 ft	**SAMPLING METHOD:**	SS
LATITUDE:		**HAMMER TYPE:**	Automatic
LONGITUDE:		**EFFICIENCY**	N/A
STATION: N/A	**OFFSET:** N/A	**REVIEWED BY:**	Brianna Hansen

REMARKS: Ground elevation based on information contained on Google Earth

Water ▽ Dry

BORING LOCATION:

Elevation (feet)	Depth, (feet)	Graphic Log	Sample Type	Sample No.	Recovery (inches)	MATERIAL DESCRIPTION	USCS Classification	SPT Blows per 6-inch (SS)	Moisture, %	STANDARD PENETRATION TEST DATA N in blows/ft ◎ × Moisture ◪ PL ✚ LL (0, 25, 50) STRENGTH, tsf ▲ Qu ✳ Qp (0, 2.0, 4.0)	Additional Remarks
	0					Approximately 3" of bituminous concrete					
55				1	12	Loose Top 4"- Dark brown, fine to coarse sand, little silt, trace brick **(Fill)** Orange brown, fine to coarse sand, trace silt, little to some gravel **(Fill)**		7-5-4-5 N=9			
				2	8	Medium dense, dark brown, fine to coarse sand, little silt, little to some gravel, trace brick, trace fibrous organics/twigs **(Fill)**		6-7-5-3 N=12			
	5					Very dense, no recovery					
50				3	0			2-12-59-18 N=71		>>◎	
				4	3	Very dense, dark brown, fine to coarse sand, little silt, little gravel, trace brick **(Fill)**		12-38-60/4"			
	10			5	1	Very dense, brown, fine to coarse sand, trace silt, little to some gravel **(Glaciofluvial Deposits)**		60/2"		>>◎	
45											
	15			6	12	Very dense, brown, fine to coarse sand, trace silt, little to some gravel **(Glaciofluvial Deposits)**		11-23-63/5"			
40											
	20			7	5	Very dense, brown, fine to coarse sand, trace silt, some gravel **(Glaciofluvial Deposits)**		60/5.5"		>>◎	
35						**Boring terminated at approx. 22 feet bgs**					

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Canton, MA 02021
Telephone: (781) 821-2355

PROJECT NO.: 04461013
PROJECT: Newtonville Center for Active Living
LOCATION: 345 Walnut Street
Newtonville, MA 02460

The stratification lines represent approximate boundaries. The transition may be gradual.

Sheet 1 of 1

FIELD CLASSIFICATION SYSTEM FOR SOIL EXPLORATION

COHESIONLESS SOILS

(Silt, Sand, Gravel and Combinations)

Density

Very Loose	4 blows per foot or less
Loose	5 - 10 blows per foot
Medium Dense	11 - 30 blows per foot
Dense	31 - 50 blows per foot
Very Dense	51 blows per foot or more

Particle Size Indentification

Boulders		8 inch diameter or more
Cobbles		3 - 8 inch diameter
Gravel	Coarse	1 - 3 inches
	Medium	1/2 - 1 inch
	Fine	1/4 - 1/2 inch
Sand	Coarse	0.6 mm - 1/4 inch (diameter of pencil lead)
	Medium	0.2 mm - 0.6 mm (diameter of broom straw)
	Fine	0.05 mm - 0.2 mm (diameter of human hair)
Silt		0.002 mm - 0.05 mm (cannot see particles)

Relative Properties

Descriptive Term	Percent
Trace	1 - 10
Little	11 - 20
Some	21 - 35
And	36 - 50

COHESIVE SOILS

(Clay, Silt and Combinations)

Consistency

Very soft	2 blows per foot or less
Soft	3 - 4 blows per foot
Medim Stiff	5 - 8 blows per foot
Stiff	9 - 15 blows per foot
Very Stiff	16 - 30 blows per foot
Hard	31 blows per foot or more

Plasticity

Degree of Plasticity	Plasticity Index
None to slight	0 - 4
Slight	5 - 7
Medium	8 - 22
High to very high	over 22

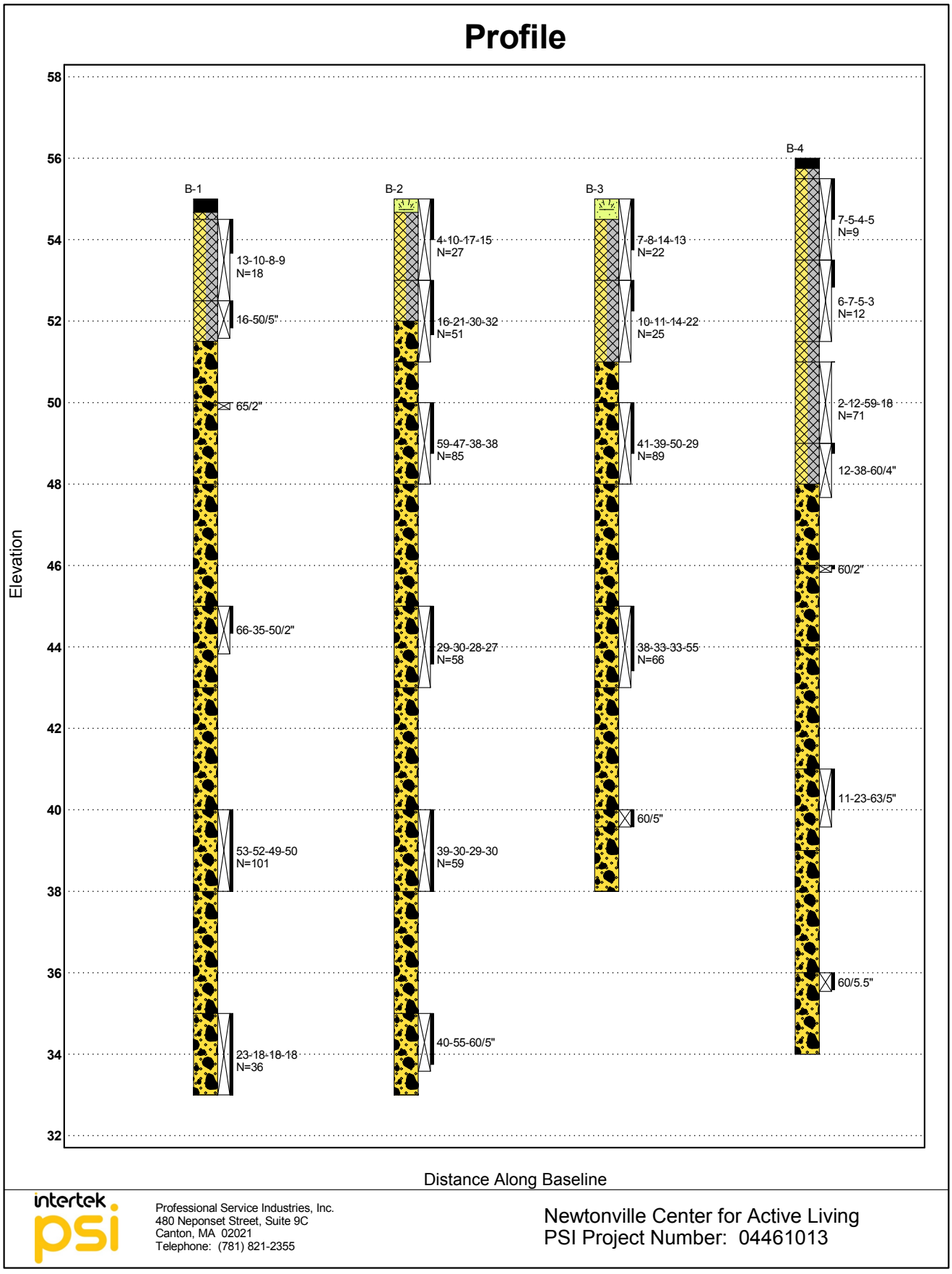
CLASSIFICATION ON LOGS ARE MADE BY VISUAL EXAMINATION OF SAMPLES.

Standard Penetration Test — Driving a 2.0" O.D., 1 3/8" I.D., sampler a distance of 2.0 feet into undisturbed soil with a 140 pound hammer free falling a distance of 30 inches. The number of hammer blows required to drive the sampler into the soil in 6-inch increments is recorded. The sum of the hammer blows for the second and third interval provides the Standard Penetration Resistance (N) and is a measure of soil strength. The reader is referenced to ASTM D1586.

Strata Changes — Boundaries between soil layers are considered approximate based upon observed changes during the drilling operations or noted changes within representative samples.

Groundwater — Observations were made to determine either the depth or elevation of water at the times indicated on the Soil Exploration Logs. The water so encountered may be groundwater or perched water. The depth or elevations indicated for water may fluctuate due to seasonal changes or other unknown factors.

Soil Profiles



intertek psi
Professional Service Industries, Inc.
480 Neponset Street, Suite 9C
Canton, MA 02021
Telephone: (781) 821-2355

Newtonville Center for Active Living
PSI Project Number: 04461013

Material Test Reports

Professional Service Industries, Inc.
480 Neponset Street, Suite 9C
Canton, MA 02021

Phone: (781) 821-2355
Fax: (781) 821-6276

Report No: MAT:04461013-1-S1
Issue No: 1

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Material Test Report

Client: BARGMANN HENDRIE ARCHETYPE
9 CHANNEL CENTER STREET, SUITE 300
BOSTON, MA 02210
CC:

Project: NEWTONVILLE NEWCAL
NEWTONVILLE, MA

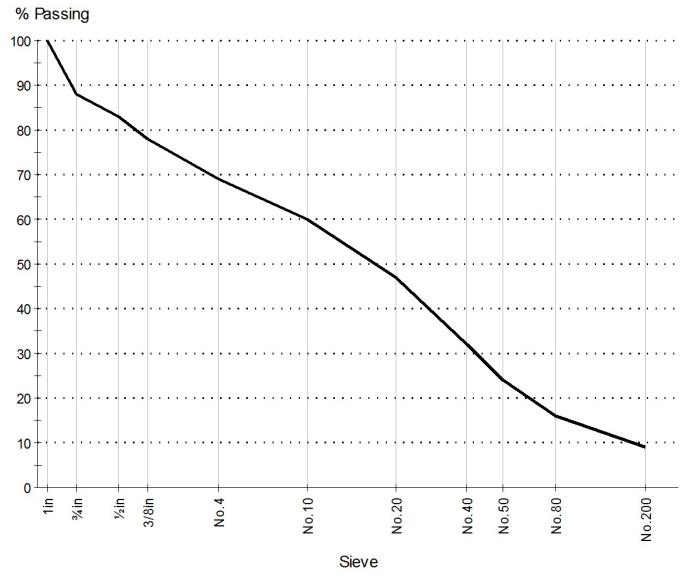
Approved Signatory: Yannick Lastennet (Department Manager)
Date of Issue: 9/25/2020

Sample Details

Sample ID: 04461013-1-S1
Client Sample ID:
Date Sampled: 09/23/20
Sampled By: PSI
Specification: No Spec. Sieve
Supplier:
Source: On-Site
Material:
Sampling Method: Soil Boring Split Spoon Sample
General Location: B-4 (0.5'-2.5')

Sample Description:

Particle Size Distribution



COBBLES	GRAVEL		SAND			FINES (9.1%)	
(0.0%)	Coarse (11.7%)	Fine (19.2%)	Coarse (9.4%)	Medium (28.1%)	Fine (22.5%)	Silt	Clay

Grading: ASTM C 136, ASTM C 117

Drying by: Oven
Date Tested: 9/24/2020
Tested By: Gary Brooks

Sieve Size	% Passing	Limits
1in (25.0mm)	100	
¾in (19.0mm)	88	
½in (12.5mm)	83	
3/8in (9.5mm)	78	
No.4 (4.75mm)	69	
No.10 (2.0mm)	60	
No.20 (850µm)	47	
No.40 (425µm)	32	
No.50 (300µm)	24	
No.80 (180µm)	16	
No.200 (75µm)	9.1	

D85: 14.7791 **D60:** 2.0000 **D50:** 1.0356
D30: 0.3896 **D15:** 0.1586 **D10:** 0.0841
Cu: 23.79 **Cc:** 0.90

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Professional Service Industries, Inc.
480 Neponset Street, Suite 9C
Canton, MA 02021

Phone: (781) 821-2355
Fax: (781) 821-6276

Report No: MAT:04461013-1-S1
Issue No: 1

Material Test Report

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Client: BARGMANN HENDRIE ARCHETYPE
9 CHANNEL CENTER STREET, SUITE 300
BOSTON, MA 02210

CC:

Project: NEWTONVILLE NEWCAL
NEWTONVILLE, MA

Approved Signatory: Yannick Lastennet (Department Manager)
Date of Issue: 9/25/2020

Sample Details

Sample ID: 04461013-1-S1
Client Sample ID:
Date Sampled: 09/23/20
Sampled By: PSI
Specification: No Spec. Sieve
Supplier:
Source: On-Site
Material:
Sampling Method: Soil Boring Split Spoon Sample
General Location: B-4 (0.5'-2.5')

Other Test Results

Description	Method	Result	Limits
Water content (%)	ASTM D 2216	2.9	
Method		B	
Tested By		Gary Brooks	
Date Tested		9/24/2020	

Comments

N/A

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GEOTECHNICAL ENGINEERING REPORT

Professional Service Industries, Inc.
480 Neponset Street, Suite 9C
Canton, MA 02021

Phone: (781) 821-2355
Fax: (781) 821-6276

Report No: MAT:04461013-1-S2
Issue No: 1

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Material Test Report

Client: BARGMANN HENDRIE ARCHETYPE
9 CHANNEL CENTER STREET, SUITE 300
BOSTON, MA 02210
CC:

Project: NEWTONVILLE NEWCAL
NEWTONVILLE, MA

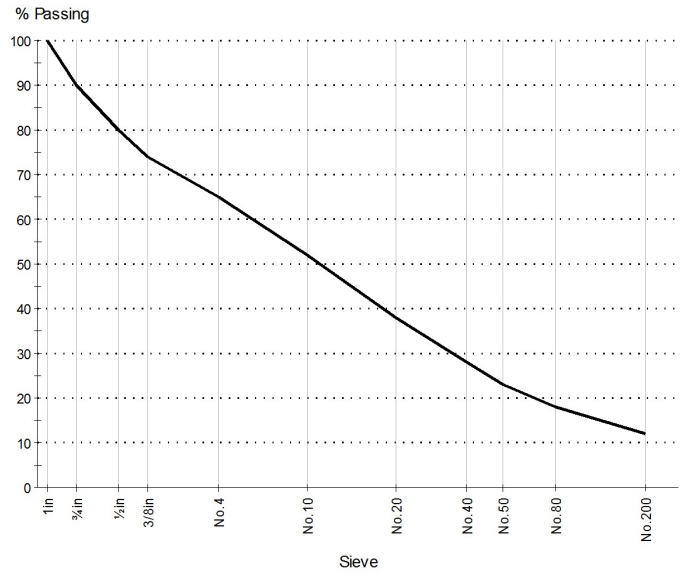
Approved Signatory: Yannick Lastennet (Department Manager)
Date of Issue: 9/25/2020

