



SCHOOL CONSTRUCTION AID TASKFORCE REPORT

Report to the House and Senate Committees on Education

FEBRUARY 1, 2024

**Submitted by the School Construction Aid Taskforce
Interim Secretary of Education Heather Bouchey, Co-Chair
State Treasurer Mike Pieciak, Co-Chair**

Executive Summary

In 2021, Vermont initiated a comprehensive inventory and assessment of all public school buildings through [Act 72](#), aiming to address long-standing issues stemming from the suspension of a school construction aid program in 2008. The subsequent creation of the School Construction Aid Taskforce in 2023, mandated by [Act 78](#), aimed to analyze the assessment results and formulate recommendations for a new statewide aid program. Stakeholders on Taskforce conducted eight meetings, including onsite visits and expert presentations. The findings underscored urgent needs, with an estimated annual spending requirement of \$300 million over 20 years to address facility deficiencies and create 21st-century learning environments.

The Taskforce emphasized the critical role of school facilities in educational outcomes, citing a significant backlog of projects and deteriorating conditions affecting safety and equity. Drawing on insights from a range of experts and examining funding models from other states, the Taskforce was able to lay out a few proposals. Key recommendations include a centralized school construction aid program, projects that are prioritized by state educational goals, efficient fund utilization, and continuity of financial and technical resources. Acknowledging the inability for a state-funded solution alone, the Taskforce urged a multifaceted approach, emphasizing financial innovation, collaboration with career technical education centers, and a robust planning process. The report concludes that in the absence of a comprehensive state aid program, districts face inequities, urging legislative and administrative action to bridge the funding gap and uphold Vermont's commitment to quality.

Purpose

In 2021, the Legislature passed and the Governor signed [Act 72](#), funding a statewide inventory and assessment of all public school buildings. The purpose of this data was to inform a future Legislature on the extent of school facilities needs in Vermont and to provide a foundation to create a new statewide school construction aid program, following the aid program that existed for many years but was suspended in 2008.

In 2023, with the preliminary school facilities inventory complete and the comprehensive assessment due in October, the General Assembly created the School Construction Aid Taskforce in [Act 78](#) to review the results of the comprehensive assessment and make recommendations to the Legislature for a new state program to assist school districts with funding and planning for facilities upgrades that meet the 21st century needs of students, educators and society.

Specifically, the Task Force was charged with studying:

- the needs, both programmatic and health and safety, of statewide school construction projects;

LEADERSHIP · SUPPORT · OVERSIGHT

- funding options for a statewide school construction program, including any incentive plans;
- a governance structure for the oversight and management of a school construction aid program;
- the appropriate state action level for response to polychlorinated biphenyl contamination in a school; and
- criteria for prioritizing school construction funding.

Summary of Taskforce Work in 2023

[Act 78 of 2023, Sec. E.131.1](#) required the first meeting of the Task Force to take place by July 15, 2023. However, due to the unprecedented July flooding event in Vermont beginning July 10, the Task Force was not able to convene until August 28, 2023.

The Task Force met eight times, including one onsite meeting at the Milton Elementary and Middle School. Over the course of its work, the Task Force authored a charter document outlining its goals and practices and heard from several presenters including:

- The Agency of Education regarding the School Facilities Assessment;
- The Vermont Bond Bank, the State Treasurer's Office, and the Joint Fiscal Office on the state of Vermont education funding and municipal bonding;
- The Agency of Education on school construction programs in other states;
- USDA Rural Development on the Winooski project and opportunities for other school districts;
- Public Resources Advisory Group (State's financial advisor) on financing scenario modeling;
- Milton School officials on the status of their school building (including a physical tour);
- The Department of Environmental Conservation and the Department of Health on Vermont's School PCB testing program; and
- A panel of superintendents on the challenges districts face navigating the State's School PCB Testing program.

Informed by these presentations and the individual expertise of Task Force members themselves, the remaining portion of the Task Force's time was spent discussing the group's responses to its legislative charge. Additionally, a small working group was formed late in the fall as an effort to collaboratively draft the sections of this report for the full Task Force's consideration.

The Task Force's full meeting record can be found at the [AOE website](#) and includes links to the aforementioned presentation materials and resources.

Membership

The 2023 State School Construction Aid Task Force is comprised of representatives from the Vermont Legislature, Treasury, Agency of Education, the Executive Directors of Vermont's education-related associations, Vermont's Bond Bank, and subject matter experts in construction, historic preservation, industrial hygiene, and energy efficiency.

Mike Pieciak, State Treasurer, Co-Chair

Heather Bouchey, Interim Secretary of Education, Co-Chair

Representative **Chris Taylor**

Representative **Peter Conlon**

Senator **David Weeks**

Senator **Martine Gulick**

Jeff Fannon, Vermont National Education Association (VT-NEA)

Chris Young, Vermont Principals' Association (VPA) Designee

Sue Ceglowski, Vermont School Boards Association

Jeff Francis, Vermont Superintendents Association

Michael Gaughan, Vermont Bond Bank

Bruce MacIntire, Vermont School Custodians and Maintenance Association

David Epstein, Gubernatorial Appointee

Jon Wilkinson, Gubernatorial Appointee

Eric Lafayette, Gubernatorial Appointee

Ben Doyle, Gubernatorial Appointee

Background

Prior to 2008, Vermont offered a standard 30 percent funding for allowable costs for school construction projects using bonded funds. As demand for that state aid grew, the program outgrew the state's bonding capacity and it was suspended in 2008, the same time the nation was in the Great Recession. As school districts wrestled with education costs in total, Vermont's school budgets in general prioritized student learning and the human resources needed to support those efforts over facilities stewardship and other capital investments.

As the recession receded, school districts began presenting bond proposals of their own for major renovation and expansion projects without direct state aid. Most failed, including recent bonds in South Burlington, Slate Valley, Kingdom East, Mount Abraham, Woodstock and Stowe. Educational leaders began urging the Administration

LEADERSHIP · SUPPORT · OVERSIGHT

and Legislature to restart a direct aid program, and that led to Act 72 of 2021. The recently released facilities assessment that resulted from Act 72 demonstrated a tremendous need across the state to address deferred maintenance in almost every school district. It also prompted a look at how other states fund school construction, and how those programs reflect the goals of those states.

With an average age of 61 years for Vermont schools, this significant reduction in school construction aid has contributed to a backlog of school construction projects and the decline of school facilities conditions statewide. This has resulted in less safe and less healthy learning environments, as well as disparities in the quality of education between better-resourced communities and high-need districts.

Cost estimates from the recently completed statewide assessment estimate a 20-year annual average spending of \$300 million to address facilities deficiencies statewide, just to replace systems that have reached the end of their useful life “in kind.” The facilities assessment also does not include the creation of 21st century learning environments. While there are many definitions of 21st century learning, there is a general consensus that the term is used to refer to an approach to learning that centers on collaboration, digital literacy, critical thinking, and problem-solving. As we work to shift our approaches to educating for the 21st century, we should also be thinking about how school spaces can help or hinder this kind of learning.

