



Project Leaders

January 13, 2022

Mr. Thomas Scarice
Superintendent
Westport Public Schools
110 Myrtle Avenue
Westport, CT 06880

Subject: *Long Lots Elementary School*
Budget Analysis and Recommendations

Dear Mr. Scarice:

This letter serves as supplemental information to Colliers Project Leaders report dated December 16, 2021, that provides detailed documentation of the building envelope, mechanical, and electrical and systems as well as site observations adjacent to the building contributing to water infiltration into the building. Contained in this letter are our recommendations for the Long Lots facility based on our observations but also taking into consideration studies performed by Langan during the summer of 2021, and the 2019 Antinozzi Associates Master Plan Facility Study.

The Long Lots Elementary School is an aging facility originally constructed in 1953 with additions in 1962 and 1979. As documented in both Colliers and Antinozzi reports, most of the systems in the building are past their useful life with many of them dating back to the original construction of the building. Two of the major building systems are in poor condition as documented by Colliers. The building envelope and the mechanical/electrical systems.

These two major systems are primarily responsible for maintaining the indoor environmental conditions of the building. In very simple terms, they are responsible for keeping the building dry and warm (or cool.) These systems, especially in new buildings, compliment and support each other in this function. If one of these systems fails, it will typically cause the other to work harder or possibly become ineffective in its intended use. However, both systems are failing and in our professional opinion beyond their useful life where full replacement of the systems should be considered.

Based on our review of Antinozzi's Capital Implementation Plan contained within their report, we generally do not take any exceptions at this time. However, based on our reading of the reports and the proposed values of construction, we recommend that planning and design funding be provided to perform more comprehensive investigations and review of their findings. We recommend this as our understanding of their scope of work was based purely on visual observations of the physical conditions. Below are our recommendations for specific divisions of work.

HVAC Systems (Division 23): The HVAC system improvements comprise \$28.7 million of the total \$96 million in proposed improvements by Antinozzi. We recommend that the HVAC system improvements be reviewed in a holistic manner versus on an individual component basis. Simply replacing units on a one-to-one basis without reviewing the systems as a collective whole may lead to a less effective and/or efficient system. Many of the current systems are original systems that do not possess current design methodologies and technologies.

Finishes (Division 9): The proposed finishes comprise \$13.3 million of the \$96 million in proposed improvements. Most of the proposed finish projects consist of either ceiling tile replacement or flooring replacements. There are some painting recommendation and a few other finish recommendations, but the vast majority lie between ceiling tiles and flooring.

Based on our review of their report and our experience with older buildings, we find that many of the areas being recommended for replacement are associated purely with aesthetics. There will certainly be areas in need of repair such as floor cracking, tile delamination or other failures but we recommend these areas be addressed on a case-by-case basis when presenting a safety hazard. The recommendation to replace large areas of ceilings or flooring based purely on age or aesthetics should be weighed against other proposed work and balanced against the available funding.

Exterior Improvements (Division 32): These improvements comprise \$15.1 million. Most of these costs are repaving of lots and driveways. This information is being provided due to the large percentage of the total costs.

The total cost of the HVAC, Finishes, Exterior Improvements, and Thermal and Moisture Protection (Division 7, mostly roofs) make up 82% of the total costs proposed by Antinozzi.

Six other divisions comprise 14% (\$13.5M) of the \$96 million in proposed improvements. These are masonry, woods and plastics (cabinets primarily), openings (doors and windows), specialties (mostly



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Mechanical and Electrical Systems

As reported by Colliers, the mechanical and electrical systems are nearing their end of life and recommended to be replaced. Our assumption is that they would be replaced in full with current technology and systems and not replaced in kind. In doing so there are many factors to consider when contemplating such a project in an occupied school of this age. Some of these factors include but are not limited to:

- Construction phasing in an occupied school
- Removal of ceiling and wall systems necessary to install the systems and replacement thereof
- Unforeseen conditions
- Hazardous materials abatement
- Above ceiling clearances
- Project Costs
- Reimbursement

Installation of these systems throughout a building that is fully occupied will require extensive phasing, coordination and ultimate disruption to the school operations. In addition, the duration of the project would be extended due to the limited amount of area a contractor may take at one time or restrictions to work during summer breaks, holidays or even second shift.

Mechanical and electrical systems are installed above ceilings and through walls. To install them in these concealed spaces, the finished ceilings and walls must be removed to allow access to the space above or behind such a wall. The ceilings contain lighting fixtures, emergency devices and other systems that require removal and ultimate replacement. In our experience, these systems are typically replaced with new systems and not the old systems that were removed. Walls and their finishes will need to be replaced with new materials also.

When working in buildings of the 50s and 60s era, there are always hidden conditions within a building that are unforeseeable. The possibilities are endless but must be accounted for when budgeting for such a project.

The likelihood of hazardous materials being present above ceilings and behind walls is very likely as well as hazardous materials that were used in the original construction of these systems. Old boilers may contain asbestos linings. Pipes were typically wrapped with insulation containing asbestos. Some



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walls may contain vermiculite that is a suspected carcinogen as well. Abatement of these materials will need to be accounted for.