Sample Details

Sample ID:	04461013-1-S2
Client Sample ID:	
Date Sampled:	09/23/20
Sampled By:	PSI
Specification:	No Spec. Sieve
Supplier:	
Source:	On-Site
Material:	
Sampling Method:	Soil Boring Split Spoon Sample
General Location:	B-4 (2.5'-4.5')

Sample Description:

Particle Size Distribution



COBBLES	GRAVEL		SAND			FINES (11.8%)	
(0.0%)	Coarse (9.7%)	Fine (25.7%)	Coarse (12.7%)	Medium (24.1%)	Fine (15.9%)	Silt	Clay

Grading: ASTM C 136, ASTM C 117

Drying by: Oven
Date Tested: 9/24/2020
Tested By: Gary Brooks

Sieve Size	% Passing	Limits
1in (25.0mm)	100	
¾in (19.0mm)	90	
½in (12.5mm)	80	
3/8in (9.5mm)	74	
No.4 (4.75mm)	65	
No.10 (2.0mm)	52	
No.20 (850µm)	38	
No.40 (425µm)	28	
No.50 (300µm)	23	
No.80 (180µm)	18	
No.200 (75µm)	12	

D85: 15.4110 **D60:** 3.4057 **D50:** 1.7699
D30: 0.4882 **D15:** 0.1162 **D10:** 0.0560
Cu: 60.80 **Cc:** 1.25

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Professional Service Industries, Inc.
480 Neponset Street, Suite 9C
Canton, MA 02021

Phone: (781) 821-2355
Fax: (781) 821-6276

Report No: MAT:04461013-1-S2
Issue No: 1

Material Test Report

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Client: BARGMANN HENDRIE ARCHETYPE
9 CHANNEL CENTER STREET, SUITE 300
BOSTON, MA 02210

CC:

Project: NEWTONVILLE NEWCAL
NEWTONVILLE, MA

Approved Signatory: Yannick Lastennet (Department Manager)
Date of Issue: 9/25/2020

Sample Details

Sample ID: 04461013-1-S2
Client Sample ID:
Date Sampled: 09/23/20
Sampled By: PSI
Specification: No Spec. Sieve
Supplier:
Source: On-Site
Material:
Sampling Method: Soil Boring Split Spoon Sample
General Location: B-4 (2.5'-4.5')

Other Test Results

Description	Method	Result	Limits
Water content (%)	ASTM D 2216	9.0	
Method		B	
Tested By		Gary Brooks	
Date Tested		9/24/2020	

Comments

N/A

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GEOTECHNICAL ENGINEERING REPORT

Professional Service Industries, Inc.
480 Neponset Street, Suite 9C
Canton, MA 02021

Phone: (781) 821-2355
Fax: (781) 821-6276

Report No: MAT:04461013-1-S3
Issue No: 1

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Material Test Report

Client: BARGMANN HENDRIE ARCHETYPE
9 CHANNEL CENTER STREET, SUITE 300
BOSTON, MA 02210
CC:

Project: NEWTONVILLE NEWCAL
NEWTONVILLE, MA

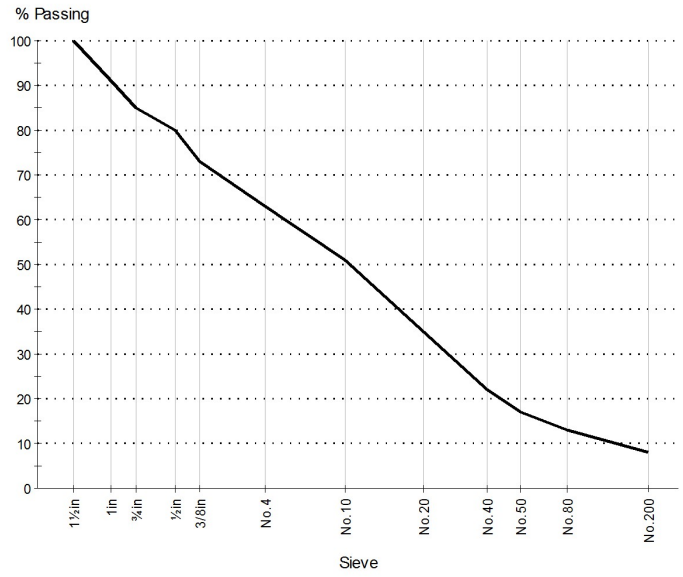
Approved Signatory: Yannick Lastennet (Department Manager)
Date of Issue: 9/25/2020

Sample Details

Sample ID:	04461013-1-S3
Client Sample ID:	
Date Sampled:	09/23/20
Sampled By:	PSI
Specification:	No Spec. Sieve
Supplier:	
Source:	On-Site
Material:	
Sampling Method:	Soil Boring Split Spoon Sample
General Location:	B-3 (5'-7')

Sample Description:

Particle Size Distribution



COBBLES	GRAVEL		SAND			FINES (8.0%)	
(0.0%)	Coarse (14.7%)	Fine (22.4%)	Coarse (12.3%)	Medium (28.6%)	Fine (14.1%)	Silt	Clay

Grading: ASTM C 136, ASTM C 117

Drying by: Oven
Date Tested: 9/24/2020
Tested By: Gary Brooks

Sieve Size	% Passing	Limits
1½in (37.5mm)	100	
1in (25.0mm)	91	
¾in (19.0mm)	85	
½in (12.5mm)	80	
3/8in (9.5mm)	73	
No.4 (4.75mm)	63	
No.10 (2.0mm)	51	
No.20 (850µm)	35	
No.40 (425µm)	22	
No.50 (300µm)	17	
No.80 (180µm)	13	
No.200 (75µm)	8.0	

D85: 19.0000 **D60:** 3.8263 **D50:** 1.8959
D30: 0.6511 **D15:** 0.2324 **D10:** 0.1065
Cu: 35.94 **Cc:** 1.04

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Professional Service Industries, Inc.
480 Neponset Street, Suite 9C
Canton, MA 02021

Phone: (781) 821-2355
Fax: (781) 821-6276

Report No: MAT:04461013-1-S3
Issue No: 1

Material Test Report

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Client: BARGMANN HENDRIE ARCHETYPE
9 CHANNEL CENTER STREET, SUITE 300
BOSTON, MA 02210

CC:

Project: NEWTONVILLE NEWCAL
NEWTONVILLE, MA

Approved Signatory: Yannick Lastennet (Department Manager)
Date of Issue: 9/25/2020

Sample Details

Sample ID: 04461013-1-S3
Client Sample ID:
Date Sampled: 09/23/20
Sampled By: PSI
Specification: No Spec. Sieve
Supplier:
Source: On-Site
Material:
Sampling Method: Soil Boring Split Spoon Sample
General Location: B-3 (5'-7')

Other Test Results

Description	Method	Result	Limits
Water content (%)	ASTM D 2216	1.8	
Method		B	
Tested By		Gary Brooks	
Date Tested		9/24/2020	

Comments

N/A

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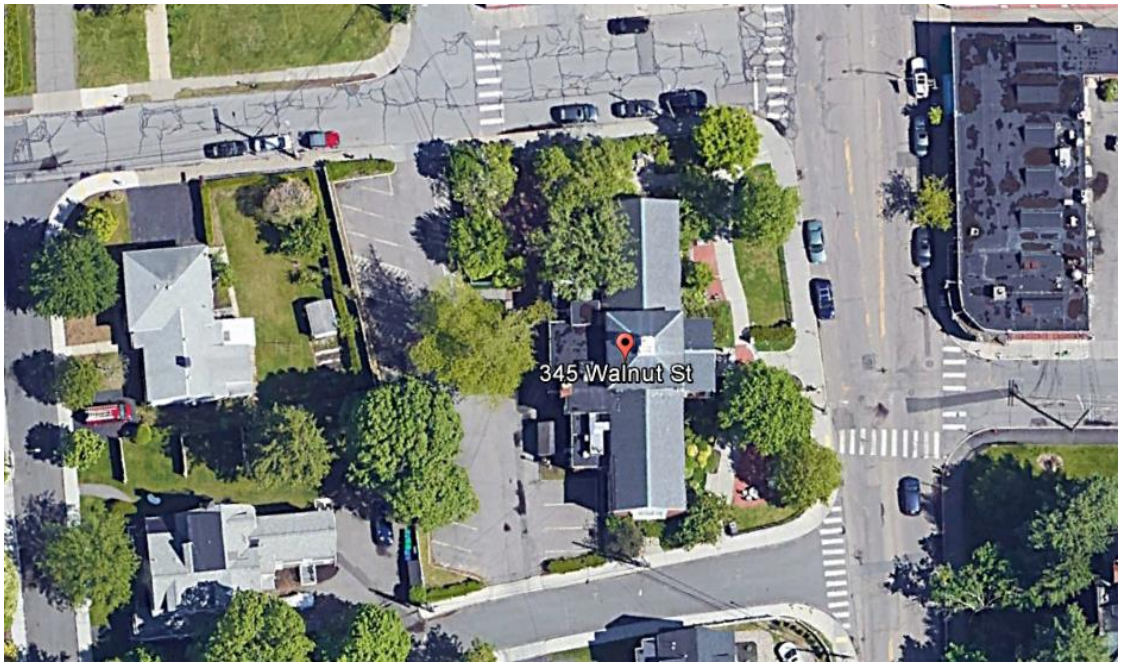
Site Images



Aerial View

From south looking north

From east looking west

From west looking east

c. STRUCTURAL ENGINEERING REPORT

BDI BOLTON & DiMARTINO, INC.
CONSULTING STRUCTURAL ENGINEERS
100 Grove Street Worcester, MA 01605
Tel. 508-756-8972

October 9, 2020

Mr. Joel Bargmann
Bargmann Hendrie + Archetype, Inc.
9 Channel Center Street, Suite 300
Boston, MA 02210

Re: Feasibility Study- Structural Narrative
Newton Senior Center
Newtonville, MA

Dear Mr. Bargmann,

The Newton Senior Center project includes demolition of a portion of the existing Senior Center, renovating the remaining 7,500 ft^2 building, and constructing a new 41,000 sq. ft., three-story, addition. The addition includes 9,200 ft^2 of enclosed parking area on-grade within the footprint of the building. The new construction portion of the project conforms to Type 2A Construction and will be isolated from the existing building with a seismic expansion joint.

Existing Building:
Structural work within the existing building includes:

- Install seismic through-wall anchors at 10'-0" o.c. at perimeter of Roof level to tie unreinforced brick walls to roof level framing. This will include drilling through the brick wall, installing a plate on the exterior face of the wall, and welding an anchor to the steel framing on the interior side.
- Replacement of steel masonry lintels at basement level windows at approximately 8 window locations. Replacement will include shoring of masonry wall, removal of existing lintels, installing new steel lintels, rebuilding 2-3 course of masonry at head of window.
- Removal of existing slate roof and gypsum plank roof system to install new metal roof deck (1 ½" x 20 GA Type 'B' metal roof deck). Installation will require removal of planks, minor repairs at existing framing, installing new bent plate supports at perimeter of roof, welding new decking to existing steel framing, installing new finish roof system.
- Demolition of a portion of the existing building will require full review of seismic system, which is currently unreinforced brick masonry. We anticipate new seismic system will need to be installed within existing building, at least near center all to replace the portion of the building that was removed. We recommend carrying an allowance of $200k for seismic retrofit work.
- Recommend carrying an allowance for general structural repairs that may be discovered after finishes are removed due to age/condition of existing building.

New Construction:
The foundations are assumed to be shallow foundations (exterior frost walls and interior spread footings) supported on natural glacial till or compacted structural fill, with a bearing capacity of 4 ksf based on the preliminary Geotechnical Report by Intertek PSI, dated October 1, 2020. The perimeter concrete foundation walls have a width sufficient to eliminate the need for forming wall pilasters.

The first floor will be a 5" thick concrete slab-on-grade reinforced with welded-wire fabric (6x6-W2.9 W2.9) at general interior use areas and a 6" concrete slab-on-grade reinforced with welded-wire-fabric (6x6 W4.0 W4.0) at the parking area within the building footprint. Control joints, consisting of sawn cuts and construction joints, will be shown on the plans, and will be located at about 12 feet on center to minimize shrinkage cracks in the slab.

Framed floors above grade will be either 2-hour rated, or non-rated concrete slabs on composite metal deck and structural steel beams. The 2-hour rated slabs will be 7½" thick concrete composite slabs supported on steel beams. The non-rated slabs will be 5½" thick concrete composite slabs supported on steel beams. We anticipate that the floor slab above the parking areas will need to be 2-hour rated, and the remainder of the slabs could be non-rated (confirm with Architectural fire-rating plans). 3"-18 Gauge composite metal deck will be specified and the slab will be reinforced with welded wire fabric (6x6-W2.9 W2.9). The composite concrete slab is made composite with the steel beams by using shear studs, and "partial composite design" is used for the economy of installing fewer shear studs. ASTM A992, with yield strength of 50 ksi, will be specified for the structural steel. However, the beams will be selected on serviceability requirements to reduce the problems of vibrations and deflections, so they will not necessarily be fully stressed. For estimating purposes, the weight of steel framing can be assumed to be 14 psf, including metal decking.

The roof framing will incorporate steel beam, steel trusses, and metal roof deck. The roof steel over large open areas will incorporate trusses to form hip shaped roofs. The steel at flat roofs will be pitched, where possible, to reduce the use of tapered roof insulation. The roof metal deck will be 1-1/2"-20 Gauge (Galv), Type B for all roofs except the gymnasium. The metal deck over the Gymnasium will be 3" Cellular Acoustic. For estimating purposes, the weight of the steel framing at the roof can be assumed to be 13 psf, including metal decking.

Wherever possible, hollow structural shapes will be selected for the columns. HSS6x6 tubes are easily concealed in the wall and partition framing eliminating the need for pilasters in the concrete foundation walls or interior partitions.