In addition to considerations of maintaining and modernizing our school buildings, a growing body of research demonstrates that the condition of school facilities has an important impact on student performance and teacher effectiveness. The evidence is mounting that safe and healthy school environments improve student, teacher, and staff morale with consequent positive impacts upon student achievement, prosocial behaviors and teacher recruitment and retention (see [Appendix A](#) for a list of resources and research papers regarding the development of 21st century schools and the connections between school facilities, school communities, student outcomes and issues of equity).

Through the COVID-19 pandemic and, more recently, in the July 2023 floods, we have gained an appreciation of schools as critical community infrastructure. During extreme weather events and public health emergencies, Vermont’s schools provide meals to students, families and communities, serve as emergency shelters and support student mental health and well-being both during and in the aftermath of incidents. In order to serve as critical community infrastructure, schools must be resilient to climate change and have the infrastructure to support the myriad functions they serve. The need for schools to be climate resilient, structurally sound, Act 150 compliant and with building systems fully functional will become more critical as extreme weather events become more frequent and schools get repurposed for community needs other than traditional forms of educational delivery.

Vermont Public Schools Facilities Overview

The 21st Century School Fund, National Council on School Facilities and International Well Being Institute release an annual report State of Our Schools and provide a [state level report](#) that includes an analysis of budgeting for school facilities. This analysis is helpful to understand, at the highest level, how Vermont is investing, or not, in the management, upkeep and investment in our school buildings. With approximately 17 million square feet of building area at an average 2020 school construction cost of \$465 per square foot, Vermont's PK-12 building portfolio in 2020 had a current replacement value of \$8.133 billion. In 2020, Vermont school districts spent a combined annual \$170.8 million of their operating and capital budgets on facilities. However, the benchmark for good stewardship standards for PK-12 public school facilities operating and capital budgets is 7 percent of the Current Replacement Value, or \$569.3 million. This means that in 2020, Vermont's students, teachers, and communities were using public schools that had a combined facilities operating and capital budget gap of \$398.5 million dollars annually. With current new construction costs often exceeding \$580 per square foot, this gap is likely to grow.

Compounding this local funding gap, the state, in 2008, placed a moratorium on state aid for school construction. That aid, while never intended to pay for the entire cost of a new school construction or renovation project, was a critical bridge available to school districts, especially for those districts in less economically advantaged communities, to allow critical infrastructure projects to proceed. The state's involvement in school construction aid funding also meant that, to a limited extent, the state had some input into and oversight of major school construction and renovation projects (e.g. requirements for Education Specifications, maximum cost per square foot for state share and requirements for commissioning were all elements of the original program). This 16-year moratorium continues, and the lost opportunity costs are now an additional burden on schools, communities, and taxpayers.

Taskforce Approach, Considerations and Recommendations

Over the many years, the state has passed numerous laws that affect school districts, students, parents, staff, and communities, and many of these laws have and will continue to have an impact on school infrastructure. While Vermont's education system remains a highly local in control, it also boasts one of the most equitable funding systems in the nation (grounded in Acts 60 of 1997 and 68 of 2003) and a deep and repeated commitment that all students in Vermont have a right to equitable access to high quality educational opportunities.

LEADERSHIP • SUPPORT • OVERSIGHT

Other legislative actions have also sought to support this goal including: 46 (2015), 127 (2022), Act 29 (2023), Act 77 (2013) and 72 (2021), as well as the AOE's District Quality Standards.

The goals of Act 46 include:

1. Provide substantial equity in the quality and variety of educational opportunities statewide;
2. Lead students to achieve or exceed the State's Education Quality Standards, adopted as rules by the State Board of Education at the direction of the General Assembly;
3. Maximize operational efficiencies through increased flexibility to manage, share, and transfer resources, with a goal of increasing the district-level ratio of students to full-time equivalent staff;
4. Promote transparency and accountability; and
5. Are delivered at a cost that parents, voters, and taxpayers value.

The Flexible Pathways Initiative, created by Act 77 of 2013 and found in statute under 16 V.S.A. § 941, encourages and supports the creativity of school districts as they develop and expand high-quality educational experiences that are an integral part of secondary education in the evolving 21st-century classroom. In addition, Act 67, the Community Schools Grant program was a legislative initiative that established the important role that schools can play in supporting communities through health, nutrition, academic and social programs. In Community Schools, the building serves the entire community.

The intent of Act 127 is to fulfill Vermont's constitutional mandate to ensure that all students receive substantial equality of educational opportunity throughout the state.

The creation of District Quality Standards in Act 127 of 2022 (16 V.S.A. § 165) includes elements of Act 29 and Act 72 that address the quality and condition of school facilities. These include requirements for capital fund plans, ensuring that school facilities are secure and safe and adequate and appropriate training for staff responsible for operating and maintaining school facilities.

These policies and regulations are intended to support the State's goal "that all Vermont children will be afforded educational opportunities that are substantially equal in quality". However, when we compare the funding for school districts through the lens of socioeconomic status, race, ethnicity, and location, disparities become evident. For example, districts with high populations of economically disadvantaged students are typically situated within communities of relative economic disadvantage, reducing the likelihood that voters as a whole agree to take on additional bonding debt or property tax increases via school budgets given community affordability challenges. This results in a negative cycle of underfunded facilities and the consequent negative impacts on the school population and community at large.

Absent the development of a school construction aid program with a prioritization schema that can address this reality, inequitable access to safe and healthy school facilities will continue and will likely get worse.

Key Foundations for Taskforce Recommendations

The Task Force took the approach that the state educational system already is in a state of facilities decline that must be addressed now; any delay will ultimately cause harm to students' education and cost the state more to fix. In other words, the future is now. As the cost projection exercise in [Appendix C](#) details, a failure to address deferred maintenance and other facilities needs has resulted in a funding gap that the state is unlikely to have the financial resources to address. Not responding to the existing gap, will only lead to a "snowball effect" wherein the gap grows larger, while school facilities conditions further deteriorate.

The Task Force further agreed that if these issues are not addressed now the schools cannot feasibly meet the legislative mandates required of the education system.

The Task Force also discussed the enormity of the cost to simply replace all of the failing school buildings, including such ideas as scaling down buildings, consolidating schools, using different metrics for different schools (e.g., elementary versus high school), and newer designs and materials, all with an eye towards creating schools the state can afford and students deserve.

The Task Force was in agreement that the combined framework of statute and policy outlined above, and the District Quality Standards form the basis for an approach to school state construction aid that prioritizes funding for projects that support equitable access to high quality educational opportunities.

