Hill International

Newton Lincoln Eliot School - NECP Project

Design Review Committee (DRC) – NECP at 687 Watertown Street
April 10, 2019, 6:00pm, Newton Public Library, 3rd floor meeting area

Attendees: Amy MacKrell*, Jonathan Kantar*, Marc Resnick*, Peter Barrer*, Carol Schein*, Ambrose Donovan*, Thomas Gloria*, Ellen Light*, Anne Cedrone*, Tom Enselek*, Andrea Kelley, Steven Siegel, Joshua Morse, Robert Hnasko

* - Denotes Voting Member

Professional Team:	Meryl Nistler, Jessica Bessette	-	Arrowstreet (AST)
	David Perreira, Keith Lane	-	Garcia, Galuska & DeSousa (GGD)
	Mary Mahoney	-	Hill International, Inc. (Hill)

Guests: Alejandro Valcarce, City of Newton, Public Buildings
Diana Fisher Gomberg, Newton School Committee
Julie Kirrane, Kathleen Browning, Newton Public Schools

Action Items are denoted in bold/italic font.

Meeting opened at 6:05pm with introduction of attendees for the Design Review Committee (DRC), Lincoln Eliot-NECP (LE-NECP) Project Professional Team, and guests.

Items:

1. Arrowstreet (AST) reviewed an agenda for the NECP at 687 Watertown project update and Site Plan Approvals report with a list of meetings held with City Departments, working groups, and School Building Committee since the last DRC meeting held March 13, 2019.
2. NECP at 687 Watertown St. program summary and design guidelines were reviewed including:
    a. Program is District-wide and includes a half day program, full day program and separate intervention and therapy program times.
    b. Student age and abilities result in a car-centric drop-off and pick-up for full day, half day and therapy programs. Most students are transported by private vehicle or school van. Van transport is provided by the School Dept. based on a child's IEP.
    c. The program needs a contained outdoor play area with age and access appropriate configuration that is close to the building.
    d. Private drop/pick up includes parent escorting children to and from the building at arrival and dismissal and for therapy programs that occur throughout the day.
    e. Drop/pick up vehicle counts: school vans 12-15 and private vehicles 45-65.
    f. Staff vehicles: 85-100 with various arrival and departures based on the half day, full day and therapy only schedules.
    g. Occupancy: 305 total students at ages 2.9yrs to under 6yrs and 85-105 staff.
    h. Program arrival time is 8:30am-9:00am, dismissal times are 12:00pm-12:30pm, 1:30pm, and 2:30pm, and therapy only occurs intermittently throughout the day.
    i. Building Size: 38,000 SF on three levels. Grade entry is available at the lower and mid-levels of the building.

j. Plan calls for the removal of all attached modular classrooms.

k. Goal is to create 14-18 classrooms for current and future enrollment.

l. Design for flexibility, inclusiveness, and with an understanding of mobility and sensory needs of the population.

m. Re-purposing need include designing NECP based pick-up/drop off, access to building entries, access throughout the building and safe environments for families and caregivers

3. Traffic – a full traffic study/report was performed that examined the activities of NECP at 150 Jackson Rd, Horace Mann Elementary School at 687 Watertown St, and projections for NECP at 687 Watertown St.

    a. Trip Generation projections for future NECP program at 687 Watertown St were reviewed:

        i. Morning drop off period from 8:15am – 9:15am will experience the highest vehicle count/activity with a total of 151 vehicles entering the site/surrounding area between staff, student auto, and school vans, and 99 vehicles departing.

        ii. Dismissal experiences lower trip generation due to the multiple release times, 12:00pm, 1:30pm, and 2:30pm, related to school programs.

        iii. Existing Horace Mann Elementary School and proposed NECP at 67 Watertown St. trip generation/activities were compared, with Horace Mann having markedly higher and more concentrated trips during the morning arrival and afternoon departure.

4. Parking Plan:

    a. Projected NECP parking space demand: 85-100 staff and 45-65 Parent/Guardians. School transportation does not require parking as the vans depart upon student discharge.

    b. Onsite parking, existing and proposed add, provides an opportunity for 30 spaces.

    c. Local public parking includes 93 angled spaces on Albemarle Rd, and public parking on Watertown St and neighboring side streets that can provide up to 265 spaces.

    d. Horace Mann staff parking practices were reviewed including limited onsite parking (20 spaces) and use of street parking surrounding the site.

    e. NECP parking management plan will ensure public parking closest to the building is available for parents/guardians.