The lateral stability of the buildings will be achieved with concentrically braced frames, concrete floor diaphragms, and metal deck roof diaphragms. Typically, the concentrically braced frame members will be HSS shapes and will resist the lateral loads in both tension and compression.

Please call this office if you wish to discuss these items or any other aspect of the project.

Bolton & DiMartino, Inc.

Christopher Tutlis, P.E.
President

Structural Code Review
Newton Senior Center
345 Walnut Street
Newtonville, Massachusetts

1.1 Introduction:
The Newton Senior Center is a partial two-story, 11,000 ft^2 building, with a full basement, located at 345 Walnut Street in Newtonville, Massachusetts being investigated for a full renovation and addition. The brick building was constructed in 1938 as a Library using typical construction material and techniques. The building underwent a renovation and addition project in 1993 to convert the building from the Library to a Senior Center; and to add an elevator and new entrance. The building is being investigated for full renovation and a sizeable addition to the rear of the building to support increased programing of the Senior Center. This report will describe the general conditions of the existing structure, as well as establish structural guidelines, in accordance with the Massachusetts State Building Code, that must be followed during a building renovation.

2.1 General Report Information:
This report presents the results of our Massachusetts State Building Code (MSBC) Structural review of 345 Walnut Street in Newtonville, Massachusetts. Our review has been completed in conformance with Chapter 34 of the Ninth Edition of the Massachusetts State Building Code, which became effective September 20, 2017 and the International Existing Building Code, 2015 Edition.

3.1 Basis of the Report:

- This report is based on visible observations during our site visit on 9/22/2020.
- Original 1938 Construction Drawings prepared by Robb & Little Architects and J.R. Worcester & Co. Engineers.
- Limited Construction Drawings from 1993 renovation/addition. Architectural drawings prepared by Schwartz/Silver Architects, Inc. were available, but no Structural Drawings were available.

Our observations of the existing building were limited to what was readily visible. We did not evaluate strengths of materials, remove finishes, or take measurements; therefore, we are unable to comment on any structural capacities or deficiencies of the existing structural systems beyond what was readily visible.

4.1 General Building Description:

The building is a partial two-story structure with a full basement. The second story is limited to a few offices and lobby for the elevator. The original building consists of concrete foundation walls, unreinforced brick bearing walls (exterior walls), concrete slab-on-grade at basement, steel wide-flange columns at center Hall, concrete encased steel floor beams, reinforced concrete floor slabs, and a steel framed roof with gypsum deck panels. The first-floor framing consists mainly of concrete encased structural steel wide-flange beams with one-way concrete slabs (4"-5 ½" thick slab with granolithic finish slab). The second-floor mezzanine framing is similar to the first floor with concrete encased beams and one-way concrete slabs. The roof structure consists of steel trusses, steel beam rafters and gypsum plank decking. The original slate roof appears to still be in use.

The structural systems for the 1993 addition are less clear due to the lack of Structural Drawings. The foundations appear to be concrete walls and the slab-on-grade also appears to be concrete. The exterior veneer of the addition is brick, similar to the original building, and the Architectural drawings indicate that the exterior back-up walls and elevator shaft consist of concrete masonry units (CMU). Architectural sections indicate that the entry roof is framed with steel framing and metal roof deck. The elevator cap/roof appears to be a concrete slab on steel decking. Also, there is a masonry parapet that surrounds the perimeter of the low roof.

The original building was designed with unreinforced brick exterior bearing walls at the exterior of the building, which was common at the time of construction, but are not allowed by the current building code. Since the proposed renovation will be fairly extensive, the building will be reviewed for conformance to Appendix 1 of the International Existing Building Code (IEBC). The intent of Appendix 1 of the IEBC is to reduce the inherent risk associated with unreinforced masonry (URM) wall during wind and seismic events.

5.1 General Existing Conditions:

***General Exterior**:*

In general, the exterior walls of the building are unreinforced brick masonry walls with a concrete foundation. The top of the concrete foundation terminates approximately mid-way between the basement floor level and the first floor level with the brick bearing wall starting above. The exterior brick wall appears to generally be 12"-16" thick with pilasters at beam/truss bearing locations. The exterior veneer appears to be in average condition for its age with minimal signs of settlement. There are several lintels at the first floor level that have rusted significantly and will require repair/replacement during future maintenance or renovations. At the same locations as the deteriorated lintels, many of the brick head joints have failed and require repointing and general

repair. The exterior wood trim is in average condition and requires general maintenance to paint and repair minor deterioration.

The roof of the main building appears to be the original slate roof. We were not able to view the condition of the roof, but we were told that pieces of the slate roof have been found on the ground at the perimeter of the building indicating that some level of deterioration has taken place and repair will be required. Also, we did notice some water staining in the ceiling of an office at the second floor as well as at the arched ceiling of the dining room near the main lobby indicating that there have been minor roof leaks. The roof leaks are a concern with the gypsum roof panels since water infiltration can quickly degrade the strength of the gypsum panels.

The exterior walls of the 1993 addition are brick veneer to match the original building, with CMU backup walls. The walls of the addition appear to be in good condition with no significant signs of deterioration or settlement.

There are two concrete stairwells leading from the basement to the exterior grade and one of the concrete stairwell walls has deteriorated to the point where it should be repaired/replaced. The stairwell in question is located at the north-west side of the building with a sizeable tree located directly adjacent to the wall. The wall appears to be degrading from water infiltration and freeze/thaw action breaking apart the concrete. The degradation of the wall has likely accelerated because the tree roots near the wall and water shedding off a low roof over the stairwell onto the area surrounding the wall.

General Interior:
The interior of the building appears to be in generally good condition. The structure is mostly covered by finishes, except a few areas of the basement where the exterior walls and underside of the first floor concrete slab were visible. In the Boiler room, we were able to view the concrete foundation wall and the brick bearing wall above it. There were a few minor shrinkage cracks in the exposed foundation wall, but otherwise the foundation wall and brick wall appeared to be in good condition.

The interior partitions are typically plaster on wood furring with masonry backup. The interior plaster is in generally good condition with a few locations of minor deterioration from the steam piping. The ceilings were in generally good condition with a few noticeable locations of previous roof water leaks.

6.1 Building Structure

The original 1938, partial two-story, building consists of:

- Foundations:
  - The exterior foundations walls are plain concrete walls with continuous spread footings. The concrete walls extend from the basement up to approximately mid-height between the basement and first floor. The exterior walls appear to be mainly unreinforced with some reinforcing at wall penetrations.
  - Foundations at the interior columns are plain concrete spread footings.
  - Concrete slab-on-grade thickness is unknown. Slab appears to have been poured during one of the renovations. The slab includes raised portions near the exterior wall at select locations, as well as a formed drainage trench and sump pit to collect water that comes through the exterior stone foundation along the west wall.
- Exterior Walls:
  - Unreinforced brick masonry walls. Thickness is 12”-16” at first floor with pilasters at beam and truss bearing locations.
- Columns:

  - Eight Wide-flange steel columns are located at the sides of the main Hall (2 columns each of 4 sides), otherwise steel framing bears directly on unreinforced masonry. Column sizes are 8WF31's and 10WF49's.
- Framed Floors:
  - Floors are framed with concrete one-way slabs spanning between brick bearing walls and structural steel beams spaced at roughly 9-feet on-center.
  - One-way concrete slabs are between 4" and 5" thick and are reinforced with 3/8" and ½" diameter reinforcing bars. A granolithic topping slab was added to most interior floors.
  - Steel floor beams are mostly wide-flange steel beams ranging from 8WF17 to 18WF47. Most steel floor beams are encased in the concrete slab pour with 2" of cover around flanges.
- Roof:
  - Gable roofs are framed with structural steel trusses, steel purlins, and 2" gypsum planks.
  - Roof at main Hall is framed with structural steel trusses, steel purlins and gypsum planks at lower hip roof, and steel framing for upper tower.
  - Flat roof over partial second floor is framed with steel beams, gypsum planks, and sloped cinder fill to drain roof.

The 1993, two-story, elevator and entry addition consists of (based on visual inspection and Architectural drawings, no Structural drawings available):

- Foundations:
  - The foundations include concrete walls at the exterior walls and at the perimeter of the elevator pit.
  - Concrete slab-on-grade.
- Exterior Walls:
  - 8" CMU walls with brick veneer.
- Elevator Shaft
  - 8" CMU wall shaft with concrete slab cap.
- Roof:
  - Structural steel beams at flat lower roof.
  - Metal roof deck.

In general, the construction of the original Library building is fairly typical for a 1930's era building, consisting of unreinforced masonry bearing walls, steel framing and concrete slabs. The unreinforced masonry bearing walls would not be permitted by current Building Codes, but may remain provided they conform to the International Existing Building Code (IEBC), as amended by the Massachusetts State Building Code, which will be reviewed in the following section.

7.1 Building Code Review- Structural:

This review presents our interpretation of the structural requirements of the International Existing Building Code (IEBC), as modified by the Massachusetts State Building Code. In general, the provisions of The IEBC are intended to maintain or increase public safety, health, and general welfare in existing buildings by permitting repair, alteration, addition, and/or change of use without requiring full compliance with the code for new construction except where otherwise specified.

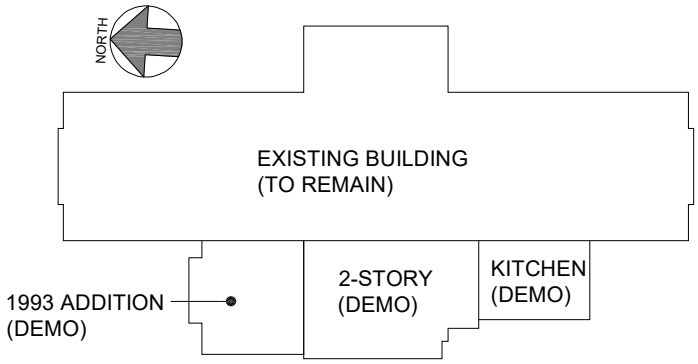
Renovation/Addition Assumptions:

In order to review the requirements of the IEBC for a renovation to 345 Walnut Street, the scope of the project must be defined. For this review we are assuming that the renovation will include:

- Complete renovation to interior finishes (Painting, flooring, wall finishes, partition locations, etc.) of existing building.
- Demolish the two-story portion of the existing building to provide space for a new three-story addition.
- Replace deteriorated lintels and repoint exterior brick at select locations.
- New mechanical/plumbing/electrical systems throughout building.
- Removal/replacement of finishes at exterior walls
- Occupancy/Use-Group to remain unchanged.
- Addition will be seismically isolated to avoid impacting the existing building, and the design of the addition will conform to the International Building Code (IBC), as modified by the Massachusetts State Building Code.

Occupancy Risk Category: II
Seismic Design Category: Category B
Site: Newtonville, MA

- Seismic Site Parameters
  - S_s = 0.208 (S_{DS} = 0.222)
  - S_1 = 0.068 (S_{D1} = 0.109)
  - Soil Site Class C (Per PSI preliminary Geotechnical Report)



FLOOR PLAN
NOT TO SCALE

Applicable Building Codes:

- Massachusetts State Building Code, 9th Edition.
- International Building Code (IBC), 2015 Edition.
- International Existing Building Code (IEBC), 2015 Edition.

Note: Building is an Unreinforced Masonry Bearing Wall Building, therefore IEBC Chapter A1 (Appendix A: Guidelines for the Seismic Retrofit of Existing Buildings) will also be reviewed.

IEBC Review

IEBC Chapter 1: Scope and Administration

IEBC 101.2 Scope: The provisions of the International Existing Building Code shall apply to the repair, alteration, change of occupancy, addition to and relocation of existing buildings.

- ❖ IEBC provisions will be followed during planned renovation/addition of 345 Walnut Street.

IEBC 101.4 Applicability: This code shall apply to the repair, alteration, change of occupancy, addition and relocation of existing building, regardless of occupancy, subject to the criteria of Sections 101.4.1 and 101.4.2.

- ❖ Occupancy provisions set forth in Sections 101.4.1 and 101.4.2 will be reviewed and followed.

IEBC 101.4.1 Buildings not previously occupied: A building of portion of a building that has not been previously occupied or used for its intended purpose in accordance with the laws in existence at the time of its completion shall be permitted to comply with the provisions of the laws in existence at the time of its original permit unless such permit has expired. Subsequent permits shall comply with the International Building Code or International Residential Code, as applicable, for new construction.

- ❖ The building is currently occupied, so this section does not appear to apply to the proposed renovation.

IEBC 101.4.2 Buildings previously occupied: The legal occupancy of any building existing on the date of adoption of this code shall be permitted to continue without change, except as is specifically covered in this code, the International Fire Code, or as is deemed necessary by the code official for the general safety and welfare of the occupants and the public.

- ❖ The building is currently occupied as a Senior Center and will remain in use as a Senior Center provided the provisions of the IEBC are followed.

IEBC Chapter 3: Provisions for all compliance methods

IEBC 301.1 General: The repair, alteration, change of occupancy, addition or relocation of all existing buildings shall comply with on of the methods listed in Section 301.1.1 through 301.1.3 as selected by the applicant. Sections 301.1.1 through 301.1.3 shall not be applied in combination with each other. Where this code requires consideration of the seismic force-resisting system of an existing building subject to repair, alteration, change of occupancy, addition or relocation of existing buildings, the seismic evaluation and design shall be based on Section 301.1.4 regardless of which compliance method is used.

- ❖ The IEBC allows choosing the compliance method for the renovation/addition from any of the three options. For this project, the provisions of 301.1.2 “Work area compliance method” will be followed.

IEBC 301.1.2 Work area compliance method: The provisions of the International Existing Building Code shall apply to the repair, alteration, change of occupancy, addition to and relocation of existing buildings.

- ❖ IEBC provisions will be followed during planned renovation/addition of 345 Walnut Street.

IEBC Chapter 5: Classification of Work

IEBC 501.1 Scope: The provisions of this chapter shall be used in conjunction with Chapters 6 through 13 and shall apply to the alteration, repair, addition and change of occupancy of existing structures, including historic and moved structures, as referenced in Section 301.1.2. The work performed on an existing building shall be classified in accordance with this chapter.

- ❖ Chapter 5 will be followed to classify the work to be performed during the renovation/addition.

IEBC 502.1 Repairs Scope: Repairs as defined in Chapter 2, include the patching or restoration or replacement of damaged materials, elements, equipment or fixtures for the purpose of maintaining

such components in good or sound condition with respect to existing loads or performance requirements.