Finally, the Task Force agreed that doing nothing was not an option. A multitude of construction approaches and financing schemes are necessary. Faced with the magnitude of need and the realities of state capacity to raise the necessary funding to address the needs of the entire portfolio of public school buildings, it is the determination of the taskforce that a paradigm shift is necessary.

The result of these conversations is that the taskforce recommends:

1. the new proposed school construction program should be centered on the efficient use of public funds to modernize school infrastructure in alignment with current educational models;
2. the development of the school construction program should use the levers of eligibility, prioritization criteria and the assurance/certification process to drive funding towards projects that are aligned to the priorities and policies framework outlined above;
3. the implementation of the school construction aid program should prioritize decisions that, as much as possible, enshrine the continuity of financial and

technical resources in law, to ensure that school districts can engage in meaningful planning processes that result in successful projects;

4. access to school construction funds must also include CTE centers; and
5. the taskforce strongly recommends that the legislature engage in a longer, in-depth, planning process that results in a clearly articulated school construction aid program prior to the commencement of awarding funds to schools.

In summary, an effective school construction aid program should act as a policy lever so that the state can ensure that smart decisions are made about how money is being spent. In the absence of a state school construction aid program, districts must “go it alone,” with the result that Vermont’s taxpayers pay for projects over which they have no control and do not necessarily align with state goals. A lack of state participation has resulted in districts trying to deal with major issues and crises on their own (including school facilities) with more or less effective responses. The taskforce recognizes that the one outcome of this absence is greater inequities in the delivery of education and student outcomes and urges action on the part of the Legislature and Administration.

Programmatic and Health and Safety Needs

The taskforce utilized the results of the comprehensive school facilities assessment to identify current programmatic and health and safety needs. Some districts have also undertaken a more detailed assessment as part of capital improvement planning.

Magnitude of the Issue Identified

The statewide facilities assessment has resulted in a set of consistent baseline data, with associated cost calculations, that will provide lawmakers and other interested stakeholders with a shared understanding of the overall condition of Vermont’s public schools and how much money will be needed to address deferred maintenance and other necessary updates to the existing portfolio of 384 buildings (including CTE centers). Some qualifying points to be made:

- Costs derived from the assessment represent replacement-in-kind costs only;
- The AOE has added a multiplier of 2.32 to the costs to better align with the real cost of construction in 2024. A summary of how this multiplier was derived is included in [Appendix B](#).
- The AOE has included a compounded annual inflation rate of 4.271% in all cost projections. A summary of how this inflation rate was derived is included in [Appendix B](#).
- These costs do not account for additional costs that will be incurred, such as permitting, and any engineering assessments required, waste disposal, materials testing, etc. and a contingency adder can and should be applied to account for such costs;

LEADERSHIP · SUPPORT · OVERSIGHT

- These costs do not address any modernization initiatives in equipment or educational programming spaces;
- These costs do not address overcrowding concerns that may exist, nor do they consider enrollment projections;
- In summary, there are likely to be additional costs associated with any specific project.

The facilities assessment identified:

- \$228,613,264 in immediate needs. These are failed systems or issues of health, safety or security that should be addressed now;
- \$341,424,888 in Short Term (1-2 year) needs;
- \$904,680,288 in Near Term (3-5 year) needs;
- \$1,426,800,696 in Medium Term (6-10 year) needs; and
- \$3,450,805,816 in Long Term (10-20 year) needs;
- \$6,352,324,952 in Total needs over a 21 year time period, with an average need of \$300 million annually to maintain the existing portfolio of buildings.

Cost projections also demonstrate that in order to avoid a compounding carry-over or “snowball” effect (see cost projection modeling for different levels of school construction funding in [Appendix C](#)), the state’s investment annually would need to be a significant percent of the annual projected costs, sustained over 20 years, to begin to address the need identified through the facilities assessment. The current analysis from the Office of the State Treasurer is that the state does not have the bonding capacity to support this level of extended investment and it is uncertain that a dedicated revenue source could be found to make up the gap.

It is therefore necessary to contemplate a state construction aid program that takes a bold approach when contemplating potential sources of funding (see Final Recommendations) and that it retain a strong focus on **only** funding those projects that align with state educational priorities and center the efficient use of public funds to modernize school infrastructure in alignment with current educational models. **The taskforce has concluded that equitable access to high quality educational spaces does not equate to a school construction aid program wherein all schools receive equal investment from a limited pot of state funds.**

Immediate or Short-Term Health and Safety Needs Identified

In the statewide facilities assessment system deficiencies that require immediate attention (within one year recommended) are classified as “Immediate Needs” if they present an existing or potential unsafe condition, are failed, or are suspected of imminent failure of mission critical building systems or, if left unaddressed, have the potential to result in or contribute to, a critical element or system failure.

LEADERSHIP · SUPPORT · OVERSIGHT

While Immediate Needs spanned across every system category, the top five systems as a percentage of Total Cost for the Immediate Needs are:

- Interiors at 29% (\$67,083,264)
- Roofing at 14% (\$33,066,032)
- HVAC at 10% (\$23,245,008)
- Site Pavement at 9% (\$21,053,768)
- Building Façade at 9% (\$21,204,568)

In addition, while Fire Alarm Systems and Fire Suppression Systems each contribute only 5% to the overall Immediate Needs costs, they nevertheless play important roles in fire safety in schools. For example, the facilities assessment identified that there are schools with fire alarm panels that are obsolete and for which spare parts are no longer available. In this case, one circuit board failure may cause such fire alarm systems to become inoperable, and while their cost impact may be relatively small, their operational impact could be significant. [Appendix B](#) has a summarized table of Immediate Needs identified in the facilities assessment and their associated costs and a summary of the facilities assessment, including system types and condition categories can be found in the [AOE's presentation](#) to the House Education Committee on January 3, 2024.

Educational Capacity & Programming

The state does not, at this time, collect information on educational capacity or educational sufficiency, beyond the self-reported information and the high-level STEAM/STEM analysis included in the facilities assessments (see [Appendix D](#)). However, there are some general conclusions that can be drawn from this preliminary data collection.

1. Most (over 70%) of schools have adequate classroom spaces based on their current and near term projected enrollments, but half of all schools reported that they lack adequate space to provide the education programming they would like to offer, and more than half do not have adequate or appropriate space to provide one on one services that meet standard of HIPPA or FERPA.
2. While a comprehensive summary of the STEAM/STEM analysis was not available at the time of the drafting of this report, a preliminary review of the facilities assessment shows that Vermont's school buildings scored poorly in terms of the sufficiency and provision of modern STEAM/STEM spaces. This finding aligns with the results of the survey.
3. In summary, the facilities assessment has diagnosed that most of our school buildings were built in a period when Vermont had more students and so, classroom space is largely adequate to meet current enrollments. However, Vermont's older portfolio of school buildings do not provide spaces that align with

current educational delivery models or the requirements for one on one spaces and flexible learning spaces.