5. Site and Circulation for the Preferred Scheme:

    a. The scheme includes maintaining the existing Albemarle Rd vehicle entry drive and onsite parking area and adds a Van drop/pick up zone within a vehicle departure lane around the back of the building exiting on Watertown Street.

    b. Controls will be in place to limit vehicle site access to staff prior to student arrival and to vans during arrival and departure during school operations. The entry drive will be restricted to vehicles by physical barrier during the school day to ensure safe travel for student to the outdoor play area.

    c. Building Entries – (4) on grade access points will be provided

        i. The building main entry will be moved to face Albemarle Rd, with grade level entry via an outdoor plaza to the lower level of the building.

        ii. Public access throughout the day will be at the new main entry at the lower level on Albemarle Rd.

        iii. During arrival and dismissal, entries to the mid-level floor are provided on the north, south, and east sides of the building.

            1. The Park side (north) entry to the mid-level floor will include an adjacent exterior ramp and sidewalk to provide a fully accessible entry route from Albemarle Rd. and Albemarle Park.

2. Van entry/exit is provided at the back of the building on grade to the mid-level of the building.
3. Watertown St. exterior door provides sidewalk entry to the mid-level of the building.

d. A preliminary landscape plan was presented that included saving numerous mature trees along Albemarle Rd., Albemarle Park, and the existing parking lot. Additional landscape features will be provided to create natural buffers.

e. Scope for site improvements were reviewed including site grade adjustments, accessibility improvements at sidewalks and by adding an exterior ramp at the Park side school entry, access improvement to the outdoor play area, and adjustment to the Albemarle Rd. exterior patio to allow on grade access from the sidewalk to the main entry.

f. Flood Considerations:

i. The City Flood Plain District shows the limits of impact to be the banks of Cheese Cake Brook. Albemarle Rd and the 687 Watertown Street site/building are outside the flood plain.

ii. FEMA National Flood Hazard Layer FIRMette identifies the site as within an area of minimal flood hazard which means it is outside of the 100-year flood plain.

iii. J. Morse reported that the building has never experienced flooding in the past.

g. Site Topography and Civil Engineering considerations were reviewed including steep grade change along the Albemarle Rd boundary, 200 ft. Riverfront Area and DEP Storm Water Management requirements including limiting disturbance, minimizing increase to impervious cover, and installing storm water management, treatment, and infiltration systems. A meeting is schedule with the Conservation Commission on April 18th to review site plan schemes and site requirements.

6. Floor Plans – NECP Fit Plan

a. Each floor plan was reviewed including floor layout, space use designations, circulation, and accessibility improvements proposed.

b. At the lower level a new main entry/main office area will be created to provide a grade entry to the main office. The lower level also includes therapy/OT/PT areas, meeting space and a street presence on Albemarle Rd. The lower level will have a centrally located stair to the mid-level and elevator to all floors.

c. The mid-level features (3) grade level entry points, (2) stairs to the upper level, and infill at the existing gymnasium area to create (2) new classrooms. Younger students and students with mobility/medical needs will be placed on the mid-level with multiple grade level entries, proximity to the van drop/pick up area and proximity to the Nurse Area. Kathleen Browning reported that currently there are no children in the program that require a wheel chair but that from year to year children's needs change and the program adapts to all student service needs.

d. The upper level features (13) classrooms with shared toilet training rooms, program support spaces and small group instruction areas. A stair at each end of the floor provides pathway to grade level egress doors on the mid-level floor below.

e. Accessible public/staff toilet rooms on each floor.

7. Egress and Emergency Response Plans

a. Proposed emergency egress paths, length of travel and exit door locations with NECP projected floor occupancy was presented for each of the three building floors at 687 Watertown St.

i. Upper level floor includes 187 students with a single corridor to (2) stairs at each end of the classrooms that lead directly to exterior doors and grade level discharge from the mid-level floor below.

ii. Mid-level floor includes 64 students with (3) exterior doors at each end of the main corridors with on grade exit.

iii. Lower level includes student therapy and testing spaces so no full time student occupancy. Accessible egress is available at the main entry.

b. Existing emergency egress paths, length of travel, exit doors and emergency response plan for NECP at 150 Jackson Rd was reviewed.

