



May 25, 2020 *rev 1*

Ms. Laurie Connors, Director
Department of Planning and Development
127 Elm Street
Millbury, MA 01527

RE: Raymond E. Shaw Elementary School Site Plan Review Pre-Submission

Dear Ms. Connors,

Pursuant to Section 12.4 Site Plan Review of the Millbury Zoning By-Law, and on behalf of the Millbury Public Schools and the Shaw School Building Committee, please accept our preliminary submission for Site Plan Review for the above project. Attached to this letter as appendices are the following:

- Appendix A: Town of Millbury Site Plan Review Application
- Appendix B: Form E Certified List of Abutters
- Appendix C: Traffic Impact and Access Study, April 17, 2020, Green International
- Appendix D: Geotechnical Report, February 27, 2020, Lahlaf Engineering
- Appendix E: Massachusetts Historical Commission (MHC) Letter, April 1, 2019
- Appendix F: Storm Water Report – *Included Only in 2 Original Copies*
- Appendix G: Table of Contents of supporting drawings submitted separately

The project proposes the complete replacement of the existing single-story Shaw School (76,336 SF footprint) with a completely new 2 story school structure (59,755 SF footprint, 90,265 total SF on two floors), a maintenance shed (484 SF), and a comfort station/concession stand (537 SF). The project also proposes complete redesign of the site, primarily within the previously developed site area. Although the footprint of the new building is smaller than the existing, impervious area is increased overall by approximately 1 acre over the existing, with a larger parking area, additional space for parent drop off, additional space for bus drop off, and new athletic fields. The project was funded at the Fall 2019 town meeting and subsequent ballot vote. We hope to submit for final application by May 25, 2020 in anticipation of being heard at the June 22, 2020 Planning Board meeting. A Notice of Intent was filed with the Millbury Conservation Commission and was heard on May 6, 2020. The hearing was continued to the Commission's June 10, 2020 meeting to allow MA DEP time to establish a file number and issue comments, and also to allow the Town of Millbury staff review of this submission to be completed.

WAIVERS

We hereby identify and request waivers from the below sections of the Zoning By Law:

- Fees: Waiver from Site Plan Review Application Fee (\$500 + \$20/parking space) and Stormwater Management Permit Application Fee (\$200).
- Survey: Waiver from Zoning Bylaw, Section 12.44(a) requirement that all property corners be pinned and that at least three property boundary markers be indicated with Massachusetts Grid Plane Coordinates (both elevation and coordinates).

Please note the following regarding the survey:

- Flood insurance rate maps do not show the site to be within a 100-year flood plain.
- Horizontal coordinates refer to Massachusetts State Plane Coordinates (NAD 83).
- Elevations refer to North American Vertical Datum (NAVD 88).

12.44c: Waiver to allow submission of an unscaled birds eye view rendering in lieu of an isometric line drawing at the same scale as the site plan.

12.44e: Waiver to allow submission of 1/8" scale exterior elevation plans in lieu of the 1/4" scale required by this section, due to the large size of the building.

12.45q: Waiver for relief from interior landscaping within parking areas over nineteen (19) spaces with alternative approach described below under *Design Standards*.

22.3: Pursuant to MGL c 40A § 3, the so called Dover Amendment, and the location of the project within Millbury's Route 146 Highway Corridor Overlay District, request for waiver from height limitation of thirty feet (30'), or confirmation that the Overlay District height limitation of one hundred feet (100') applies to the project. The predominate height of the proposed building is under twenty-nine feet (29'), however there are three sloped roof sections designed to support photovoltaic arrays that exceed thirty feet (30') at the high end and two (2) sloped roofs at stair towers which provide access to the roof – these are just under forty feet (40') at their high end. Please refer to the drawings set for exterior building elevations with vertical heights noted.

34.6.01: Waiver from sign size limitations of 4SF for wall signs and 6'H/6SF for freestanding signs.

Freestanding Sign: There is one monumental free-standing sign proposed at the base of the entrance driveway on Elmwood Street. Please refer to the drawing set, sheet #W0.02 for a rendering. This sign is designed to emulate the building construction in form and material with a brick base and metal panel background to the lettering. The total height of the sign including the base is seven feet eight inches (7'-8"). The total square footage of the sign panel itself (excluding the base) is seventy-six square feet (76 SF).