These results speak to a key recommendation of the taskforce: it is not enough to simply repair existing buildings. State investment should be directed towards projects that will improve student learning. There are national standards and best practices for educational sufficiency and educational alignment that the taskforce would recommend be included in the evaluation of any proposed project that might receive state funding.

Funding Options

The School Construction Aid Task Force (Task Force) discussed at length several mechanisms to provide State construction aid funding to school districts. In particular, the State of Rhode Island's very successful model seemed broadly applicable to Vermont for several reasons. First, the institutional structure for such a program already exists in Vermont: the Rhode Island Health and Education Buildings Corporation (RIHEBC, pronounced "RYE-beck"), which assists school districts with issuing bonds, is functionally similar to the Vermont Bond Bank (the Bond Bank or VBB). Second, by providing a State debt service subsidy to school districts, Rhode Island is able budget for and control the timing and amount of State dollars provided, and to align incentives to school districts with State policy objectives by scoring the percentage of subsidy funding based on a number of quantitative and qualitative criteria. Finally, and critically important in the context of the State's debt management process, bonds issued through RIHEBC are not considered to be State of Rhode Island net tax-supported debt, and a similar mechanism (state-aid intercept) through the Bond Bank would likely preclude the use of State of Vermont net tax-supported debt for school construction.

The discussion will cover, in order, the (1) a brief history of Vermont's state-level school construction aid, (2) a review of the State's debt management process, and why State debt may not be a preferable source of State school construction aid, (3) a discussion of how a Rhode Island-like debt service subsidy program might work in Vermont, (4) a discussion of potential impacts to the Education Fund, and potential incremental funding sources, and finally (5) several recommendations for conditions precedent to receiving State aid, and considerations for Legislative next steps.

History of Vermont School Construction Aid

Vermont historically provided construction aid to school districts in the Capital Bill, with an appropriation to the Agency of Education funded by the issuance of State General Obligation (G.O.) Bonds. Prior to 2007, the General Assembly had been spending approximately 20 percent of the total capital funds available (about \$10 million per year) on school construction and had also appropriated one-time General Fund revenues to help pay down State obligations.

In 2007 Acts and Resolves No. 52, Sec. 36, the General Assembly suspended State aid for school construction. Under the suspension, no State aid was authorized for school construction except for emergency aid and certain consolidation projects. During the suspension period, it was the intent of the General Assembly to use the time to develop a plan for State aid. The General Assembly extended the suspension in 2008, 2009, and 2013. The 2013 extension declared the intent to maintain the suspension until FY2016 in order to finish paying for projects for which state aid has been committed prior to the suspension, and the suspension remains in place currently.

The State continues to provide certain limited aid to schools on an emergency basis, and has identified funding to assist with the costs of PCB testing and remediation (discussed in detail in prior sections of this report).

State Debt Management Process

The Vermont State Treasurer's Office is statutorily charged with managing the State's bonds and debt obligations. This task includes the responsibilities of:

- The issuance (sale) and ongoing administration of State bonds;
- Paying principal and interest (debt service) when due;
- Monitoring for refinancing (refunding) opportunities for lower borrowing costs;
- Managing the State's bond ratings (credit scores) and ongoing relationship with the bond rating agencies;
- Contracting for all debt-related State vendors and services; and
- Facilitating the work of the Capital Debt Affordability Advisory Committee (CDAAC), which includes publishing the committee's annual debt recommendation and report.

Vermont maintains a very straightforward and conservative debt profile that consists almost entirely of G.O. Bonds, 100% of which are fixed (as opposed to variable or floating) rate bonds. By statute, the State also repays principal in 20 years or less, and in level or declining amounts. This results in a more rapid amortization (debt repayment), which is typical of States with strong credit ratings.

Vermont currently is tied with the Commonwealth of Massachusetts for the highest bond ratings of the New England states from the three major credit rating agencies, rated Aa1 by Moody's Investors Service (Moody's) and AA+ by both S&P Rating Services (S&P) and Fitch Ratings (Fitch), in all cases with stable outlooks. Similar to FICO scores, these ratings enable Vermont to issue bonds with lower interest rates and cheaper borrowing costs overall. Moody's, S&P and Fitch consistently cite Vermont's budget policies, conservative fiscal management, and governance and capital debt affordability planning process for these high ratings. However, Vermont faces significant credit barriers, and was downgraded by both Moody's and Fitch from the highest triple-rating in recent years due to its demographic challenges and long-term financial obligations

LEADERSHIP • SUPPORT • OVERSIGHT

including unfunded pension and other post-employment benefit (OPEB) liabilities. While recent legislation both to increase pension funding and to pre-fund OPEB has begun to reduce these liabilities, corresponding increases to Vermont's ratings will require sustained effort over a considerable period of time.

The Capital Debt Affordability Advisory Committee (CDAAC) was created by State statute in 1989 to annually review the affordability of Vermont's net-tax supported debt. The CDAAC benchmarks Vermont's debt metric ratios to those of AAA (highest credit rating) rated states. These ratios include debt as a percentage of personal income, debt service as a percentage of revenues, and debt per capita. Informed by these metrics, the CDAAC reviews the amount and structure of bonds, notes, and other obligations for which the State has a contingent liability or moral obligation and recommends an annual debt issuance limit to the Governor and the General Assembly. This recommendation is technically advisory, but the Governor and General Assembly have always conscientiously adopted these recommendations for the biennial Capital Bill and Capital Bill Adjustment.

For the FY2024-25 biennium, CDAAC recommended a debt authorization of \$108,000,000 (or \$54,000,000 per year), which amount was enacted by the Governor and General Assembly in Act No. 69 of 2023, i.e., the FY2024-25 Capital Act. The September 2023 Interim CDAAC Report reaffirmed this recommendation.

The 2023 recommendation aligns with the State's recent trend of reducing Vermont's overall appetite for debt. The 2022 biennial recommendation represented a 12% reduction from the prior biennium and a reduction of 37% over the past decade. These recommendations have largely been fueled by more limited debt issuance by other states, including triple-A rated states, which has resulted in a weakening of Vermont's debt ratio comparative rankings.

In recognition of the State's need for continued capital expenditures despite a trend of reduction in debt issuance, the Treasurer's Office, Governor, and General Assembly, worked together to establish the Capital Expenditure Cash Fund (CECF) in 2022 (Sec. E.106.1 of Act 185 of 2022, "Big Bill") "for the purpose of using general funds to defray the costs of future capital expenditures that would otherwise be paid for using the State's general obligation bonding authority and debt service obligations. The goal of the CECF was to create a source of "pay-as-you-go" funding as an alternative to bonds, in order to save on bond interest costs, particularly as interest rates have risen. The credit rating agencies have opined favorably on this development. This fund was renamed the "Cash Fund for Capital and Essential Investments" (Sec. C.105 of Act 78 of 2023), and its purposes expanded to include investments other than capital projects.