- Existing structural elements will be reviewed after finishes are removed during the demolition phase to determine if additional repairs are required at unforeseen conditions.

IEBC 502.2 Repair Application: Repairs shall comply with the provisions of Chapter 6.

- Provisions of Chapter 6 will be followed for repairs.

IEBC 502.3 Repair Related Work: Work on nondamaged components that is necessary for the required repair of damaged components shall be considered part of the repair and shall not be subject to the provisions of Chapter 7, 8, 9, 10 or 11.

- Provision is self-explanatory that work on nondamaged components to complete a repair do not need to conform to other requirements specified in Chapter 7 through 11.

IEBC 505.1 Alteration- Level 3 Scope: Level 3 alterations apply where the work area exceeds 50 percent of the building area.

- The work area for the proposed project will exceed 50 percent of the building area and will be considered a Level 3 alteration.

IEBC 505.2 Alteration- Level 3 Application: Level 3 alterations shall comply with the provisions of Chapters 7 and 8 for Level 1 and 2 alterations, respectively, as well as the provisions of Chapter 9.

- The structural scope will follow the provisions of Chapters 7, 8 and 9 covering Levels 1 through 3 of alteration requirements.

IEBC 506.2 Change of Occupancy Application: Change of occupancy shall comply with the provisions of Chapter 10.

- It is our understanding that there will be no change of occupancy as part of this renovation/addition and the provisions of Chapter 10 will not apply.

Alteration Level 1 Structural Requirements:

IEBC 707.2 Addition or replacement of roofing or replacement of equipment: Where addition or replacement of equipment results in additional dead loads, structural components supporting such reroofing or equipment shall comply with the gravity load requirements of the International Building Code.

- The slate tile roof on the original building will need to be reviewed with the scope of work. The gypsum plank system below the slate tiles will likely need to be replaced to strengthen the roof diaphragm due to the affect that the scope of work has on the existing seismic force-resisting system, which will likely lead to replacing the slate tile roof with a new system. The new system will be reviewed with the gravity load requirements of the IBC.
- There are several exceptions that are permitted by the IEBC. One exception is “Structural elements where the additional dead load from roofing or equipment does not increase the force in the element by more than 5 percent.” We anticipate removing the slate tiles and gypsum planks and replacing with similar, or lighter, materials to avoid increasing the dead loads on the existing roof framing.

IEBC 707.3.1 Bracing for unreinforced masonry bearing wall parapets: Where a permit is issued for reroofing for more than 25 percent of the roof area of a building that is assigned to Seismic Design Category B, C, D, E or F that has parapets constructed of unreinforced masonry, the work shall include the installation of parapet bracing to resist the reduced International Building Code level seismic forces as specified in Section 301.1.4.2 of this code, unless an evaluation demonstrates compliance of such items.

- There are no unreinforced masonry parapets at the portion of the building scheduled to remain, so bracing is not required.

IEBC 707.3.2 Roof diaphragms resisting wind loads in high wind regions: Where roofing materials are removed from more than 50 percent of the roof diaphragm of a building or section of a building located where the ultimate wind speed is greater than 115 mph or in a special wind region, as defined in Section 1609 of the International Building Code, roof diaphragms, connections of the roof diaphragm to roof framing members, and roof-to-wall connections shall be evaluated for the wind loads specified in the International Building Code, including wind uplift. If the diaphragms and connections in their current condition are not capable of resisting at least 75 percent of those wind loads, they shall be replaced or strengthened in accordance with the loads specified in the International Building Code.

- Ultimate wind speed in Newton is 127 mph, so connections are to be reviewed if more than 50 percent of the roofing materials are removed/replaced. We anticipate removing the existing roofing and gypsum plank system and replacing with a metal deck and asphalt shingle system, so roof diaphragm and connections will be reviewed. The original construction drawings indicate that the roof trusses are anchored to the masonry bearing walls with anchor bolts, but intermediate beams bear on bearing plates only. We anticipate diaphragm anchorage will need to be coordinated with the new metal roof deck installation by installing additional support and anchorage for the new metal deck.

Level 2 Structural Requirements:

IEBC 807.2 New structural elements: New structural elements in alterations, including connections and anchorage, shall comply with the International Building Code (IBC).

- New structural elements will comply with the IBC.

IEBC 807.3 Minimum design loads: The minimum design loads on existing elements of a structure that do not support additional loads as a result of an alteration shall be the loads applicable at the time the building was constructed.

- Renovation will not change the minimum design loads on the structure. If element loads change, they will be reviewed for compliance with the IBC.

IEBC 807.4 Existing structural elements carrying gravity loads: Alterations shall not reduce the capacity of the existing gravity load-carrying structural elements unless it is demonstrated that the elements have the capacity to carry the applicable design gravity loads required by the International Building Code. Existing structural elements supporting any additional gravity loads as a result of the alterations, including the effects of snow drift, shall comply with the International Building Code. Exception includes structural elements whose stress is not increased by more than 5 percent.

- Design loads will be reviewed, but should remain unchanged at the existing structure.

IEBC 807.5 Existing structural elements resisting lateral loads: Except as permitted by Section 807.6, where the alteration increases design lateral loads, or where the alteration results in prohibited structural irregularity as defined by ASCE 7, or where the alteration decreases the capacity of any existing lateral load-carrying structural element, the structure of the altered building or structure shall be shown to meet the wind and seismic provisions of the IBC. Reduced IBC-level seismic forces in accordance with Section 301.1.4.2 shall be permitted. Exception: Any existing lateral load-resisting structural element whose demand-capacity ratio with the alteration considered is more than 10 percent greater that its demand-capacity ratio with the alteration ignored shall be permitted to remain unaltered.

- The existing unreinforced brick bearing walls provide lateral force resistance for the building. Based on the preliminary plans to demolish the rear two-story section of the

building, we anticipate that a full review of the seismic force-resisting system will be required. Based on previous experience, we anticipate that the remaining masonry walls will require reinforcement to resist IBC mandated wind and seismic loads.

IEBC 807.6 Voluntary improvement of the seismic force-resisting system: Alterations to existing structural elements and addition of new structural elements that are initiated for the purpose of increasing the lateral force-resisting strength or stiffness of an existing structure and that are not required by other sections of this code shall not be required to be designed for forces conforming to the IBC, provided that an engineering analysis is submitted to show that:

- The capacity of existing structural elements required to resist forces is not reduced;
- The lateral loading to existing structural elements is not increased either beyond its capacity or more than 10 percent;
- New structural elements are detailed and connected to the existing structural elements as required by the IBC;
- New or relocated nonstructural elements are detailed and connected to existing or new structural elements as required by the IBC; and
- A dangerous condition as defined in this code is not created. Voluntary alterations to lateral force-resisting systems conducted in accordance with Appendix A and the referenced standards of this code shall be permitted.

- The existing seismic force-resisting system consists of the unreinforced brick bearing walls. Based on the anticipated demolition of the rear two-story portion of the building, we anticipate a full review of the seismic force-resisting system will be required.

Level 3 Structural Requirements:

IEBC 907.2 New structural elements: New structural elements shall comply with Section 807.2.

- New structural elements will comply with the IBC, per 807.2.

IEBC 907.3 Existing structural elements carrying gravity loads: Existing structural elements carrying gravity loads shall comply with 807.4.

- Design loads will be reviewed, but should remain unchanged at the existing structure.

IEBC 907.4 Existing structural elements resisting lateral loads: All existing elements of the lateral-force-resisting system shall comply with this section.

- Alterations to the building structure are anticipated to remove the two-story portion of the building. The building will be reviewed for conformance to this section and we anticipate that the seismic force-resisting system will be upgraded to resist the code mandated wind and seismic loads.

IEBC 907.4.1 Evaluation and analysis: An engineering evaluation and analysis that establishes the structural adequacy of the altered structure shall be prepared by a registered design professional and submitted to the code official.

- Renovation to the interior finishes and systems is acceptable without a detailed analysis, but if lateral-force-resisting elements are modified to increase the seismic force in an element by 10 percent, an analysis will need to be completed. We anticipate altering the lateral-force-resisting system and expect that a detailed analysis will be required and will likely lead to installing a new seismic force resisting system, which may be cost prohibitive.

IEBC 907.4.2 Substantial structural alteration: Where more than 30 percent of the total floor and roof areas of the building or structure have been or are proposed to be involved in structural alterations within a 5-year period, the evaluation and analysis shall demonstrate that the altered building or

structure complies with the International Building Code for wind loading and with the reduced International Building Code level seismic forces in accordance with Section 301.1.4.2. The areas to be counted toward the 30 percent shall be those areas tributary to the vertical load-carrying components, such as joists, beams, columns, walls and other structural components that have been or will be removed, added or altered, as well as areas such as mezzanines, penthouses, roof structures and in-filled courts and shafts.

- ❖ Removal of the rear two-story section of the building will result in an alteration that exceeds the 30 percent threshold. Since the threshold will be exceeded, the remaining building will need to be reviewed for the ability to resist IBC mandated wind and seismic loads. We anticipate installing new seismic force resisting elements to resist the Code mandated loads.

IEBC 907.4.3 Seismic Design Category F: Where the building is assigned to Seismic Design Category F, the evaluation and analysis shall demonstrate that the lateral load-resisting system of the altered building or structure complies with reduced IBC-level seismic forces in accordance with Section 301.1.4.2 and with the wind provisions applicable to a limited structural alteration.

- ❖ The building is not assigned to Seismic Design Category F, and does not need to conform to the requirements of this section.

IEBC 907.4.4 Limited structural alteration: Where the work does not involve a substantial structural alteration and the building is not assigned to Seismic Design Category F, the existing elements of the lateral load-resisting system shall comply with Section 807.5.

- ❖ The building is not assigned to Seismic Design Category F, so limited structural alterations will comply with Section 807.5.

IEBC 907.4.5 Wall anchors for concrete and masonry buildings: For any building assigned to Seismic Design Category D, E, or F with the structural system consisting of concrete or reinforced masonry walls with a flexible roof diaphragm and any building assigned to Seismic Design Category C, D, E, or F with a structural system consisting of unreinforced masonry walls with any type of roof diaphragm, the alteration work shall include installation of wall anchors at the roof line to resist the reduced IBC-level seismic forces in accordance with Section 301.1.4.2, unless an evaluation demonstrates compliance of existing wall anchorage.

- ❖ The building is classified as Seismic Design Category B and does not need to conform to the requirements of this section. Anchorage at the roof level will be reviewed in accordance to the requirements of 707.3.2.

IEBC 907.4.6 Bracing for unreinforced masonry parapets: Parapets constructed of unreinforced masonry in buildings assigned to Seismic Design Category C, D, E, or F shall have bracing installed as needed to resist the reduced IBC-level seismic forces in accordance with Section 301.1.4, unless an evaluation demonstrates compliance of such items.

- ❖ The remaining portion of the building does not have unreinforced masonry parapets.

IEBC *Chapter A1: Seismic Strengthening Provisions for Unreinforced Masonry Bearing Wall Buildings*

IEBC *A101.1* Purpose: The purpose of this chapter is to promote public safety and welfare by reducing the risk of death or injury that may result from the effects of earthquakes on existing masonry bearing wall buildings.

The provisions of this chapter are intended as minimum standards for structural seismic resistance, and are established primarily to reduce the risk of life loss or injury. Compliance with these provisions will not necessarily prevent loss of life or injury, or prevent earthquake damage to rehabilitated buildings.

- Provisions of this chapter will be followed during renovation work. The building is unreinforced brick masonry, which is one of the more susceptible type of buildings to seismic forces.

IEBC A102.1: General: The provisions of this chapter shall apply to all existing buildings having at least one unreinforced masonry bearing wall. The elements regulated by this chapter shall be determined in accordance with Table A1-A. Except as provided herein, other structural provisions of the building code shall apply. This chapter does not apply to the alteration of existing electrical, plumbing, mechanical or fire safety systems.

- **IEBC *Table A1-A:*** Table indicated elements to be reviewed based on Seismic Parameter $S_{D1} = 0.109$. For this project, the following elements need to be reviewed:
  - Parapets
  - Walls, Anchorage.

IEBC A102.2 Essential and hazardous facilities: The provisions of this chapter shall not apply to the strengthening of buildings in Risk Category III or IV. Such buildings shall be strengthened to meet the requirements of the International Building Code for new buildings of the same risk category or other such criteria approved by the code official.

- The degree of earthquake risk reduction anticipated in Appendix A1 is not considered acceptable for buildings in Risk Category III and IV and additional measures would be required. The Senior Center building occupancy is included in Risk Category II and meets the requirements to follow Appendix A1.

IEBC *A113.1 Wall Anchorage*:

IEBC *A113.1.1* Anchor Locations: Unreinforced masonry walls shall be anchored at the roof and floor levels as required in Section A110.2. Ceilings of plaster or similar materials, when not attached directly to roof or floor framing and where abutting masonry walls, shall either be anchored to the walls at a maximum spacing of 6 feet, or be removed.

- Floor and roof framing consists of structural steel beams and trusses bearing on the unreinforced brick bearing walls. The steel beams at the floor level are noted to have (2) L6x4x3/8 wall anchors at each beam bearing on masonry. At the roof level, the trusses appear to bear on plates with anchor rods set in the masony. Regular purlins appear to bear on steel setting plates, but anchors are not noted and will need to be reviewed during re-roofing operations.

IEBC *A113.1.2 Anchor Requirements:* Anchors shall consist of bolts installed through the wall as specified in Table A1-E, or an approved equivalent at a maximum anchor spacing of 6 feet. All wall anchors shall be secured to the joists to develop the required forces.

- Trusses at the roof level are currently anchored to the masonry walls at approximately 9'-10' o.c., so we anticipate installing ½" diameter thru-wall anchors at purlins midway between trusses to cut down the space between anchors to 6'-0" o.c. (max) to resist the required loads at the and roof level.

IEBC *A113.1.3 Minimum Wall Anchorage*: Anchorage of masonry walls to each floor or roof shall resist a minimum force determined as $0.9S_{DS}$ times the tributary weight or 200 pounds per linear foot, whichever is greater, acting normal to the wall at the level of the floor or roof. Existing wall anchors, if used, must meet the requirements of this chapter or must be upgraded.

- Based on the weight of the 12" brick exterior walls, the design force is approximately 195 pounds per foot at the roof level. We anticipate using 200 pounds per foot at the roof level for anchorage design forces.