i. The primary egress point for both the lower level and upper level is from a back stair to a Jackson Rd exit door with lengthy exterior ramp that discharges to the parking lot. Both occupied levels egress to the same door/ramp location as the Fire Department prohibits use of the Walnut Park exit at the upper level due to it being the department's primary emergency response location to the Fire Alarm Control Panel.

ii. Upper level floor includes 96+ students to a single stair down one floor to the Jackson Rd exit door and ramp.

iii. Lower level floor includes 88 students to the same stair area to the Jackson Rd exit door and ramp.

iv. Upper level corridor length to the stair is up to 224ft and requires additional egress length down one floor and out the exterior ramp.

v. Kathleen Browning, NECP Director, review current emergency procedures at 150 Jackson Rd that include student assistance by all staff, educational, administration, and support to ensure the quick and safe evacuation of all occupants. Parents are also consulted regarding where children should be placed and what means will be used to evacuate. Emergency procedures are checked and reviewed at the start of each school year and drills conducted throughout the year to ensure performance and safety.

8. Entry Plans for 687 Watertown Street were reviewed including (4) grade level accessible entries: (1) on the lower level and (3) on the mid-level. Morning arrival and afternoon dismissal will continue the practices used at 150 Jackson Rd.

a. Entry doors at the main office, park side entry, Watertown St. entry and van drop will be automatically unlocked at morning arrival time and students are escorted to classrooms by parent/guardians or staff from the van drop.

b. At start of school all doors are locked and public enter at the main office following request to enter by air-phone camera/speaker and door unlock by the main office.

c. Afternoon dismissal will work similar to the morning arrival.

d. Kathleen Browning noted that staff monitor building activities during arrival and dismissal and that CCTV cameras will also provide oversight of the open door periods. Ms. Browning also noted that only a small number of parents/students arrive with strollers and that typically stroller are left outside the building.

9. Options for supplying natural light to subgrade areas within the lower level were reviewed including addition of light wells at multiple locations and adding glass to space partitions to provide borrowed light within interior spaces. Lower level perimeter subgrade elevation at the north and south building section were reviewed. These areas would require substantial earthwork and retaining walls to expose wall area for windows. The center section does provide an opportunity for window/clerestory elements and the design will maximize this option and utilize borrowed light elements for the subgrade areas.

10. HVAC Systems – two options were considered based on the system requirements previously provided by DRC and Public Buildings Dept.

a. Variable Refrigerant Flow (VRF) – providing VRF units in every room supported by outdoor condensing units. System is low energy use, provides best local control, and is all electric providing zero combustion from source equipment.

i. Mechanical System Payback Summary: System results in low life cycle cost. Savings over a 30-year period compared to the baseline system is $524,600

ii. Baseline System: hot water/dx cooling VAV-RTU systems with boiler

b. Hot/Chilled water fan coil system – providing fan coil units in every room, single chiller, (2) new low pressure hot water boilers. System uses fossil fuel for boilers and is not as efficient as the VRF system.
   i. System has an initial added cost of $163,354 above the VRF system.
   ii. Mechanical System Payback Summary: System has initial higher costs and is not as efficient as VRF, so savings over a 30-year period compared to the baseline system is $110,787.
   iii. Fan coil units will increase ceiling height constraints/issues for lower level spaces with existing exposed concrete ceiling.

c. Mechanical system payback summary was presented that included gross capital investment, annual gas and electric use and costs, annual utility usage and cost/s.f., maintenance costs, annual savings from the baseline system, total life-cycle savings, and discounted payback in years.
   i. Variable Refrigerant Flow (VRF) = $524,606 Total Life-Cycle Savings with 2yr Discounted Payback.
   ii. Hot/Chilled water fan coil system = $110,787 Total Life-Cycle Savings with 18yr Discounted Payback.