Building Sign: There is one building mounted sign (free standing letters mounted to the building façade). Please refer to the drawing set, sheet #W0.02 for rendering. The sign is at the main entrance. The proposed size (boundary of the lettering) is fifty-five (55) square feet. Letters are 12" tall.

12.44F DEVELOPMENT IMPACTS

Traffic Impact Assessment:

The Town of Millbury is reconstructing the existing Raymond E. Shaw School located along Elmwood Street. The school serves grades 4-6 and has a current enrollment of approximately 450 students. The proposed school building would house grades 3-6, increasing the proposed enrollment to approximately 550 students. The total proposed building area is 90,265 SF with a total footprint of 59,755 SF. Two outbuildings, a maintenance shed and a comfort station/concession stand are 484 SF and 537 SF respectively.

The weekday average daily traffic (ADT) volumes on Elmwood Street was approximately 3,657 vehicles per day (vpd). On Elmwood Street the peak hour traffic volumes represent approximately 8.55% and 9.77% of daily traffic for the morning and afternoon peak hours, respectively, or 313 vehicles per hour (vph) during the AM peak hour and 358 vph during the PM peak hour. During the morning peak hour

approximately 62% of traffic on Elmwood Street travels eastbound. During the afternoon peak hour approximately 65% of the traffic flow travels in the westbound direction. These high directional splits are indicative of the study roadways lying within predominantly residential neighborhoods, where traffic patterns during the peak hours would be dominated by commuter traffic. The average speed on Elmwood Street is 35 mph in both directions, while the 85th percentile speed is 40 mph in both directions. The available SSD and ISD for the proposed site drive meets or exceeds the minimum sight distances under the posted speed limit of 20 mph. The sight distance analysis conducted shows that the measured SSD is well above the minimum for both the posted speed limit and 85th percentile. As for ISD, the desirable and 85th percentile speed distances are not met at most locations; however, the minimum required distance is met for all locations. These obstructions are due to heavy vegetation on adjacent residential properties. It is suggested that advanced warning signage for both the school zone and the driveway intersections themselves could be provided to mitigate the poor intersection sight distance.

The 2020 existing traffic volumes were projected two (2) years into the future for the design year of 2020 by identifying potentially background growth and specific nearby development projects that could contribute to traffic flow of the 2022 study network. Based upon review of local MassDOT permanent count stations, an annual growth rate of one (1.1%) percent per year for two (2) years was used to forecast future roadways volumes. The addition of a 100-student class to the Shaw School will be a low generator of trips with 67 and 17 vehicles during the AM and PM peak hours, respectively, and 190 trips through the course of a weekday.

The Level of Service analysis indicates that traffic entering the Shaw School Driveway will experience short delays and very good level of service under the future condition. Most of the approaches at the study intersections operate well during the peak hour in each scenario, operating at LOS 'A' or 'B' and having 95th percentile queues less than 10 feet (less than one vehicle-length). The increase in class population at the Shaw School does not result in any significant changes from the existing to future conditions for all approaches at the study intersection. The Shaw School Driveway at Elmwood Street intersection exhibits lower level of service (LOS 'D') for certain approaches, in particular those turning left out of the Shaw School Driveway during the AM Peak Hour. However, this delay exists today and will not significantly change between the existing and future scenarios. The analysis has shown that the abutting roads have the capacity to accommodate added vehicles in results to increasing the existing population of the Shaw School.

In order to accommodate the proposed expansion, any proposed landscaping should be low enough and/or set back sufficiently so as not to create any sight distance constraints at the existing site drives, roadside vegetation within the right-of-way should be selectively cleared and trimmed to improve existing sight distance at the proposed site drive. Appropriate pavement markings and associated STOP bars marked at the site access driveway and STOP signs (R1-1) should also be installed on the Shaw School Driveway approach to Elmwood Street. All regulatory signs to be installed shall be consistent with current Manual on Uniform Traffic Control Devices (MUTCD) standards and guidelines. Finally, new flashing school zone radar signs and advanced warning signs should be installed prior to both the Shaw School Elementary Driveway and Elmwood Street School Driveway on both travel ways along Elmwood Street.

Please refer to the *Traffic Impact and Access Study* in Appendix C.

Environmental Impact Assessment:

- **Air Quality:** Impacts include building mechanical systems and vehicular traffic. The impacts from the proposed project are minimum as the use of the site is not changing.

