Capitol Hill Montessori AT LOGAN

# FINAL FEASIBILITY STUDY

**Capitol Hill Montessori at Logan Campus**

PreK3 – 8th Grade Public Montessori School

215 G St NE, Washington, DC 20002

July 13, 2018

DGS THE DEPARTMENT OF GENERAL SERVICES

DISTRICT OF COLUMBIA PUBLIC SCHOOLS

WALDONSTUDIO ARCHITECTS

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WALDONSTUDIO ARCHITECTS

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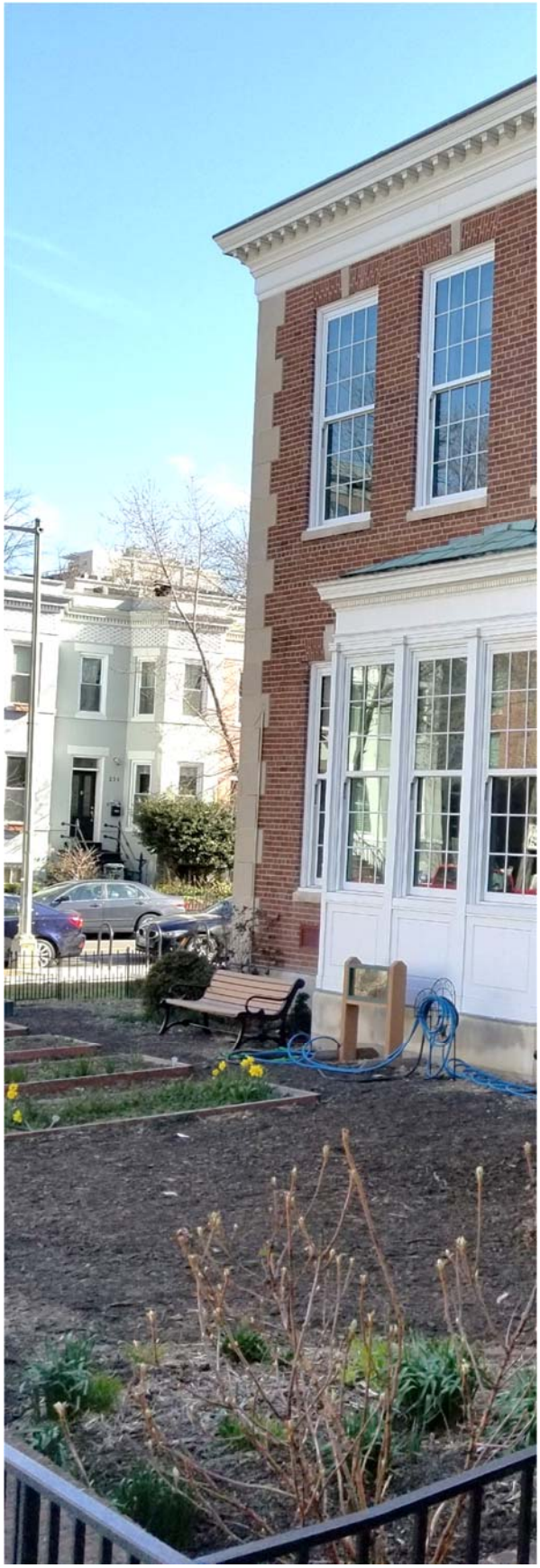
WALDONSTUDIO ARCHITECTS

# 1 Executive Summary



## 1.1 Feasibility Study Overview & Purpose

This feasibility study represents an overarching plan to develop a new Capitol Hill Montessori School campus that meets the needs and requirements of the students, staff, community and the District of Columbia Public Schools. The project scope calls for the architectural and engineering feasibility study and analysis of the following items at the Capitol Hill Montessori School at Logan (CHML):

1. Demolition of the existing temporary classroom building, referred to as the "annex" on the southern portion of the CHML existing campus.
2. Renovation of the existing historical Logan school building on the north portion of the existing CHML campus
3. An addition to the existing historical Logan school building to accommodate the program requirements in the Educational Specifications (provided in section 2.3 of this report) on the existing CHML campus.

Waldon Studio Architects and supporting engineering team was asked by the District of Columbia Public Schools (DCPS) and the District of Columbia Department of General Services (DGS) to support this effort.

## 1.2 Methodology

The feasibility study process included a series of meetings with DCPS / DGS, the CHML School Improvement (SIT) Team, CHML Staff, the State DC Historic Preservation Office, the DC Commission of Fine Arts, and the DC Sustainability Program Manager. The process also included the following:

- **Capitol Hill Montessori at Logan (CHML)**

The project team has toured CHML numerous times, learning about day-to-day logistics and facility use. CHML teacher roundtable discussions were held on campus to better understand the unique aspects of the CHML Montessori program. The use of CHML as a resource in many facets will be continued throughout the lifespan of the modernization project.

- **Aidan Montessori School**

The project team toured the private Aidan Montessori School in March 2018 to better understand how other AMI Montessori programs operate with the District of Columbia.

- **Washington Montessori Institute (WMI)**

The project team held a conference call with team members from WMI, the organization responsible for AMI accreditation at CHML. These WMI team members were those who specifically work with CHML, and are familiar with the school program and campus. The discussion was focused around how a learning environment can best meet AMI Montessori program needs, while also meeting DCPS standards.

- **Montessori: The Science Behind the Genius, by Angeline Stoll Lillard**

Per a suggestion from WMI, the project team has purchased copies of this book and has been using it as a resource to better understand the Montessori education model.

- **Montessori Videos**

Per the suggestion of the School Improvement Team (SIT), the design team watched several suggested Montessori videos regarding Montessori philosophy and practices.

## 1.3 Feasibility Study Results Summary

The result of this feasibility study is a series of concept design options that are site specific, produced by review of the existing site and topography, existing building conditions and systems, programmatic needs and educational specification requirements, historical agency review suggestions, Montessori design principles, 21st century educational design solutions, and sustainable design principles, that are compatible with the estimated project construction budget, zoning regulations, logistics, and phasing.

A review of the concept design options has been provided in section 4 of this report. The options include a variety of approaches and configurations for the new building addition, how the new addition relates to the existing historical building, views of and from the new addition, site approach and parking, outdoor play & learning spaces, receiving & deliveries, green roofs, 2 vs. 3 stories, grade-level clustering, building entry sequence, safety and security, community spaces and after-hours access, programmatic flexibility, and arrangement of the "specials" classes. The existing building renovation is also included in these options, although it is similar in each of the concept designs.

There is no final recommendation for which of the concept design options is preferred to move forward into the design. Rather, multiple options have been provided for review by the next team that will be moving the project forward in future phases.

# 2 Project Summary

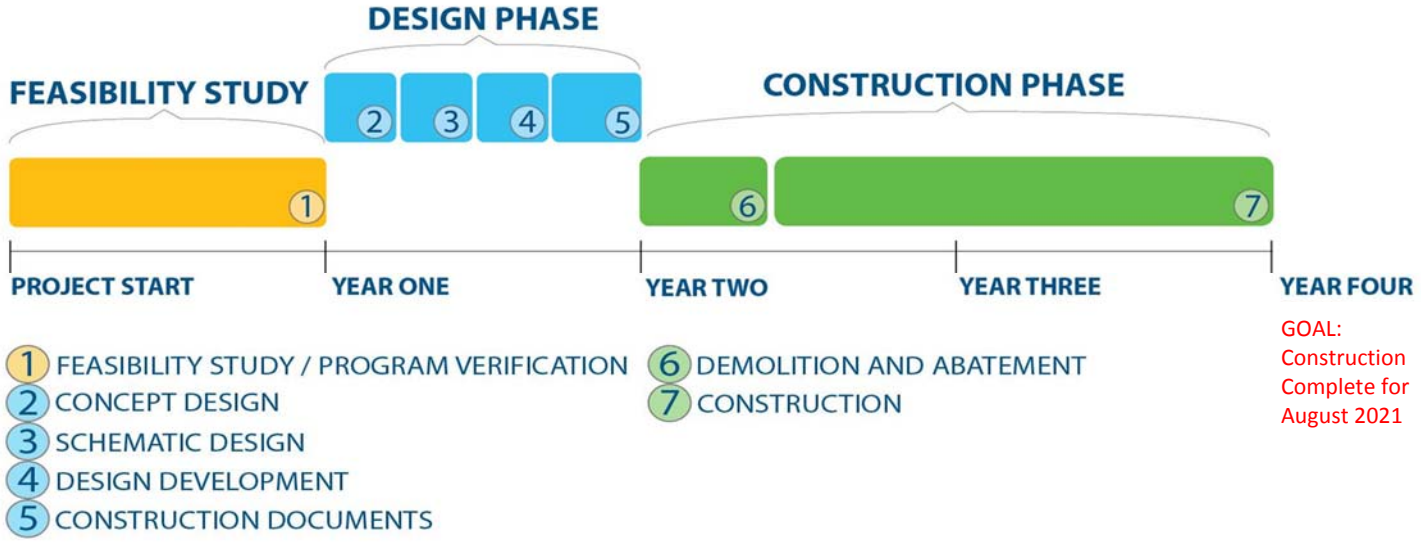

## 2.1 Project Information

Capitol Hill Montessori at Logan (CHML) Education Campus, located in Ward 6, is a District-wide public education campus serving students from Pre-K 3 through 8th grade from all eight wards. CHML is the sole Montessori program in the DCPS portfolio. The CHML campus is made up of the historic Logan building and an annex building. The following are additional pieces of information regarding this project:

1. Project address: 215 G. Street, NE, Washington DC 20001
2. The study includes renovation of the existing historical building and adding on an addition to the existing building; demolition of the existing annex building on the south portion of the site; and space to accommodate parking, sport facilities, gardens, outdoor learning, and children's playground(s).
3. The existing school is approximately 50,734 square feet. The new addition in this feasibility study, depending on the concept option, ranges from roughly 46,000 – 54,000 square feet.
4. At this school, at every level, students are introduced to soft skills both inside and outside of the building. The physical space requires a variety of materials specialized to support the curriculum and Montessori method using practical life and sensory learning to serve as the foundation in common core-aligned hard skills such as language, math, geography, history, science, art, music, and drama instruction. The curriculum is scaffolded with a spiraling structure so that every learning experience directly supports future lessons. As a result, learning space design and setup will be unique; room clustering will be intentional; and the design shall creatively connect the learning space between the classrooms, commons spaces, and outdoor areas to meet the school's needs associated with both the Montessori model and the individual school's unique culture.
5. Learning, instruction, and support technology will be brought up to cutting edge standards and capacity. Classroom square footage will be expanded/right-sized to make space for the furniture and materials demands of a modernized classroom.
6. Commons spaces will be integrated into design for the use of special projects, collaborative work, and individual pullout instruction.
7. Students learn in multi-grade-level classrooms, which are broken up into Primary Program (grades PK3-K), Lower Elementary Program (grades 1-3), Upper Elementary Program (grades 4-6), and Middle Grade Program (grades 7-8).
8. The 7th and 8th grade programs began in the 2015-2016 school year (first 7th grade class was in the 2014-15 school year.) This group of students is currently located in the campus annex building. They have the smallest population currently, however, their numbers are growing and continued growth is expected. Additional middle school space has been programmed to accommodate this future expansion.
9. The school currently has 360 students, but is looking to expand up to 495 students, which is the estimated capacity for the 2025 – 2026 school year.

10. The budget for this project is approximately $37M. However, a request for additional funds that would increase the budget has been made and approval is pending.
11. The CHML school has an extremely committed and involved group of parents, staff, student, and community members. The building must accommodate not only multiple performances and events by and for students and families, but also meetings and events that are for the broader community. Additional space has been programmed to accommodate these needs.
12. The existing historical building was recently renovated in 2015 and 2017. The modernization project will integrate those improvements as much as possible. More information regarding that renovation can be found in the following sections of this report.
13. The site is in the Capitol Hill Historic District of Washington DC, and the exterior façade of the Logan building has historical significance, which must be taken into consideration with the new design.
14. The students and staff arrive at the school via car, public transportation (nearby), by bike, or on foot. There are no DCPS buses currently.
15. Throughout the existing building and new addition, the project will address Americans with Disabilities Act (ADA) requirements.
16. This public Montessori school has a dual responsibility. In planning an age-appropriate Montessori curriculum, they also need to make sure it matches DC Public School's grade-level standards. The CHML school students must take the same standardized tests as students in traditional DCPS schools.
17. In alignment with the DC Green Building Act, the sustainability certification goal for this project is LEED for Schools, Gold Certification, at a minimum. The project must also meet the requirements of the Energy Conservation Code and the International Green Construction Code.
18. The students will not be occupying the CHML school during the renovation and addition construction projects. Rather, they will be occupying a swing space at another DCPS location during construction.

## Project Schedule Overview



## 2.2 Typical Montessori Goals

The following items represent goals that are important to the design and programming of Montessori School programs.

*Background Information*

1. Dr. Maria Montessori, creator of the Montessori pedagogy and educational teaching philosophy, envisioned a radically different approach to education, grounded in research-oriented, insightful observations of how children learn and develop. Montessori opened the first Montessori school in 1907, with the name *Casa dei Bambini*, or "Children's House", enrolling 50 or 60 children, ages of two or three and six or seven. The children showed more interest in practical activities, self-discipline, concentration, and an intrinsic internal motivation to learn when the following practices were utilized, which are still encouraged in today's Montessori methods, including:
    a. Providing students time for deep attention and concentration, multiple repetitions of activity, and free-choice of activity.
    b. Learning through activities that involve exploration, manipulations, order, abstraction, and communication.
    c. Encouragement of younger children to use their senses to explore and manipulate materials in their immediate environment, while older children are encouraged to deal with abstract concepts based on reasoning, imagination, and creativity.
    d. Child-sized tables and chairs light enough for the children to move, and child-sized materials placed on low, accessible shelves.
    e. Practical activities such as sweeping and personal care to include a wide variety of exercises for care of the environment and the self, including flower arranging, hand washing, gymnastics, care of pets, and cooking.
    f. Plentiful outdoor time and access, encouraging children to come and go as they please in the room's different areas and lessons

2. Dr. Maria Montessori and her son Mario founded the Association Montessori Internationale (AMI), which, as the oldest worldwide organization to champion the Montessori method, is recognized as the leading authority on Montessori education. It continues to oversee the supervising and training of teachers, as well as Montessori schools, activities, and societies internationally. CHML operates under a model that meets the AMI's criteria for being a Montessori-accredited school.

Per conversations at and tours of CHML, discussion with CHML teachers & the SIT, tours of Aiden Montessori, research, readings, videos, and discussions with the WMI, we have compiled the following list of typical Montessori Goals:

*Montessori Classrooms*

1. The following characteristics are important to include in a typical Montessori classroom:

a. The classroom serves as the students' "community"; harmony, respect, and an interest in the welfare of others is strongly encouraged.
b. Student-centered learning environments that accommodate choice; the teacher is not the center of attention, rather the "guide" defining parameters or boundaries that the students can function independently within.
c. Space for group activity, as well as independent activity; without the typical classroom rows of desks & chairs.
d. Open space for a wide-range of learning activities and for students to create their own work space.
e. Space for quiet reading, contemplation, peace, and reflection.
f. Typically, there is a place within the school that houses appliances and equipment for cooking, laundry, and dishes. Running, drinkable water within each classroom is very important to the curriculum, so that the students can wash and prepare their food, as well as clean up after themselves, among other water-based activities.
g. Shelving and/or table displays showcasing materials related to Language Arts, Math, and Culture.
h. For younger students, low sinks, chairs, tables, along with child-sized tools, utensils and supplies, allowing for independence and motor-skill development. Computers and interactive technology are less likely to be found or utilized in the classroom.
i. For older students, it is more common to have group-tables, computers, interactive technology, science lab, maker-space, and technology labs.
j. Natural lighting, soft colors, natural materials
k. Space to house Montessori's unique, hands-on learning materials
l. A strong visual, hands-on, and accessible connection to the outside world, encouraging stewardship of the environment.
m. Depending on the school, eating within the classrooms is typically encouraged. However, some schools may opt to have a more centrally located space for eating. This also depends on age and grade level.
n. It is desired that space in the classroom be preserved for activities described above. Therefore, it is preferred if lockers or cubbies do not interfere with classroom activities.

*Educational Experiences*

1. An essential part of the Montessori program includes mixed-grade learning experiences and collaboration. Opportunities for peer mentoring are encouraged. The classrooms at CHML are organized in the following grade levels:
    a. Primary Classrooms include PreK-3 through Kindergarten students,
    b. Lower Elementary Classrooms include 1st through 3rd grade students
    c. Upper Elementary Classrooms include 4th through 6th grade students, and
    d. Middle Grade Classrooms include 7th and 8th grade students.
2. Beyond the grade-level classrooms, the specialized curriculum taken into consideration for this study include world language, physical education, library, visual arts, and music. Ideally, spaces for these types of specialized curriculum can be clustered together for ease of transition and collaboration.
3. Uninterrupted work periods are critical for students to work at their own pace, allowing adequate time for student to select the activity, perform the activity, and clean up the activity. A typical schedule may include some variation of the following:
    a. Morning – Work Cycle (indoor & outdoor)
    b. Lunch – Elementary & Primary – alternate play time
    c. Afternoon – Work Cycle (indoor & outdoor)
    d. Teachers typically plan during free time throughout the course of their week.