Rhode Island Model and State Subsidy for Debt Service Payments

Rhode Island's "Public School Revenue Bond Financing Program," through which RIHEBC issues bonds on behalf of cities and towns for school construction, has

LEADERSHIP · SUPPORT · OVERSIGHT

facilitated almost \$675 million of school bonding over the past three years. (See Figure 1 in [Appendix E](#))

In Rhode Island's model, school districts issue bonds through RIHEBC (equivalent to VBB), and the State pays a subsidy amount (which varies based on a scoring system) for the bond debt service. In addition, the State of Rhode Island has issued \$500M of General Obligation bonds to provide "pay-as-you-go" or PAYGO funding to school districts as a further incentive to accelerate their construction programs; however, owing to Vermont's limited G.O. Bond capacity, this could alternatively be provided from an annual appropriation or other funding source.

The structure of Rhode Island's program is beneficial because it not only provides for a strong credit rating, but also because the bonds issued through the program are not considered to be State net tax supported debt. The reasoning for this is twofold:

1. The bonds are backed by the local entity's loans which carry a general obligation pledge and first lien on taxes and general fund revenues of the municipality, and
2. There is a State Intercept requirement, which is the ability of the RIHEBC to intercept other funds coming to the local district of municipality in order to pay any debt service shortfall. The Vermont Bond Bank also has a State Intercept mechanism provided for in statute (23 V.S.A. § 4555(c)), and carries a programmatic rating of Aa2 from Moody's, which is almost as strong as Vermont's general obligation Moody's rating and provides for similarly low borrowing costs.

The avoidance of additional State net tax supported debt is critical for Vermont's purposes because of our debt affordability metrics trends (see [CDAAC section](#) above) and previous experience with using the Vermont Housing Finance Agency to issue a large housing bond in 2018. At that time, VHFA facilitated the bond issuance as part of the State's effort to avoid having the bonds count toward the State's net tax-supported debt, but ultimately, because of the reliance on the property transfer tax revenue, Moody's considered these bonds to be "special tax bonds" and calculated them as net tax supported debt of the State.

Issuing bonds through the Bond Bank using the structure of Rhode Island's program would also ensure school districts borrow at the lowest cost and reduce programmatic and legal risks. By pooling Vermont's relatively small school district loans and combining them with loans from other Vermont cities and towns, VBB achieves scale and reduced costs similar to those for a large bond issue. VBB's staff is also skilled at municipal bond issuance and regulatory compliance, and maintains standing relationships with investment banks, bond law firms, financial advisors, and fiscal agents in a way that individual school districts are simply not resourced to do on their own.

LEADERSHIP • SUPPORT • OVERSIGHT

For the same reasons Rhode Island requires school districts to borrow through RIHEBC to be eligible for the State's subsidy, and the Task Force believes a similar condition for school districts to issue bonds through VBB would be a prudent precondition to receiving a State of Vermont debt service subsidy.

It is important to note here that the Bond Bank's public credit rating is derived from the State of Vermont, which means that the Bond Bank can be leveraged to meet much of the school construction financing needs, so long as the State maintains its current rating. In addition to school construction, a high debt rating from the State allows the Bond Bank to continue to provide low-cost capital to all borrowers, including cities, towns, villages, and other governmental units beyond schools.

At the request of the Task Force, the State's financial advisor, Public Resources Advisory Group (PRAG), modeled six scenarios to illustrate the potential costs of a State debt service subsidy to groups of school districts issuing bonds through VBB as follows:

- Example 1: \$100 million of total project funding assuming a 20% State subsidy
- Example 2: \$100 million of total project funding assuming a 40% State subsidy
- Example 3: \$250 million of total project funding assuming a 20% State subsidy
- Example 4: \$250 million of total project funding assuming a 40% State subsidy
- Example 5: \$500 million of total project funding assuming a 20% State subsidy
- Example 6: \$500 million of total project funding assuming at 40% State subsidy

For each example, PRAG assumed that funds would be raised in a single bond issuance, with each bond issue amortizing to produce level debt service over 30 years (similar to a conventional mortgage).

The 20% and 40% subsidies are illustrative only; the State could establish the level of subsidy provided to an individual school district based on a set of criteria to be determined at the program governance level, similar to the Rhode Island program. (See Figure 2 in [Appendix E](#))

In these examples the green bars represent the local share of debt service which will be paid by local school districts and the Education Fund. The orange bars represent the state subsidy share of the annual debt service payments.

As shown in Figure 2, the maximum annual costs to the State in these scenarios, range from just over \$1 million to nearly \$11 million, depending upon the total amount of project funding and the level of subsidy provided. When paired with a governance framework, the State could use similar modeling to project and budget for potential long-term costs depending upon the total amount of funding, overall subsidy level and incentive structure, debt amortization schedules, and other relevant variables. In these examples the orange bars represent the State's debt service subsidy which is available to the school districts as bond debt service becomes due. In the Rhode Island program,

LEADERSHIP · SUPPORT · OVERSIGHT

the Ocean State does not provide its debt service subsidy to schools until the school construction project is completed.

Additionally, in recognition of the programmatic need for a predetermined amount of support for annual project costs, that a governance framework can rely upon year over year, PRAG modeled the State subsidy commitment for a program in which the VBB would issue \$100 million with a 20% State subsidy each year in perpetuity. (See Figure 3 in [Appendix E](#))

In this variation of the model, the State subsidy amounts increases, or ramps up, each year, until it plateaus in FY2054 at just under \$36 million per year (which is equivalent to the total subsidy for a single bond issue over its 30-year life). The subsidy amount then remains steady even though \$100 million is issued in new projects each year, because the older, 30-year bond issues reach their final maturity dates annually from that point forward.

These models are meant to be demonstrative of the order of magnitude of project costs that varying amounts of annual State subsidy commitment could support, as a starting point for continuing policy discussions around the scale and scope of a new State School Construction Aid Program. The total project funds contemplated do not reflect a recommendation from the Task Force as to the scale of a future program, but rather were chosen for mathematical ease of reference in order to facilitate program development.

Major Fund Source and Potential Need for Additional Revenues

As discussed previously, the recommendation does not contemplate additional G.O. Bonds issued by the State to support PAYGO upfront funding incentives for localities as in the Rhode Island model. Given the existing constraints and demands upon Vermont's debt capacity, the Task Force recommends that both upfront PAYGO State incentives and annual debt service subsidy aid are better served by an ongoing annual funding source, rather than bond issuance, which incurs significant borrowing costs and impacts both Vermont's credit rating and its debt affordability metrics.

The Task Force understands that it could be helpful to the success of individual projects to have State support in the areas of planning, engineering, and other preconstruction costs, categories that are better served by "pay-as-you-go" funding sources.