Mitigation: Change from fuel oil to natural gas and use of high efficiency electrical and gas fired mechanical equipment/systems; electrical charging stations for electrical vehicles including incentives for such vehicles with preferred parking; separated bus and parent drop off which will increase efficiency and reduce idling times.

- **Surface Water Quality:** Impacts include stormwater runoff from the building, vehicular areas and the site. The existing site runoff is not controlled and not treated. The proposed stormwater runoff will be mitigated and treated.

Mitigation: New stormwater management system will mitigate the increase in impervious area, provide recharge to offset the lost recharge from the increase in impervious area, and runoff will be treated in accordance with DEP stormwater standards. This is a significant improvement over the existing stormwater management.

- **Groundwater:** Impact is the increase in impervious area and the resultant reduction of recharge at this impervious area.

Mitigation: New stormwater management system will mitigate the increase in impervious area by providing recharge to offset the increase in impervious.

- **Flooding:** Flooding on site and on adjacent sites may be impacted by the increase in impervious area and the resultant reduction of recharge at this impervious area.

Mitigation: New stormwater management system will mitigate the increase in impervious area by providing recharge in several areas to offset the increase in impervious.

Impact Assessment: Low to potentially an improvement over the existing conditions.

- **Erosion or Sedimentation:** Impacts from erosion and sedimentation leaving the site is greatest during construction until the site is completed and fully stabilized. The proposed grading on site is generally limited to the relatively flat area of the existing school and athletic fields. There are steeper slopes at the boundary of the project area.

Mitigation: During construction the contractor is required to follow the construction documents to restrict sedimentation from leaving the site through a system of erosion control methods and daily housekeeping activities. Erosion control methods include erosion control barriers (straw waffles, silt fence, slope protection, temporary vegetation, erosion control blankets, siltsacs, etc.), and wheel washing at construction vehicle access points. Housekeeping activities include sweeping adjacent driveways and roadways, maintaining erosion control systems, including wheel washes, and regular inspections. The project also includes robust planting plan that will help to establish a stable site. The few steeper slopes (greater than 3:1) at the project area limits will be stabilized with erosion control blankets. The new stormwater management system will collect water, slow runoff velocities, and mitigate the increase in impervious area. In addition to the requirements through the Wetlands Protection Act the project is subject to a Construction General Permit under the EPA.

Impact Assessment: Low if construction documents, regulations, and standards related to erosion and sedimentation control are followed. Site activities will be monitored by the Owner's full-time project representative.

- **On Site and Off-Site Hazard:** The continued use of the site as a school results in low or no on-site or off-site hazards. A Phase I Environmental Site Assessment was completed for the

existing Raymond E. Shaw Elementary School. Two recognized existing conditions (REC) and one historical REC was identified associated with the building. In addition, one historical REC is associated with the adjoining Shoppes at Blackstone Valley.

Soils below the proposed building footprint are fill material likely placed during construction of the 1975 school. The fill is not structurally suitable for beneath the school, and will therefore need to be removed and replaced with structural fill, or amended to comply with structural fill specifications. The project may result in some off-site disposal of fill material. No REC was identified at the proposed location of the new school. Pre-characterization of soil samples, completed in December 2019 from beneath the proposed building footprint were below RC S-1 standards.

Please refer to the Geotechnical Report in Appendix D.

Sampling and testing of building materials occurred several times between 2018 and 2020, identifying lead paint and asbestos. The existing building will be fully demolished, after the completion of hazardous material abatement and clearance testing.

- ***Radiological Emissions and Hazardous Materials:*** There are no known radiological or other hazards.
- ***Adverse Impacts on Temperature and Wind:*** The potential impacts to temperature and wind conditions on site or adjacent sites are low and are limited to the increase in impervious area (temperature), construction of the building (wind), and removal of trees (temperature and wind).

Fiscal Impact Assessment:

There are no fiscal impacts related to this project because it is a public building/land and therefore not revenue generating. Fiscal impact in terms of property tax related to the bond to fund construction was approved by the town at Fall 2019 Town Meeting and the subsequent ballot vote.

Historic Impact:

The existing Shaw School has no historic value. Please refer to the Massachusetts Historical Commission (MHC) letter in Appendix E which was in response to a Project Notification Form (PNF) submitted on March 12, 2019 by Turowski2 Architecture, Inc.

12.45 DESIGN STANDARDS

Preservation of Landscape:

The project proposes development limited to the existing developed boundaries of the site. Limited interpretive walks and outdoor classrooms are designed outside the developed area to provide educational opportunities related to the history and natural resources of the site, including wetlands, woodland, and former agricultural elements such as field stone walls.