# 2.3 Educational Specifications

| | PROGRAM REQUIREMENTS | | | SCHEME 1 | | | SCHEME 2 | | | SCHEME 3 | | | SCHEME 4 | | | NOTES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **ACADEMIC SPACES:** | | | | | | | | | | | | | | | | |
| Description | Quantity | Size | Total | Quantity | Size | Total | Quantity | Size | Total | Quantity | Size | Total | Quantity | Size | Total | Comments |
| Primary Classroom (PK3-K) (combined) | 8 | 1125 | 9000 | 8 | 1067 | 8536 | 8 | 1035 | 8280 | 8 | 1145 | 9160 | 8 | 1075 | 8600 | *Please cluster classrooms. |
| Primary Restroom (PK3-K) (combined) | 8 | 50 | 400 | 8 | 49 | 392 | 8 | 54 | 432 | 8 | 49 | 392 | 8 | 49 | 392 | |
| Lower Elementary Classroom (1-3) (combined) | 8 | 1125 | 9000 | 8 | 1067 | 8536 | 8 | 1036 | 8288 | 8 | 1145 | 9160 | 8 | 1075 | 8600 | *Please cluster classrooms. |
| Lower Elementary Restroom (1-3) (combined) | 8 | 50 | 400 | 8 | 49 | 392 | 8 | 53 | 424 | 8 | 49 | 392 | 8 | 49 | 392 | |
| Early Childhood Storage/Workroom | 1 | 600 | 600 | 1 | 783 | 783 | 1 | 783 | 783 | 1 | 516 | 516 | 1 | 783 | 783 | *Can be broken into multiple sections |
| Elementary Resource/Small Group Room | 3 | 300 | 900 | 2 | 380 | 760 | 2 | 355 | 710 | 3 | 402 | 1206 | 3 | 382 | 1146 | |
| Early Childhood Outdoor Storage | 1 | 200 | 200 | 1 | 212 | 212 | 1 | 175 | 175 | 1 | 186 | 186 | 1 | 218 | 218 | |
| Early Childhood Nap Room | 2 | 500 | 1000 | 2 | 500 | 1000 | 2 | 500 | 1000 | 2 | 500 | 1000 | 4 | 500 | 2000 | |
| Upper Elementary Classroom (4-6) (combined) | 7 | 900 | 6300 | 7 | 900 | 6300 | 7 | 900 | 6300 | 7 | 900 | 6300 | 7 | 900 | 6300 | *Includes a "flex" classroom, please cluster classrooms. |
| Elementary Resource/Small Group Room | 1 | 300 | 300 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Elementary Discovery Commons Activity Area | 3 | 600 | 1800 | 3 | 807 | 2421 | 4 | 509 | 2036 | 4 | 629 | 2516 | 3 | 718 | 2154 | *Quantity of sections is flexible depending on how classrooms are clustered **Consider a residential grade kitchentte in some sections |
| Middle School Classroom (7-8) (combined) | 6 | 850 | 5100 | 7 | 900 | 6300 | 7 | 900 | 6300 | 6 | 900 | 5400 | 6 | 900 | 5400 | *Please cluster classrooms. |
| Middle School Technology Lab | 1 | 1200 | 1200 | 1 | 800 | 800 | 1 | 800 | 800 | 1 | 800 | 800 | 1 | 800 | 800 | |
| Middle School Technology Lab Storage | 1 | 100 | 100 | 1 | 100 | 100 | 1 | 100 | 100 | 1 | 100 | 100 | 1 | 100 | 100 | |
| Middle School Resource/Small Group Room | 1 | 300 | 300 | 1 | 450 | 450 | 1 | 450 | 450 | 1 | 450 | 450 | 0 | 0 | 0 | |
| Middle School Commons Activity Area | 1 | 600 | 600 | 1 | 830 | 830 | 1 | 830 | 830 | 1 | 830 | 830 | 1 | 830 | 830 | |
| Middle School Additional Group Area | 0 | 0 | 0 | 1 | 1330 | 1330 | 1 | 848 | 848 | 1 | 783 | 783 | 1 | 1330 | 1330 | |
| Science Classroom/Lab | 1 | 1200 | 1200 | 1 | 900 | 900 | 1 | 900 | 900 | 1 | 900 | 900 | 1 | 900 | 900 | *Consider residential grade kitchen equipment for cooking demos in this space |
| Science Classroom/Lab Storage | 1 | 120 | 120 | 1 | 100 | 100 | 1 | 100 | 100 | 1 | 100 | 100 | 1 | 100 | 100 | |
| Speech OT/PT | 2 | 250 | 500 | 2 | 185 | 370 | 1 | 249 | 249 | 2 | 181 | 362 | 2 | 240 | 480 | |
| Special Education Coordinator Office | 2 | 150 | 300 | 2 | 194 | 388 | 1 | 150 | 150 | 2 | 203 | 406 | 2 | 144 | 288 | |
| Teacher Collaboration Room | 2 | 300 | 600 | 2 | 300 | 600 | 2 | 258 | 516 | 1 | 299 | 299 | 1 | 206 | 206 | |
| Textbook/Cart Storage | 3 | 200 | 600 | 3 | 280 | 840 | 2 | 170 | 340 | 2 | 324 | 648 | 2 | 270 | 540 | |
| Outdoor Classrooms | 1 | 0 | 0 | | | | | | | | | | | | | *Can be broken into multiple sections. Size TBD |
| Gardens | 1 | 0 | 0 | | | | | | | | | | | | | *Can be broken into multiple sections. Size TBD |
| SUBTOTAL: | | | 40520 | | | 42340 | | | 40011 | | | 41906 | | | 41559 | |
| **PHYSICAL EDUCATION / MULTIPURPOSE SPACES:** | | | | SCHEME 1 | | | SCHEME 2 | | | SCHEME 3 | | | SCHEME 4 | | | NOTES |
| Description | Quantity | Size | Total | | | | | | | | | | | | | Comments |
| Gymnasium | 1 | 4200 | 4200 | 1 | 4222 | 4222 | 1 | 4214 | 4214 | 1 | 4200 | 4200 | 1 | 4200 | 4200 | *Consider placement next to cafeteria |
| Stage | 1 | 850 | 850 | 1 | 789 | 789 | 1 | 821 | 821 | 1 | 850 | 850 | 1 | 850 | 850 | |
| Chair/Table Storage | 1 | 225 | 225 | 1 | 269 | 269 | 1 | 201 | 201 | 1 | 225 | 225 | 1 | 232 | 232 | |
| PE Office | 1 | 150 | 150 | 1 | 163 | 163 | 1 | 156 | 156 | 1 | 150 | 150 | 1 | 150 | 150 | |
| PE Storage | 1 | 300 | 300 | 1 | 317 | 317 | 1 | 241 | 241 | 1 | 349 | 349 | 1 | 266 | 266 | |
| Student locker room | 2 | 500 | 1000 | 2 | 500 | 1000 | 2 | 488 | 976 | 2 | 500 | 1000 | 2 | 504 | 1008 | |
| Bicycle Storage | 1 | 150 | 150 | 1 | 162 | 162 | 1 | 140 | 140 | 1 | 150 | 150 | 1 | 150 | 150 | |
| Outdoor Storage | 1 | 200 | 200 | 1 | 169 | 169 | 1 | 156 | 156 | 1 | 200 | 200 | 1 | 218 | 218 | |
| Playgrounds | 2 | 0 | 0 | | | | | | | | | | | | | *Can be broken into multiple sections. Size TBD |
| SUBTOTAL: | | | 7075 | | | 7091 | | | 6905 | | | 7124 | | | 7074 | |
| **STUDENT DINING SPACES:** | | | | SCHEME 1 | | | SCHEME 2 | | | SCHEME 3 | | | SCHEME 4 | | | NOTES |
| Description | Quantity | Size | Total | | | | | | | | | | | | | Comments |
| Cafeteria | 1 | 2500 | 2500 | 1 | 2501 | 2501 | 1 | 3256 | 3256 | 1 | 2506 | 2506 | 1 | 2504 | 2504 | *Consider placement next to multipurpose |
| Kitchen/Food Preparation | 1 | 650 | 650 | 1 | 649 | 649 | 1 | 651 | 651 | 1 | 844 | 844 | 1 | 650 | 650 | |
| Serving Area | 1 | 400 | 400 | 1 | 442 | 442 | 1 | 393 | 393 | 1 | 400 | 400 | 1 | 400 | 400 | |
| Dry Food Storage | 1 | 350 | 350 | 1 | 326 | 326 | 1 | 350 | 350 | 1 | 199 | 199 | 1 | 304 | 304 | |
| Freezer / Cooler | 1 | 250 | 250 | 1 | 244 | 244 | 1 | 251 | 251 | 1 | 255 | 255 | 1 | 316 | 316 | |
| Ware Washing | 1 | 200 | 200 | 1 | 201 | 201 | 1 | 201 | 201 | 1 | 200 | 200 | 1 | 242 | 242 | |
| Cleaning Storage | 1 | 60 | 60 | 1 | 57 | 57 | 1 | 74 | 74 | 1 | 65 | 65 | 1 | 60 | 60 | |
| Food Services Office | 1 | 150 | 150 | 1 | 159 | 159 | 1 | 150 | 150 | 1 | 151 | 151 | 1 | 207 | 207 | |
| Toilet/Lockers | 1 | 150 | 150 | 1 | 108 | 108 | 1 | 150 | 150 | 1 | 151 | 151 | 1 | 150 | 150 | |
| SUBTOTAL: | | | 4710 | | | 4687 | | | 5476 | | | 4771 | | | 4833 | |

| HEALTH SERVICES SPACES: | | | | SCHEME 1 | | | SCHEME 2 | | | SCHEME 3 | | | SCHEME 4 | | | NOTES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Description | Quantity | Size | Total | | | | | | | | | | | | | Comments |
| Waiting Area | 1 | 150 | 150 | 1 | 150 | 150 | 1 | 150 | 150 | 1 | 150 | 150 | 1 | 150 | 150 | |
| Treatment Area | 1 | 150 | 150 | 1 | 503 | 503 | 1 | 503 | 503 | 1 | 503 | 503 | 1 | 503 | 503 | |
| Cots | 1 | 100 | 100 | 1 | 100 | 100 | 1 | 100 | 100 | 1 | 100 | 100 | 1 | 100 | 100 | |
| Office | 1 | 100 | 100 | 1 | 100 | 100 | 1 | 100 | 100 | 1 | 100 | 100 | 1 | 100 | 100 | |
| Storage | 1 | 25 | 25 | 1 | 25 | 25 | 1 | 25 | 25 | 1 | 25 | 25 | 1 | 25 | 25 | |
| Toilet | 1 | 50 | 50 | 1 | 50 | 50 | 1 | 50 | 50 | 1 | 50 | 50 | 1 | 50 | 50 | |
| SUBTOTAL: | | | 575 | | | 928 | | | 928 | | | 928 | | | 928 | |

| LIBRARY SPACES: | | | | SCHEME 1 | | | SCHEME 2 | | | SCHEME 3 | | | SCHEME 4 | | | NOTES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Description | Quantity | Size | Total | | | | | | | | | | | | | Comments |
| Reading/Learning/Circulation Room | 1 | 2500 | 2500 | 1 | 2900 | 2900 | 1 | 2900 | 2900 | 1 | 2900 | 2900 | 1 | 2900 | 2900 | |
| Makerspace | 1 | 500 | 500 | 1 | 1025 | 1025 | 1 | 1025 | 1025 | 1 | 1025 | 1025 | 1 | 1025 | 1025 | |
| Small Group/Conference Room | 1 | 250 | 250 | 1 | 250 | 250 | 1 | 250 | 250 | 1 | 250 | 250 | 1 | 250 | 250 | |
| Combined Office/Workroom/Device Charging | 1 | 300 | 300 | 1 | 360 | 360 | 1 | 360 | 360 | 1 | 360 | 360 | 1 | 360 | 360 | |
| SUBTOTAL: | | | 3550 | | | 4535 | | | 4535 | | | 4535 | | | 4535 | |

| PERFORMING ARTS SPACES | | | | SCHEME 1 | | | SCHEME 2 | | | SCHEME 3 | | | SCHEME 4 | | | NOTES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Description | Quantity | Size | Total | | | | | | | | | | | | | Comments |
| Music Room | 1 | 1200 | 1200 | 1 | 1210 | 1210 | 1 | 1206 | 1206 | 1 | 1237 | 1237 | 1 | 1278 | 1278 | |
| Music Room Storage | 1 | 500 | 500 | 1 | 500 | 500 | 1 | 500 | 500 | 1 | 500 | 500 | 1 | 500 | 500 | |
| Practice Room | 1 | 100 | 100 | 1 | 100 | 100 | 1 | 100 | 100 | 1 | 100 | 100 | 1 | 100 | 100 | |
| SUBTOTAL: | | | 1800 | | | 1810 | | | 1806 | | | 1837 | | | 1878 | |

| VISUAL ARTS | | | | SCHEME 1 | | | SCHEME 2 | | | SCHEME 3 | | | SCHEME 4 | | | NOTES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Description | Quantity | Size | Total | | | | | | | | | | | | | Comments |
| Art Lab | 1 | 1200 | 1200 | 1 | 1400 | 1400 | 1 | 1204 | 1204 | 1 | 1199 | 1199 | 1 | 1271 | 1271 | |
| Art Storage | 1 | 200 | 200 | 1 | 200 | 200 | 1 | 200 | 200 | 1 | 200 | 200 | 1 | 200 | 200 | |
| Art Kiln | 1 | 60 | 60 | 1 | 60 | 60 | 1 | 60 | 60 | 1 | 60 | 60 | 1 | 60 | 60 | |
| SUBTOTAL: | | | 1460 | | | 1660 | | | 1464 | | | 1459 | | | 1531 | |

| ADMIN SPACES: | | | | SCHEME 1 | | | SCHEME 2 | | | SCHEME 3 | | | SCHEME 4 | | | NOTES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Description | Quantity | Size | Total | | | | | | | | | | | | | Comments |
| Entrance Lobby | Included in Gross | | 0 | Included in Gross | | | Included in Gross | | | Included in Gross | | | Included in Gross | | | |
| Welcome Center | 1 | 300 | 300 | 1 | 486 | 486 | 1 | 398 | 398 | 1 | 491 | 491 | 1 | 489 | 489 | |
| Security Area | 1 | 75 | 75 | 1 | 75 | 75 | 1 | 75 | 75 | 1 | 75 | 75 | 1 | 75 | 75 | |
| Conference Room | 1 | 200 | 200 | 1 | 200 | 200 | 1 | 200 | 200 | 1 | 200 | 200 | 1 | 200 | 200 | |
| Principal's Office | 1 | 200 | 200 | 1 | 200 | 200 | 1 | 200 | 200 | 1 | 200 | 200 | 1 | 200 | 200 | |
| Administrative Office | 1 | 150 | 150 | 1 | 150 | 150 | 1 | 150 | 150 | 1 | 150 | 150 | 1 | 150 | 150 | |
| Administrative Workroom | 1 | 300 | 300 | 1 | 300 | 300 | 1 | 300 | 300 | 1 | 300 | 300 | 1 | 300 | 300 | |
| Records Room | 1 | 150 | 150 | 1 | 150 | 150 | 1 | 150 | 150 | 1 | 150 | 150 | 1 | 150 | 150 | |
| Parent Resource Center | 1 | 200 | 200 | 1 | 200 | 200 | 1 | 200 | 200 | 1 | 200 | 200 | 1 | 200 | 200 | |
| Counselor's Office | 1 | 150 | 150 | 1 | 150 | 150 | 1 | 150 | 150 | 1 | 150 | 150 | 1 | 150 | 150 | |
| Student Services | 1 | 150 | 150 | 1 | 150 | 150 | 1 | 150 | 150 | 1 | 150 | 150 | 1 | 150 | 150 | |
| After School Program Office | 1 | 300 | 300 | 1 | 300 | 300 | 1 | 300 | 300 | 1 | 300 | 300 | 1 | 300 | 300 | |
| Staff Lounge/Restroom | 1 | 300 | 300 | 1 | 300 | 300 | 1 | 300 | 300 | 1 | 300 | 300 | 1 | 300 | 300 | |
| Wellness/Lactation Room | 1 | 100 | 100 | 1 | 100 | 100 | 1 | 100 | 100 | 1 | 100 | 100 | 1 | 100 | 100 | |
| SUBTOTAL: | | | 2575 | | | 2761 | | | 2673 | | | 2766 | | | 2764 | |

| BUILDING SERVICES: | | | | SCHEME 1 | | | SCHEME 2 | | | SCHEME 3 | | | SCHEME 4 | | | NOTES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Description | Quantity | Size | Total | | | | | | | | | | | | | Comments |
| Supply Storage | 1 | 150 | 150 | 1 | 192 | 192 | 1 | 192 | 192 | 1 | 192 | 192 | 1 | 192 | 192 | |
| Toilet/Shower/Locker Room | 1 | 150 | 150 | 1 | 196 | 196 | 1 | 196 | 196 | 1 | 196 | 196 | 1 | 196 | 196 | |
| Custodial/DGS Office | 1 | 150 | 150 | 1 | 127 | 127 | 1 | 127 | 127 | 1 | 127 | 127 | 1 | 126 | 126 | |
| Large Group Restrooms | Included in Gross | | 0 | Included in Gross | | | Included in Gross | | | Included in Gross | | | Included in Gross | | | |
| Custodial Closet | 4 | 25 | 100 | 4 | 25 | 100 | 4 | 25 | 100 | 4 | 25 | 100 | 4 | 25 | 100 | |
| Electrical Closet | Included in Gross | | 0 | Included in Gross | | | Included in Gross | | | Included in Gross | | | Included in Gross | | | |
| Telecommunications Room | Included in Gross | | 0 | Included in Gross | | | Included in Gross | | | Included in Gross | | | Included in Gross | | | |
| Corridors | Included in Gross | | 0 | Included in Gross | | | Included in Gross | | | Included in Gross | | | Included in Gross | | | |
| Mechanical/Electrical Space/Decks | Included in Gross | | 0 | Included in Gross | | | Included in Gross | | | Included in Gross | | | Included in Gross | | | |
| Custodial Equipment Storage | 1 | 300 | 300 | 1 | 295 | 295 | 1 | 295 | 295 | 1 | 295 | 295 | 1 | 295 | 295 | |
| Central Storage Area | 1 | 200 | 200 | 1 | 200 | 200 | 1 | 200 | 200 | 1 | 200 | 200 | 1 | 200 | 200 | |
| Receiving Area | 1 | 150 | 150 | 1 | 150 | 150 | 1 | 150 | 150 | 1 | 150 | 150 | 1 | 150 | 150 | |
| Staff Restroom | Included in Gross | | 0 | Included in Gross | | | Included in Gross | | | Included in Gross | | | Included in Gross | | | |
| Family Restroom | Included in Gross | | 0 | Included in Gross | | | Included in Gross | | | Included in Gross | | | Included in Gross | | | |
| Technology Storage | Included in Gross | | 0 | Included in Gross | | | Included in Gross | | | Included in Gross | | | Included in Gross | | | |
| Laundry Room | 1 | 60 | 60 | 1 | 60 | 60 | 1 | 60 | 60 | 1 | 60 | 60 | 1 | 60 | 60 | |
| Additional Building Services | 0 | 0 | 0 | 1 | 1335 | 1335 | 1 | 1335 | 1335 | 1 | 1335 | 1335 | 1 | 1335 | 1335 | |
| SUBTOTAL: | | | 1260 | | | 2655 | | | 2655 | | | 2655 | | | 2654 | |
| TOTAL NET SPACE: | | | 63525 | | | 68467 | | | 66453 | | | 67981 | | | 67756 | |
| TOTAL GROSS SPACE: | 39% Grossing Factor | | 88300 | | | 95330 | | | 96896 | | | 99595 | | | 98810 | |



WALDONSTUDIO ARCHITECTS

# 3 Existing Conditions

## 3.1 Construction & Renovation History:

The following represents a timeline of the history of construction and renovations for the Logan School Building from the DGS existing drawing archives:

- 1934 - 1935 Original School Building Construction (currently the East Wing)
- 1946-1949 Center and West Wing Additions Constructed
- 1951 Grounds Improvements
- 1955 Demountable Classroom Building Constructed
- 1966 Electrical & Landscape Improvements
- 1967 Classroom Conversions
- 1967 Roof Repairs
- 1970 Demountable Classroom Renovations
- 1974 Security Improvements
- 1977 Classroom to Library Conversion
- 1978 Boiler Replacement
- 1990 Electrical Modernization
- 1997 Grounds Improvements
- 2015 & 2017 Modernizations

General summary of scope of work completed in the recent **2017 Modernization:**

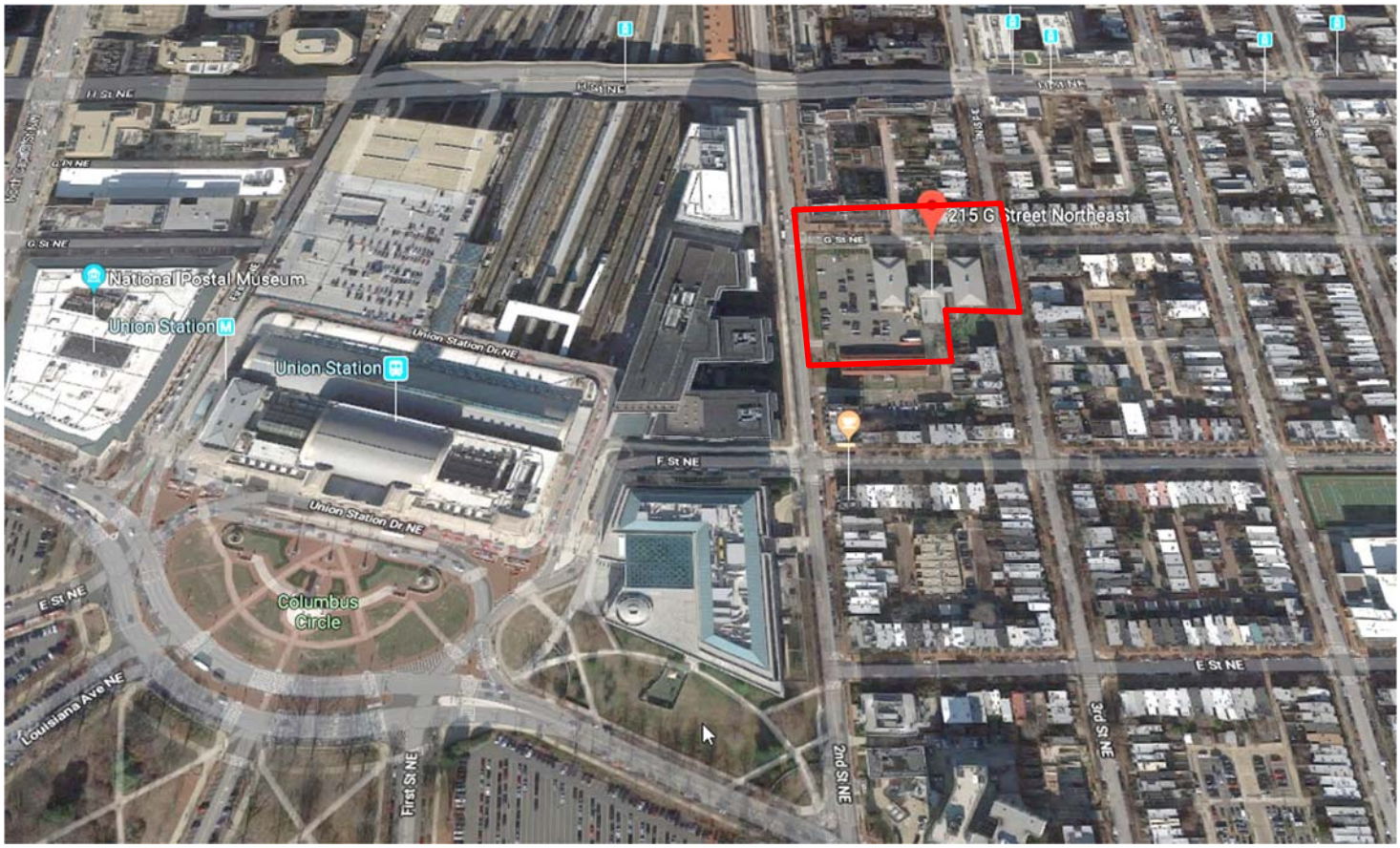
- Window & window covering replacement
- Ceilings, lighting, & lighting controls replacement
- Partial finishes replacement, including partial flooring & wall base replacement and new paint
- Mechanical Systems replacement
    - The mechanical system installed in the recent modernization includes new HVAC system with DOAS energy recovery for ventilation with VRF system for thermal comfort.
- Fire protection system replacement
    - The fire protection system installed includes wet pipe sprinkler system and new fire alarm; Installation of a new 6” fire service lateral and new 4” domestic water line connecting to the existing DC Water utility in public space.
- New Building Controls
    - The new Building Automation System (BAS) was installed to integrate the new HVAC systems (VRF & DOAS), sprinkler, fire alarm system, and lighting controls.