New mechanical systems always consist of supply and return ductwork that allow the proper exchange of air to the building. The ductwork must be able to fit between the finished ceiling and the roof deck. Older building sometimes has limited ceiling space to allow such installation.

Probably the most important factor is the cost of replacing these systems. Just the systems alone not including the aforementioned factors of phasing, unforeseen conditions and possibly hazardous materials abatement will cost in in the millions of dollars. To provide a rough order of magnitude, Colliers recently received bids for a new elementary school in Connecticut where trade bids for electrical, HVAC, and other required trades for the building were submitted. Excellent bid coverage was provided for this project thus we feel confident in the values.

The successful HVAC and building controls bid were \$51.30 per square foot for a building approximately 103,000 square feet which is similar to Long Lots. The successful electrical contractor bid (not including security, audio visual, telecommunications or fire alarm trades) was \$35.59 per square foot. Applying these square foot costs to the 109,000 gross square feet of building at Long Lots equates to \$5,591,700 for HVAC and \$3,879,310 for electrical. In total, the equal \$9,471,010 which is for the trade costs alone not including, demolition of conditions, general conditions which are estimated to be 15% of the trade costs as well as a recommended owner's contingency for unforeseen conditions.

Building Envelope Replacement

As described in our assessment, the building envelope consists of the roof; the vertical surfaces consisting of walls, doors, window, and louvers; and the building slab and foundation. The only component of the building envelope that is in fair condition is the roof. Having been replaced in 2008, the roof warranty expires in 2028 thus there is an additional 6-years of warranty remaining and if maintained correctly could last longer. However, thermal imaging indicates wet insulation in select areas of the roof.

The exterior walls, windows, and doors of the building have been documented to be in poor condition and likely responsible for air and moisture intrusion into the building. Most of the window systems are original single-pane and some double-pane construction that we have documented allow air infiltration via the use of thermal imaging. The skylights in the art room are leaking and are



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recommended to be replaced with solid roofing. Most of the doors are rusted and show water leakage, lack of seals or lack of insulation. In general, the entire vertical envelope is ineffective and inefficient.

Finally, there are basement and crawl spaces without vapor barriers on the bottom side of the building that prevent moisture intrusion from the ground. Interior walls that are below the exterior ground surface display evidence of moisture penetrating through the foundation also. This condition leads to interior condensation.

In summary, the entire building envelope is considered compromised and in need of replacement. This includes the roof, exterior walls, windows, door and louvers. Like the mechanical and electrical systems, we assume that the systems would utilize current systems installed in today's systems. Many of the same factors noted for the mechanical and electrical system project would need to be considered for the building envelope.

With respect to costs, we received an estimate from the construction manager for the same project noted earlier that provided an estimate of the exterior walls, window and doors for the project. (Note: bids received for the project are not submitted by building system thus we cannot reference the bids for this analysis). The construction manager estimated these systems to be \$5,659,065 for the new school 103,296 gross square feet in size. This equates to \$54.78 per square foot. Applying this to the Long Lots building area equates to approximately \$5,971,558 in 2021 dollars. This is based on an estimate but is likely to be higher as bids for this specific project came in over budget by about 7%. Conservatively, we'll assume the lower estimated amount for this discussion. The estimated cost above does not include hazardous materials abatement (if applicable), demolition of existing conditions, general conditions or owner's contingency.

Should the roof be replaced, the estimated cost to do so is 80,458 s.f. of roof multiplied by \$20.22 per square foot (bid received for Saugatuck Elementary School in 2021) equals \$1,626,860 in 2021 dollars.

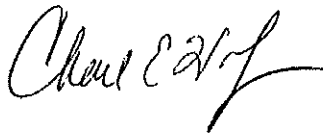
The building envelope, not including improvements for the exposed ground conditions under the building, are roughly \$7.6M plus any additional cost for hazardous materials abatement, demolition of existing conditions, general conditions or owner's contingency.

We estimate the minimum cost to replace these systems to be roughly \$22 million for the entire building. (\$9.5M + \$7.6M multiplied by 15% for general conditions then multiplied by 10% for owner contingency).

In consideration of the mechanical, electrical, and building envelope systems combined with the recent indoor environmental challenges studied by Langan as well as the age of the building and its interior conditions, we recommend that Westport Public Schools consider executing a holistic review of building and potential options for either renovating or replacing the facility in full. Should the district concur with this recommendation, we would also recommend postponing execution of any recommendations in Antinozzi's report unless it presents a health or safety hazard.

In closing, we thank you for the opportunity to assist the district with the evaluation of the Long Lots Elementary School. Should you have any questions regarding this letter or our December 16, 2021, report, please do not hesitate to reach out to me or my team members who prepared that report.

Sincerely,



Charles E. Warrington, Jr., P.E.
Director, Project Management

cc: Mr. Elio Long, Chief Financial Officer
Mr. Theodore Hunyadi, Director of Facilities