Relation of Building to the Environment:

The building is oriented in a nearly true north/south and east/west access for optimal solar orientation for interior daylighting and glare control and for rooftop mounted renewable energy generation through a photovoltaic system. All major core learning spaces (classrooms and support spaces) have north or south orientation of windows to maximize control and quality of light. Sloped roof portions of the building are oriented southward to support photovoltaic arrays. The main entrance is south facing and sheltered from north winter winds.

Open Space:

This standard is written from the viewpoint of adjacent properties. The proposed project maintains a substantial existing planted buffer between adjacent properties. The foreground of the proposed building (unlike the existing building) is predominately open green space of recreational fields, gardens and plantings.

Surface Water and Drainage:

The existing site's drainage system includes closed drainage system that collects runoff from parking and landscape areas into a series catch basins. The closed drainage system discharges to several wetlands around the site. Currently there are no detention or infiltration systems, water quality BMPs or Water Quality Structures on the Site.

The Project's proposed stormwater management system will reduce or maintain peak runoff rates through use of infiltration systems and improved the water quality of stormwater using bioretention basins and hydrodynamic separators. Environmentally sensitive site design and low-impact development techniques will be implemented throughout the Site. The Project is being designed to meet and exceed the MassDEP Stormwater Management Standards.

Please refer to the Storm Water Report in Appendix F.

Low Impact Development:

The proposed building is designed to be low impact and to meet LEED Silver minimum to earn incentive reimbursement points from the State funding authority. At present it is tracking at a Gold level. There are several factors that will affect the final rating as the design continues to develop, including whether the project can afford the alternative photovoltaic array, but the energy cost are estimated to be between 32.5 and 47.8% compared to a baseline code compliant building with a corresponding site Energy Use Intensity (EUI) of between 25.5 and 34.5. The higher cost saving and lower EUI are factoring the renewable one site energy.

In terms of the site, natural features such as wetlands, and wooded areas are maintained and protected. Native vegetations are specified in all areas within wetland buffer zones. There is very limited tree removal with the project staying within the current area of developed site. Stormwater treatment is improved over existing with infiltration designed below parking and recreation fields. Surface rain gardens are incorporated and serve as an educational opportunity.

Ground Water Recharge and Quality Preservation:

See *Surface Water and Drainage* above.

Ground Water:

Ground water has been an issue with the existing building, and geotechnical explorations included placement of ground monitoring wells in two boring locations at the east and west end of the proposed location of the classroom wings. These wells were monitored and indicate shallow ground water in the eastern most well. An under-slab drainage system is included in the building design and is conveyed to the storm water system.

Please refer to the Geotechnical Report in Appendix D.

Utilities:

Electrical, water and sewer utilities exist at the site and will be modified as required for the new building. A new gas service will be provided from existing Eversource infrastructure at the Shoppes at Blackstone Valley.

- The building electrical service is fed from an existing overhead primary service that traverses the school site to serve the Shoppes at Blackstone Valley. National Grid has agreed to put this service underground from the top of the entrance driveway at the south end of the developed site and maintain it underground to the shopping mall site, where it is already underground. Overhead poles will be eliminated and new service to the new building from a ground mounted transformer will be underground. Please refer the Electrical Site Plan in the drawing set.
- A 12" water service line runs along the entire driveway length and connects through to serve the Shoppes at Blackstone Valley. This water line will be adjusted in one section to avoid the footprint of the new building. Separate domestic and fire service lines will be brought to the building from this line. The building will be fully sprinkled.
- Sewer service will be conveyed as it is presently, to a sewer pump station at the Elmwood Street School site. All sewer infrastructure within the developed area of the site will be replaced north of the existing manhole at the southern most edge of the developed site area.
- Gas service will be brought from an existing 6" gas service line at the Shoppes a Blackstone Valley. Access and easements are being worked out between Eversource and the Shoppes.

Advertising/Signs:

A single ground mounted monumental identification sign at the base of the entrance driveway at Elmwood Street is proposed. This sign will be illuminated externally. The lighting will be on a photocell sensor and timer. The sign is constructed of the same elements of the building - masonry and metal. A waiver is sought for the size. Two building mounted signs, 1) at the main entrance and 2) at the cafeteria entrance are proposed. A waiver is sought for the size of each. Please see the drawing set, drawing #W0.02 for details of these signs.