## 3.2 Site Analysis

### Property & Zoning:

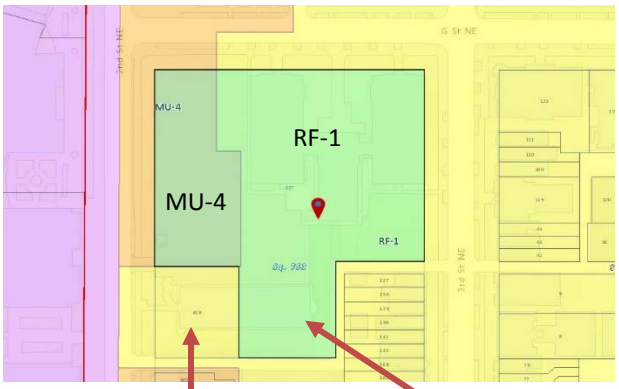
Capitol Hill Montessori at Logan (CHML) formally known as "Logan School" is located on 215 G St, in the NE quadrant of Washington DC, 20002. The site is bounded by 3rd St, NE to the East, 2nd St, NE to the West, and residential lots to the south and east. Union Station and the US Securities & Exchange Commission are prominent site influences west of the property. Mixed-use housing and commercial high-rise development borders the north side of the property.

The site is currently a tax lot (lot 0827; square 0753), and will need to be converted into a record lot through the subdivision process. CHML is owned by the District of Columbia, and the site is zoned mostly as RF-1 zone, and partially in MU-4 zone. Adjacent lot 0828 is federally-owned land (located on southwest corner of site) and the remaining lots (located on the southeast corner of site) are residential lots. It is recommended that the zones be combined into RF-1 when applying for the building permit, due to the fact that the RF-1 zone would allow the school to be exempt from the Green Area Ratio requirement and Lot Occupancy requirement, and would also allow for buildings 60'-0" in height. The existing school facility is a 2-story structure with a basement. Along with the main school building, there is a modular classroom building, referred to as "the annex" that lies halfway between lots 827, and 828. Public record information indicates the site is not within the FEMA flood zone, and is located in a historic district.






WALDONSTUDIO ARCHITECTS


Lot 828: FEDERALLY-OWNED LOT

Lot 827: DGS / DCPS OWNED LOT

## Zoning Summary

### 1. Existing Building Size:

Lower Level: 6,904 sf
1st Floor: 21,984 sf
2nd Floor: 21,846 sf
Total: 50,734 sf

### 2. New Addition Total Size (approximate range):

46,000sf – 54,000sf

### 3. Lots:

Lot 827 – size 90,130 sf, owned by District of Columbia - site is currently a tax lot (square 0753), and will need to be converted into a record lot through the subdivision process.

Lot 828 – size 11,433 sf, federally-owned

### 4. Zoning:

**Zone 1:** Primary RF-1 (recommended that the lot be fully converted to RF-1)
**Allowances:**
Front Setback – none, align with nearby buildings
Side Setback – if side yard is provided, 5'
Rear Setback – 20'
Lot Coverage - 40%, 60% for public schools
Height – 35' / 3 stories, 60' for public schools
Green Area Ratio – N/A

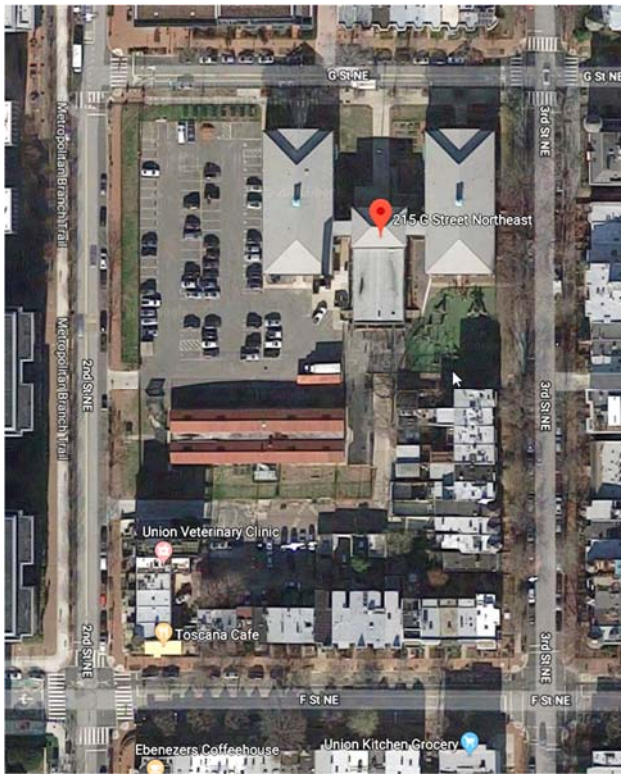
**Zone 2:** Secondary MU-4
**Allowances:**
Front Setback – none, align with nearby buildings
Side Setback – If side yard is provided, 5' min., 2" wide / foot of building height
Lot Coverage - 60%, No limit for public schools
Height – 50' + penthouse
Green Area Ratio – 0.3

### 5. Parking requirements:

.25 per 1000SF, no additional parking required if addition under 25% of gross area or under 50% gross area for a historic building
Current: 84 parking spots
Existing Required: 13 parking spots
New Required: 24 - 26 parking spots

### 6. Curb Cuts

New curb cuts:
Must be placed at a minimum of 60'-0" from the street intersection. DDOT will need to review & approve any new curb cuts; must go through DDOT Public Space Committee for review & approval.




7. **Existing Public Alleys**
   - Existing public alley borders south side and east side of the site, not marked as one-way, ranges from 10'-4" – 14'-5" in width. One expanse of alley near existing parking is 16'-6" wide.
   - Currently used for general access, emergency access, commercial & residential parking access, and waste pick up.
   - Alley can be widened, but would have to go through a transfer of ownership process with DDOT; DCPS would need to forfeit the section of property that the alley would be extended on. DDOT would also need to approve receiving access from the alley for school use.

8. **Additional Lot Information**

The civil engineering team has performed a title search to obtain information to help determine exact limitations that may need to be observed in any future development of the property, including on the federally-owned piece of property. They are also having discussions with the DC Surveyor's office about the property information and obtaining current record documents available for both property lots associated with the CHML campus. Those documents can be found in the Appendix section of this report.

9. **Federally Owned Property**

The land records do not indicate any building restriction. Research on the federally owned property (Lot 828) did not indicate any building restrictions. DCRA zoning requirements would become applicable for any land improvement that is proposed to take place on Tax Lot 828. DCRA requires any tax lot to go through the subdivision process to create a record lot before any building permit is to be issued.

## Topography, Hydrology & Soils:

The site topography is relatively flat with proposed elevations ranging from 34' to 37' above sea level. According to the National Web Soil Survey (WSS) database the near surface soils in the Washington, DC area typically consist of man-placed fill soils or natural soils which have been placed by previous construction. These materials generally consist of over consolidated sand and clay materials, which typically don't produce good infiltratable soils. Existing drainage is currently draining towards the existing parking lot where runoff is collected by a series of inlets and discharges out through the 12" storm line servicing the site. Per GIS records the site is over 85% impervious, and there are currently no best management practices (BMP) on site to help with runoff water retention.

## Site Utilities:

The building is served by a 4" domestic water line (meter located outside), and a 6" fire line feeding from the 6" water main on G ST, NE. The entire site is located in a combined storm sewer system (CSS). An 8" sewer converges with a 12" storm sewer to service the building, eventually discharges out to a 30" combined storm sewer, located in the sidewalk adjacent to 2nd Street, NE. GIS records indicate there is

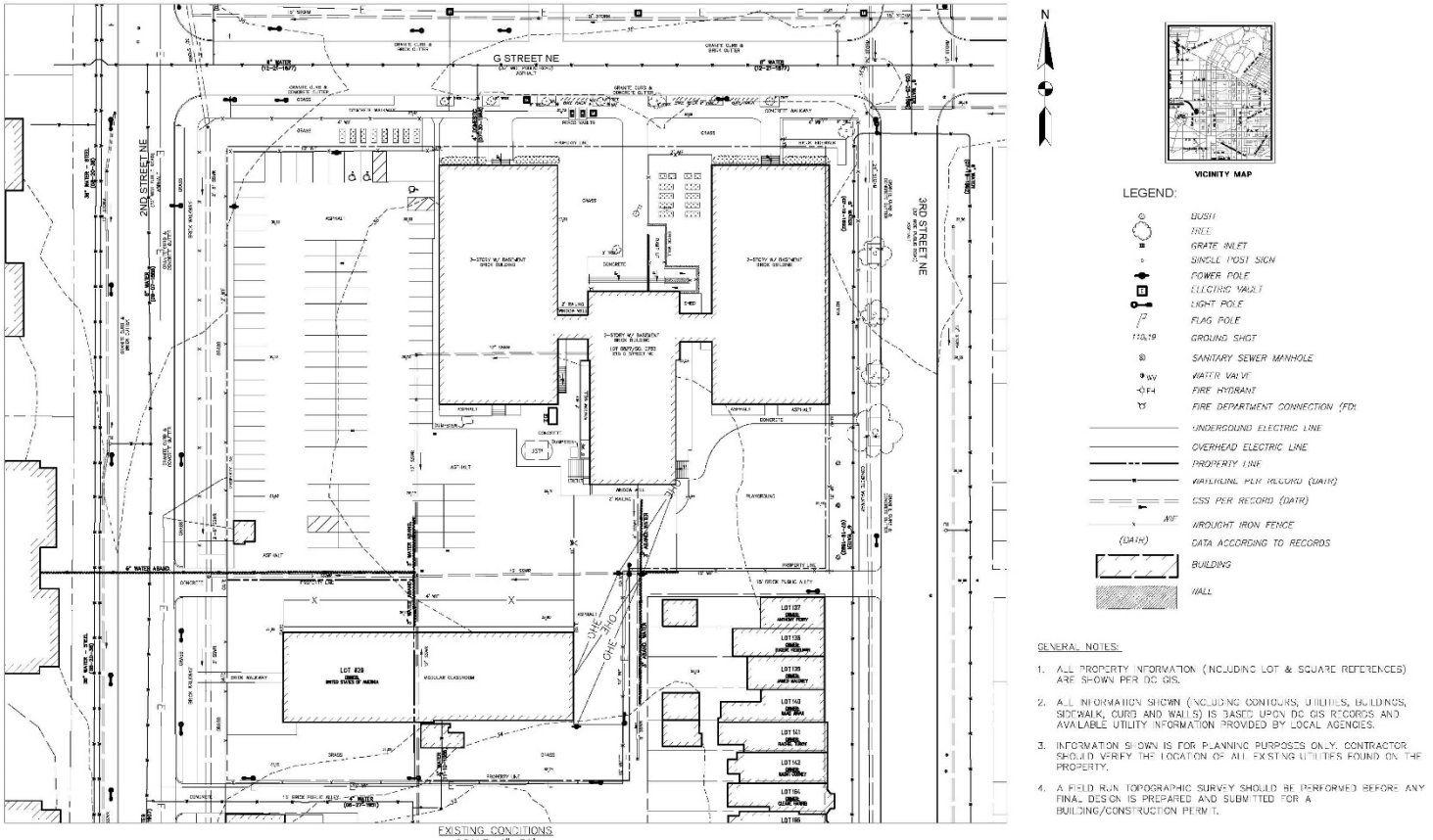
currently a 15,000-gallon underground storage tank to the southwest corner of the school. This tank is no longer in use and can be removed.

## Site Features, Parking, & Circulation:

Site features include a large asphalt parking lot with approx. 84 parking spaces. Site features also include a modular classroom ("the annex" - approx. 8,000 SF) for additional program requirements of the middle school, a synthetic playground with playground equipment, garden areas, and a front entry plaza. The entire site is enclosed and fenced by an 8' high wrought iron fence, with vehicular access from 2nd Street, NE. CHML has one ADA access point from the main front entry plaza with a ramp into the existing school structure. Trash and loading is serviced behind the west wing of the existing structure.

## Summary:

In summary all information gathered above is based off public record, and GIS information, and is for feasibility and planning purposes only. Currently the school amenities occupy two tax lots, one being owned by the United States of America and the other being owned by DCPS. Any anticipated building or construction permit will require the tax lot being used to be converted to a record lot through the subdivision process. A field run topographic survey should be performed before any final design is prepared and submitted for a building/ construction permit. See GIS base map for details on all information outlined above.




EXISTING CONDITIONS
SCALE: 1"=50'

AMT LLC
Consulting Engineers
10 G Street, NE, Suite 630, Washington, DC 20002
(202) 289-4646 FAX (202) 289-6081

CAPITOL HILL MONTESSORI @ LOGAN CAMPUS GIS
BASE MAP
215 G ST, NE WASHINGTON, DC 20002
APRIL 20, 2018



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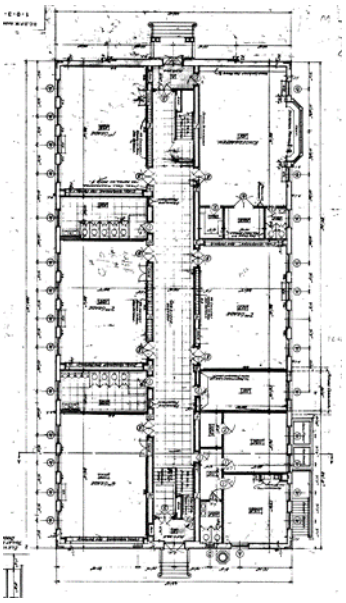
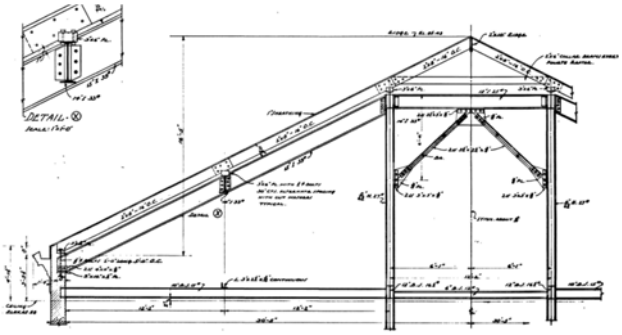
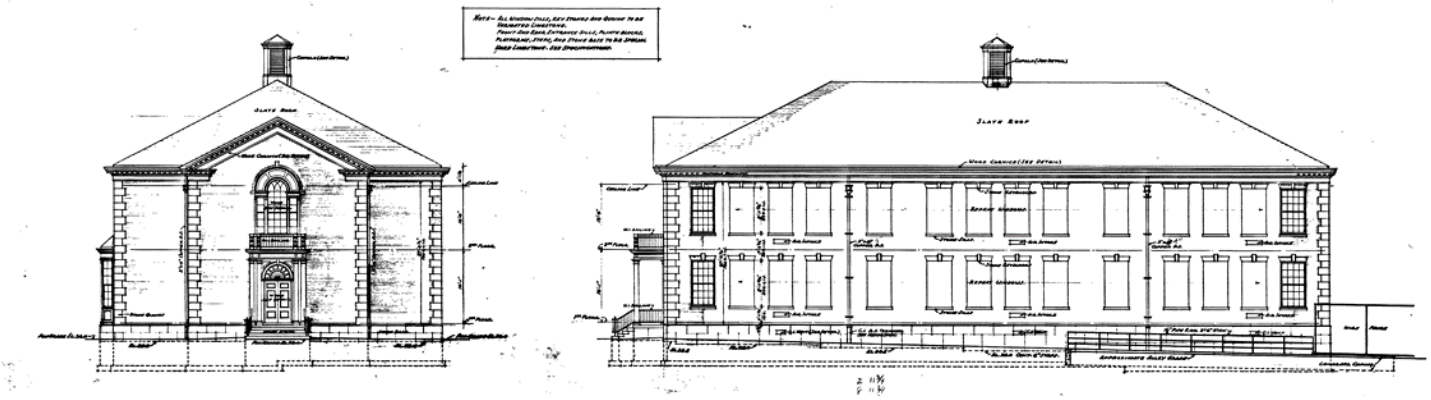


First Floor Plan of Original 1934 Building



Section through roof of Original Building

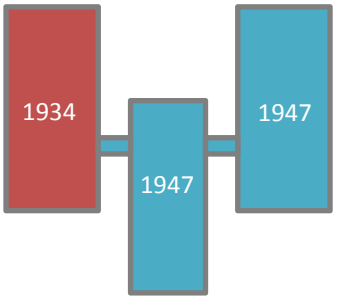


Exterior Elevations of Original Building

## 3.3 Structural Analysis

### 1. 1934 Original Building

The original building was built in 1934 and is a rectangular shaped, two-story building with a center corridor (along long axis) and exterior brick faced masonry exterior walls. There is a partial basement level at the northeast corner of the building. The main building structural frame is a concrete framing system for the first floor and basement levels. The second floor and roof has a steel framing system.




FOUNDATIONS

- The foundations are spread footings. The columns of the center corridor have combine spread footings. Walls have continuous spread footings.

BASEMENT

- The basement has a 5” slab on grade. And is accessed by concrete stairs from the first floor.

FIRST FLOOR

- The first floor is built over a crawl space. The slab framing is a one-way concrete joist framing system spanning from the exterior walls to a row of girders located along the corridor walls in the short axis of the building. The interior girders frame into concrete columns.

SECOND FLOOR

- The floor framing of the second floor is a similar one-way concrete joist system used on the first floor. However, the joists frame into and bear on the exterior masonry walls and are supported by steel girders along the corridor walls. The columns supporting these girders are wide flange steel columns that extend down to the first floor.

ROOF LEVEL

- The roof is a pitched roof. The roof is framed by wood joists at 16” spanning to steel girders along the long axis. The girders are supported by steel frames located at the main building column locations. See Section & Elevations.



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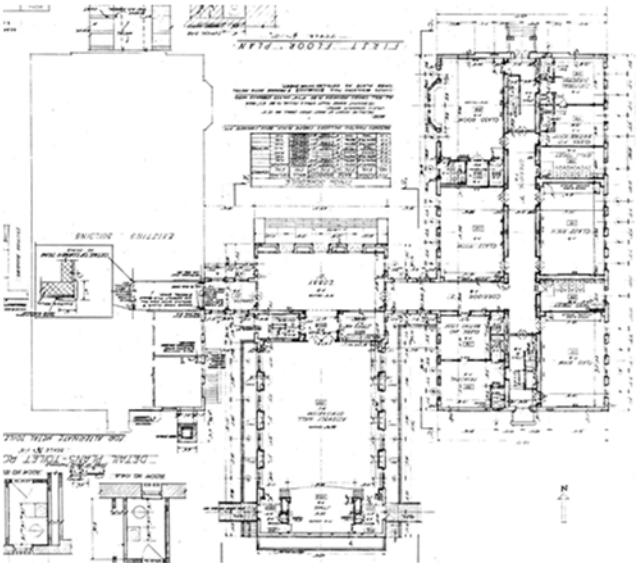


First Floor Plan of 1947 Addition (central and east wings)

## 2. 1947 Addition

An addition was added to the east of the original 1934 structure. The addition added a single-story center space with a basement which had the main entry lobby and an assembly space with stage and a two-story wing similar to the original school building. The addition also added an east wing, consisting of a two-story building, that did not have a basement.