Additionally, any revitalization of State aid for school construction program in the form of a debt service subsidy will necessitate an annual appropriation for costs and personnel to administer the program and its governance structure. These costs should not be paid for with bonded dollars.

It is the assumption that the State's school construction aid in the form of debt service subsidy will not be paid from the State's Education Fund, as the incremental increase in annual expenditures both directly attributable to State aid, and indirectly to the increased school district non-subsidized portion of debt service costs from additional

bond issuance, will put further pressure on State property taxes unless an additional revenue source or sources are identified. To cite one example, the Massachusetts School Building Authority receives one percentage point of the Commonwealth of Massachusetts' sales and use receipts to fund school construction projects.

In order to fund both the PAYGO and debt service subsidy elements of a State aid program, the Task Force recommends that the General Assembly direct the Joint Fiscal Office to model options for an ongoing and specific annual revenue source. These options may be based on the revenue sources used by other states with State aid for school construction programs, or may be unique to Vermont, but the revenue source should have limited year over year volatility in an amount available in order for the State to be able to offer consistent annual programming.

The Task Force also recommends that the State Treasurer's Office discuss any prospective major fund and revenue source(s) with Moody's, S&P and Fitch prior to the passage of new program legislation, to ensure that the rating agencies do not consider State aid, and especially a debt service subsidy, to be interpreted as State net tax-supported debt.

Other Policy Considerations for State Aid

In addition to the preservation of the State's credit rating and strong debt management practices, as well as the recommendation of the use of a State debt service subsidy model, both outlined above, there are several other key policy considerations that the Task Force believes are pertinent to the financing aspect of a State School Construction Aid Program.

This report contemplates the nuances of potential governance frameworks for a new program. It is imperative that the logistics of and criteria for a governance framework be established prior to the rolling out of any State debt subsidy commitments for project funds. By first establishing the governance framework, the State will not only be able to model future annual costs with more precision, but it will also be able to appropriately size a new program to the scope of need and availability of the revenues to support it. One component of the governance framework that the Task Force discussed at length was whether projects should be retroactively eligible for State aid, and if so, how far back should retroactive eligibility extend. Decision points such as this one have the potential to significantly impact the scenario modeling presented in [Appendix E](#) and should be outlined in the governance framework so that the State can more accurately predict the required ongoing financial commitment.

Furthermore, the Task Force recognizes the need for provisions within a governance framework to protect the State's investment of dollars in any given project. These provisions may include things such as a requirement for a school district receiving the State subsidy to develop and adhere to a long-term capital plan, or to fully fund an annual maintenance budget. The objective of these provisions is to prevent, in the

LEADERSHIP · SUPPORT · OVERSIGHT

future, many of the extreme deferred maintenance situations that we are seeing in districts today.

Finally, State support should be optimized when other low-cost sources are unavailable. For example, energy efficiency and renewable energy components of projects may benefit from incentives through the Inflation Reduction Act and energy efficiency utilities within the state. USDA Rural Development can also sometimes support school construction initiatives, as was the case with the recent Winooski School project. A State aid program should promote and foster the leveraging of funds from other sources when available. Financial support for schools should be directed to the aggregate project cost rather than specific uses for this reason.

Governance

There are as many governance structures for school construction aid as there are states that have school construction aid programs. The taskforce looked at several examples and settled on two options that share two common principles. The first is that, as much as possible, there should be an independent body whose function and authority is identified through law and who is responsible for the awarding of state funds. The second is that in order to be successful, the school construction aid program must have dedicated staff to manage the funding, support districts in the development and successful completion of projects that align with state priorities and ensure good stewardship of state funds through the maintenance of facilities and budgeting standards as required by the school construction program and other legal mechanisms (e.g. District Quality Standards, Act 72, etc.).

Massachusetts School Building Authority

The [Massachusetts School Building Authority](#) operates entirely separately from the Department of Education and is a quasi-independent government authority (akin to the Green Mountain Care Board or Vermont Natural Resources Board). Established in 2004, the School Building Authority deploys funds through the School Modernization Reconstruction Trust Fund (generated through a percentage of the state's sales and use tax) through direct grant aid. Funding is based on a series of metrics, which include poverty and other measures of wealth, and projects are incentivized if they align with state priorities through a tiered system of increasing state investment aligned to specific types of projects. The School Building Authority is made up of 70 full-time staff members, including 10 director-level positions and inclusive of a group of prequalified engineers and architects with expertise in school construction and knowledge the state school construction program. The Massachusetts School Building Authority also provides technical assistance and training to schools related to school facilities and sets standards for school buildings in the state (a function currently held within Vermont Agency of Education).

Rhode Island School Building Authority

In contrast, the authority for Rhode Island's school construction aid program resides in its Department of Education. The [Rhode Island School Building Authority](#) is a team of five full-time staff housed within the Rhode Island Department of Education and is tasked with the management of the entire school construction aid program, and in coordination and alignment with significant activities associated with the school facilities program (similar to the current role of the Vermont Agency of Education). The School Building Authority includes both financial and programmatic staff that support the development of projects, and with the seven-member Rhode Island School Building Authority Advisory Board make recommendations on spending priorities and incentives,

review projects and make recommendations to the Rhode Island Health and Educational Building Corporation on which projects should receive state funding each year. The Rhode Island School Building Authority Advisory Board, which includes the general treasurer, the director of the department of administration, other key state administrators and members of the public selected by the Governor.

Taskforce Recommendation

The two examples above take very different approaches to the management of a school construction aid program. In the Massachusetts example, a quasi-independent government body has taken on all of the functions of school construction aid, including the awarding of funds through grants (generated through tax revenue, as opposed to bonding) in addition to programmatic management of a school facilities program. The Rhode Island example mirrors the previous Vermont school construction aid program, but is more robust and expansive in its reach. It also relegates the authority for the awarding of state funds (bonds, for the most part) to a separate entity. The tasks of the Rhode Island School Building Authority include everything but the final decisions about funding.

The taskforce recommends that the Legislature study these, and other state models and that they align their governance approach with the funding/financing and programmatic strategies that they develop. The Legislature might also benefit from testimony from districts from Rhode Island, Massachusetts or other states to gain an understanding of the benefits and limits of each approach. Finally, the taskforce urges any governance structure to be appropriately staffed and funded through a stable appropriation.

School PCB Program

The School Construction Aid Task force was asked to study and make recommendations for setting required action levels of airborne PCBs when detected in school buildings. While the task force devoted a full meeting to this topic, the members did not believe they were qualified, as a whole, to adjust levels determined by the Vermont Department of Health. However, the task force did recognize how the state's testing and remediation program disrupts long-range facilities planning due to the greater immediacy needed to remediate for the presence of PCBs to a level acceptable to the Vermont Department of Health, due to the unknown future of funding for PCB remediation and due to the ongoing litigation by the state and school districts.