11. Building envelop and energy efficiency upgrades:
   a. Windows were replaced somewhat recently with efficient window systems so existing to remain.
   b. Roof will be replaced and insulation increased to meet building code requirements.
   c. Exterior Wall Insulation - two approaches to exterior applied insulation/finish systems were presented:
      i. Exterior Insulation Finish System (EIFS): Examples provided and analysis based for existing brick exterior walls at the upper level.
         1. Energy efficiency: System assembly components and related R-Values were presented with in a Total Assembly R-Valued = 12.18.
         2. Estimated Construction Costs = $819,294.
         3. Payback 48 years
         4. System will reduce size and energy usage of mechanical systems which was included in the payback analysis.
      ii. Insulated Rain Screen System: Examples provided and analysis based on a metal clad system for existing brick exterior walls at the upper level.
         1. Energy efficiency: System assembly components and related R-Values were presented with in a Total Assembly R-Valued = 12.53.
         2. Estimated Construction Costs = $1,513,736.
         3. Payback extends well beyond 48years based on high initial costs.
   d. Building envelope system payback summary was presented that included envelope system R-Value and U-Values, capital investment, annual electric use and costs, annual utility cost/s.f., annual savings from the baseline system, total life-cycle savings, and discounted payback in years.
      i. Baseline System – Existing to Remain
      ii. EIFS System combined utility savings = $5,325
      iii. EIFS System Total Life-Cycle Savings = <$131,503> for a 30-year study period (<$> equals a negative number).

Committee discussion ensued regarding the Insulated Rain Screen system assemblies used in the costs and payback analysis. Metal panel assemblies are an option but costs are higher than other rain screen options. Other less expensive but project appropriate screen material options should be considered and associated cost/payback analysis provided. Life span of EIFS and rain screen systems is a consideration when payback extends past 30 years as system warranty is typically 25 years. EIFS system is the least expensive initial cost assembly and payback is 48 years so insulation system consideration is not just an economic decision but a global/long term impact decision.

Committee discussion continued regarding rain screen assembly insulation thickness and method of application. Additional investigation and analysis is needed with consideration of 4" of continuous insulation applied over the entire exterior wall surface. This application could double the R-value being used in the analysis. Methods of assembly for installing continuous insulation were discussed. **AST will review the Rain Screen finish material options and assemblies to decrease initial costs, increase efficiency, and maximize payback. Cost/payback analysis to be provided for a range of finishes.**

12. Conceptual Design – Repair/Re-Purpose Options
    a. Option 1 – Meets all codes and budget
        i. VRF System, DDC controls, lighting controls
        ii. Minimize Site impacts
    b. Option 2 – Reduces energy use 30% below code but exceeds budget
        i. Option 1 scope included
        ii. Adds exterior wall insulation assembly
        iii. Requires purchase of renewable energy
    c. Option 3 – Reduces energy use to net zero
        i. Based on Options above and budget impact, net zero energy is not practical or affordable.
13. NECP at 687 Watertown Street 5-58 Site Plan Approvals schedule was reviewed while noting:
    a. Building Committee approval to authorize Site Plan Approval process, April 4, 2019.
    b. Public Facilities meeting and progress report scheduled April 17, 2019.
    c. Conservation Commission meeting and progress report scheduled April 18, 2019 and May 9, 2019.
    d. Design Review Committee Site Plan Approval presentation scheduled April 24, 2019.
14. NECP at 687 Watertown St. 5-58 Conditions of Approval
    a. Refine and address all parking, traffic, and site circulation challenges.
    b. Develop site drainage and storm water management system to meet Riverfront Protection and Wetland Protection and local Conservation Commission requirements.
    c. Develop the landscaping plans to minimize impact to the abutters and neighborhood.
    d. Work with Parks and Recreation to facilitate the installation of the playground equipment.
    e. Pursue Sustainability initiatives, reduce project energy consumption and embodied carbon, and eliminate and/or reduce our fossil fuel consumption.

Committee discussion ensued that included a questions and answers session:

- *Is there an opportunity for photovoltaic (PV) panels on the existing roof?*

  The structural engineer reports that following roof replacement with supplemental insulation the roof will only carry an added load of 3lbs/s.f., so a rooftop ballasted PV system is not an option. Roof dunnage is required to support the roof top ventilating equipment directly on the structure not the roof. Additionally it

was noted that roof top equipment including air handling equipment and exhaust fans will use up a portion of the available roof area and cause shading at adjacent PV panels area. The project will include electric infrastructure to support future PV systems as required by the electric code.

Committee discussion ensued regarding options for supporting the PV system off the building structure and canopy systems to carry the PV system over the ventilating equipment. Consideration of lateral forces due to increased rooftop structure was discussed.

The Committee requested that Public Buildings contact PPA vendors who have worked or are currently working with the City to review the roof and proposed rooftop equipment proposed in the NECP project and provide an assessment of future PV system opportunity.

- *How will pedestrians access the exterior door on the south side of the building from the sidewalk on Watertown Street?*

  AST reviewed a sidewalk connection along the alternate parking lot at Watertown St. that provides a direct connection from the exterior door to the Watertown St. sidewalk.