FOUNDATIONS

- The foundations are spread footings located below the column locations.

BASEMENT LEVEL (Below Central Addition)

- The basement level is a 5” slab-on-grade throughout.

FIRST FLOOR

- The first floor at the center building is a concrete framed floor system that uses one-way concrete joists and solid one-way slabs spanning to concrete girders. The stage framing uses the same type of framing.

SECOND FLOOR

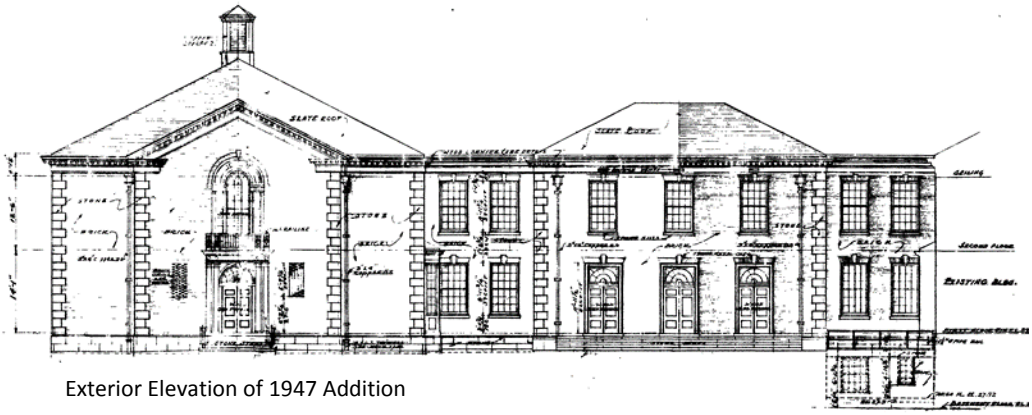
- The second floor at the east side portion of the addition is also a one-way concrete joist framing to concrete girders. The columns below this level are in their majority square concrete columns. All columns above the second floor are wide flange steel members. The second floor extends over the main entry space and is built of the same system as the rest of the floor. There is no floor framing at this level in the auditorium area because it is a high ceiling space.

LOW ROOF OVER AUDITORIUM

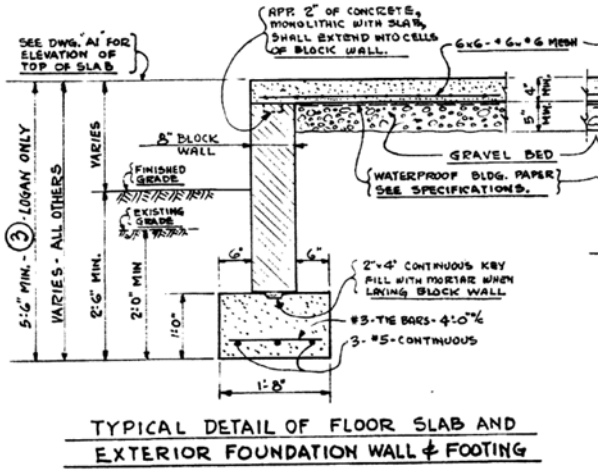
- The roof over the auditorium allows for the wide column free space below. The framing has long-span concrete girders at evenly spaced bays along the long axis of the auditorium. Spanning between these girders are one-way concrete joists.

ROOF FRAMING SYSTEM

- There is a pitched roof framed with steel frames and sub-members equally spaced. The roof slabs are precast slab (2” thick) spanning across the sub-members.



Exterior Elevation of 1947 Addition




Demountable Classroom Building

## 3. Demountable Classroom Buildings

The demountable classroom building is located on the south side of the rear yard of the school and was installed in 1955. The building is essentially a slab-on-grade ground floor, wood bearing walls and prefabricated wood trusses for the roof framing.

FOUNDATIONS

- The foundations are continuous spread footings.

GROUND FLOOR

- The ground floor is a 4" thick slab-on-grade on 4"

WALLS

- The exterior walls are wood stud walls supported on the exterior masonry foundation walls. See the attached detail.

## 4. Conditions of Existing Facilities

The buildings of this campus are in excellent condition. The structures show no significant signs of structural deficiencies. No major signs of defects were observed in the finishes (interior or exterior) of the buildings. Foundation settlements were not visually evident in any of the structures.

## 5. Codes and Standards

CODES

The applicable codes are the following:

- IBC 2015
- Title 12 DCMR, DC Construction Codes Supplement (2013)
- 20013 District of Columbia Code

STANDARDS

- The applicable standards are the following:
- ACI 318 - 14
- AISC – Manual of Steel Construction, 15th Edition
- ASCE 7-10
- 2015 Code Conforming Wood Design Code

DESIGN LOADS

The following design loads should be applied for the structural design of the new proposed renovation or/and for the proposed addition.

Design Live Loads

- Typical Joist Framed Roof 25 PSF
- Typical Composite Floor system 75 PSF

Live loads

- Lobbies 100 PSF
- Assembly Areas 100 PSF
- Classrooms 40 PSF
- Storage Rooms 150 PSF
- Offices 80 PSF
- Exercise Rooms 100 PSF
- M/E Rooms 125 PSF
- Gymnasium 100 PSF
- Mechanical Equipment (Load based on Mechanical Design)
- Kitchen Area 100 PSF
- Stage 100 PSF
- Stairs 100 PSF

- Occupancy Category IV
- Roof Live Load 20 PSF

Roof Snow Load
- Ground Snow Load (Pg) 30 PSF
- Flat-Roof Snow Load (Pf) 25 PSF
- Exposure Factor (Ce) 1.0
- Thermal Factor (Ct) 1.0
- Importance Factor 1.2

Wind Design Data
- Basic Wind Speed 120 MPH
- Importance Factor 1.15
- Wind Exposure Exposure B

Earthquake Design Data
- Site Class As required by the soil
- Seismic Design Category C or as required by the soil
- 0.2 sec Response Acceleration 16 %g
- 1.0 sec Response Acceleration 5.1 %g
- Seismic-force-resisting-system Steel Braced frames or Steel Moment Frames.
- Frost Depth 24”

Material Specifications

The following are the ATM standards and design stresses and ratings for the materials that will be used as part of the new addition and the renovation portion of the project:

CEMENT
- Blended Hydraulic Cement ASTM C150, Type I and II
- Aggregates
- ASTM C33 (normal weight)
- ASTM C330 (Lightweiht)
- Admixtures
- Air-entraining ASTM C260
- Chemical Admixtures ASTM C494

CONCRETE
- Footings 3000 PSI 145 PCF
- Piers 3000 PSI 145 PCF
- Slabs-on-grade 4000 PSI 145 PCF
- Elevated Slabs 4000 PSI 145 PCF
- Walls 4000 PSI 145 PCF
- Concrete Columns 4000 PSI 145 PCF

REINFORCEMENT
- Deformed Reinforcing Bars ASTM A615
- Welded wire Fabric ASTM A 185

STEEL
- Wide Flange Shapes ASTM A992
- Other Shapes ASTM A36 or ASTM A552
- Plates A36
- Structural Tubing ASTM A500, Grade B
- High strength Bolts ASTM A325 – N
- Anchor Bolts ASTM F1885
- Headed Shear Studs ASTM A 108
- Galvanized steel deck ASTM A653 or ASTM A525 G-60
- Galvanized Roof Deck ASTM A653 or ASTAM A525, G-90

## 3.4 Architectural Analysis

### Overview

The project scope calls for the feasibility study of the existing Capitol Hill Montessori School for the renovation of the existing building and possible future building addition that will meet new and existing program requirements. As part of the Capitol Hill Montessori School Feasibility Study, Waldon Studio Architects (WSA) has performed a study of the existing building condition. The existing facility is a 50,734 sf building, constructed in 1934 (east wing) with an addition in 1947 (center & west wings). WSA did not perform any in depth studies of floor or wall structure or above ceiling conditions. The following are our observations and recommendations based on four site visits.

### Historical Context

The Capitol Hill Montessori School at Logan campus is located within the Capitol Hill Historic District and the existing exterior façade of the Logan school building has historical significance. Read more about the building's history and suggested approach in section 4.7 of this report.

### Building Exterior Envelope

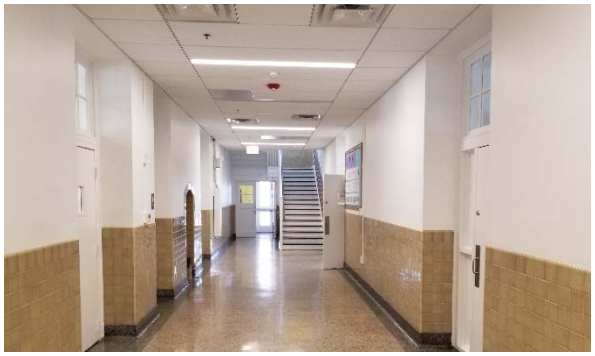
**Walls:** The exterior walls consist of load-bearing CMU with brick cladding on the exterior. There is a row stone base and quoining detail on the corners. The entrances have painted, carved wood ornamental columns, trim, and detailing, along with stone insets. Some areas around the brick are showing efflorescence, but overall in good condition.

**Windows:** Existing windows are metal framed. The exterior sills are precast concrete with wood or marble interior sills. Some of the windows have a stone keyblock and brick header detail. Bay windows jut into the front, north courtyard. All the windows were replaced during the 2015/2017 modernizations and are still in excellent condition.

**Roof:** The main existing roofs are gabled with slate finish, snow guards, painted wood dental cornices, and metal flashing and coping. Small roofs over the bay windows in the front courtyard, and over the cupolas on the roof are finished with copper roofing and copper flashing. The roof drains via metal gutters and downspouts that run along the exterior of the building and down into the existing storm lines. There is roof access in the center section of the building via a ladder and access panel behind the stage in the existing multi-purpose room. There is a new rooftop enclosure built on the roof around the mechanical units over multi-purpose room, that were installed in the recent modernization.







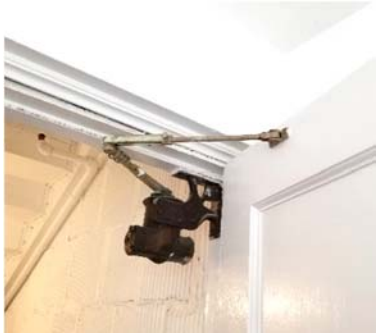
## Interior Finishes & Materials

**Walls:** Existing walls throughout the school consist of concrete block or stud with gypsum wall board. The interior corridor walls are not load-bearing. The interior of the existing building was recently renovated during the 2015/2017 modernization. Some of the corridor walls have glazed tile wainscoting, which was not replaced during the recent modernization, and are showing some cracking and chipping.

**Floors:** Existing flooring in the school consist of tile (at entrances), terrazzo (in corridors & some existing stairs), wood (at stage), rubber (at the stair treads that were recently renovated), and VCT (rooms that were renovated in modernization). Many of the older terrazzo, tile and wood floors have patches and the stage floor appears to be lifting from the substrate. The areas with new flooring that was installed during the 2015/2017 modernization appear to be in good condition.

**Doors:** Existing doors throughout the school consist of hollow metal and solid core wood doors with metal frames. Both hollow metal and solid core wood doors appear to be in good condition, with minor scuffs or paint removal. Some of the doors were replaced during the 2015/2017 modernizations. However, many of the doors still need to be replaced and retrofitted with new hardware. Many of the classroom doors are recessed in the corridor and do not have proper ADA approach clearances.

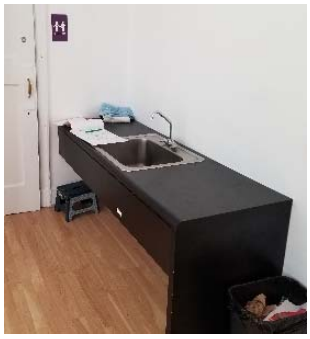


**Ceilings:** Existing ceilings are a mix of 2’ x 4’ and 2’ x 2’ ACT grid, 2’ x 2’ wood plank tile system, and gypsum wall board ceilings. The ceilings were replaced as part of the 2015/2017 modernization and appear to be in excellent condition.



WALDONSTUDIO ARCHITECTS

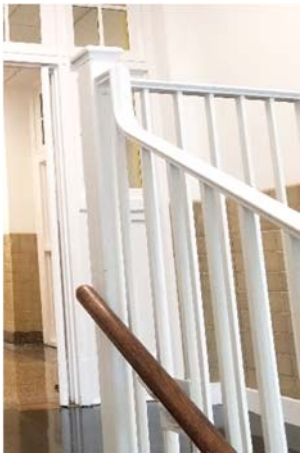


## ADA & Life Safety

**ADA Restrooms:** Most of the existing restrooms do not include ADA accessible water closet stalls or urinals, a few single restrooms do not accommodate the 5'-0" ADA turning radius. Several existing toilet rooms have children's sized fixtures. Finishes include terrazzo or tile floors, with tile wainscot on the walls. Some of the toilet rooms have outdated fixtures, while others are in good condition. Toilet rooms windows have a frosted translucent surfacing applied to them.

**ADA Accessibility***:* Most of the classroom doors do not have proper ADA approach clearances. There is currently no elevator in the building. The current stage does not have ramp access, and is only accessed by stairs. With the exception of the main entrance, all entrances all have steps down to grade, which do not accommodate ADA access to the outdoor play spaces.

**Life Safety:** The existing stair railings are not connected in stairwells at landings and do not extend 1'-0" beyond the bottom tread of each flight of stairs. In some cases, the railings are lower than the code-required heights.



## Casework / Millwork / Furnishings

**Casework:** Existing casework is a mix of wood (classrooms) and plastic laminate (administrative areas & classrooms). Most have plastic laminate countertops, however there are a few with granite countertops. With the exception of certain classrooms, there is no storage under classroom sinks and plastic laminate counter tops. Casework generally appears to be in good condition, except for a few classrooms and administrative areas. There are both corridor lockers and cubbies within the classrooms to store student belongings.

**Millwork:** Existing millwork in various locations through the school appears to be in good condition.

**Furnishings:** Existing furnishings appear to be in good condition. Each classroom includes desks / tables, chairs, shelving and cubbies. Some furnishings were broken during previous school relocation for modernization.

## Safety & Security

**Entry Sequence:** There is an 8' tall fence around the perimeter of the site at the parking and outdoor play areas, along with site lighting and security cameras on the exterior of the building. Visitors, once parked, walk through an opening in the fence to the sidewalk toward the main entrance, creating a security breach. Once they reach the main entrance, there is a callbox and camera. A security guard buzzes the visitor in, and then has them sign in at the security desk. From there, they are directed to walk down the school corridors (passing classrooms) and check in for a second time at the main office. This poses a security risk, as visitors have access to the entire school once they sign in at the security desk, before they make it to the main office.

The main building and temporary classroom "annex" building are not physically connected. The main entry to the temporary classrooms is located directly adjacent to the parking lot gate that remains open throughout the day. Visitors must first check in at the main entrance of the main building, then walk or are escorted to the annex, where they sign in again. However, many visitors bypass the main building and go straight to the annex. Therefore, it can be difficult to keep track of all visitors coming and going throughout the day, and of their destinations once they are on campus. There is currently key card access for staff at the main entry door and some of the auxiliary exit doors.



WALDONSTUDIO ARCHITECTS

## 3.5 Building Systems Analysis

### Mechanical

The existing building mechanical system is composed of various systems that serve different parts of the building. The following is a summary of those systems:

*Classrooms, Corridors, Lobbies, Administration and other Common Areas*

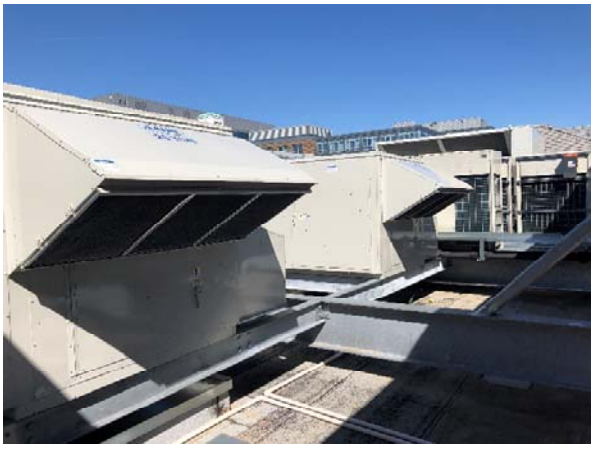
The mechanical systems for the classrooms, corridors, lobbies, administration spaces and other common areas are primarily composed of a variable refrigerant volume (VRV) fan coil unit system and a dedicated outside air rooftop unit. Individual fan coil units provide the heating and cooling to the various zones. Ventilation for these areas is provided through the dedicated outside air rooftop unit. All outdoor equipment associated with these systems are located on the roof in a sound insulated enclosure.

The variable refrigerant volume (VRV) system manufacturer is Daikin. The majority of the indoor units are ducted and concealed within the ceiling space of the building. There is one ductless ceiling cassette unit and two wall mounted ductless units in the building. The indoor units range from 0.6 to 6.0 tons of cooling and heating capacity. These units do not provide the ventilation for the spaces and only provide the cooling and heating requirements. The fan coil units have been properly zoned throughout the building to provide the proper thermostatic control for occupant comfort. The indoor units are served by 4 outdoor VRV heat recovery units totaling 128 tons of capacity. Each outdoor unit is assigned to serve multiple indoor units grouped by floor and by the west and east wings of the building. Each indoor unit is controlled by a thermostat that dictates the cooling and heating setpoints for the space served.

The ventilation for these areas is provided through a dedicated outside air rooftop unit by AAON. The capacity of this rooftop unit is 58 tons. The air is distributed to each zone served by the VRV system so that the code required outside air is provided to the zones. The air provided from the rooftop unit is set at 70 degrees F. Therefore, this unit does not provide any heating or cooling for the spaces and only provides ventilation. The air to each zone is controlled by variable air volume (VAV) units. The VAV boxes modulate from a minimum to a maximum airflow set point based on carbon dioxide (CO2) sensors that are located in each zone. As the VAV boxes modulate to meet the desired CO2 levels, the rooftop unit modulates accordingly to meet the airflow demands.

*1st Floor Multi-Purpose Room*

The multi-purpose room on the 1st floor is served by a dedicated rooftop unit. The rooftop unit is 23 tons and is manufactured by AAON. The rooftop unit, as with the VRV systems described above, is located on the roof in a sound insulated enclosure.



*Basement Cafeteria*

The cafeteria in the basement is served by a dedicated rooftop unit. The rooftop unit is 18 tons and is manufactured by AAON. The kitchen area of the basement is served by a ductless ceiling cassette from the VRV system as described above. The kitchen has a 96”x84” island type commercial kitchen exhaust hood and a makeup air unit. The rooftop unit, as with the VRV systems described above, is located on the roof in a sound insulated enclosure.

*Miscellaneous Areas*

The basement area includes an emergency natural gas fired generator. The room is provided with a combustion air intake duct and an exhaust duct that serve the generator requirements. The exhaust duct is routed from the generator to an existing tunnel that leads to an existing chimney. The chimney is not being used for the exhaust air. The chimney has been sealed and a steel grate has been provided on the existing tunnel slab.

The electrical room in the basement is served by a split system ductless wall mounted unit. The system is 2 tons and the manufacturer is Mitsubishi.

Combustion air has been provided for the domestic water heaters located in the basement. Motorized louvers interlocked with the water heaters have been provided.

The IT closet in the first floor is served by a split system ductless wall mounted unit. The system is 2 tons and the manufacturer is Mitsubishi.