The task force recommends the Administration and General Assembly revisit this program to address the conflict between the more immediate need to address the presence of airborne PCBs as required by the Vermont Department of Health and school districts' need to plan for future major construction projects on a longer time horizon.

More broadly the taskforce recommends that the state should approach environmental hazards and contaminants in schools in a comprehensive manner and incorporate distinct, existing programs into a state school construction aid program, wherever possible.

Finally, the taskforce recommends that any funds that districts or the state recoup through pending PCB litigation, beyond the costs that the state has incurred, be directed towards state school construction aid.

Prioritization Criteria

After the taskforce received the results of the statewide school facilities assessment, it became clear that simply attempting to repair, refurbish or replace all of the public school buildings, let alone turn them into places for 21st century learning, would be far beyond the resources of a small state faced with declining student enrollments. Indeed, such an approach did not guarantee that state funds would be directed in such a way that they aligned with our key principle to only funding those projects that align with state educational priorities and center the efficient use of public funds to modernize school infrastructure in alignment with current educational models.

Through a robust discussion by individual members and informed by the presentation of other state models by AOE staff, the taskforce settled on some initial recommendations. The taskforce strongly recommends that the legislature engage in a longer, in-depth, planning process that results in a clearly articulated school construction aid program prior to the commencement of awarding funds to schools.

1. The state should use the levers of eligibility, prioritization criteria and the assurance/certification process to drive funding towards projects that are aligned to the priorities framework outlined in preexisting laws and policies summarized in the section “Vermont Educational Priorities.”
2. Eligibility criteria might include (but are certainly not limited to):
 - a) requirements for adequate budgeting for Maintenance and Operation in annual budgets (e.g. a district must increase its M&O budget by 0.5% for three consecutive years prior to be eligible for state funding);
 - b) a district must have a 5 Year Capital Plan (in alignment with Act 72 and District Quality Standards);
 - c) maximum or minimum thresholds for Facilities Condition Index for the school building (e.g. the state will not invest funds in any building above an FCI index of 65%, but will provide a 5% state share bonus to replace that building);
 - d) the district has completed a master planning process that at minimum ties the district vision statement, educational needs, enrollment projections, renovation needs and construction projects together into a master plan. Please note that the taskforce recommends that this eligibility criteria

LEADERSHIP · SUPPORT · OVERSIGHT

could be advanced with Planning grant dollars in the short term, so that when a construction program becomes active, there are shovel ready projects in the queue for review (see [Final Recommendations and Considerations](#) section); and

- e) the town in which the school building exists must not engage in exclusionary zoning, such as minimum lot sizes, that preclude lesser resourced families from living in the district.
3. The state's "base" share should include some consideration of student or community poverty and set tier levels based upon an agreed upon metric such as local taxing capacity, student poverty data already collected by the state or federal census or other poverty data.
 4. Similar to the Rhode Island model, the state should use incentives or state share bonuses in its funding structure that align with Vermont's educational priorities to drive the use of taxpayer dollars towards outcomes that will improve student learning environments and opportunities. These state share bonuses could be "stacked" up to a limit and might include the following:
 - a) School Safety and Security- Projects that protect students, teachers, and other building occupants from internal and external threats, including building and site hardening and access controls OR capital improvements that safeguard students, teachers, and other building occupants from harm that may be caused or exacerbated by building conditions, including those that address general physical safety, fire safety, building egress, and accessibility;
 - b) Health- Building improvements that address deficiencies that impact students, teachers and staff health including indoor air quality, thermal health, water quality, ventilation, and acoustics. Note, that this could include remediation of environmental contaminants, including, but not necessarily limited to, PCBs, radon, mold, asbestos, lead and PFAS;
 - c) Educational Enhancements- including integrated science labs; facilities upgrades that enhance use of WiFi, online learning, and tele-instruction; flexible classroom and meeting space designs to accommodate multiple styles and formats of teaching (one-on-one, small group, whole class, formal versus informal learning spaces);
 - d) Replacement- limited to projects that replace a facility with a current Facility Condition Index (FCI) of 65% or higher and only offered in consideration in combination with one of the other share bonuses, such as Newer and Fewer, Major Renovation to Improve Educational Alignment and Capacity, and/or Environmental Performance/Sustainability;

LEADERSHIP · SUPPORT · OVERSIGHT

- e) Decrease Overcrowding- limited to new construction or renovation that decreases the functional utilization of any facility from more than 120% to between 105% and 85%;
 - f) Environmental Performance/Sustainability (CHIPS, LEAD, Net Zero)- offered only in combination with another state share bonus that will result in improved educational outcomes, such as Major Renovation to Improve Educational Alignment and Capacity
 - g) Newer and Fewer- This bonus is limited to consolidation of two or more school buildings into one school building.
 - h) Major Renovation to Improve preK-12 systems educational alignment and capacity - limited to projects devoted for purposes of educational system enhancements including, integration of early childhood education, career and technical education, common learning spaces and projects that align with the districts approved educational program. It might also include the necessary renovation and consolidation of small schools to serve as Community Schools.
5. Through the assurance and certification process, the state should require the following:
- a) a district's commitment to adequate funding for ongoing maintenance and operations of any state-funded improvements;
 - b) a district must assure to adequate training for facilities and custodial staff to properly operate and maintain systems funded through the school construction aid program (in alignment with the requirements of Act 72 and District Quality Standards); and
 - c) the district will complete a full Commissioning process as a requirement to receive state funds at the end of the project and a Clerk of the Works will be required throughout the lifespan of the project. Both of these costs will be eligible for state funding support and the state might contemplate a state preferred vendor list to make these requirements less burdensome for districts.
6. The state should approach environmental hazards and contaminants in a comprehensive manner and incorporate distinct, existing programs into a state school construction aid program, wherever possible.
7. The state should offer some portion of state funding to districts that begin construction projects in the five years prior to the commencement of the school construction aid program. The state should publish its eligibility and prioritization criteria as soon as possible, to avoid disincentivizing districts that are currently undertaking construction projects. Alternatively, the state should publish, as soon as possible, a set share that these districts could access, regardless of the final programmatic prioritization and eligibility schema.

Final Recommendations and Considerations

In addition to the specific recommendations made in the sections mandated in Act 78, the taskforce also acknowledges that there is a significant amount of groundwork that can and should be undertaken prior to the reestablishment of a school construction aid program. This work will ensure that state funding is directed towards projects that demonstrate significant planning and engagement with the local community to ensure the passage of necessary bonds and that the discussion of possible revenue and/or financing options are comprehensive and will address all aspects and requisite supports for a robust program.

The taskforce recommends that these activities be supported in the 2023-2024 Legislative session as necessary prerequisites for any subsequent decision-making.