- *What is the plan for NECP playground equipment?*

  The existing NECP play structure at 150 Jackson Rd is planned to be relocated to the adjacent playground area in Albemarle Park. Meeting with Parks and Recreation is planned to review existing conditions, NECP program needs, and park work to create the NECP play space. **Future site plans shall include placement of the NECP play structure.**

- *How will vehicles be restricted from entering the site during school hours?*

  Included in the site plan is a restraint assembly planned just past the Albemarle Rd. sidewalk on the site access drive. The component will serve to restrict vehicle access and control student movement to the playground.

- *Can you walk from the park side of the building to the main office?*

  AST reviewed the ramp and adjoining sidewalk on the park side of the building that connects to the Albemarle Rd sidewalk for access to the main office.

  It was recommended that the new sidewalk at the park side of the building be made wide enough to support two strollers passing.

- *Where and how will deliveries be received?*

  Major deliveries for the school will be received in August when school is not in session and access point to be determined on item, storage location, and minimizing impacts to Albemarle Rd. During the school year deliveries will be received at the main entrance. There is not food service/cafeteria with the NECP program so daily deliveries can be managed at the main office.

- *What features are planned to ensure pedestrian safety on the Watertown St. sidewalk when vans are departing?*

  Options for vehicle controls were reviewed including early stop on the van exit drive to ensure driver's check for pedestrians and pedestrians are warned of oncoming vehicles, sound or visual alerts and signage.

- *With NECP at 687 Watertown St will there be an increase in foot traffic and less dependence on car transport?*

  Kathleen Browning note the program is car centric as a District wide program serving students age 2yr 9mo through 5yrs. Foot traffic did change when the program moved from the Education Center to 150 Jackson Rd. Some neighbor families walk children to school in good weather but because the program is district wide and serves young age students often with younger siblings, it is a small number who choose to walk. It would be expected that the 687 Watertown St. site will have a similar transition with some local walkers and transition in 150 Jackson Rd neighbors now needing to drive.

- *Did the traffic study review the impact of F. A. Day Middle School (Day MS) dismissal based on the correlating full day afternoon dismissal for NECP?*

  Afternoon dismissal for NECP happens at 12:00pm, 1:30pm, and 2:30pm, so the number of students released at afternoon dismissal is a much lower number than at morning arrival.

  Public Buildings noted that staff at Day MS currently park along Albemarle Rd and reported on plans to relocate Day MS parking to the Education Center to help alleviate parking/traffic issues on Albemarle Rd prior to NECP relocation. Also the City is looking at options for re-routing bus entry/exit for Day MS to further calm traffic impacts.

- *What are the expected ceiling heights for the infill classroom areas?*

  Due to the existing gymnasium ceiling height the infill areas will provide code compliant ceiling height of 7ft-6in at the newly created lower level main office and admin spaces and ceiling height of approximately 8ft in the new classrooms on the mid-level.

- *What is the planned domestic hot water system?*

  Options being considered include point of use and service off the VRF hot water system.

- *What are the reasons for placing the Director's Office at the lower level and Nurse at the mid-level and would swapping locations benefit the program?*

  Kathleen Browning discussed her daily activities which include moving about the building throughout the day to monitor instructional activities and evaluate student needs. Having a Director's office in the lower level provides an important separation for administrative meetings and activities away from student areas. The Director's Office in the lower level near the main office also provides direct access to support students who may come in needing special services. Nurse's area on the mid-level provides adjacency to classrooms having medical and mobility challenged students and adjacency to the van drop off to address child issues during van transport.

- *What is the project budget?*

  The total project budget is $10mil which includes construction costs and soft costs (professional services, utility upgrades, technology, and furniture).

15. DCR – Site Plan Approval documentation requirements
    a. Budget
    b. Site Plan – plan should be more developed and include site investigations documentation
    c. Floor Plans
    d. HVAC System description and energy efficiency information
    e. MEPFP – Scope Narratives
    f. Elevations and Typical Details
    g. Sustainable features of design

Next DRC meeting for NECP at 687 Watertown St. Site Plan Approval is scheduled April 24, 2019.

To the best of my knowledge, these notes are a fair representation of the items discussed at the meeting. Additional items or corrections should be brought to the attention of the writer. Submitted by: Mary Mahoney 4/12/19