The girl’s and boy’s restrooms on the first and second floors of the east and west wings are served by common exhaust fans. One exhaust fan has been provided for each wing. Electric ceiling heaters have been provided in the girl’s and boy’s restrooms. Other restrooms throughout the building have been provided with a dedicated exhaust fan and electric ceiling heater.

An existing underground fuel oil tank which is approximately 6 feet in diameter and 24 feet long and associated fuel oil piping have been abandoned in place. The tank served a removed generator. The new generator has been changed to a gas fired type and does not require the fuel oil tank. The location of the fuel tank is outside of the boiler room near the existing chimney.

The top two pictures to the left show the existing rooftop HVAC equipment. The new equipment for the new addition shall be similar to this equipment.

The bottom two pictures on the left show the existing roof enclosure that conceals the mechanical rooftop equipment. A similar enclosure would be proposed for the new addition.




The top two pictures on the left show the HVAC controls in a typical classroom and a typical ceiling installation. The HVAC design for the new addition shall closely match the same controls and ceiling layout.

## Electrical

The existing building is fed by a 1,600 Amp, 277/480 Volt, 3-phase, 4-wire switchboard, located in the building's main electric room on the basement floor. The switchboard is fed by a PEPCO electric transformer located outside the building. The switchboard feeds all the panels feeding the building. These panels feed lighting, power, plumbing and HVAC loads throughout the building.

The switchboard comprises of the following sections – utility pull section, current transformer (C/T) compartment, emergency tap section (for life safety power), main circuit breaker section, and distribution section. The switchboard, via it's distribution section, feeds the normal power service of a 100 Amp automatic transfer switch (ATS #2). It also feeds six (6) 277/480 Volt panelboards throughout the building. One of these panels is on the basement level (400 Amps), two are on the first floor (400 Amps each) and three are on the second floor (two at 400Amps and one at 600 Amps). Each of these panels feeds a series of branch circuit panelboards, both 277/480 Volts and 120/208 Volts (via step down transformers) that provide power to all branch circuits throughout the building. The third picture on the left shows the existing switchboard.

All the branch circuit panelboards and transformers on each floor are in electrical closets, except for a few panelboards located in other rooms. The rooms where panelboards are located, other than in the electrical closets on each floor, are classrooms 210, 211, 213, teacher's lounge 214, and library 212. Also, panelboard 'M3' which feeds the condensing units on the roof is located on the roof, in close proximity to the condensing units it feeds. The building's main electrical room also has a 4" x 0.25" x 48" copper ground bar, providing grounding to electrical room equipment and telecom grounding riser.

The electrical power distribution equipment throughout the building seem to be fully functional and in good shape. All equipment seemed recently installed and very far from reaching its manufacturer recommended life cycle.

## Emergency Systems

The building's emergency power is provided by a 60kW, 277/480 Volt natural gas generator. The generator has two (2) output circuit breakers, one at 60 Amps feeding emergency line of a 100 Amp automatic transfer switch (ATS #1 for life safety power), and one at 70 Amps feeding emergency line of a 100 Amp automatic transfer switch (ATS #2 for standby power to optional emergency loads). The pictures on the bottom left show the existing generator. This normal power feed to ATS #1 is from the emergency tap section of the main switchboard via a 60 Amp disconnect, while the normal power feed to ATS #2 is from a 70 Amp circuit breaker in the distribution section of the main switchboard.


## Fire Alarm

The building is equipped with an addressable fire alarm system. This comprises of a main fire alarm control panel, an annunciator panel (in main entry lobby), fire alarm terminal cabinets, strobe lights, and smoke detectors. Corridors, classrooms, and common areas are equipped with visual and audio/visual combo fire alarm notification devices, while utility spaces are protected by provision of smoke detectors. All building exit points are also equipped with manual fire alarm pull station boxes. The pictures on the top left show the existing fire alarm control panel and connections. Per our on-site observations, the layout of the fire alarm devices provides sufficient notification coverage, with sufficient fire alarm initiating devices throughout the building. The fire alarm equipment and devices throughout the building appear to be in very good shape.

## Lighting

The existing building is currently illuminated by both normal and emergency lighting throughout. All lights observed in the building, including those illuminating utility rooms, corridors, classrooms, offices, restrooms, halls, were all LED type lighting fixtures.

All spaces in the building, as observed, are controlled by occupancy and vacancy sensors, in addition to manual override dimmers and switches, providing automatic shut off for lighting fixtures throughout the building.

The emergency lighting in the building comprises of exit signs and lighting fixtures, both fed from the building's existing emergency backup electrical service from the existing generator. The building's exit signs are well placed and provide sufficient egress direction coverage, and we see no issues there. The exit lights throughout the building appear in very good shape.

## Plumbing

The domestic water service to the building is 4 inches and enters at the west wing of the building. An 8-inch sanitary serves the existing. A 12 inch storm line exits the east wing of the building to the street connection.

The plumbing system for the building is served by two gas fired water heaters. Each water heater is a State Model SBD100199NES 118, 100-gallon capacity, 199 MBH gas input.

An emergency eye wash station with a tempering mixing valve is located in the basement boiler room.

The natural gas service to the building is by Washington Gas. The size of the gas piping at the outlet of the gas meter is 6 inches. A packaged ¾ horsepower gas booster pump has been provided in the basement boiler room near the incoming gas service. The gas is provided to the emergency generator, domestic water heaters, mechanical rooftop units and the kitchen equipment.

## Fire Protection

The sprinkler system for the building is a 6-inch service. A fire pump has not been provided for the building. A double check detector assembly, ASSE 1048 certified, is located in the fire pump room (labeled as fire pump room although a fire pump has not been provided). The model of the double check detector assembly is Apollo Valves Model DCDA2LF4A.

A 6-inch fire standpipe system with a 2-1/2-inch fire hose valve connection and 2-inch drain riser is provided in Stair S03. Three wet zones (basement, 1st floor and 2nd floor) are served from the 6-inch standpipe. A 6-inch x 2-1/2-inch (3) way fire department connection is located at the front of the building.

The top picture is showing the fire sprinkler main incoming line to the building and the associated backflow preventer. The second picture shows the existing domestic water heaters.

On the left below, the existing gas booster pump is shown. To the right, the existing plumbing fixtures for a typical classroom.

In the pictures below, typical classroom sinks, restroom lavatories, and existing kitchen are shown.



WALDONSTUDIO ARCHITECTS

## Low Voltage (AV / Telecom and Security)

The building's main telecom service is located in the IT room located on the first level of the building. Two (2) stacked switches (Cisco 3850), each with 48x4 ports (10GB each), feed a distribution module patch panel (Cat 6, UTP, 2U, 48 port) also located in the IT room. The stacked switches and patch panels distribute AV/tele/data signals to the wall data ports located throughout the building. The stacked switches in the IT room enable provision of same service for both wired and wireless networks in the building. The building's telecom service is grounded to the main telecom grounding bar for the building via green insulated copper grounding conductor.

Each tele/data/AV port located throughout the building is fed from the switches and patch panels by a Cat 6 copper cable. Each single port outlet is fed by 1-4 pair, Cat 6, UTP cable run from either the main switch or from one of the patch panels in the IT room. Each multiple port outlet is fed by multiple-4 pair, Cat 6, UTP cable run from either the main switch or from one of the patch panels in the IT room. For example, each 4-port outlet is fed by 4-4 pair, Cat 6, UTP cable run from either the main switch or from one of the patch panels in the IT room.

In addition to the wall data outlets throughout the building, the patch panels also feed the camera locations throughout the building and access points wireless trans/receiver devices located in all classrooms and some common areas.

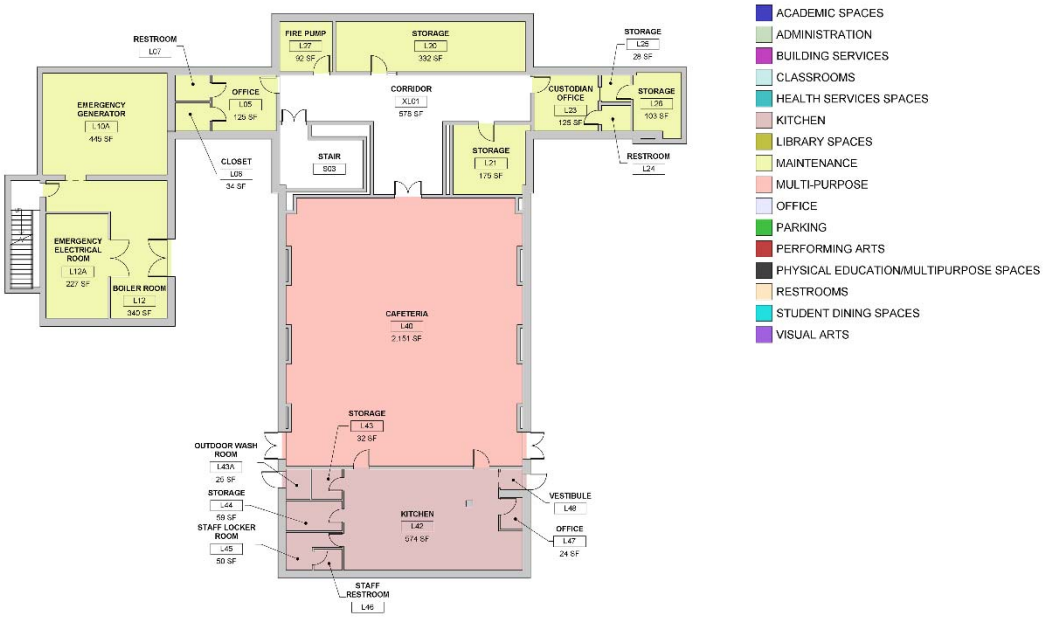
The cameras throughout the building all report back to the main security hub, located in the IT room, via CCTV sensormatic composite cabling. While the access point wireless transmitter/receiver modules are connected back to the patch panels in the IT room via Cat 6 cabling. The access points provide and amplify wireless data and improve RF efficiency throughout the building. The access points in the building are multiple user, multiple input, multiple outlet types. This ensures ability for the building's wireless communication system to handle multiple users at the same time. This is a necessity for a school environment.

There is also an empty 3" conduit routed from the IT room to the roof for future PV panels.

The fire alarm control panel for the building transmits its distress signal via a connection to a Digital Alarm Communicator Transmitter (DACT), which is connected to the building's main telephone board in the main IT room.

# 3.6 Existing Floor Plans

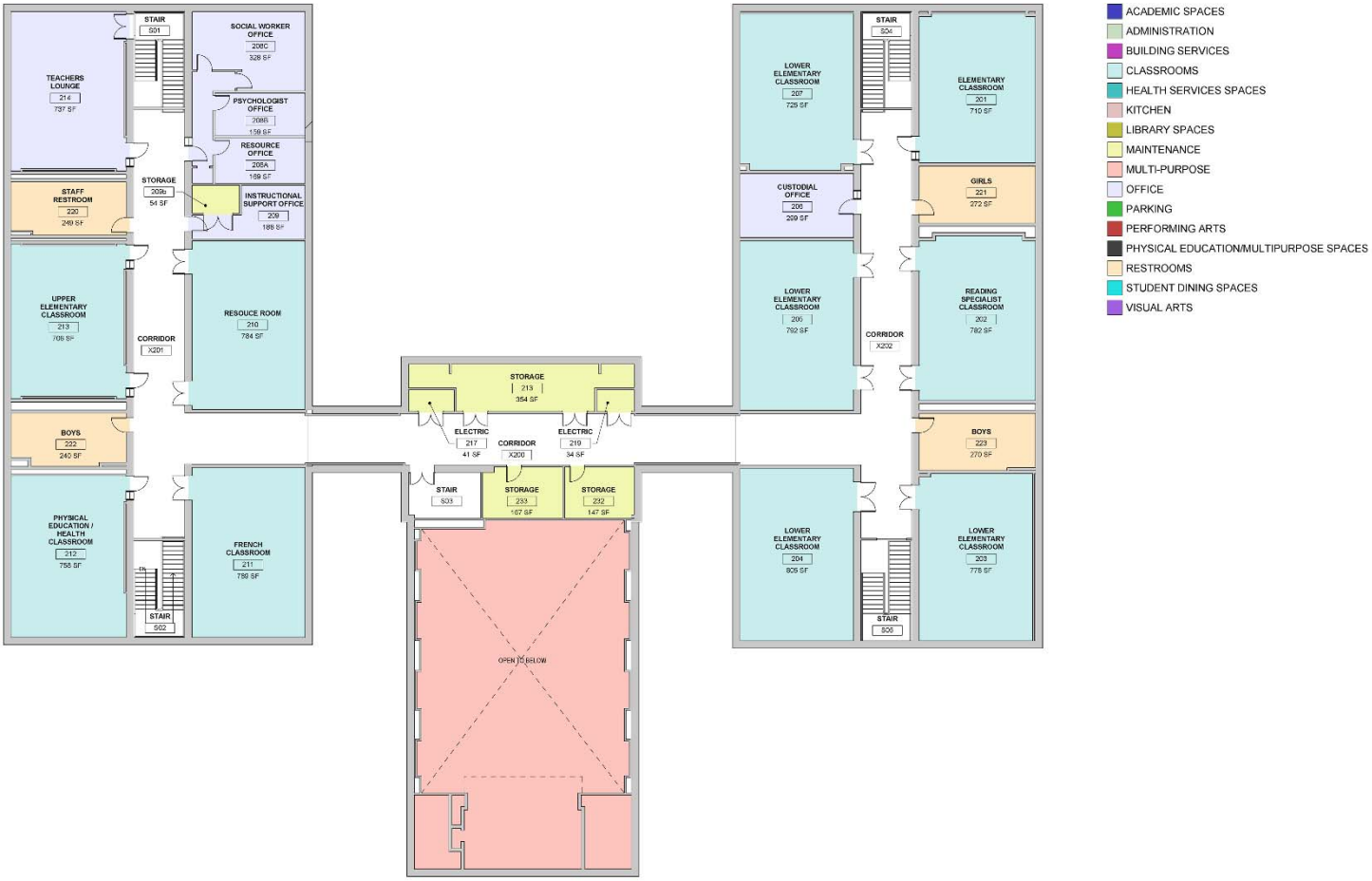
Existing Basement Floor Plan




Existing First Floor Plan

# 3.6 Existing Floor Plans (continued)

Existing Second Floor Plan



# 4 Design Options

## 4.1 Design Options Overview

This feasibility study includes renovation of the existing building, and explores four design options for how to add on to the existing building. The concepts in this section include consideration of the following:

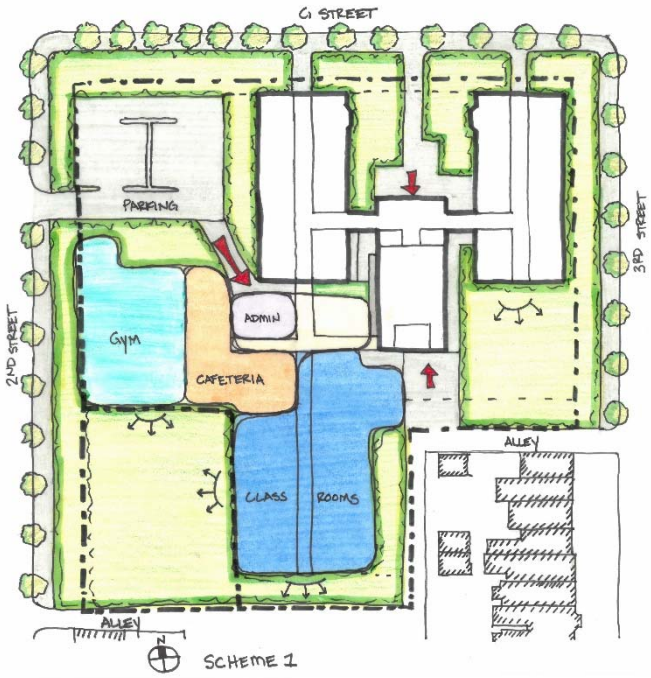
1. The new addition square footage is similar in size to the existing building square footage; The existing school is approximately 50,734 square feet. The new addition in this feasibility study, depending on the concept option, ranges from roughly 46,000 – 54,000 square feet.
2. All the options include similar renovation scope of work for the existing building. Those items are listed in section 4.2 of this report.
3. Setbacks, property lines, and federally-owned land are all factors in how the perimeter of the new addition buildable area was determined. Those are reflected in site plan and concept plans with dashed lines.
4. Design & construction sensitivity to adding on to the existing historical façade was taken into consideration.
5. In the options, it was a preference to not create new curb cuts, or, at a minimum, utilize existing curb cuts for vehicular access on to the site
6. Approximately 24-26 parking spaces required per zoning.
7. Accommodates bike, walking, public transportation, and vehicular access to the site.
8. Safety and security around the perimeter of the sight, and safe flow between parking / arrival / departure to and from the school; also to and from school and all other outdoor spaces.
9. Separate receiving and dumpster area from the parking area
10. It is preferred that the youngest students are located on the lower levels. Note: In the existing building, the bottom of the windows are up higher than the eye level of many of the younger students, making it more difficult for them to see outside. Building classrooms can be clustered by grade-levels. The classrooms at CHML are organized in the following grade levels:
    a. Primary classrooms include PreK-3 through Kindergarten students,
    b. Lower Elementary classrooms include 1st through 3rd grade students
    c. Upper Elementary classrooms include 4th through 6th grade students, and
    d. Middle grade classrooms include 7th and 8th grade students.
11. Middle Grade space needs to be developed with middle school-aged students in mind, with independently-zoned space that honors and supports middle school-aged students and their interests, needs, and learning goals.
12. Must accommodate the DCPS Education Specifications and the Montessori education model, as well as the demands of a modern educational system through appropriate technology and STEM-based learning.

13. Commons spaces located in each classroom wing for flexible learning zones. These spaces can potentially house appliances and equipment for cooking, laundry, and dishes.
14. Spaces for break-out activities outside the classrooms, along the corridors can be provided in a variety of different solutions, along with providing a sense of open-ness and visibility between the classrooms and corridors. This idea was not explored in depth in the feasibility study, however can be developed further in the final design.
15. Direct outdoor access from the classrooms located in the new classroom wing addition. Green roofs also allow for outdoor access from upper floors.
16. The new addition classrooms should have daylighting and views to the exterior, as well as ease of access to outdoor spaces on first floor, and access to green roofs on the second and third floors for gardens, outdoor teaching, and experiential learning. The design aims for a minimum goal of at least 60 square feet of green space per student, including play areas, gardens, patios, outdoor learning, fields and courts. Outdoor space directly adjacent to the classrooms can be raised and covered to maintain a transitional hierarchy between the classroom and outdoors.
17. Both two-story and three-story additions were studied.
18. Rooftops are considered to be “solar ready” for potential photovoltaic energy generation.
19. A safe and secure new main entrance into the administrative area of the new addition. The existing entrance can still serve as a symbolic entrance or auxiliary entrance if the school chooses to use it as such. The Administrative area will still be welcoming and provide adequate space for daily operations, private meetings with families and guests, storage, and all staff offices.
20. Maintain recently installed historical exhibit in existing building lobby about the building and neighborhood.
21. New dedicated cafeteria and new dedicated gymnasium for physical education. The gymnasium and cafeteria are shown directly adjacent to one another, creating the opportunity to have an operable wall separating the two, which could be opened for large events.
22. Currently meals are served in the cafeteria. The new design will need to take into consideration whether students of varying grade levels will continue to eat in the cafeteria or in their individual classrooms.
23. The existing multi-purpose room on the first floor would be converted into the new media center.
24. The existing cafeteria on the basement level would be converted into new makerspace, offices, and building services.
25. Beyond the grade-level classrooms, the specialized curriculum taken into consideration for this study include world language, physical education, library, visual arts, theatre arts, and music. Ideally, spaces for these types of specialized curriculum can be clustered together for ease of transition and collaboration. Music and art rooms in the new addition have been shown as centrally located in the schemes.
26. A minimum of LEED Gold for Schools must be attainable for each design option
27. Drinkable water source in every classroom.
28. Adequate space and privacy for the health, mental health, and special learning needs of all our students
29. Dedicated teacher work “zones” located directly adjacent to the classrooms, along with teacher planning / collaboration, and storage spaces.
30. Toilet rooms accessible from the classrooms for the youngest students.
31. Adequate space for the afterschool care and enrichment program.
32. Throughout the existing building and new addition, the project will address Americans with Disabilities Act (ADA) requirements.


