

Driscoll School Expansion  
Evaluation Matrix - Architect's Narrative  
15 November 2018

For School Building Committee Use

*Executive Summary:*

The team's design efforts have culminated in one base code renovation option and three, educationally optimized, conceptual options for the renewal and expansion of the Driscoll School: 1) Option 0 'Code Minimum Renovation/Addition', 2) Option A.1 'Addition/Renovation', 3) Option F.1 'Modified Magnet' new construction and 4) Option H 'Modified Star' new construction. The new options seek to reflect the district's program, which is centered around project-based collaborative learning, by centralizing the relationships between classroom and support spaces so that community orientation and interconnectedness is inherently supported by the building's layout. The addition/renovation approach, constrained by the current linear arrangement, right-sizes spatial deficiencies to the extent possible through local additions, combinations of existing spaces, a central 2 story cafeteria/lobby and a new addition.

The following are highlights from the Architect's point of view of comparisons between the three approaches:

- Though less costly, Option 0 does not reflect the educational program or meet the functional requirements of a municipal asset which is meant to efficiently serve the Town for the next 70 years.
- Cost is largely similar between the remaining options. H is potentially more favorable cost-wise than F.1. The addition/renovation cost is driven by numerous small project areas, higher contingencies and the construction of swing space.
- The addition/renovation entails greater risk to cost and schedule.
- Traffic solutions are similar among the options with the exception of conflicts between service and other functions in the addition/renovation.
- The new solutions will offer the best long-term maintenance and operation costs over the 70-year life.
- A.1 has limited open space, decreased from the current condition due to the new addition. The new options open up a 20% increase in useable playspace.

- The new options position the building in a more favorable relationship to the neighborhood opening views to open green space for the surrounding residences.
- New building options will be lower in height than the existing building and less massive in presence on Westbourne Terrace.
- The addition/renovation approach, while solving space quantity deficiencies does not allow for adjacencies and configurations that support the District's educational program.
- The existing building has a proper solar orientation but its envelope openings cannot be configured for optimal daylight harvesting.
- Preservation of existing building fabric is a sustainability plus, but needs to be balanced against increased long term operating and maintenance costs.

*Review of Concept Design Options:*

1

Option 0 - 'Code Minimum Addition/Renovation'

This minimum renovation/addition project consists of a code and mechanical upgrade to all spaces within the existing building, retaining all existing wall locations, plus an addition to increase the overall area to match the required gross sf. While addressing gross sf, this option cannot reflect the educational program or meet the functional requirements of a municipal asset which is meant to efficiently serve the Town for the next 70 years. This is because of numerous deficiencies including:

- Undersized K and PK classrooms
- Only one PK classroom can be co-located with K
- Cafeteria, and Multipurpose spaces grossly undersized
- Administration grossly undersized – cannot grow without displacing classrooms
- Properly located Science, Music and Art classrooms grossly undersized
- Cohorts cannot have appropriately co-located classrooms
- SWD, Learning Center and Support cannot be properly located among cohorts
- Grossly undersized Custodial Storage and Receiving areas
- Loading area conflicts with traffic and student safety

- Lack of clear entrances and adequate foyer areas
- Administration improperly located relative to entrances
- Reduced outdoor open space
- Recess areas chopped up and remote from cafeteria

2

Option A.1 - 'Addition/Renovation'

This renovation with east addition delivers the called for 4 section educational program using the entirety of the exist 3 story building plus a 3 story addition and several 'bump-out' additions. The renovation selectively removes and relocates walls to address program adjacencies but uses existing structure and finishes to the extent possible and does not assume a full 'gut' renovation. A covered parking structure with tennis courts on its roof is located to the east of the addition with parking access from Westbourne Terrace. This option includes bump-outs and repartitioning of targeted areas within the existing building in order to achieve:

- The best compromise for co-location of cohort classrooms possible.
- Location of SWD, learning centers, project areas and other support areas as close as possible to their primary users.
- Creation of a new right-sized cafeteria/learning commons.
- Replacement of an existing temporary structure with the new 2 story lobby to create a much needed foyer and improved wayfinding.
- Right sizing of multi-purpose room.
- Combining of existing classrooms where possible to create larger spaces for music, art and science.
- Expansion of the administration areas in correct security-proximity to entrance points.
- Opening of walls to visually connect media center and multi-purpose space to public areas of the building for visible learning and project based learning objectives.
- Right sizing of custodial/receiving/storage and kitchen areas.

For comparison to the code minimum approach, see the code minimum deficiencies description below.

See also a more comprehensive description of Option A.1 with design rationale in the appendix below.

3

Option F.1-'Modified Magnet'

This 4 story new construction option brings all functions into visible community by arranging by them in a broad crescent, circling the central shared cafeteria/learning commons. Though flexibly assigned, cohorts would likely be arranged by floor-



each with its own project collaboration space. In this modified version of the 'Magnet' alternative, in order to conservation useable playspace on site, the gym and assumed parking have been moved under the building while a 4<sup>th</sup> story is added. As can be seen from the Westbourne Tefface elevation diagram which juxtaposes new and existing building heights, the new construction will be significantly less massive than the existing while at the same time unlocking an increase in useable playspace. On the Washington St. front the curved mass of the building frames the foregrounded projecting media center.