IEBC *A113.6 Parapets:* Parapets and exterior wall appendages not conforming to this chapter shall be removed, or stabilized or braced to ensure that the parapets and appendages remain in their original positions.

The maximum height of an unbraced unreinforced masonry parapet above the lower of either the level of tension anchors or the roof sheathing shall not exceed the height-to-thickness ratio shown in Table A1-F (2.5). If the required parapet height exceeds this maximum height, a bracing system designed for the forces determined in accordance with the building code shall support the top of the parapet. Parapet corrective work must be performed in conjunction with the installation of tension roof anchors.

- ❖ There are no parapets on this building that require anchorage.

8.1 Conclusions and Recommendations:

The purpose of this report is to identify any structural deficiencies and liabilities that will need to be addressed during the planned renovation. The report is based on the premise that the existing building will remain in use as a Senior Center and the structural systems will not be altered. We have reviewed the building in accordance to Chapter 34 of the Massachusetts State Building Code (Ninth Edition) and the International Existing Building Code (2015 Edition). We have reviewed the general conditions of the building, as well as the structural modifications that will need to be addressed as part of the renovation to increase the public safety of the building. This report, in its entirety, shall be used as the basis for the renovation. The following items are meant to highlight conditions or deficiencies noted in the report, but do not limit the work required.

General Information:

- Existing building area is approximately 11,000 ft^2.
- Renovation and addition includes demolition of approximately 3,300 ft^2 of building at the rear of the site to make space for the three-story addition.
- Scope of work within the existing building shall conform to the International Existing Building Code, as amended by the Massachusetts State Building Code, and specifically any requirements for Level 3 work and Appendix 1A of the IEBC.
- All new work within the existing building and the addition shall comply with the requirements of the International Building Code, as modified by the Massachusetts State Building Code.

Basic Building Existing Conditions:

- Exterior concrete wall at basement egress stairwell at north-west side of building has deteriorated to the point where the concrete is spalling and allowing water infiltration to the wall and accelerating deterioration. Wall should be repaired, replaced, or removed as part of regular maintenance, or as part of the proposed renovation and addition project.
- Exterior walls are 12”-16” unreinforced brick bearing walls with pilasters at beam and truss bearing locations. Exterior masonry veneer requires remedial work to replace deteriorated steel lintels and repair deteriorated brick at window heads, mainly at basement level.
- Framed floors consist of one-way concrete slabs on structural steel beams. Floors appear to be in good condition.
- Roof is framed with structural steel trusses, steel purlins, 2” metal banded gypsum plank decking, and slate roofing. Existing ceilings show signs of minor water leaks, so we anticipate roof repairs to the slate roof will be required as part of regular maintenance.

Structural Requirements for Renovation/Addition:

- Geotechnical exploration/review will be required for new the construction, as well as any foundation work to the existing building. A preliminary geotechnical report has been completed and indicates that shallow foundations would be appropriate for this site once some typical site improvements are completed.
- The gypsum roof planks do not provide an adequate roof diaphragm and will need to be replaced as part of any significant renovation project where seismic force resisting systems are reviewed for current IBC loads. The planks would need to be removed and replaced with metal roof decking. We anticipate that this would include removal of existing gypsum planks, installation of new metal roof deck, installation of new roofing system and asphalt shingles.
- The seismic force-resisting system for the building is currently unreinforced brick bearing walls. We anticipate the scope of the renovation to demolish a portion of the existing building will trigger a full review of the existing building for current International Building Code loads. In order to resist current lateral design forces, we anticipate new structural systems will need to be added to the building to resist the loads. New systems could include reinforced CMU walls, steel bracing, or alternative methods of reinforcing the existing masonry walls.
- Roof level anchorage to unreinforced brick bearing wall to be reviewed in accordance with Appendix A1 of the IEBC to resist code mandated load of 200 lb/ft. We anticipate installing 1/2" diameter through-bolt anchors at existing purlins (roughly 10 feet-on center) to combine with the existing truss anchorage to reduce the anchorage spacing to a maximum of 6-feet on center at the perimeter of the building.
- Roof snow loads to be included with new roof work at existing building:
    - Original: Unknown
    - Renovation: In accordance with Massachusetts State Building Code (P_g = 40 psf & P_f = 30 psf)

Based on our review of the existing conditions and the proposed renovation work, it is our professional opinion that the existing building is capable of being renovated for continued use as a Senior Center, but will require significant structural upgrades to the roof diaphragm and seismic force-resisting system due to the partial demolition of the building to make way for the addition. Renovations should be done with the understanding that structural upgrades noted in this report will only bring the building up to the minimum standards of the Building Code for existing buildings, and will not meet the Building Code requirements for new buildings.

Prepared by:

Christopher Tutlis, PE

d. HAZARDOUS MATERIALS REPORT

FINAL REPORT
FOR
ASBESTOS CONTAINING MATERIALS
IDENTIFICATION SURVEY
AT THE
NEWTON SENIOR CENTER
NEWTON, MASSACHUSETTS

PROJECT NO: 220 455.00

SURVEY DATES:
September 17-18, 2020

SURVEY CONDUCTED BY:

UNIVERSAL ENVIRONMENTAL CONSULTANTS

UEC universal environmental consultants

September 23, 2020

Mr. Joel Bargmann
Bargmann Hendrie + Archetype, Inc.
9 Channel Center Street
Suite 300
Boston, MA 02210

Reference: **Asbestos Containing Materials Identification Survey**
Newton Senior Center, Newton, MA

Dear Mr. Bargmann:

Thank you for the opportunity for Universal Environmental Consultants (UEC) to provide professional services.

Enclosed please find the report for limited Asbestos Containing Materials Identification Survey at the Newton Senior Center, Newton, MA.

Please do not hesitate to call should you have any questions.

Very truly yours,

Universal Environmental Consultants

Ammar M. Dieb
President

UEC:\220 455.00\Report.DOC

Enclosure

UEC was contracted to conduct an Asbestos Containing Materials Identification Survey at the Newton Senior Center, Newton, MA. No interior destructive testing was performed.

The scope of work included the inspection of accessible ACM, collection of bulk samples from materials suspected to contain asbestos and determination of types of ACM found for remediation. Bulk samples analyses for asbestos were performed using the standard Polarized Light Microscopy (PLM) in accordance with Environmental Protection Agency (EPA) standard. Bulk samples were collected by Massachusetts licensed asbestos inspectors Mr. Leonard J. Busa (AI-030673) and Mr. Jason Becotte (AI-034863). Bulk samples were analyzed by Massachusetts licensed laboratories EMSL and Asbestos Identification Laboratory, Woburn, MA.

Samples results are attached.

2.0 FINDINGS:

The regulations for asbestos inspection are based on representative sampling. It would be impractical and costly to sample all materials in all areas. Therefore, representative samples of each homogenous area were collected and analyzed or assumed. All suspect materials were grouped into homogenous areas. By definition, a homogenous area is one in which the materials are evenly mixed and similar in appearance and texture throughout. A homogeneous area shall be determined to contain asbestos based on findings that the results of at least one sample collected from that area shows that asbestos is present in an amount greater than 1 percent. No additional accessible ACM was found during this survey.

However, hidden ACM may be found during any renovation or demolition activities.

Number of Samples Collected
Roofing Samples:
Eighteen (18) bulk samples were collected from the following materials suspected of containing asbestos:

Type and Location of Material

1. Black paper under slate roof
2. Black paper under slate roof
3. Light weight cement deck under slate roof
4. Light weight cement deck under slate roof
5. Flashing tar at slate roof at slate roof to wall
6. Fiberboard at new northwest addition roof cut
7. Paper on cement deck at elevator penthouse roof cut
8. Tar roofing at west roof middle cut
9. Tar roofing at west roof middle cut
10. Tar roof at west roof south cut
11. Tar roofing at southwest addition roof cut
12. Paper on wood deck at southwest addition roof cut
13. Flashing caulking at west roof
14. Flashing caulking at south west roof
15. Black joint caulking at west roof
16. Black joint caulking at southwest roof
17. Pipe penetration caulk at west roof
18. Pipe penetration caulk at west roof

Sample Results

Type and Location of Material	Sample Result
1. Black paper under slate roof	No Asbestos Detected
2. Black paper under slate roof	No Asbestos Detected
3. Light weight cement deck under slate roof	No Asbestos Detected
4. Light weight cement deck under slate roof	No Asbestos Detected
5. Flashing tar at slate roof to wall	10% Asbestos
6. Fiberboard at new northwest addition roof cut	No Asbestos Detected
7. Paper on cement deck at elevator penthouse roof cut	No Asbestos Detected
8. Tar roofing at west roof middle cut	No Asbestos Detected
9. Tar roofing at west roof middle cut	No Asbestos Detected
10. Tar roof at west roof south cut	No Asbestos Detected
11. Tar roofing at southwest addition roof cut	No Asbestos Detected
12. Paper on wood deck at southwest addition roof cut	No Asbestos Detected
13. Flashing caulking at west roof	No Asbestos Detected
14. Flashing caulking at south west roof	No Asbestos Detected
15. Black joint caulking at west roof	No Asbestos Detected
16. Black joint caulking at southwest roof	No Asbestos Detected
17. Pipe penetration caulk at west roof	No Asbestos Detected
18. Pipe penetration caulk at west roof	No Asbestos Detected

Interior Samples:
Sixty-nine (69) bulk samples were collected from the following materials suspected of containing asbestos:

Type and Location of Material

1. Joint compound at mezzanine hallway wall
2. Joint compound at first floor bathroom wall
3. Joint compound at basement pool room wall
4. Joint compound at basement library/lounge
5. Joint compound at reception addition
6. Fireproofing at reception addition
7. Fireproofing at reception addition
8. Fireproofing at reception addition
9. 12” x 12” Grey vinyl floor tile at first floor library
10. Adhesive on 12” x 12” grey vinyl floor tile at first floor library
11. 12” x 12” Grey vinyl floor tile at first floor library kitchen side
12. Mastic on 12” x 12” grey vinyl floor tile at first floor library kitchen side
13. 12” x 12” Grey vinyl floor tile at first floor main entrance hall
14. Mastic on 12” x 12” grey vinyl floor tile at first floor main entrance hall
15. 12” x 12” White vinyl floor tile at kitchen
16. Mastic on 12” x 12” white vinyl floor tile at kitchen
17. 12” x 12” White vinyl floor tile at kitchen
18. Mastic on 12” x 12” white vinyl floor tile at kitchen
19. 12” x 12” Dark grey vinyl floor tile at reception addition
20. Mastic on 12” x 12” dark grey vinyl floor tile at reception addition
21. 12” x 12” Dark grey vinyl floor tile at reception addition
22. Mastic on 12” x 12” dark grey vinyl floor tile at reception addition
23. 9” x 9” vinyl floor tile at custodian hall
24. Mastic on 9” x 9” vinyl floor tile at custodian hall
25. Mastic on 9” x 9” vinyl floor tile at custodian hall
26. 9” x 9” vinyl floor tile under carpet at mezzanine hall
27. Mastic on 9” x 9” vinyl floor tile under carpet at mezzanine hall
28. Terrazzo floor at rear stairs down to basement
29. Adhesive for glazed wall tile at custodian areas

30. Grout on glazed wall tile at custodian areas
31. Pipe insulation behind wall plaster at basement pool room
32. Air cell padding behind metal paneling at library under window
33. Wood fire door at hall to custodian office/area
34. Red duct sealant at stairwell landing to mezzanine
35. Red duct sealant at stairwell landing to mezzanine
36. Vertical damproofing sealant on seam of foundation at basement library
37. Vertical damproofing sealant on seam of foundation at basement library/lounge
38. Light grey damproofing for sink at basement art room
39. Light grey damproofing for sink at kitchen
40. Dark grey damproofing for sink at kitchen
41. 1' x 1' Acoustical tile at basement library/lounge
42. 1' x 1' Acoustical tile at basement pool room
43. 1' x 1' Acoustical tile at basement hall outside Richmond room
44. Rough finish on concrete ceiling at first floor hall outside bathrooms
45. Rough finish on concrete ceiling at first floor hall by elevator
46. Rough finish on concrete ceiling at first floor hall at duct
47. Ceiling plaster at basement art room
48. Ceiling plaster at basement pool room
49. Ceiling plaster at basement library/lounge
50. Ceiling plaster at basement hall outside bathrooms
51. Ceiling plaster at basement hall outside Richmond room
52. Ceiling plaster at beam at mezzanine hall
53. Ceiling plaster at custodian basement storage
54. Wall plaster at basement hall outside custodian
55. Wall plaster at basement center stairwell
56. Wall plaster at first floor library kitchen side
57. Wall plaster at kitchen
58. Wall plaster at basement hall outside bathroom at stairs
59. Wall plaster type II at basement library/lounge
60. Wall plaster type II at basement center hall
61. Wall plaster type II at basement wellness room
62. Wall plaster type II at basement library/lounge
63. Wall plaster type II at basement art room
64. Wall plaster type II at basement pool room under ceramics closet
65. Exterior window glazing at basement front of building
66. Exterior window glazing at kitchen side library
67. Exterior window glazing at high window from roof
68. Exterior window glazing at first floor bathroom
69. Vertical sealant in foundation corner at stairs down to library

Sample Results

Type and Location of Material	**Sample Result**
1. Joint compound at mezzanine hallway wall	No Asbestos Detected
2. Joint compound at first floor bathroom wall	No Asbestos Detected
3. Joint compound at basement pool room wall	No Asbestos Detected
4. Joint compound at basement library/lounge	No Asbestos Detected
5. Joint compound at reception addition	No Asbestos Detected
6. Fireproofing at reception addition	No Asbestos Detected
7. Fireproofing at reception addition	No Asbestos Detected
8. Fireproofing at reception addition	No Asbestos Detected
9. 12" x 12" Grey vinyl floor tile at first floor library	No Asbestos Detected
10. Adhesive on 12" x 12" grey vinyl floor tile at first floor library	No Asbestos Detected
11. 12" x 12" Grey vinyl floor tile at first floor library kitchen side	No Asbestos Detected
12. Mastic on 12" x 12" grey vinyl floor tile at first floor library kitchen side	No Asbestos Detected