## 4.2 Anticipated Scope of Work for Existing Building

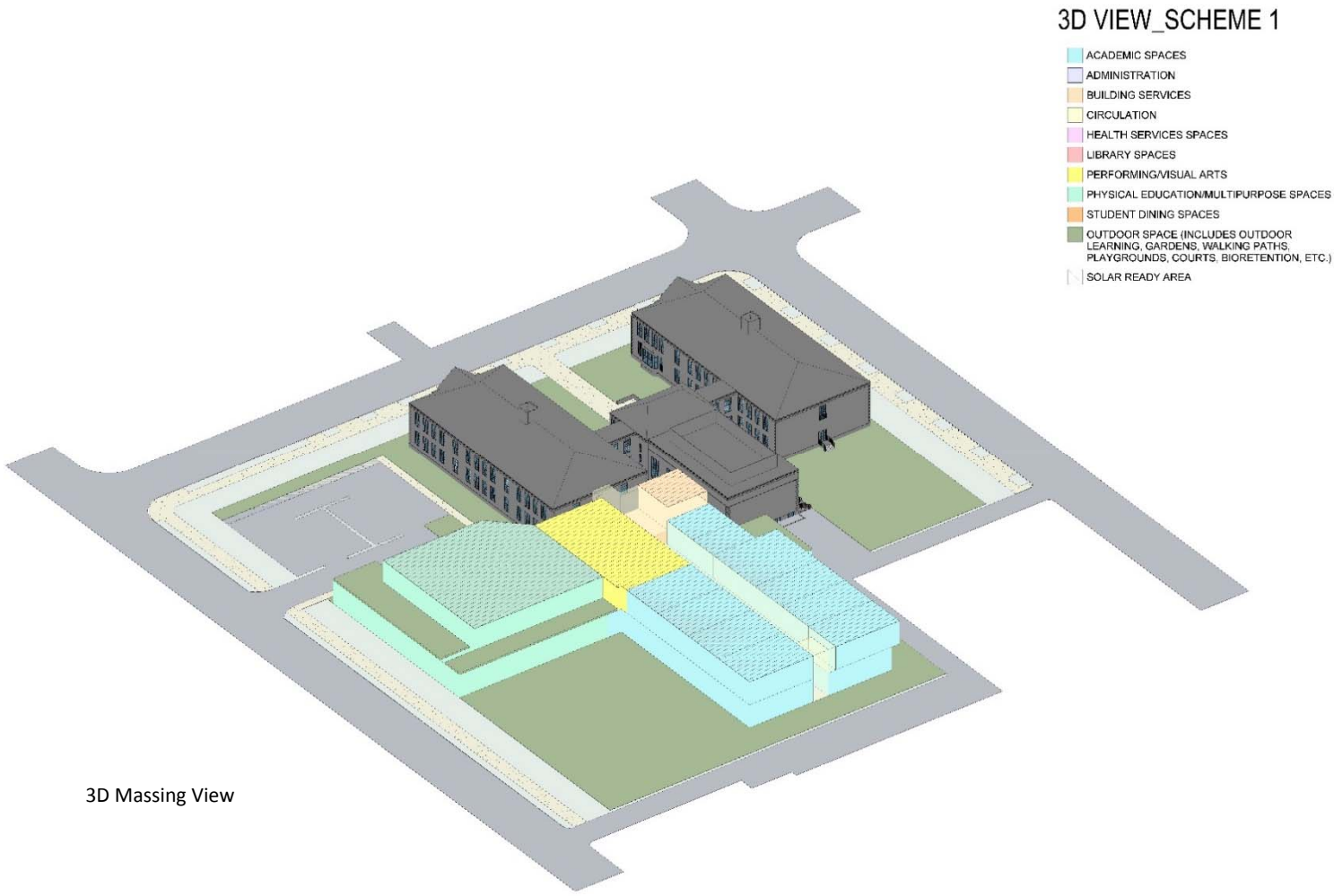
The anticipated scope of work in the existing building include renovating portions of the existing building that were not renovated in the recent modernization or prior to that project. Those include:

1. ADA upgrades, including new elevator, accessible entrances, handrail updates, toilet rooms clearances, stage access via lift or ramp, accessible site circulation, and all other required upgrades.
2. Door and door hardware replacement, including levers, locks, etc.
3. Updated technology in existing and new classrooms, including smartboards in rooms that have not yet received them per direction from DCPS and CHML.
4. Casework upgrades & Furniture, Fixtures, and Equipment (FF&E).
5. Tile wainscot and terrazzo floor repairs.
6. Classroom square footages will be modified or reprogrammed to match the provided Educational Specifications; size includes area for 21st century learning furniture, curriculum, and materials.
7. Science lab, technology lab, and teacher prep rooms will be included in the existing building.
8. Administrative and health spaces will be relocated closer to the new addition main entrance. Both spaces will be made larger to meet the new educational specifications.
9. It is important for the learning space design and setup to be unique; room clustering is intentional, the classrooms / commons / outdoor spaces should be connected to meet the school's needs associated with both the Montessori culture and the individual school's unique culture.
10. Commons spaces will be provided in the existing classroom wings for special projects, collaborative work, and individual pull-out instruction.
11. The Primary level students will be located in the new addition.
12. Additional storage will be provided.
13. Outdoor gardens at the school are very important to the Montessori program, and curriculum and must be maintained in the new design. Additional outdoor storage is needed and is included in the new addition scope of work. 42" high fencing around lot and gardens where there is no fence in place already.
14. The existing annex building will be demolished as a part of this study. It is preferred that there is a protected, climate-controlled connection between the existing and new construction.
15. Main Distribution Frame (MDF) & Intermediate Distribution Frame (IDF) rooms must be accessible from a corridor. CAT5 cabling must be replaced with CAT6/7. The window in the MDF room will need a film to tint the window, however, this must be confirmed with historical review agency.
16. Existing oil tank is obsolete and can be removed.
17. Roof assessment and potential repair and/or replacement
18. Review of hazardous materials; abatement / encapsulation of hazardous materials that still remain in the existing building.
19. Some of the classrooms will require new furniture, fixtures, and equipment, however, this must be evaluated on a room by room basis.



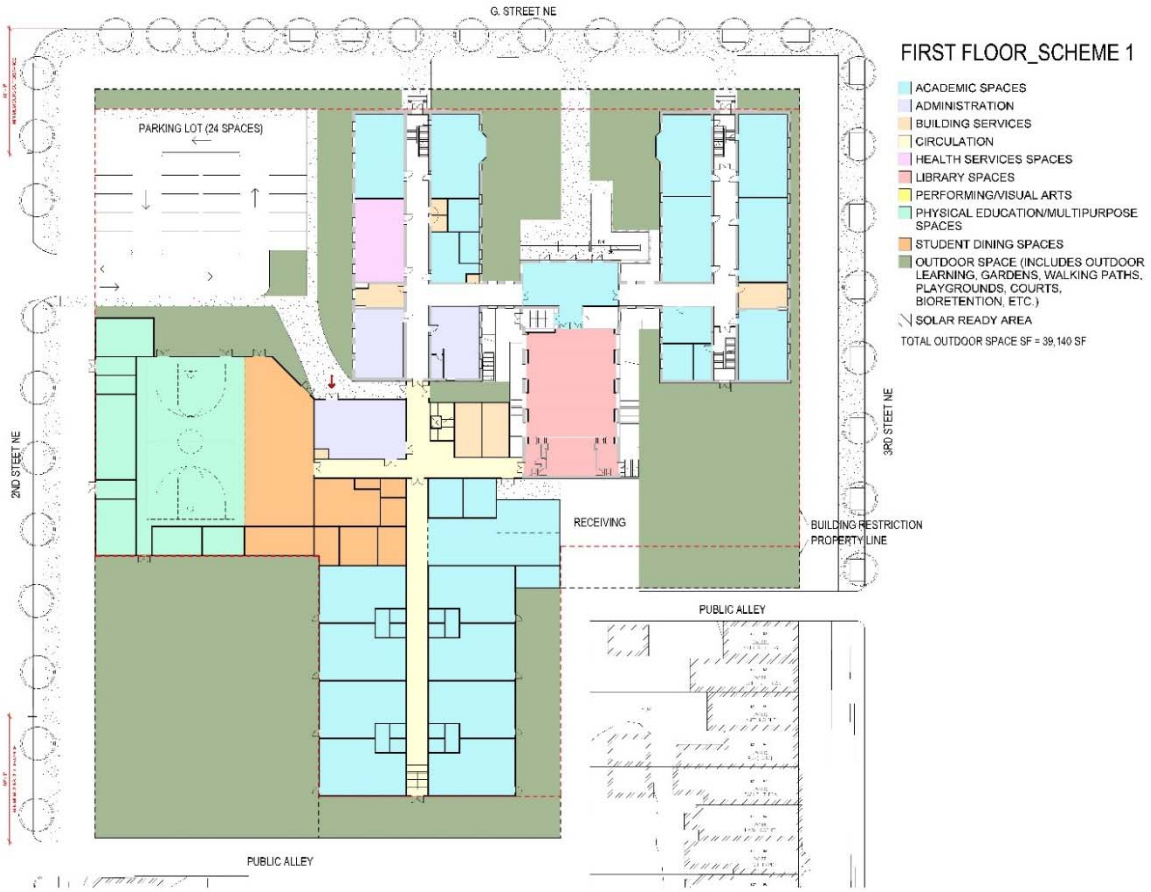

## 4.3 Option 1

Option 1 includes parking in the northwest corner of the site, allowing for some of the existing playground space to remain on the east side of the site and more green space away from the busy intersection at 2nd and G Streets. Receiving is located off the public alley on the southeast. The alley is narrow in this location, the possibility of expanding the alley width would need to be explored. There is a new, secure, centrally-located main entrance with administrative offices. The cafeteria and gym are located adjacent to the new main entrance, potentially with an operable wall separating the two spaces that could be opened for large events. There is access to a central corridor that connects the new addition to the existing multi-purpose room, which would be converted into the new Library. The new, two-story classroom wing branches out to the south end of the site, allowing for outdoor access from all of the first-floor classrooms, and green roof access from the second-floor. The second-floor classrooms are cantilevered out over the first floor on the east side to allow for a wider second floor corridor and shaded outdoor space on the first floor. This overall plan configuration allows for separation of community spaces vs. classroom spaces. During after-hours events, the community spaces could be accessible through the main entrance, while the classroom wings could be locked down. Performing and Visual Arts classrooms are located on the second floor with access to green roofs.

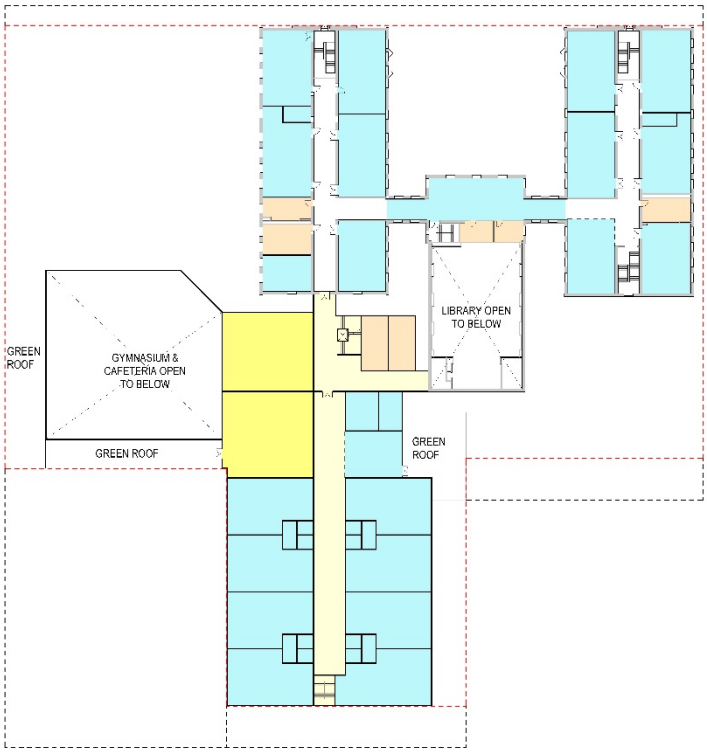



3D Massing View

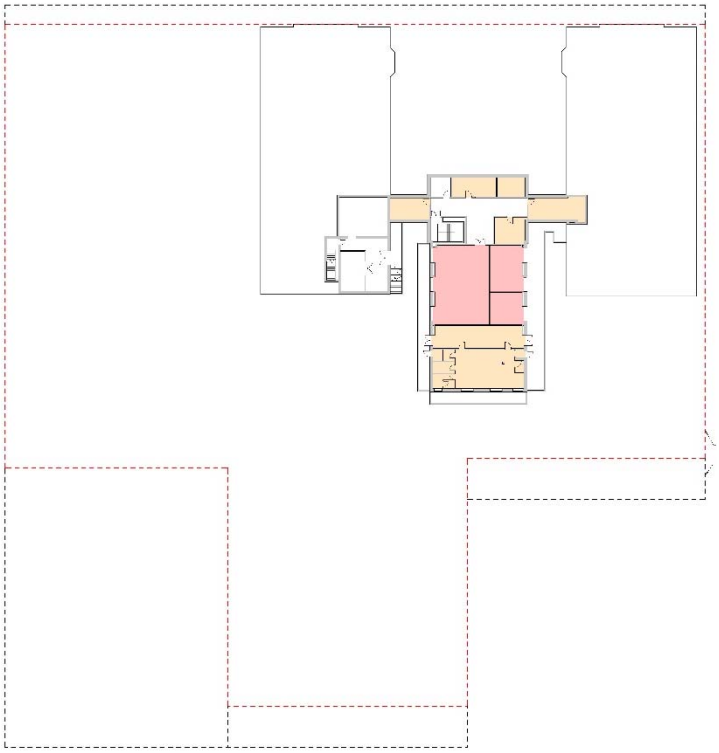
## 4.3 Option 1



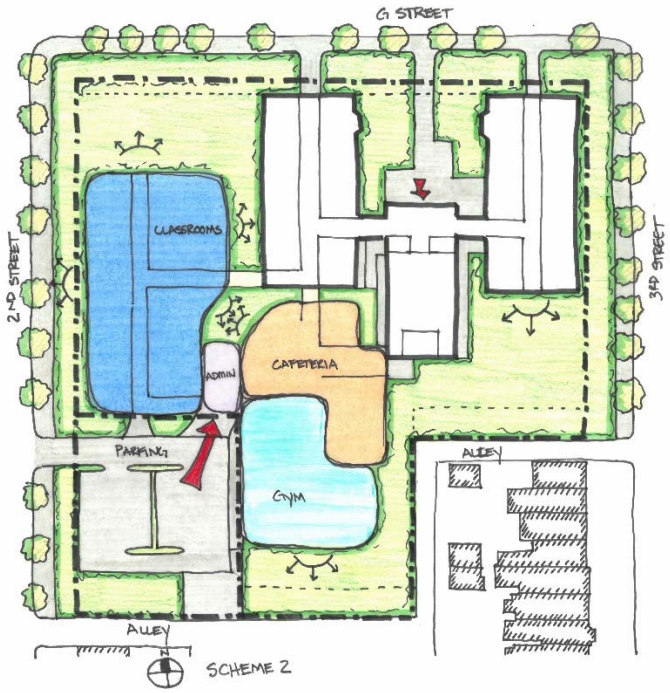

First Floor Plan




Second Floor Plan

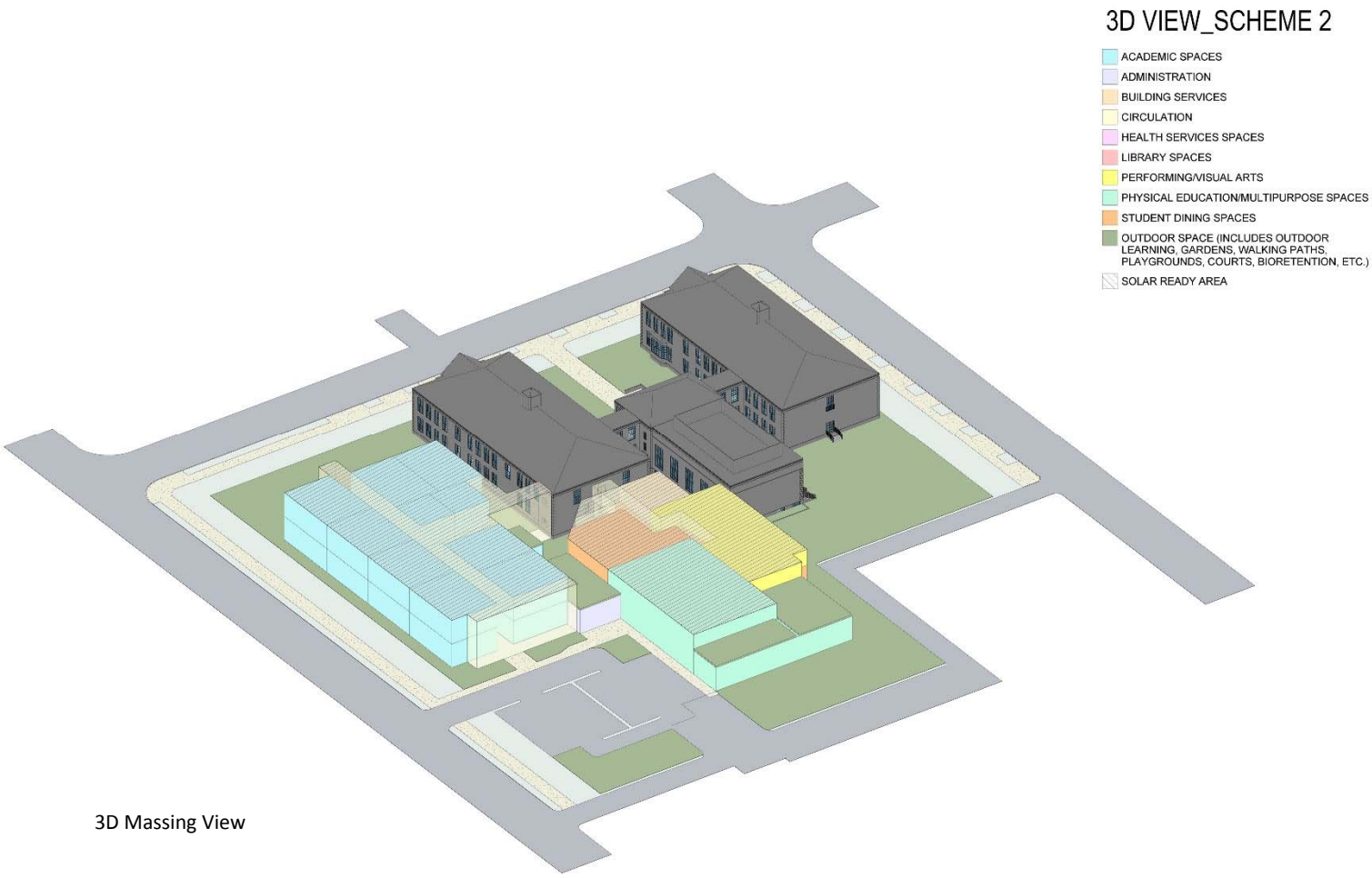


Basement Floor Plan




## 4.4 Option 2

Option 2 includes parking in the southwest corner of the site, utilizing the existing parking lot curb cut. Receiving is located on the south side of the site, accessed from the existing public alley. There is a new, secure, centrally-located main entrance with administrative offices. The cafeteria and gym are located adjacent to the new main entrance, potentially with an operable wall separating the two spaces that could be opened for large events. Cafeteria is also connected to the existing multi-purpose room, which would be converted into the new library. The new classroom wing branches out to the west side of the site, allowing for outdoor access from all of the first-floor classrooms, and green roof access from the second floor. This wing has been setback from the front of the existing historical building classrooms for views to be maintained of the existing building from G Street, and for the historic wings to maintain their prominence. This configuration allows for separation of extracurricular and community spaces vs. classroom spaces. During after-hours events, the community spaces could be left accessible through the main entrance, while the classroom wings could be locked down. Performing and visual arts classrooms are located on the second floor with access to green roofs.