4

#### Option H-'Modified Star'

Similar to the 'Modified Magnet' the 4 story new construction 'Modified Star' uses below-building parking and garage to conserve site space. Here the shape of the building with its three wings, directly reflects the 3 cohorts, primary, elementary and middle schools – each with its own vertically connected position and identity on the site. Service access for this and Option F.1 is through utilization of the existing east commercial alley; thereby further reducing the use of site space for non-play functions.

#### *Evaluation Matrix Architect's Narrative:*

#### Project Viability Issues

Option 0 is the least costly option and carries a reduced risk factor from Option A.1. At this phase of work the differences in cost between the remaining three options are largely within the margin of error. Of the new alternatives, Option F.1 may be inherently somewhat costlier due to its single loaded balcony corridors. The addition/renovation carries the burden of the cost of swing space as well as larger contingencies. For the addition/renovation option there will be significant risk due to the reliance on necessarily limited information about potential hidden conditions which can cause additional uncontrolled costs during construction. The addition/renovation approach will also entail additional schedule time and schedule risk due to the above, to multiple small project areas each with their own requirements and to the construction of the temporary school. Traffic is considered somewhat disadvantageous for the add./reno. because service access will continue to be limited on the west end of the building.

#### Site

One major differentiator is the impact to teaching and learning during the period of construction. During the two+ years of construction, addition/renovation will require the relocation of the school into a temporary modular unit school on the

existing playfields. Typically such temporary schools do not include large single span common spaces such as cafeteria, gymnasias and multi-purpose rooms. For the new options, during construction, school operation will proceed uninterrupted. With differing footprints, there is a spectrum of benefits to open space; with Option H.1 providing the largest playable area, F.1 next and A.1 the least. Because of the addition, A.1 will have less open space than the existing condition. For the neighborhood, new construction yields the least impact to adjacent residences due to the remote location of the construction zone. In the final result, these options also produce the greatest benefit to neighbors with the school removed from the midst of the residential neighborhood and, in its place, an open green space. Because of the freedom of planning a new building, community use of the school can be more effectively zoned, with proper pairing of gym and multi-purpose room and full separation from academic areas.

### Long Term Costs

Comparing addition/renovation to new construction it is apparent that the renovation, while addressing, to the extent possible, tightening the building envelope, will be inherently less efficient in terms of thermal resistance and leakage than a new building - which can be fully 'cocooned' and super insulated from under-slab to roof. This will result in increased energy costs of the life of the facility. Such a renovated structure will also reveal, with time, new maintenance challenges, as retained portions of the existing building, now close to 100 years old, continue to age and deteriorate.

### Teaching and Learning

The new options, F.1 and H will be built from the ground up to directly reflect the needs of the educational program with proper adjacencies and configurations to support STEM enhanced, project-based 21<sup>st</sup> century teaching and learning. Option 0 diverges greatly from the educational program and will result in a largely dysfunctional plan due to the deficiencies enumerated above. The addition/renovation option A.1 while largely addressing the sizes of individual spaces is also constrained by the existing floor plate compartments (though less so the 0) and suffers from several areas of misfits for cohorts. For example, because of the number of classrooms and support spaces needed, 5<sup>th</sup> grade classrooms would need to be placed remotely from the 3<sup>rd</sup> and 4<sup>th</sup> grade into the addition. Of greater concern, perhaps, is the overall geometry of the existing school with an end-to-end linear arrangement of classroom wings resulting from the incremental addition of space over time and the necessary further exaggeration with a new sequential addition. This distended linear arrangement militates strongly against the formation of a shared learning community in all its attributes from teacher

collaboration to visible learning to student empowerment – all stated goals of the Town’s educational program.

### Building Environment

Notably, the existing building, lined up as it is to the south, is a good candidate for solar harvesting. However, the size and shape of its openings are not sufficient to do the job. Therefore, the addition/renovation will not be as efficient in terms of daylight collection as properly optimized new construction will be. This is significant, both for student achievement and for long term operating costs. It is true that conservation of an existing building is a sustainability plus. However, the downside is long term operating costs. For reasons related to the concentric geometry cited above, the new options will provide greater security through the readily observable transparent and interconnectedness of the learning commons and branching corridors. This is contrasted by the warren-like extended paths offered by the extreme portions of the existing building which can only be partially remediated through alterations.

### Other

As mentioned elsewhere, pedestrian and vehicular circulation can be well addressed by any of the options. The exception being the location of the loading dock which will need to be located uncomfortably adjacent to the cafeteria recess space and also conflicts with traffic which backs up on Bartlett Crescent. The new approaches fully separate bus, parent and service traffic on separate sides of the building with separate frontages, Westbourne Terrace for parents, Washington St. for buses and the commercial alley for service, for each type of traffic. Disruption to families during construction is largely a matter of the dislocation and compromised facility space resulting from temporary swing space with any addition/renovation.