13. 12” x 12” Grey vinyl floor tile at first floor main entrance hall	No Asbestos Detected
14. Mastic on 12” x 12” grey vinyl floor tile at first floor main entrance hall	No Asbestos Detected
15. 12” x 12” White vinyl floor tile at kitchen	No Asbestos Detected
16. Mastic on 12” x 12” white vinyl floor tile at kitchen	5% Asbestos
17. 12” x 12” White vinyl floor tile at kitchen	No Asbestos Detected
18. Mastic on 12” x 12” white vinyl floor tile at kitchen	5% Asbestos
19. 12” x 12” Dark grey vinyl floor tile at reception addition	No Asbestos Detected
20. Mastic on 12” x 12” dark grey vinyl floor tile at reception addition	No Asbestos Detected
21. 12” x 12” Dark grey vinyl floor tile at reception addition	No Asbestos Detected
22. Mastic on 12” x 12” dark grey vinyl floor tile at reception addition	No Asbestos Detected
23. 9” x 9” vinyl floor tile at custodian hall	3% Asbestos
24. Mastic on 9” x 9” vinyl floor tile at custodian hall	5% Asbestos
25. Mastic on 9” x 9” vinyl floor tile at custodian hall	5% Asbestos
26. 9” x 9” vinyl floor tile under carpet at mezzanine hall	5% Asbestos
27. Mastic on 9” x 9” vinyl floor tile under carpet at mezzanine hall	5% Asbestos
28. Terrazzo floor at rear stairs down to basement	No Asbestos Detected
29. Adhesive for glazed wall tile at custodian areas	No Asbestos Detected
30. Grout on glazed wall tile at custodian areas	No Asbestos Detected
31. Pipe insulation behind wall plaster at basement pool room	40% Asbestos
32. Air cell padding behind metal paneling at library under window	70% Asbestos
33. Wood fire door at hall to custodian office/area	No Asbestos Detected
34. Red duct sealant at stairwell landing to mezzanine	No Asbestos Detected
35. Red duct sealant at stairwell landing to mezzanine	No Asbestos Detected
36. Vertical damproofing sealant on seam of foundation at basement library	10% Asbestos
37. Vertical damproofing sealant on seam of foundation at basement library/lounge	10% Asbestos
38. Light grey damproofing for sink at basement art room	No Asbestos Detected
39. Light grey damproofing for sink at kitchen	No Asbestos Detected
40. Dark grey damproofing for sink at kitchen	No Asbestos Detected
41. 1’ x 1’ Acoustical tile at basement library/lounge	No Asbestos Detected
42. 1’ x 1’ Acoustical tile at basement pool room	No Asbestos Detected
43. 1’ x 1’ Acoustical tile at basement hall outside Richmond room	No Asbestos Detected
44. Rough finish on concrete ceiling at first floor hall outside bathrooms	2% Asbestos
45. Rough finish on concrete ceiling at first floor hall by elevator	2% Asbestos
46. Rough finish on concrete ceiling at first floor hall at duct	2% Asbestos
47. Ceiling plaster at basement art room	No Asbestos Detected
48. Ceiling plaster at basement pool room	No Asbestos Detected
49. Ceiling plaster at basement library/lounge	No Asbestos Detected
50. Ceiling plaster at basement hall outside bathrooms	No Asbestos Detected
51. Ceiling plaster at basement hall outside Richmond room	No Asbestos Detected
52. Ceiling plaster at beam at mezzanine hall	No Asbestos Detected
53. Ceiling plaster at custodian basement storage	No Asbestos Detected
54. Wall plaster at basement hall outside custodian	No Asbestos Detected
55. Wall plaster at basement center stairwell	No Asbestos Detected
56. Wall plaster at first floor library kitchen side	No Asbestos Detected
57. Wall plaster at kitchen	No Asbestos Detected
58. Wall plaster at basement hall outside bathroom at stairs	No Asbestos Detected
59. Wall plaster type II at basement library/lounge	No Asbestos Detected
60. Wall plaster type II at basement center hall	No Asbestos Detected
61. Wall plaster type II at basement wellness room	No Asbestos Detected
62. Wall plaster type II at basement library/lounge	No Asbestos Detected
63. Wall plaster type II at basement art room	No Asbestos Detected
64. Wall plaster type II at basement pool room under ceramics closet	No Asbestos Detected
65. Exterior window glazing at basement front of building	No Asbestos Detected
66. Exterior window glazing at kitchen side library	2% Asbestos
67. Exterior window glazing at high window from roof	No Asbestos Detected
68. Exterior window glazing at first floor bathroom	No Asbestos Detected

69. Vertical sealant in foundation corner at stairs down to library 10% Asbestos

Observations and Conclusions:
All ACM must be removed by a Massachusetts licensed asbestos abatement contractor prior to any renovation or demolition activities that might disturb the ACM under the supervision of a Massachusetts licensed project monitor.

1. Flashing tar at slate roof at slate roof to wall was found to contain asbestos.
2. Mastic at 12" x 12" white vinyl floor tile was found to contain asbestos.
3. 9" x 9" Vinyl floor tile was found to contain asbestos.
4. Mastic for 9" x 9" vinyl floor tile was found to contain asbestos.
5. Pipe insulation was found to contain asbestos. The ACM was found to exist behind walls and above ceilings.
6. Air cell padding insulation was found to contain asbestos. The ACM was found to exist in metal heating cabinets under windows.
7. Rough finish on concrete ceiling was found to contain asbestos.
8. Exterior window glazing was found to contain asbestos.
9. Vertical sealant in foundation corner at stairs down to library was found to contain asbestos.
10. Vertical damproofing sealant on seam of foundation was found to contain asbestos.
11. 1' x 1' Ceiling tile and glue daubs were assumed to contain asbestos.
12. Transite sewer pipe was assumed to exist.
13. Damproofing on foundation walls was assumed to exist and assumed to contain asbestos.
14. All remaining suspect materials were found not to contain asbestos.

3.0 COST ESTIMATES:

The cost includes removal and disposal of all accessible ACM.

Location	Material	Approximate Quantity	Cost Estimate ($)
Various Locations	Vinyl Floor Tile and Mastic	1,000 SF	6,000.00
	Air Cell Padding Insulation	1,500 SF	30,000.00
	Hidden Pipe and Hard Joint Insulation	2,000 LF	60,000.00
	Miscellaneous ACM	Unknown	5,000.00
	Miscellaneous Hazardous Materials	Unknown	5,000.00
First Floor	1' x 1' Acoustical Ceiling Tile and Glue Daubs	2,100 SF	14,700.00
	Rough Finish on Concrete Ceiling	400 SF	4,000.00
Exterior	Windows	135 Total	40,500.00
	Foundation Sealant	Unknown	15,000.00
	Roofing Tar Flashing	Unknown	10,000.00
	Transite Sewer Pipe	Unknown	15,000.00
	Damproofing	Unknown	25,000.00
Design, Construction Monitoring and Air Sampling Fees			29,800.00
		TOTAL:	**$ 260,000.00**

4.0 DESCRIPTION OF SURVEY METHODS AND LABORATORY ANALYSES:

Asbestos samples were collected using a method that prevents fiber release. Homogeneous sample areas were determined by criteria outlined in EPA document 560/5-85-030a. Bulk material samples were analyzed using PLM and dispersion staining techniques in accordance with EPA method 600/M4-82-020.

5.0 LIMITATIONS AND CONDITIONS:

This report has been completed based on visual and physical observations made and information available at the time of the site visits, as well as an interview with the Owner's representatives. This report is intended to be used as a summary of available information on existing conditions with conclusions based on a reasonable and knowledgeable review of evidence found in accordance with normally accepted industry standards, state and federal protocols, and within the scope and budget established by the client. Any additional data obtained by further review must be reviewed by UEC and the conclusions presented herein may be modified accordingly.

This report and attachments, prepared for the exclusive use of Owner for use in an environmental evaluation of the subject site, are an integral part of the inspections and opinions should not be formulated without reading the report in its entirety. No part of this report may be altered, used, copied, or relied upon without prior written permission from UEC, except that this report may be conveyed in its entirety to parties associated with Owner for this subject study.

Inspected By:

Jason Becotte
Asbestos Inspector
(AI-034963)

Inspected By:

Leonard J. Busa
Asbestos Inspector
(AI-030673)

OrderID: 132006512

CHAIN OF CUSTODY 132006512

Universal Environmental Consultants
12 Brewster Road
Framingham, MA 01702
Tel: (508) 628-5486 - Fax: (508) 628-5488
adieb@uec-env.com

PLM
48-hour TAT

Town/City: Newton, MA Building Name Senior Center Roof

Sample	Result	Description of Material	Sample Location
1		Black paper	under slate roof
2		" "	" "
3		Light weight cement deck	" "
4		" "	" "
5		Flashing tar at slate roof	slate roof to wall
6		Fiberboard	new NW addition roof cut
7		Paper on cement deck	elevator penthouse roof cut
8		Tar roofing	west roof middle cut
9		" "	" "
10		Tar roofing	west roof south cut
11		Tar roofing	SW addition roof cut
12		Paper on wood deck	" "
13		Flashing caulk	west roof
14		" "	SW roof
15		Black Joint Caulk	west roof
16		" "	SW roof
17		Pipe Penetration caulk	west roof
18		" "	" "

Reported By: Jason Becotte Date: 9-17-20 Due Date: 345

Received By: Date:

RECD EMSL-BOSTON SEP 17 2020

UNIVERSAL ENVIRONMENTAL CONSULTANTS

Page 1 Of 1

EMSL Analytical, Inc.
5 Constitution Way, Unit A Woburn, MA 01801
Tel/Fax: (781) 933-8411 / (781) 933-8412
http://www.EMSL.com / bostonlab@emsl.com

EMSL Order: 132006512
Customer ID: UEC63
Customer PO:
Project ID:

Attention: Ammar Dieb
Universal Environmental Consultants
12 Brewster Road
Framingham, MA 01702

Project: Senior Center Roof; Newton, MA

Phone: (617) 984-9772
Fax: (508) 628-5488
Received Date: 09/17/2020 3:45 PM
Analysis Date: 09/19/2020
Collected Date: 09/17/2020

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
1 *132006512-0001*	Under Slate Roof - Black Paper	Black Fibrous Homogeneous	60% Cellulose	40% Non-fibrous (Other)	None Detected
2 *132006512-0002*	Under Slate Roof - Black Paper	Black Fibrous Homogeneous	60% Cellulose	40% Non-fibrous (Other)	None Detected
3 *132006512-0003*	Under Slate Roof - Lightweight Cement Deck	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
4 *132006512-0004*	Under Slate Roof - Lightweight Cement Deck	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
5 *132006512-0005*	Slate Roof to Wall - Flashing Tar at Slate Roof	Black Non-Fibrous Homogeneous		90% Non-fibrous (Other)	10% Chrysotile
6 *132006512-0006*	New NW Addition Roof Cut - Fiberboard	Tan Fibrous Homogeneous	90% Cellulose	10% Non-fibrous (Other)	None Detected
7 *132006512-0007*	Elevator Pent House Roof Cut - Paper on Cement Deck	Gray Fibrous Homogeneous	75% Cellulose 5% Glass	20% Non-fibrous (Other)	None Detected
8 *132006512-0008*	West Roof Middle Cut - Tar Roofing	Black Fibrous Homogeneous	40% Cellulose	60% Non-fibrous (Other)	None Detected
9 *132006512-0009*	West Roof Middle Cut - Tar Roofing	Black Fibrous Homogeneous	40% Cellulose	60% Non-fibrous (Other)	None Detected
10 *132006512-0010*	West Roof South Cut - Tar Roofing	Black Fibrous Homogeneous	30% Cellulose	70% Non-fibrous (Other)	None Detected
11 *132006512-0011*	SW Addition Roof Cut - Tar Roofing	Black Fibrous Homogeneous	30% Cellulose	70% Non-fibrous (Other)	None Detected
12 *132006512-0012*	SW Addition Roof Cut - Paper on Wood Deck	Gray Non-Fibrous Homogeneous	90% Cellulose	10% Non-fibrous (Other)	None Detected
13 *132006512-0013*	West Roof - Flashing Caulk	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
14 *132006512-0014*	SW Roof - Flashing Caulk	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
15 *132006512-0015*	West Roof - Black Joint Caulk	Black Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
16 *132006512-0016*	SW Roof - Black Joint Caulk	Black Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected

Initial report from: 09/19/2020 16:05:37

EMSL Analytical, Inc.
5 Constitution Way, Unit A Woburn, MA 01801
Tel/Fax: (781) 933-8411 / (781) 933-8412
http://www.EMSL.com / bostonlab@emsl.com

EMSL Order: 132006512
Customer ID: UEC63
Customer PO:
Project ID:

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
17 *132006512-0017*	West Roof - Pipe Penetration Caulk	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
18 *132006512-0018*	West Roof - Pipe Penetration Caulk	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected

Analyst(s)
Kevin Pine (18)

Steve Grise, Laboratory Manager
or Other Approved Signatory

EMSL maintains liability limited to cost of analysis. Interpretation and use of test results are the responsibility of the client. This report relates only to the samples reported above, and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. The report reflects the samples as received. Results are generated from the field sampling data (sampling volumes and areas, locations, etc.) provided by the client on the Chain of Custody. Samples are within quality control criteria and met method specifications unless otherwise noted. The above analyses were performed in general compliance with Appendix E to Subpart E of 40 CFR (previously EPA 600/M4-82-020 “Interim Method”) but augmented with procedures outlined in the 1993 (“final”) version of the method. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST or any agency of the federal government. Non-friable organically bound materials present a problem matrix and therefore EMSL recommends gravimetric reduction prior to analysis. Unless requested by the client, building materials manufactured with multiple layers (i.e. linoleum, wallboard, etc.) are reported as a single sample. Estimation of uncertainty is available on request.