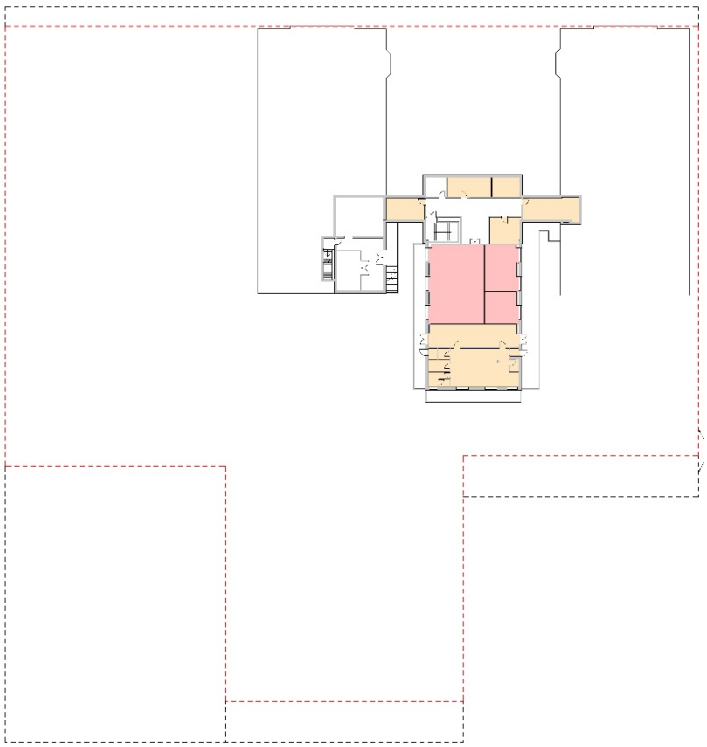



3D Massing View

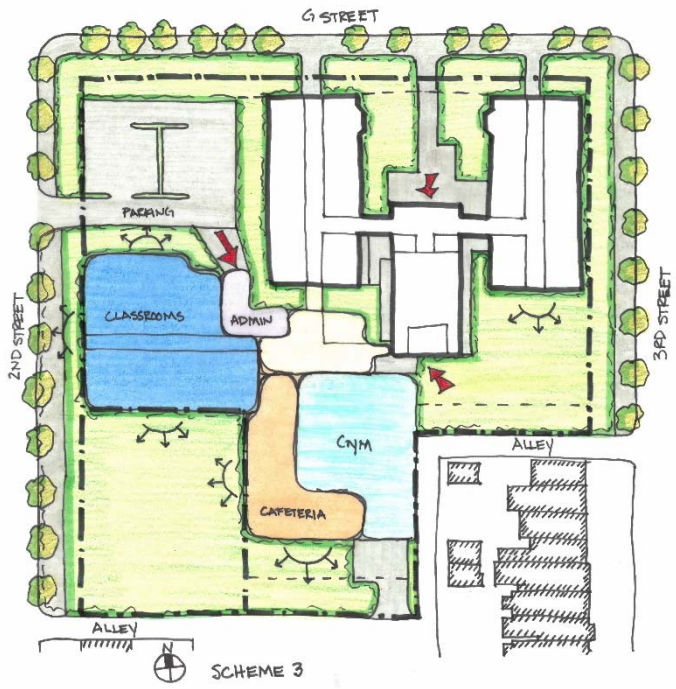
## 4.4 Option 2


First Floor Plan


Second Floor Plan

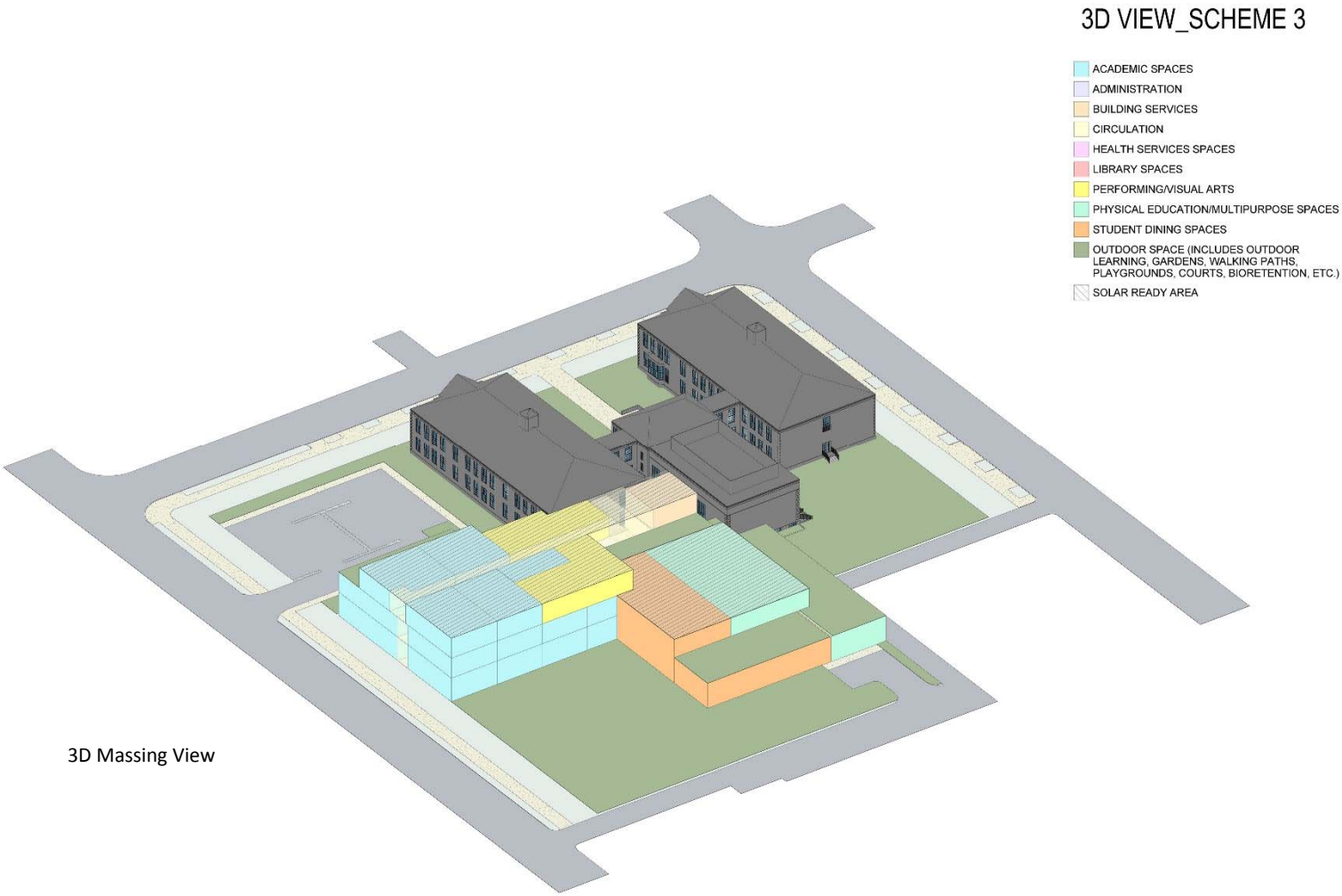


Basement Floor Plan



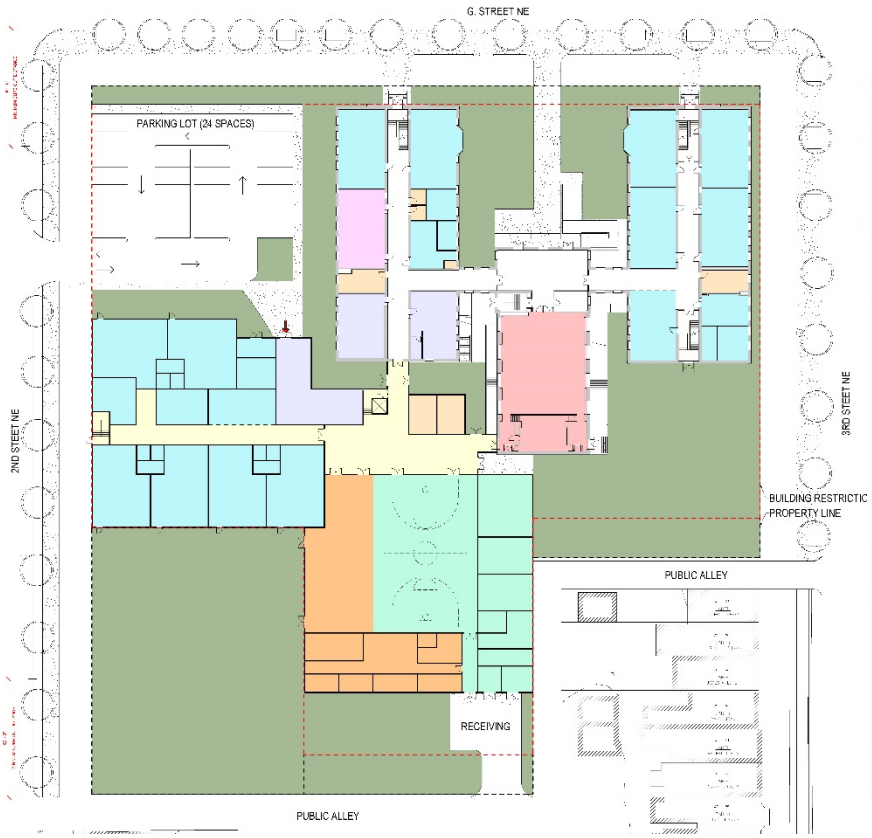

## 4.5 Option 3

Option 1 includes parking in the northwest corner of the site, allowing for some of the existing playground space to remain on the east side of the site and more green space away from the busy intersection at 2nd and G Streets. Receiving is located off the public alley on the southeast. The alley is narrow in this location, the possibility of expanding the alley width would need to be explored. There is a new, secure, centrally-located main entrance with administrative offices. The cafeteria and gym are located adjacent to the new main entrance, potentially with an operable wall separating the two spaces that could be opened for large events. There is access to a central corridor that connects the new addition to the existing multi-purpose room, which would be converted into the new library. The new, three-story classroom wing branches out to the west side of the site, allowing for outdoor access from all of the first-floor classrooms, and green roof access from the second floor. This overall plan configuration allows for separation of community spaces vs. classroom spaces. During after-hours events, the community spaces could be accessible through the main entrance, while the classroom wings could be locked down. Performing and visual arts classrooms are located on the second floor with access to green roofs.

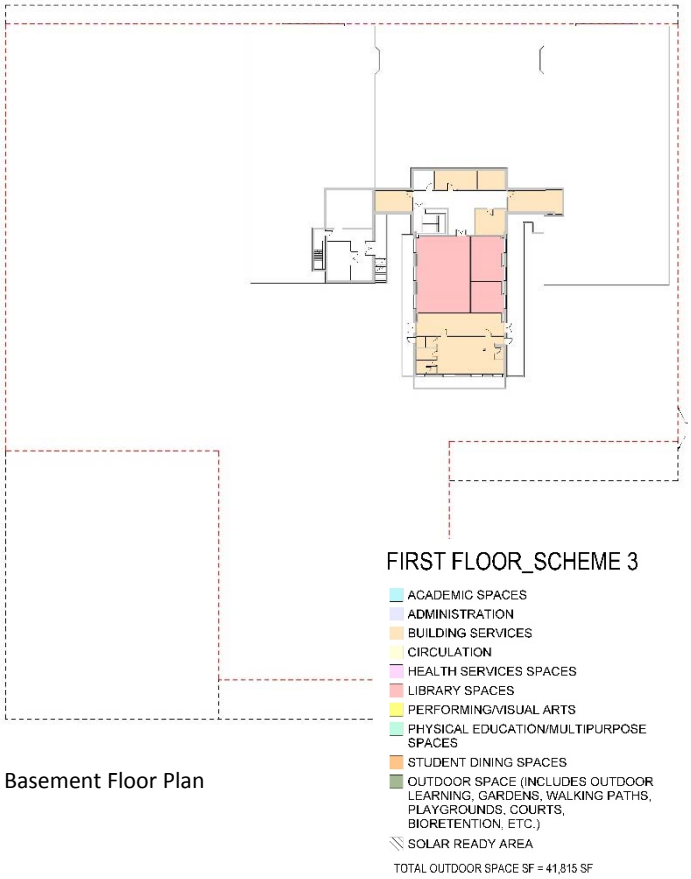



3D Massing View

## 4.5 Option 3

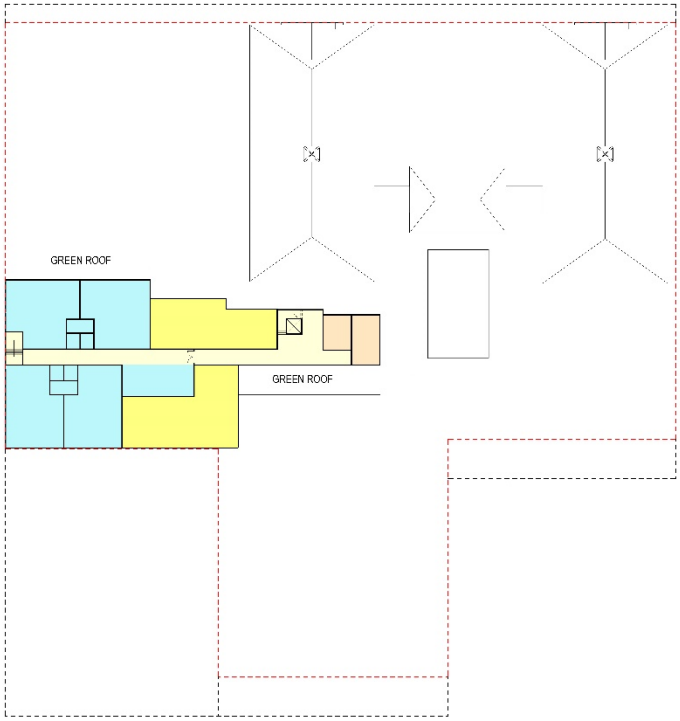



First Floor Plan

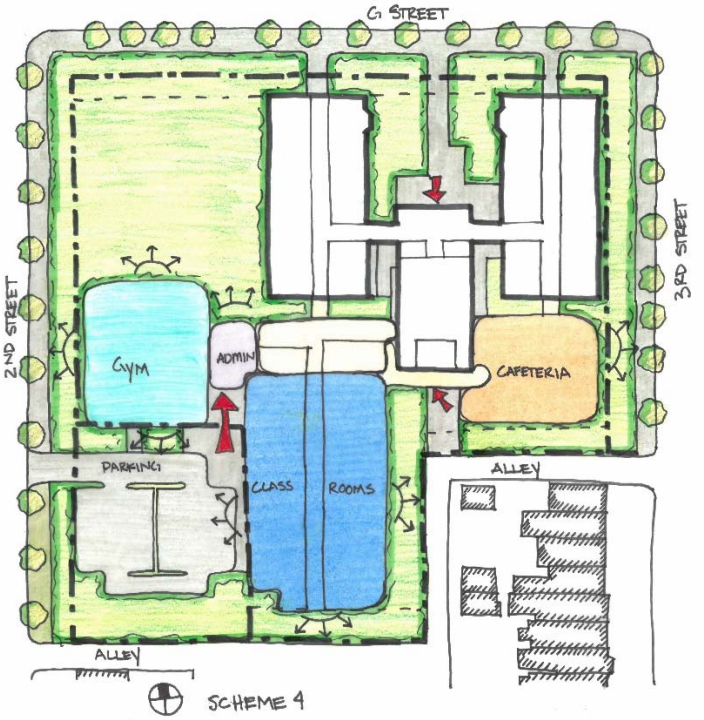



Basement Floor Plan


Second Floor Plan

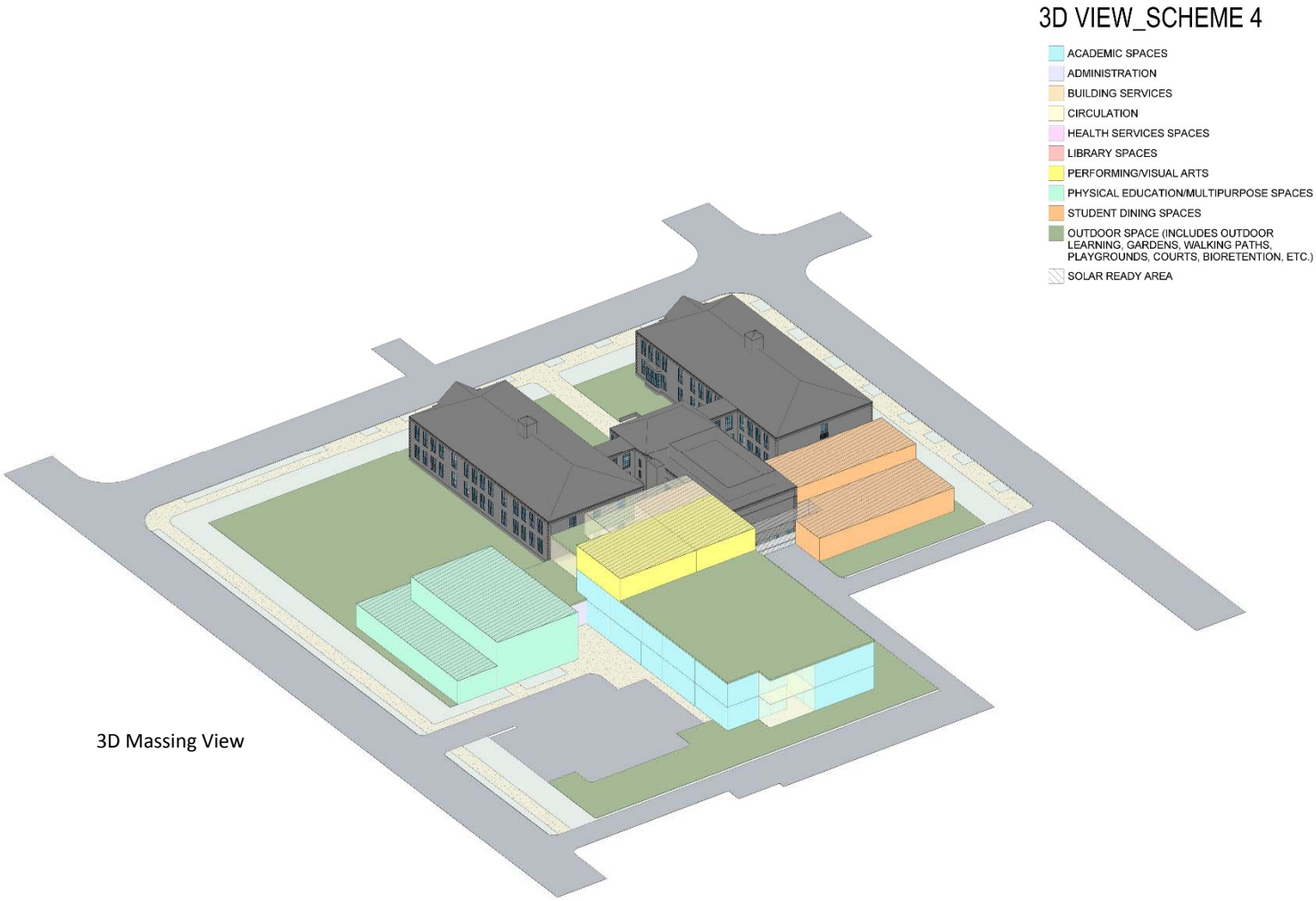



Third Floor Plan




## 4.6 Option 4

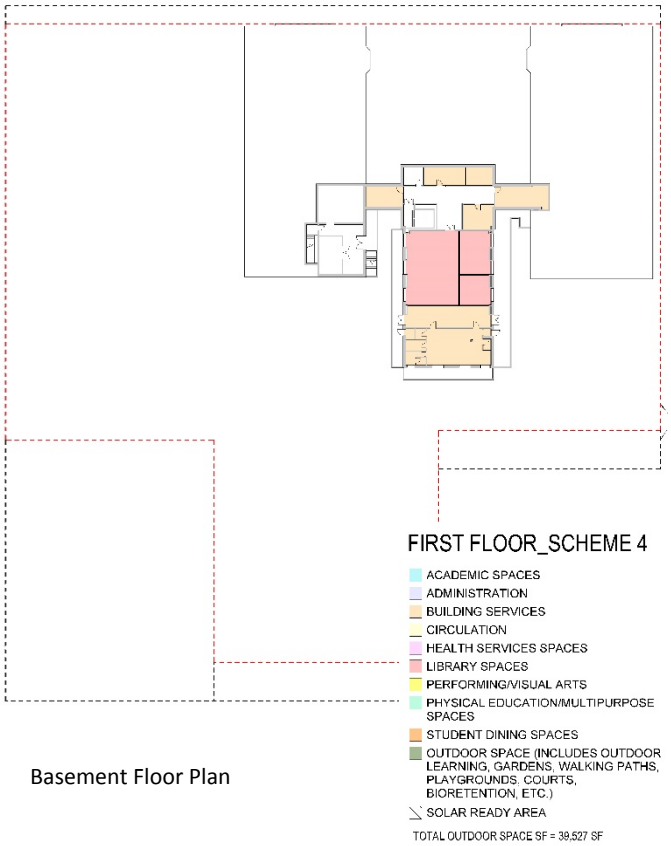
Option 4 includes parking in the southwest corner of the site, allowing for green space in the northwest corner. Receiving is located off the public alley on the southeast. The alley is narrow in this location, the possibility of expanding the alley width would need to be explored. There is a new, secure, centrally-located main entrance with administrative offices. The gym is located adjacent to the new main entrance, and the cafeteria is located on the opposite side of the site off the existing east classroom wing. There is access to a central corridor that connects the new gym addition, classroom wing, and cafeteria to the existing building. The existing multi-purpose room would be converted into the new library. The new, three-story classroom wing branches out to the south end of the site, allowing for outdoor access from all of the first-floor classrooms, and green roof access from the second floor. During after-hours events, the community spaces could be accessible through the main entrance, while the classroom wings could be locked down. Performing and visual arts classrooms are located on the second floor with access to green roofs.