### *Appendix*

#### Option A.1 Design Rationale Narrative

This further developed version for renovating and adding to the existing Driscoll School building combines the previous ‘code’ and ‘expanded’ approaches. This resulted from the realization that the classrooms in the western portion of the school are close to adequate in size and, at the same time, many of the classrooms and spaces which are indeed unacceptably undersized, will need to be

refashioned in any case – for exp., to create enough administration space, an appropriate gym and safe science classrooms. In general, proposed partition removals and relocations take into account preliminary structural survey information indicating the primary locations of bearing walls lining the corridors and non bearing walls between existing classrooms.

A first step in allocating the program to renovated spaces is to determine the rough outlines of the grade cohorts. Since a number of the western most ground floor classrooms are close to the correct size for PK and K and since it is desirable to keep those ages close to ground level for ease of outdoor access, these grades are kept where they are. The alternative, to locate those age groups in the new addition to the east, is not feasible as the ground floor of the addition will, necessarily, be taken up by the clear height of the new partially subgrade gymnasium. Even so, there are several PK and K classrooms, currently with bay type extensions which will need to be further enlarged with a one story ‘bump out’ addition.

Working with the asset of close-to-standard classrooms to the west, we are still faced with a dilemma concerning the numbers of spaces available in order to keep cohort groupings in reasonable proximity to one another. This is partially resolved by the addition of two selective three story additions; one to the west, providing additional full classrooms and project work spaces. And one to the north - enlarging an existing awkward corner area to accommodate co-located special education. The principle here, derived from the program, is that cohort groupings consist of contiguous classrooms along with their co-located project, swd, learning center and associated office spaces. Even with the incremental additions, because of the boiler room location and the confined boundaries of the western wing ground floor footprint (with one classroom addition) there are only two PK classrooms which can be accommodated rather than the three stated in the program. This may be acceptable due to the apparent flexibility in determining the number of necessary PK’s.

The center of the complex, with its original wood frame floor construction, will bear the majority of the major renovation changes. Here the main problems are the lack of administration space, scrambled wayfinding and entrances, the small cafeteria and lack of transparency to community use spaces. Any Driscoll renovation will need to include enlargement of the cafeteria - which is too small even for the present population. A one story cafeteria addition is, however, unacceptable due to the fact that ceiling heights are already low and a room of the size required would be oppressively cave-like. Therefore the cafeteria/commons addition is conceived as a skylit two story clear height space offering a central volume which will give identity and place-making to the whole of the linear ensemble of wings. The combined project space for the grades 3-5 cohort will be on a balcony overlooking the cafeteria. This balcony will also have clear height volume connecting up to the 3<sup>rd</sup> floor level. The roof of the new cafeteria/commons,

accessible from the 3<sup>rd</sup> floor landing of the main stair, will be a large green roof outdoor classroom area.

Also overlooking the cafeteria will be the enlarged administration and medical suite capturing space within the addition as well as that formed from the repurposing of the existing duplicative north stair well. The administration area will now be in a visible location directly apprehensible from both upper and lower entrances.

Adjacent to the cafeteria is an existing pre-engineered modular structure which will be demolished and replaced by a new three story entry volume. This will connect the two main building entry points; at the existing north face, level 2 and the new south parent drop off and athletic field entrance at level 1. The entry hall will house a correctly sized monumental stair which will be the new main circulation route connecting floors. This will replace the existing poorly located stairs while retaining the relatively recent elevator location. Existing non-bearing walls will be removed to the extent possible in order to create views and connections between the entries, project space, administration, cafeteria and media center.

The media center will be maintained in its present location but with new openings to facilitate functional relationships with the adjoining fabrication lab and maker space – to be fashioned from combining existing classrooms. The western most portion of this large open space will be floored over to create a 3-5 science classroom at level 3.

Downstairs, and also highly visible and well connected with new openings, will be the multi-purpose room. This is in its present location, but remodeled to gain additional area from the welter of surrounding chopped up spaces and with the addition of a new raised stage at its western end. Directly adjacent are two music classrooms created from combining existing classroom spaces. Unavoidably, in order to keep their adjacency to the multi-purpose room, the new music classrooms will have acoustically substandard ceiling heights. A third large ensemble music room with increased ceiling height is located in the addition.

The addition will be four levels in height with the lowest level approx.. 20 ft. below grade. An open stair hall with south facing glazing will accommodate the monumental stair and 2 stop elevator bringing students down to the level 'b' subgrade athletic suite including gym lobby, large gym, small gym, athletic storage, o.t./p.t. and locker rooms. Level 1 of the addition, approximately at grade, is largely taken up by the upper space of the gym, but also includes the large music ensemble room and athletic office.

Levels 2 and 3 of the new addition will be comprised primarily of middle school classrooms. However, because of limited space in the existing building, there will also be four grade 5 classrooms. These will be 'orphaned' from the remainder of their cohort in the renovated existing portion of the complex. The typical middle

school arrangement will include a science classroom at each floor and a single two story project space forming the center of the cohort cluster along with the requisite classrooms, SWD and learning center rooms.