Samples analyzed by EMSL Analytical, Inc. Woburn, MA NVLAP Lab Code 101147-0, CT PH-0315, MA AA000188, RI AAL-139, VT AL998919, Maine Bulk Asbestos LB-0039

Initial report from: 09/19/2020 16:05:37

Asbestos Identification Laboratory
165 New Boston St., Ste 227
Woburn, MA 01801
781-932-9600
Web: www.asbestosidentificationlab.com
Email: mikemanning@asbestosidentificationlab.com

Batch: 56355

NVLAP® Testing Lab Code: 200919-0

September 22, 2020

Ammar Dieb
Universal Environmental Consultants
12 Brewster Road
Framingham, MA 01702

Project Name: *Newton Senior Center*
Project Number:
Date Sampled: 2020-09-18
Work Received: 2020-09-21
Work Analyzed: 2020-09-21

Analysis Method: BULK PLM ANALYSIS EPA/600/R-93/116

Dear Ammar Dieb,

Asbestos Identification Laboratory has completed the analysis of the samples from your office for the above referenced project. The information and analysis contained in this report have been generated using the EPA /600/R-93/116 Method for the Determination of Asbestos in Bulk Building Materials. Materials or products that contain more than 1% of any kind or combination of asbestos are considered an asbestos containing building material as determined by the EPA. This Polarized Light Microscope (PLM) technique may be performed either by visual estimation or point counting. Point counting provides a determination of the area percentage of asbestos in a sample. If the asbestos is estimated to be less than 10% by visual estimation of friable material, the determination may be repeated using the point counting technique. The results of the point counting supersede visual PLM results. Results in this report only relate to the items tested. This report may not be used by the customer to claim product endorsement by NVLAP or any other U.S. Government Agency.
Laboratory results represent the analysis of samples as submitted by the customer. Information regarding sample location, description, area, volume, etc., was provided by the customer. Asbestos Identification Laboratory is not responsible for sample collection activities or analytical method limitations. Unless notified in writing to return samples, Asbestos Identification Laboratory discards customer samples after 30 days. Samples containing subsamples or layers will be analyzed separately when applicable. Reports are kept at Asbestos Identification Laboratory for three years. This report shall not be reproduced, except in full, without the written consent of Asbestos Identification Laboratory.

- NVLAP Lab Code: 200919-0
- Massachusetts Certification License: AA000208
- State of Connecticut, Department of Public Health Approved Environmental Laboratory Registration Number: PH-0142
- State of Maine, Department of Environmental Protection Asbestos Analytical Laboratory License Number: LB-0078(Bulk) LA-0087(Air)
- State of Rhode Island and Providence Plantations. Department of Health Certification: AAL-121
- State of Vermont, Department of Health Environmental Health License AL934461

Thank you Ammar Dieb for your business.

Michael Manning
Owner/Director

HAZARDOUS MATERIALS REPORT

September 22, 2020

Ammar Dieb
Universal Environmental Consultants
12 Brewster Road
Framingham, MA 01702

Project Name: *Newton Senior Center*
Project Number:
Date Sampled: 2020-09-18
Work Received: 2020-09-21
Work Analyzed: 2020-09-21

Analysis Method: BULK PLM ANALYSIS EPA/600/R-93/116

FieldID / LabID	Material	Location	Color	Non-Asbestos %	Asbestos %
1 / 626829	Joint Compound (JC)	Mezzanine Hall Wall	white	Non-Fibrous 100	None Detected
2 / 626830	JC	1st Fl. Bathroom Wall	white	Non-Fibrous 100	None Detected
3 / 626831	JC	Bsmt. Pool Rm. Wall	white	Non-Fibrous 100	None Detected
4 / 626832	JC	Bsmt. Library/Lounge	white	Non-Fibrous 100	None Detected
5 / 626833	JC	Addition Reception	white	Non-Fibrous 100	None Detected
6 / 626834	Fireproofing (FP)	Addition Reception - AboveClg	gray	Mineral Wool 70 Non-Fibrous 30	None Detected
7 / 626835	FP	Addition Reception - Above Clg.	gray	Mineral Wool 75 Non-Fibrous 25	None Detected
8 / 626836	FP	Addition Reception - Above Clg.	gray	Mineral Wool 75 Non-Fibrous 25	None Detected
9 / 626837	12" Grey VT-I	1st Fl, Library	gray	Non-Fibrous 100	None Detected
10 / 626838	Adhesive? Tan Adhesive?	1st Fl, Library	yellow	Non-Fibrous 100	None Detected
11 / 626839	VT-I	1st Fl. Library, Kitchen Side	gray	Non-Fibrous 100	None Detected
12 / 626840	Mastic #11	1st Fl. Library, Kitchen Side	black	Non-Fibrous 100	None Detected
13 / 626841	VT-I	1st Fl Main Entrance Hall	gray	Non-Fibrous 100	None Detected
14 / 626842	(M) #13	1st Fl Main Entrance Hall	black	Non-Fibrous 100	None Detected

FieldID / LabID	Material	Location	Color	Non-Asbestos %	Asbestos %
15 / 626843	12" VT-II (White)	Kitchen	tan	Non-Fibrous 100	None Detected
16 / 626844	Mastic #15	Kitchen	black	Non-Fibrous 95	Detected Chrysotile 5
17 / 626845	VT-II	Kitchen	tan	Non-Fibrous 100	None Detected
18 / 626846	(M) #17	Kitchen	black	Non-Fibrous 95	Detected Chrysotile 5
19 / 626847	12" VT-III (Dark Gray)	Addition Reception	white	Non-Fibrous 100	None Detected
20 / 626848	Mastic #19	Addition Reception	black	Cellulose 5 Non-Fibrous 95	None Detected
21 / 626849	VT-III	Addition Reception	white	Non-Fibrous 100	None Detected
22 / 626850	(M) #21	Addition Reception	black	Cellulose 10 Non-Fibrous 90	None Detected
23 / 626851	9" Floor Tile	Custodian Hall	brown	Non-Fibrous 97	Detected Chrysotile 3
24 / 626852	(M) #23	Custodian Hall	black	Non-Fibrous 95	Detected Chrysotile 5
25 / 626853	Mastic for 9" Floor Tile	Custodian Hall	black	Non-Fibrous 95	Detected Chrysotile 5
26 / 626854	9" Floor Tile Under Carpet	Mezzanine Hall	brown	Non-Fibrous 95	Detected Chrysotile 5
27 / 626855	(M) #26	Mezzanine Hall	black	Non-Fibrous 95	Detected Chrysotile 5
28 / 626856	Terrazo Floor	Stairs Down to Bsmt, Rear	multi	Non-Fibrous 100	None Detected
29 / 626857	Adhesive for Glazed Wall Tile	Custodian Areas	yellow	Non-Fibrous 100	None Detected
30 / 626858	Grout #29	Custodian Areas	white	Non-Fibrous 100	None Detected
31 / 626859	Pipe Insulation	Behind Wall Plaster Bsmt Pool Rm.	multi	Non-Fibrous 60	Detected Chrysotile 30 Amosite 10
32 / 626860	Air Cell Padding	Behind Metal Paneling/Under Window Library @ Exterior Wall	gray	Non-Fibrous 30	Detected Chrysotile 70

HAZARDOUS MATERIALS REPORT

FieldID LabID	Material	Location	Color	Non-Asbestos %	Asbestos %
33 626861	Wood Fire Door	Hall to Custodian Office/Areas	gray	Cellulose 25 Non-Fibrous 75	None Detected
34 626862	Red Duct Sealant	Stairwell Landing to Mezzanine	red	Non-Fibrous 100	None Detected
35 626863	Red Duct Sealant	Stairwell Landing to Mezzanine	red	Non-Fibrous 100	None Detected
36 626864	Verticle Damproofing Sealant	On Seam of Foundation Behind WP Bsmt. Library/Lounge	black	Non-Fibrous 90	Detected Chrysotile 10
37 626865	Verticle Damproofing	On Seam of Foundation, Behind WP - Basement Library/Lounge	black	Non-Fibrous 90	Detected Chrysotile 10
38 626866	Light Grey dp for Sink	Bsmt. Art Rm.	gray	Cellulose 15 Non-Fibrous 85	None Detected
39 626867	Lt. Grey dp for Sink	Kitchen	gray	Cellulose 20 Non-Fibrous 80	None Detected
40 626868	Dark Grey dp for Sink	Kitchen	gray	Cellulose 15 Non-Fibrous 85	None Detected
41 626869	1x1 (AT)	Bsmt. Library/Lounge	tan	Fiberglass 20 Non-Fibrous 80	None Detected
42 626870	1x1 (AT)	Bsmt. Pool Room	tan	Fiberglass 20 Non-Fibrous 80	None Detected
43 626871	1x1 (AT)	Bsmt. Hall Outside Richmond Rm.	gray	Fiberglass 75 Non-Fibrous 25	None Detected
44 626872	Rough Finish on Concrete? clg	1st Fl. Hall Outside Bathrooms	multi	Non-Fibrous 98	Detected Chrysotile 2
45 626873	Rough Finish on Concrete? clg	1st Fl. Hall by Elev.	multi	Non-Fibrous 98	Detected Chrysotile 2
46 626874	Rough Finish on Concrete? clg	1st Fl. hall @ Duct	multi	Non-Fibrous 98	Detected Chrysotile 2
47 626875	Ceiling Plaster (CP)	Bsmt. Art Rm.	gray	Non-Fibrous 100	None Detected
48 626876	CP	Bsmt. Pool Rm.	gray	Non-Fibrous 100	None Detected
49 626877	CP	Bsmt. Library/Lounge	gray	Non-Fibrous 100	None Detected
50 626878	CP	Bsmt. Hall Outside Bathrooms	white	Non-Fibrous 100	None Detected

FieldID / LabID	Material	Location	Color	Non-Asbestos %	Asbestos %
51 / 626879	CP	Bsmt. hall Outside Richmond Rm.	gray	Non-Fibrous 100	None Detected
52 / 626880	CP	From Beam @ Mezzanine hall	white	Non-Fibrous 100	None Detected
53 / 626881	CP	Custodian Storage, Bsmt.	white	Non-Fibrous 100	None Detected
54 / 626882	Wall Plaster (WP)	Hall Outside Custodian, Bsmt.	multi	Non-Fibrous 100	None Detected
55 / 626883	WP	Bsmt. Center Stairwell	multi	Non-Fibrous 100	None Detected
56 / 626884	WP	Library, Kitchen Side, 1st Fl.	white	Non-Fibrous 100	None Detected
57 / 626885	WP	Kitchen	multi	Non-Fibrous 100	None Detected
58 / 626886	WP	Hall Outside Bathroom, @ Stairs, Bsmt.	multi	Non-Fibrous 100	None Detected
59 / 626887	Wall Plaster-II	Bsmt. Library Lounge	multi	Non-Fibrous 100	None Detected
60 / 626888	WP-II	Bsmt. Center Hall	multi	Non-Fibrous 100	None Detected
61 / 626889	WP-II	Bsmt. Wellness Rm.	multi	Non-Fibrous 100	None Detected
62 / 626890	WP-II	Bsmt. Library/Lounge	multi	Non-Fibrous 100	None Detected
63 / 626891	WP-II	Bsmt. Art Rm.	multi	Non-Fibrous 100	None Detected
64 / 626892	WP-II	Bsmt. Pool Rm. (Under Ceramics Closet)	multi	Non-Fibrous 100	None Detected
65 / 626893	Window Glazing	Front of Bldg (Bsmt) Exterior	gray	Non-Fibrous 100	None Detected
66 / 626894	Win. Gl	Kitchen Side Library, Exterior	gray	Non-Fibrous 98	Detected Chrysotile 2
67 / 626895	Win. Gl	High Win From Roof (J) Exterior	gray	Non-Fibrous 100	None Detected
68 / 626896	Win. Gl	1st Floor Bathroom - Exterior	gray	Non-Fibrous 100	None Detected

HAZARDOUS MATERIALS REPORT

FieldID LabID	Material	Location	Color	Non-Asbestos %	Asbestos %
69 626897	Vertical Sealant in Foundation Corner	Stairs Dn. to Library/Lounge - Exterior	black	Non-Fibrous 90	Detected Chrysotile 10

Tuesday 22 End of Report Page 5 of 5

Analyzed by: Michael Thomas **Batch:** 56355

1 of 4

CHAIN OF CUSTODY

Universal Environmental Consultants
12 Brewster Road
Framingham, MA 01702
Tel: (508) 628-5486 - Fax: (508) 628-5488
adieb@uec-env.com

Town/City: ~~NEWTONVILLE, MA~~ Building Name ~~NEWTON SENIOR CENTER~~

Sample	Result	Description of Material	Sample Location
1		Joint Compound (JC)	mezzanine hall wall
2		JC	1st Fl. bathrm wall
3		JC	Bsmt Pool rm wall
4		JC	Bsmt Library / Lounge
5		JC	addition reception
6		Fireproofing (FP)	above clg
7		FP	
8		FP	
9		12" grey VT-I	1st Fl, Library
10		adhesive? Low adhesive?	" "
11		VT-I	1st Fl, Library Kitchen side
12		MASTIC #11	" " "
13		VT-I	1st Fl main entrance hall
14		(m) #13	" " "
15		12" VT-II (white)	Kitchen
16		MASTIC #15	
17		VT-II	
18		(m) #17	
19		12" VT-III (Dark Grey)	addition reception
20		MASTIC #19	" " "

Reported By: [signature] Date: 9-18-20 Due Date: 24-hr

Received By: [signature] Date: 9/21/2020

2.4

CHAIN OF CUSTODY

Universal Environmental Consultants
12 Brewster Road
Framingham, MA 01702
Tel: (508) 628-5486 - Fax: (508) 628-5488
adieb@uec-env.com

Town/City: Newtonville, MA Building Name NEWTON SENIOR CENTER

Sample	Result	Description of Material	Sample Location
21		VT-III	addition reception
22		(m) # 21	" " "
23		9" Floor Tile	CUSTODIAN hall
24		(m) # 23	" "
25		mastic for 9" Floor Tile	" "
26		9" Floor Tile under carpet	mezzanine hall
27		(m) # 26	" " "
28		Terrazo Floor	STAIRS dn to Bsmt, rear
29		adhesive for glazed wall tile	CUSTODIAN AREAS
30		grout # 29	" " "
31		pipe insulation behind wall plaster	Bsmt Pool rm
32		air cell padding behind	metal paneling / Library & exterior wall under windows
33		wood Fire Door	hall to CUSTODIAN OFFICE / AREAS
34		red duct sealant	stairwell landing to mezzanine
35		red duct sealant	" " "
36		vertical dampproofing sealant on seam	of foundation behind wp Bsmt Library / Lo
37		vertical dp & seam of found. behind	wp Bsmt Library / Lounge
38		Light Grey dp for sink	Bsmt - Art rm
39		Lt. Grey dp for sink	Kitchen
40		Dark Grey dp for sink	Kitchen

Reported By: [signature] Date: 9-18-20 Due Date: 24-hr

Received By: MM Date: 9/21/2020

3.4

CHAIN OF CUSTODY

Universal Environmental Consultants
12 Brewster Road
Framingham, MA 01702
Tel: (508) 628-5486 - Fax: (508) 628-5488
adieb@uec-env.com