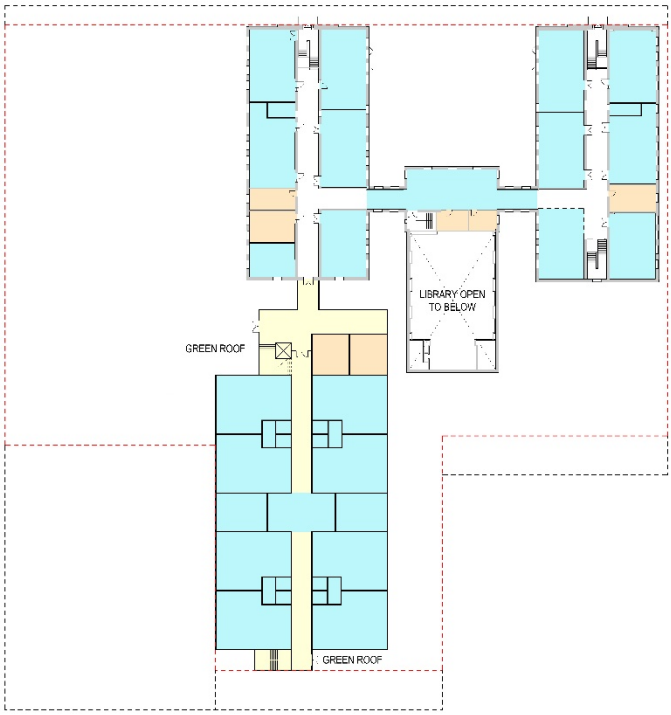

3D Massing View

## 4.6 Option 4

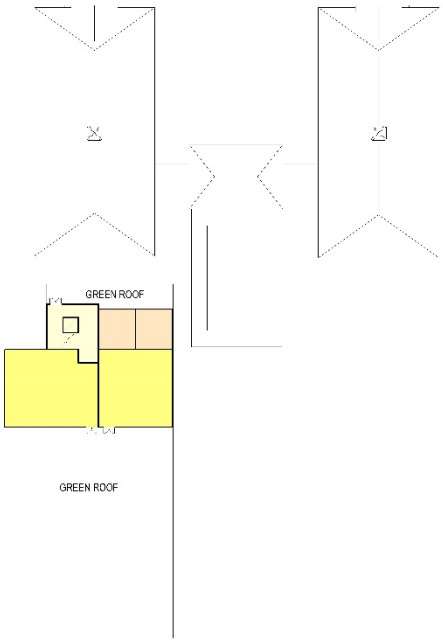

First Floor Plan




Basement Floor Plan

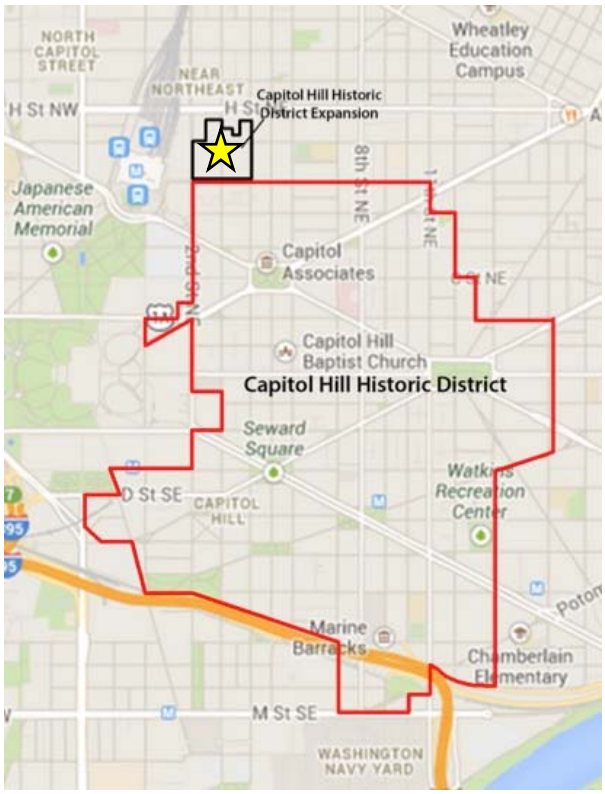



Second Floor Plan




Third Floor Plan

Original John T. Logan Elementary School at 3rd & G Streets, NE, Washington DC




## 4.7 Historical Design Approach

The original John A. Logan Elementary School, located at 3rd and G Streets NE, was originally built in 1891 as a Colonial Revival style brick and limestone structure by the John W. Hunt Company. It was not until 1935, however, that the present building on 3rd Street was constructed and occupied, maintaining the original building as an annex. In 1946, an addition was approved and by 1949 the two new wings were completed. The additions to the 16-room building included 10 classrooms, a library, kindergarten, recreational room, offices and a combination auditorium-gym to house 885 pupils. The old building was sold in 1949 to the Lalor Medical Center. In the mid-1980s, developers purchased the old building and converted it into a condominium residence. Alterations to the new building were made in 1965. Capitol Hill Montessori at Logan relocated to the Logan Building in September 2011. The school was named in honor of John Alexander Logan (February 9, 1826—December 26, 1886), a soldier and political leader. Logan served in the Mexican-American War, was a general in the Union Army during the Civil War and served as an Illinois senator and congressman. Regarded as the founder of Memorial Day, his likeness appears on a statue in Logan Circle.The Capitol Hill Montessori School at Logan Campus is located within the Capitol Hill Historic District and the existing exterior façade of the Logan school building has historical significance. The design team had a preliminary review meeting with the U.S. Commission of Fine Arts and the D.C. State Historic Preservation Office. Below are some of the suggestions that arose from that meeting.

- Every project is reviewed on a case by case basis by these agencies. There is no “standard” approach that must be followed for this project; rather, the agencies will take into consideration the options and advise on the best possible approach for this specific project on this specific site.
- The existing school is a typical “extensible” school design, whereas building additions have been added on with “links” or “hyphens”. If possible, continuing to utilize this method of attachment for the new addition would be logical.
- There is a preference to maintain the original entrance along the north façade. However, this could be more of a “-symbolic-” entrance and a new main entrance could be developed as part of the new addition for safety and security purposes.
- It is suggested to retain as much of the existing building and views of the existing facades as possible.
- The new addition locations will most likely be on the south and west sides of the existing building, the new design should be respectful of the existing building facades and height. Although the existing building is two -stories tall, the new addition could be three- stories tall, as long as it is not directly next to the existing building and did not give the impression that it is “competing” with the existing building.
- It would not be ideal to add new -/- additional doors to the existing building exterior for outdoor access, as they would interrupt the existing historical façade.
- Not necessary to match exact materials -/- colors of existing, preference is for the historical building to stand on its own, for people to “know” which parts are historic vs. new; “not too historicist”. Utilize existing scale, rhythm, geometries, datum lines,

proportions of the existing building (and surrounding neighborhood) in the new design.

## 4.8 Site & Systems Approach

### Civil Narrative for New Addition

**SITE / CIVIL INTRODUCTION**

The CHML scope of work includes the entire existing school to be fully renovated and modernized which will include a new building addition to support the increased program requirements. The site overall will require further analysis to assure the programming and populations needs are met which will include the removal of the existing temporary modular classrooms. ADA accessibility will be reviewed, and recommendations will be made on how to improve the access to and from the building. It is very likely the properties (local and federal lands) involved with this development would be required to be subdivided into one (1) record lot via the DCRA subdivision process.

AMT recommends the following design considerations to ensure that any option that is selected will meet the basic DC regulatory requirements:

**OPTION 1 – SITE / CIVIL**

Any structure and/or feature that is within Lot 828 (federal land) would need to be removed in its entirety to make room for the new improvements. This scheme involves providing a new (L-shaped) building addition connected to the left and central wing of the existing building. Site improvements include reducing the size for a 24-vehicular space parking lot; reconfigure the spaces for better circulation; enhancement of the Lot (federal land) with a new outdoor play space; better pedestrian accessible paths; upgraded outdoor spaces throughout the campus; remaining parts of the site would be treated with vegetative enhancements. This scheme indicates one (1) new vehicular access to the reconfigured parking lot from 2nd Street, NE. The other vehicular/truck access is indicated along the rear of the property from the public alley. This access would mainly be used for delivery and maintenance trucks and vehicles. As such the loading spaces and dumpsters would be placed in this area of the site. Minor public space improvements will be required for this scheme.

**OPTION 2 – SITE / CIVIL**

Like Option 1 the items within Lot 828 (federal land) would need to be removed in its entirety as required to allow improvements to be made to meet the needs of the school's core program. This scheme provides a much larger new building addition footprint located west of the main school structure. Site improvements include reducing the size of the parking lot; reconfigure the spaces for better circulation; Lot 828 (federal land) will have a new vehicular space parking lot; better pedestrian accessible paths to and from the parking lot and building; upgraded outdoor spaces throughout the campus; remaining parts of the site would be treated with vegetative enhancements. A second vehicular/truck access is indicated along the rear of the property from the public alley. This access would mainly be used for delivery and maintenance trucks and vehicles. As such the loading spaces and dumpsters would be placed in this area of the site. Minor public space improvements are anticipated for this scheme.

**OPTION 3 – SITE/ CIVIL**

Like Option 1 the items within Lot 828 (federal land) would need to be removed in its entirety as required to allow improvements to be made to meet the needs of the school's core program. This scheme provides a much larger new building addition footprint located west of the main school structure. Site improvements include reducing the size for a vehicular space parking lot; reconfigure the spaces for better circulation; enhancement of the Lot (federal land) with a new outdoor play space; better pedestrian accessible paths; upgraded outdoor spaces throughout the campus; remaining parts of the site would be treated with vegetative enhancements. This scheme indicates one (1) new vehicular access to the reconfigured parking lot from 2nd Street, NE. The other vehicular/truck access is indicated along the rear of the property from the public alley. This access would mainly be used for delivery and maintenance trucks and vehicles. As such the loading spaces and dumpsters would be placed in this area of the site. Minor public space improvements are anticipated for this scheme.

**OPTION 4 – SITE / CIVIL**

Option 4 involves adding a new building addition connection to the eastern, central and western portion of the existing CHML building. Site improvements include reducing the size of the existing parking lot to 24 spaces, and allocating the new parking lot within Lot 828 (federal Land). Vehicles will access parking lot from 2nd Street, NE and entrance will have to be widened for efficient vehicular circulation. The proposed receiving area will be accessed from 3rd Street, NE and will be used for truck delivery services, along with waste disposal services. Other site improvements include upgrading outdoor spaces and the remaining spaces will be furnished with vegetation and green spaces. Play areas will be in the area which is currently used as the parking lot. Minor public space improvements are anticipated for this scheme.

**STORMWATER MANAGEMENT APPROACH – OPTIONS 1,2,3, & 4**

Based on our understanding of the site improvements and scope of work this project will have two classifications as required by the D.C. Department of Energy and Environment (DOEE). Any of the building renovations will be classified as "Major Substantial Improvements" (MSI) and the new building addition and other site improvements will be classified as "Major Land Disturbing Activity" (MLDA). Both classifications will require the design to provide stormwater management (SWM) quantity and quality control treatment systems.

The best method of SWM to consider for any of the options that has a new building addition will be to have a green roof design. The design intent is to also provide other water quantity and quality treatment through Low Impact Development (LID) methods (i.e. bioretention areas and/or cisterns and/or permeable pavers). Depending on the final option selected, one or a combination of these systems will be used to meet the DOEE regulatory requirements. The infiltration soil borings will reveal if the ground is able to accept a system which uses the practice of infiltration. Design of such SWM facilities will allow the systems to be reduced in size and be the most economical to include and possibly even located underground.

The SWM design will primarily target the following systems as possible ways of providing both qualitative and quantitative measures and they include but are not limited to the following:

**Green Roof** - Building additions being considered will have a partial green roof cover. A green roof accomplishes many goals, including improving water quality and help provide some onsite retention as well as enhancing the aesthetic view of the site. To maximize the storage volume for a green roof, runoff from other portions of the roof should be directed into the green roof.

**Rain Water Harvesting/Cisterns –** This can be utilized to reuse water for purposes of not discharging to existing storm drain system and thus reducing runoff overall. The use of cistern(s) will be evaluated and if feasible considered. The method of calculations being promoted by DOEE does not give the developer/applicant significant amount of credit for use of a cistern system unless there is significant water demand by the buildings daily operations. We intend to analyze the projected demands of each building to determine if a cistern type of system will be beneficial for this project. A determination cannot be made at this time.

**Bioretention** - Introduce select locations for new bioretention areas to treat localized small drainage areas to improve quality while at the same time providing minor retention. Our emphasis will be to indicate new bioretention areas at strategic locations to help achieve the required water quality and quantity controls. In-situ boring tests have been suggested to be conducted to determine soil conditions in which infiltration may exist. If borings are not conducted AMT is to assume worst case scenario of the soil make-up and the bioretention areas will need to have underdrains to safely discharge into the existing drainage system.

**Tree Planting & Preservation** - Preservation and protection of any existing tree is most beneficial because the new guidelines promote the protection of such vegetation by giving credits against the required retention volumes. The credits given will depend on the type, size and age of each tree. The planting of new trees also helps reduce the required retention volumes.

**Permeable Pavers** - Introduce select areas with permeability methods to better treat the runoff and provide some below grade retention measures. This will be another form of treatment to consider if it is at all feasible to include in the overall design of the proposed play area and or parking areas.

**Storm filter Structures** - This system is proprietary, but it is used often when other systems have not proven to work within a site. This system involves cartridges being installed within a vault or manhole to filter the water and often detain a certain volume. This system is adequate to remove Total Suspended Solids (TSS) that is required not only for DOEE but also for LEED certification. This system can often be considered a structure of last resort when it is determined none of the other systems provide sufficient SWM retention values needed for approval.

**SITE UTILITIES – SCHEME 1, 2,3, & 4**

The adjacent roads and driveways are currently improved with the utilities required for construction, (i.e. sanitary sewer, water, storm drains, gas and electric). At this time, it is not determined whether existing utilities will need to be upgraded, or if existing utility network can support the modernization taking place.

Review of public utility records made available did not indicate the exact location (vertical and horizontal) of all utilities found within the project work limits, except for maybe some indiscrimate tops/covers. The horizontal location of utilities within the project limits were located and shown on the plans according to those known and available records. The vertical location of gravity systems will also be indicated on the plans and information provided on the existing conditions plan. However, the vertical location of the non-gravity systems, (i.e. gas, telephone, electric, etc) was not either field verified nor confirmed. Therefore, the absence of either as-built plans or field test holes will require the contractor to engage in some type of exploration for non-gravity utility systems in advance of engaging new utility/site work. The contractor will need to get involved in conducting test pit(s) to determine the actual depth of the non-gravity systems located within the project work limits. This is needed to assure clearances are adhered between new and existing utilities. It is the responsibility of the contractor to arrange and coordinate the disconnection and/or abandonment of any utility found within the project work limits with the appropriate utility surveyor(s). The following is a summary of utility services and how they will be implemented:

**Storm Drainage** - The drainage for the site will be further investigated. There are currently various inlets in located in the parking lot which are tied through underground piping to the existing 21" combined sewer discharging into the 24" combined sewer located in the sidewalk adjacent to 2nd ST, NE. New stormwater facilities will tie into this system.

**Sanitary Sewer** – GIS Records, and DC Water counter maps indicate an existing 8" sanitary line leaving the existing building and connects to the existing 12" CSS, and it finally discharges into the 24" CSS on the sidewalk adjacent to 2nd ST, NE. The new sanitary lateral connection(s) will be connected to the existing 24" sewer system found along 2nd Street NE.

**Water Line** – New water services fire and domestic will be required for the interior renovation and the proposed building addition. Water services will be required to meet DC Water's design standards and the new water meter vault will be required to be placed outside. The new water line connection will parallel the existing domestic water service lateral. The size of the fire and water service are yet to be determined. The connection will likely come from G Street NE; however, DC Water will require to replace some of the 6" public main in the street because it is over 100 years old. DC Water will dictate how much of the water main will need to be replaced. There is an existing Siamese connection on the front of the existing building, but a new fire hydrant will need to be installed within 100' per DC Fire Marshall's regulations.

**Gas Line** – Records, survey, and onsite field marks indicate that the existing school is serviced by a gas line coming off G Street, NE. At this time, existing service will remain and no new gas service or upgrades anticipated to be required.

**Electric Service** – Survey indicates existing underground electric service enters existing school off G Street NE. The parking lot has no exterior light poles, however there are public street lights on G Street,

NE and 2nd Street, NE. At this moment, existing services will remain, and no new electric service or upgrades are anticipated.

## Structural Narrative for New Addition

**MAIN BUILDING FRAME**

The building system recommended for the 4 options is a steel frame, with braced or moment frames to transfer lateral forces. The exterior walls would be masonry walls to which the architectural finishes will be attached.

**FOUNDATIONS**

Based on the information gathered from the original building documents, the foundations proposed can be a deep spread footing system with concrete piers to the level of First floor slab to support the steel frame columns. The foundation will be designed for the soil bearing pressures given in the Geotechnical Report.

**FIRST FLOOR SLAB**

The first floor is proposed as a slab on grade (4" to 6") depending on location. The slab will be reinforced with a welded wire fabric and be supported on a minimum off 4" thick of gravel fill on a vapor barrier. The slab will be supported by in-situ soils or engineered fill that will be defined in the geotechnical report.

**SECOND AND THIRD FLOOR FRAMING**

The second-floor framing system proposed is a composite system. The slab will be a total depth of 5.25" Thick (3.25" normal weight concrete on a 2", 20 Ga corrugated, composite steel deck). The slab will be supported by steel beams spaced at 5' to 6' on center and attached to the beams by 4.5" long, ¾" diameter headed steel studs spaced along the top flange of the beams. The beams will frame into girders that will span between columns and attached to the slab with headed studs.

**ROOF FRAMING**

The classroom building roof proposed will be framed by open web steel joists spaced at 5' maximum and supporting a 1.5" thick, 20-gauge roof decking. The roof will be designed for snow drift loads and mechanical equipment loads if any are required. All low roofs around the gymnasium will be open web steel joists design for the snow drift loads and mechanical equipment loads.

**GYMNASIUM ROOF FRAMING**

The large column free space of the gymnasium will require the use of LH Joists (Approximately 48" to 54" in depth) spaced at 5' apart or as needed to coordinate with the architectural reflected ceiling layout. The roof deck will be a 1.5", 20-gauge deck.

**LATERAL LOAD RESISTING SYSTEM**

The lateral load resisting is anticipated to be steel braced frames or steel moment resisting system. Location of these frames need to be closely coordinated with the Architect.