Interpretive signage is proposed within the site for educational purposes and also traffic directional signage as required for traffic and parking control, including top signs, do not enter signs, parking limitation signs, one way directional signs, handicap parking signs, electrical charging station signs and electric vehicle preferred parking signs.

Landscaping within Setbacks:

Existing planting buffers at the east and north boundaries of the site will be maintained.

Circulation:

The single existing access drive from Elmwood Street is bituminous paving with bituminous curbing separating an existing bituminous sidewalk on the east side of the drive. This drive terminates at a large parking lot east of the existing building at the top of the hill. Bus traffic and parent traffic co-mingle in this parking lot at drop off and pick up times. An emergency access drive connects to the Shoppes at Blackstone Valley from the north end of the parking lot.

The single access drive from Elmwood Street will remain but will be improved with repaving and granite curbing. Sidewalks will be reconstructed in concrete. New handicap accessible curb cuts will be installed at the intersection of Elmwood Street. Concrete pedestrian sidewalks and walkways are proposed predominately throughout the site connecting parking areas to building entrances and recreational fields. Walkways around the recreational play fields are proposed as bituminous asphalt, and interpretive walkways within the wooded areas are proposed as stabilized stone dust. Vehicular traffic will separate at the top of the entrance driveway with busses circulating left (west) and cars to the right (east). The dedicated bus loop is designed to support the entire bus fleet serving the school. This loop will be fenced to restrict traffic to allow it to be used as play area outside of pick up and drop off times. A dedicated parent drop-off circulates the east parking lot, providing a significant stacking area for cars and parent drop off and pick up. The bus loop serves as the fire lane on the south side of the building, and connects to a paved fire lane on the west side of the building and the existing

(adjusted and redesigned) emergency access drive connecting to the Shoppes at Blackstone Valley to the east and north.

Please refer to the Traffic Impact and Access Study in Appendix C.

Curbing:

See above for proposed scope of curbing. Granite curbing is proposed throughout the project. Please refer to the landscape drawings in the drawing set.

Parking Area Landscaping:

The main parking lot east of the school is laid out in a large square, incorporating circulation and drop off areas along the periphery as noted above under *Circulation*. The zoning bylaw requires interior landscape coverage equal to 5% of the total area. The plan meets this overall requirement by providing 24 trees for 118 spaces. Rather than spreading them out in separate islands, however, these trees are organized along the southern and western edge of the parking lot and in a large continuous planting strip east of the new building. This allows for efficient snow removal and stormwater drainage, which is a stated goal in 12.45 (q) Parking Area Landscaping. It also reduces the overall extent of the parking lot, maximizing preservation of existing trees to the north and east and provides the opportunity for solar canopies to be added over parking areas as a future project.

Interior Walkways and Pedestrian Paths:

Dedicated pedestrian sidewalks for pedestrian movement from parking areas to building entrances are proposed throughout the site. Perimeter parallel parking within the large parking lot to the northeast will serve as parent drop off lanes during drop off and pick up hours and signed appropriately. See also narrative under *Circulation* above.

Stormwater Management:

See *Surface Water and Drainage* above. Please refer to the Storm Water Report in Appendix F.

Outdoor Lighting:

Fixtures for area lighting will be pole mounted, cut-off LED luminaires in the parking and roadway. Pole heights for these areas will be 20 feet. Fixtures for walkways will be pole mounted, cut-off LED luminaires mounted on 12' poles. Building perimeter fixtures will be LED wall mounted, cut-off luminaires and are located above exterior doors for Exit discharge. Additional wall mounted fixtures are located at the perimeter of the building to illuminate walkways closer to the building. The exterior lighting will be connected to the automatic lighting control system for photocell "ON" and timed "OFF" operation. Illumination level will be 0.5fc for parking areas in accordance with the Illuminating Engineering Society. Please see the lighting photometric plan in the drawing set sheet # LC1.0.

Other Site Features:

Loading and services are located at the north end of the site, rear of the building. There are two proposed accessory buildings proposed. One is a five hundred forty square foot (540 SF) Concession Stand/Comfort Station at the south end of the recreational fields. The second is a four hundred eighty four square foot (484 SF) Maintenance Shed for storage of maintenance equipment at the north end of the site adjacent to the loading and building service area. Both buildings are constructed with the same materials as the main school building, brick masonry and metal siding.