Town/City: Newtonville, Ma Building Name Newton Senior Center

Sample	Result	Description of Material	Sample Location
41		1x1 [AT]	Bsmt Library/Lounge
42		1x1 [AT]	Bsmt Pool Room
43		1x1 [AT]	Bsmt hall outside Richmond Rm
44		rough finish on concrete? adh	1st FL hall outside bathrms
45		rough fin. on concrete adh	1st FL hall by elev.
46		rough fin. on concrete adh	1st FL hall @ duct
47		ceiling plaster (CP)	Bsmt Art rm
48		CP	Bsmt Pool Room
49		CP	Bsmt Library/Lounge
50		CP	Bsmt hall outside Bathrms
51		CP	Bsmt hall outside Richmond Rm
52		CP	Free beam @ mezzanine hall
53		CP	custodian storage, bsmt
54		wall plaster (WP)	hall outside CUSTODIAN, bsmt
55		WP	Bsmt CENTER stairwell
56		WP	Library, kitchen side, 1st FL
57		WP	Kitchen
58		WP	hall outside bathrm, @ stairs, bsmt
59		wall plaster - II	Bsmt Library Lounge ✓
60		WP - II	Bsmt center hall

Reported By: [signature] Date: 9-18-20 Due Date: 24-hr

Received By: MM Date: 9/21/2020

4o 4

CHAIN OF CUSTODY

Universal Environmental Consultants
12 Brewster Road
Framingham, MA 01702
Tel: (508) 628-5486 - Fax: (508) 628-5488
adieb@uec-env.com

Town/City: Watertown, MA Building Name: Newton Senior Center

Sample	Result	Description of Material	Sample Location
61		WP-TL	Bsmt Wellness Rm
62		WP-TL	Bsmt Library/Lounge ✓
63		WP-TL	Bsmt Actor
64		WP-TL	Bsmt Podium (under ceramics closet
65		window glazing	Front of Bldg (bsmt) EXTERIOR
66		win gl	Kitchen Side Library
67		win gl	high win from roof (J)
68		win gl	1st FL bathrm
69		vertical sealant in foundation corner	stairs dn to Library/Lounge

Reported By: _____ Date: _____ Due Date: _____

Received By: MM Date: 9/21/2020

e. TRAFFIC AND PARKING MEMO

Engineers | Scientists | Planners

PARECORP.COM

PARE CORPORATION

October 16, 2020

Mr. Joel Bargmann
Bargmann Hendrie + Archetype, Inc.
300 A Street
Boston, MA 02210-1710

Re: **Professional Traffic Engineering Services**
Newton Center for Active Living (NewCAL)
Newton, Massachusetts
Pare Project No. 20147.00

Dear Mr. Bargmann:

Pare Corporation (Pare) has completed the requested traffic engineering assessment for the proposed Center for Active Living to be located at 345 Walnut Street, Newton, Massachusetts. We have utilized data from the existing senior center, as well as local zoning requirements, to determine the parking needs for the proposed facility, as well as assessed the safety surrounding access to the sight.

Existing Conditions

The existing Senior Center, located at 345 Walnut Street, hosts all senior activities for the town, with various activities each day of the week from Monday through Friday. Activities begin as early as 8:30 a.m. and go as late as 4:00 p.m. The facility contains several function rooms as well as a kitchen/cafeteria.

The current facility has a total of 15 striped parking spaces in a paved lot behind the building. In addition to the on-site parking, senior parking stickers are available to residents who have a registered vehicle in the City of Newton. The sticker allows seniors to park for up to three hours in any municipal lot within the City. Particularly, the Austin Street municipal parking lot is located less than 500 feet north of the site and can be accessed by following Philip Brahm Way opposite the site exit. There are approximately 110 striped spaces located in this surface lot. There is also on-street parking along the south side of Highland Avenue permitted to seniors with the designated sticker for up to three hours. The on-street parking extends to Lowell Avenue and accommodates approximately 25 vehicles. This totals approximately 150 eligible spaces within short walking distance at no expense. There is also metered parking along Walnut Street.

A site visit was performed at the existing facility on Tuesday, September 29, 2020 from 11:00 a.m. until 1:30 p.m.; however, given the current COVID-19 condition, limited observations could be made. Therefore, the following pertinent data was obtained though coordination with Jayne Colino, Newton Department of Senior Services:

- Due to the urban nature of the facility location, patrons arrive at the site using various means of transportation including walking, transit, rideshare (such as NewMo) and auto. A survey conducted by the senior center identified that 70 percent of patrons arrive by car. Applying a conservative 15 percent carpool factor, the current demand for parking spaces is approximately 60 percent of the participation.
- The current facility has six (6) full-time office staff.
- The maximum daily parking demand occurs during an overlap of two activities, with a calculated 32 spaces required including staff. Larger events occurring monthly can require up to 71 spaces.

Proposed Site

The proposed Center for Active Living is to be located at 345 Walnut Street, the site of the existing Senior Center. The new facility will retain several characteristics of the current facility, including program rooms, meeting space, a general staff area, a kitchen/cafeteria and a library, and will add a gymnasium with a basketball court and walking track. The total building size will be approximately 36,800 square feet, of which 16,600 square feet will be attributed to the gym. Parking will be provided at ground level, with access maintained as it is today from Walnut Place to Highland Avenue. The on-site parking will include 27 to 34 striped spaces.

Sight Distance

A speed study was conducted along Highland Avenue west of the existing senior center driveway to capture free-flow speeds in the vicinity of the site egress. A summary of the speed data results is shown in Table 1.

Table 1: Speed Data Results for Highland Avenue

	Posted Speed	Average Speed	True Median (50th Percentile)	85th Percentile	10 MPH Pace	% over Posted
Eastbound	25	24	24	27	18-27	34
Westbound	25	22	22	25	15-24	16

The 85th percentile speed is used to determine appropriate sight distances for driveways. According to the American Association of State Highway and Transportation Officials (AASHTO) publication *A Policy on the Geometric Design of Highways and Streets,* the minimum safe stopping sight distance (SSD) for a speed of 25 mph is 155 feet. The SSD requirements for a speed of 27 mph is interpolated to be 173 feet. The minimum intersection sight distance (ISD) for turning vehicles is 280 feet for speeds up to 25 mph, and interpolated to be 302 feet for a speed of 27 mph. A summary of the sight distance available at the existing driveway can be seen below in Table 2.

Table 2: Sight Distance Summary

		Required SSD (ft)	Measured SSD (ft)	Required ISD (ft)	Measured ISD (ft)[1]
Highland Avenue	To the East	155	160	280	160
	To the West	173	>500	302	100

1. Intersection sight distance to the west is hindered by large bushes and fencing, as well as permitted on-street parking along Highland Avenue.

According to AASHTO, adequate stopping sight distance is needed to ensure drivers have sufficient warning to anticipate and avoid collisions, while intersection sight distance is the distance needed to complete a maneuver without causing an oncoming vehicle to significantly alter their approach speed. The available sight distance to the east of the existing driveway on the south side of Highland Avenue is limited by the distance to the intersection of Walnut Street and Highland Avenue. However, the 85th percentile speed captures the free-flow movements of vehicles progressing along Highland Avenue. With the driveway this close to the intersection, drivers will just be completing turn movements onto the roadway and will not be traveling at free-flow speed. While the distance is just barely appropriate for speeds up to 25 mph, motorists will still be accelerating after they complete the turn and reasonably not yet reached this free-flow speed.

Parking Demand

Parking generation is typically estimated for particular land uses by utilizing rates provided in the Institute of Transportation Engineers *Parking Generation* manual. Parking rates for recreational senior centers, however, are not included in the Manual. Other methods for determining parking needs have therefore been investigated.

Pare has completed a review and assessment of the Town's zoning by-laws for parking regulations. Although the zoning also does not specify the use of Senior Center, it has uses of similar function. Based on the zoning, facilities offering a service to patrons requires 1 parking space per every three full-time employees during the peak shift. Additionally, clubs and halls require 1 parking space per 150 square feet of building space used for meeting functions. Given the current employee count of 6 full time office staff, and the non-gym space of the proposed building being approximately double the existing facility, four (4) spaces are assumed for future staff. The function space of the proposed facility totals 9,470 square feet, including the kitchen class area, requiring up to 64 spaces. Finally, the gym is estimated to have up to 20 participants at a time, assuming a pick-up game with few spectators and a small group of walkers, requiring another 12 spaces. This would total a demand of up to 80 spaces.

Alternatively, Pare has reviewed the future parking demand relative to the existing parking demand based on programming. Again, assuming staff count will likely double, four (4) spaces is appropriate. With expansion of the building, it is reasonable to assume that the facility will continue to hold its larger programs with up to four overlapping average programs, compared to the single overlap they can accommodate today. It is also fair to assume that with larger rooms and meeting spaces, each activity may draw up to 25 percent more participants. Therefore, the anticipated participation on a daily basis is considered to be as high as 90 patrons (45 person program plus three 15 person programs). This would require up to 54 spaces. The gym use is assessed the same way as noted above, requiring up to 12 spaces. This would total a maximum daily demand of 70 spaces. It is also assumed that the future facility would still offer similar monthly meetings, with need for up to 97 spaces, assuming up to two added programs and/or moderate gym use may occur concurrently.

Trip Generation

Through our observation and experience, trip generation rates for senior centers are relatively low when compared to other types of land uses. The time of day that trips enter and exit the site tend to be correlated with the program schedule and are typically spread throughout the operating hours of the center. The proposed Center for Active Living may generate a larger amount of traffic for a special event; however, this typically occurs outside of the peak commuting hours and has minor impact on the adjacent roadway network. This is certainly the case at the existing facility. With hours for activities between 8:30 a.m. and 4:00 p.m., the trips for the site would be almost entirely outside of the commuter peak hours.

Findings and Recommendations

The single point access/egress and one-way circulation of the proposed site minimizes internal conflict. The sight distances assessed are adequate for the speeds of Highland Avenue. It is not anticipated that the expanded use of the site will impact safety along the roadway network.

Day-to-day needs of the proposed 36,800 square foot facility are expected to require up to 70 parking spaces, assessing the proposed facility and desired programming compared to the existing. With at least 27 on-site spaces, this could result in up to 43 overflow spaces. Given the on-street parking along Highland Avenue, this would result in up to 18 vehicles associated with the Center needing to use municipal or metered parking. This

is approximately 15 percent of the spaces available at the Austin Street lot. This is reasonable, as the facility uses generally fall between the morning and afternoon commuter hours. It is also noted that this demand matches the current peak generated by large events, which have been successfully accommodated by the site and surrounding area.

To accommodate future peak days with large meetings/luncheons, parking demands could approach 97 spaces, based on compared use, which is 26 more than in existing conditions. With at least 12 additional vehicles being accommodated on-site; up to 14 more vehicles may need to be accommodated off-site. These infrequent peak days will exhibit similar parking distribution in the surrounding area as exists today, given the time of day these events occur. To reduce parking demand, the facility could encourage additional NewMo rideshare or carpooling for these events.

We find the proposed parking to be sufficient for the anticipated uses of the site, given adjacent and nearby accommodations for senior drivers.

We are available to discuss this report with you at your convenience. Please feel free to contact us if you have any questions or need additional information.

Sincerely,

Amy Archer
Senior Project Engineer

JPS/AA

f. LIST OF MEETINGS AND PRESENTATIONS

The following is a partial list of meetings and presentations made by the project team regarding the NewCAL project since 2018. Additional meetings include Newton Historic Commission and Commission on Disability. Minutes for the majority of the meetings listed below can be found on the NewCAL Project website (https://newcal.projects.nv5.com/) and minutes for additional meetings can be found on the City of Newton website (https://www.newtonma.gov/).

2018

09 13 EBC and ABC Joint Meeting
10 09 EBC and ABC Joint Meeting
10 23 EBC and ABC Joint Meeting

2019

02 26 NewCAL Working Group-EBC Meeting
03 14 Community Meeting
04 09 NewCAL Working Group-EBC Meeting
05 06 Project Update
05 07 Design Review Committee (DRC)
06 20 Community Meeting
09 06 Community Update
09 09 Finance Committee
09 11 Design Review Committee (DRC)
09 16 Parks and Recreation Commission
09 18 City Council Programs and Services Meeting
09 19 Community Meeting
09 23 Community Meeting
09 23 Council on Aging
10 22 NewCAL Working Group Meeting
10 24 Community Meeting
11 19 NewCAL Working Group Meeting
11 21 Community Meeting
12 12 Community Meeting
12 17 NewCAL Working Group Meeting

2020

01 07 NewCAL Working Group Meeting
01 21 NewCAL Working Group Meeting
02 04 NewCAL Working Group Meeting
02 27 Community Meeting
02 18 NewCAL Working Group Meeting
03 31 NewCAL Working Group Meeting
04 14 NewCAL Working Group Meeting
04 28 NewCAL Working Group Meeting
05 12 NewCAL Working Group Meeting
05 19 NewCAL Working Group Meeting
05 21 Community Meeting
05 26 NewCAL Working Group Meeting
06 09 NewCAL Working Group Meeting
07 07 NewCAL Working Group Meeting
07 21 NewCAL Working Group Meeting
08 04 NewCAL Working Group Meeting
08 18 NewCAL Working Group Meeting
08 26 Design Review Committee (DRC)
09 01 NewCAL Working Group Meeting
09 15 NewCAL Working Group Meeting
09 23 City Council Programs and Services Meeting
09 29 NewCAL Working Group Meeting
10 13 NewCAL Working Group Meeting
10 27 NewCAL Working Group Meeting
11 10 NewCAL Working Group Meeting
11 18 Design Review Committee (DRC)
11 24 NewCAL Working Group Meeting
12 08 NewCAL Working Group Meeting
12 16 Design Review Committee (DRC)
12 17 Newton Historic Commission (NHC)
12 22 NewCAL Working Group Meeting
12 29 NewCAL Working Group Meeting

2021

01 05 NewCAL Working Group Meeting
01 05 Community Meeting
01 06 City Council Programs and Services Meeting
01 19 NewCAL Working Group Meeting
02 09 NewCAL Working Group Meeting
02 10 Design Review Committee (DRC)
02 16 NewCAL Working Group Meeting
02 22 Community Meeting
02 23 NewCAL Working Group Meeting
03 02 NewCAL Working Group Meeting
03 16 NewCAL Working Group Meeting
03 17 City Council Programs and Services Meeting
03 18 NewCAL Working Group Meeting

bh+a
Bargmann Hendrie+ Archetype, Inc.

9 Channel Center Street
Suite 300
Boston, MA 02210
617 350 0450

bhplus.com