1. The taskforce recommends that funds be appropriated for the Joint Fiscal Office to model sources of funding, in addition to bonding, to support a school construction aid program. The JFO should include in its analysis the identification of a separate source of funding to support full-time staff to manage a construction aid program.
 - a) The modeling should also consider how the state or school districts could maximize their state and local funds by leveraging federal funding programs including the [Inflation Reduction Act Tax Credit program for schools](#) to reduce energy costs, or the [USDA Rural Community Development programs](#); and
 - b) The modeling should consider whether and/or how other state or federal programs or funding sources could be integrated or coordinated with a school construction aid program to encourage and even incentivize the repurposing of schools as social infrastructure, including housing.
2. The taskforce recognizes that many districts do not have the resources (technical or financial) to engage in high-level master planning activities that include community stakeholders. Because it is the recommendation of the taskforce that districts only be eligible for funding if they have completed a district-wide master planning exercise, it is our recommendation that the Legislature create a planning grant program, to last five years, so that districts can complete a master planning process and become eligible for future funding.
 - a) In order to encourage the passage of local bonds to fund school construction projects, these master planning grants should include as an eligible cost, the consideration of the adaptive reuse of schools for housing or other social infrastructure.
3. There is a significant amount of planning and research needed in the areas of governance, funding, priorities and programmatic mechanics. The taskforce recommends that the Legislature establish a working group to build out a plan for

a statewide school construction aid program, to be delivered to the Legislature in January 2025. The working group should:

- a) build from the recommendations made in this report and any additional priorities identified by the Legislature;
- b) review and make recommendations on existing statute and regulation that might be impacted by or better aligned to a future school construction aid program (e.g. Act 154);
- c) identify areas where economizations or efficiencies might be gained (e.g. prequalifying consultants with experience in the planning, renovation and construction of schools or consideration of cost containment strategies like the use of building plan templates for new construction);
- d) align with and result from the fiscal modeling produced by the Joint Fiscal Office.

Additional Considerations Not Adopted as Recommendations

There were also recommendations or proposals offered by members of the taskforce that were not adopted. To support a thorough analysis of options, the taskforce wanted to ensure that these inputs were included for consideration by the Legislature. These recommendations are summarized in this section.

Considerations for School PCB Testing Program

The School Construction Aid Task force was asked to study and make recommendations for setting required action levels of airborne PCBs when detected in school buildings. After hearing testimony from state and school officials, it has become clear that the existing program does not adequately evaluate the potential risk of PCB's and the procedures dealt to test, contain, and dispose of them. To continue down the current path will continue to derail construction projects, misallocate state funds, and negatively impact the learning environments of our students. The following recommendation could improve budget predictability and lower overall exposure risk to school occupants.

1. A third-party consulting toxicologist review the data and current action level approach and determine an appropriate range of PCB exposures in schools.
2. Continue the pause in PCB air Testing funding. Fund the mitigation or abatement of identified known PCB sources in schools.
3. Use some of the existing funding for UVM Chemistry to develop a new portable PCB testing device for identification of PCB sources in schools. This device should be able to identify PCB sources within minutes. UVM may be able to patent this technology for use outside of Vermont. (See UVM White Paper in [Appendix F](#)).

4. Consider a different approach to PCB testing and mitigation similar to State and Federal Asbestos regulations that allow a management plan approach to manage the potential risks to school occupants. Identify sources. Minimize disturbances. Review conditions at least every 3 years. Mitigate or abate sources when needed to reduce risk or when the materials are to be disturbed.

Considerations for Concurrent State Policies and Goals

Supporting modern school facilities is not a goal that exists in isolation from other statewide goals. Instead, a system that supports school renovation and construction will further concurrent state goals, prominent examples include:

1. Growing Vermont's workforce and reversing an aging population;
2. Improving housing options by lowering geographic disparities in access to quality educational facilities; and,
3. Access to climate resilient social infrastructure to support community needs.

Appendix A: 21st Century School Design

The below links provide useful resources and research on 21st Century school design and the impacts of school facilities on student outcomes and school communities.

21st Century School Design

- [How Do You Define 21st-Century Learning? \(edweek.org\)](https://www.edweek.org/technology/2015/02/20/how-do-you-define-21st-century-learning/)
- [Transforming K-12 Facilities For 21st Century Learning — Edge Architecture \(edge-architecture.com\)](https://www.edge-architecture.com/transforming-k-12-facilities-for-21st-century-learning/)
- [6 Key Elements of Modern Classroom Design & Ideas | Envision \(envisionexperience.com\)](https://www.envisionexperience.com/6-key-elements-of-modern-classroom-design-ideas/)
- [Visualizing 21st-Century Classroom Design | Edutopia](https://www.edutopia.org/visualizing-21st-century-classroom-design)
- [The Architecture of Ideal Learning Environments | Edutopia](https://www.edutopia.org/the-architecture-of-ideal-learning-environments)
- [Designing the 21st Century Classroom: 6 Top Considerations | Ideas | HMC Architects](https://www.hmcarchitects.com/designing-the-21st-century-classroom-6-top-considerations-ideas/)
- [Integrating 21st century skills into education systems: From rhetoric to reality | Brookings](https://www.brookings.edu/research/integrating-21st-century-skills-into-education-systems-from-rhetoric-to-reality/)

School Facilities and Student Outcomes

- California Department of Education. (2010). School Facilities Improve Learning. Retrieved July 2015, from California Department of Education: <http://www.cde.ca.gov/ls/fa/re/documents/learnercenter.pdf>
- Eitland, E., Klingensmith, L., MacNaughton, P., Laurent, J.C., Spengler, J., Bernstein, A., & Allen, J.G. (2017). Schools for health: Foundations for student success: How school buildings influence student health, thinking and performance. Cambridge, MA: Harvard T.H. Chan School of Public Health. [Harvard.Schools For Health.Foundations for Student Success.pdf \(forhealth.org\)](https://www.hsph.harvard.edu/schools-for-health/foundations-for-student-success/)
- University of Oregon: NetZED Case Study Lab. 2021: [Impact of School Facilities on Student Learning and Engagement](https://www.netzed.org/impact-of-school-facilities-on-student-learning-and-engagement/)
- Filardo, M., Vincent, J., Sullivan, K., Starr, J., Fusarelli, L., Ross, E. (2019, May 02). How crumbling school facilities perpetuate inequality. Retrieved June 01, 2020, from: https://kappanonline.org/how-crumbling-school-facilities-perpetuate-inequality-filardo-vincent-sullivan
- [Building Minds, Minding Buildings: Turning Crumbling Schools Into Environments for Learning \(aft.org\)](https://www.aft.org/building-minds-minding-buildings)

Appendix B: Summary of Immediate Needs and Associated Costs

The AOE has offered several presentations on the purpose, scope and results of the Statewide School Facilities Assessment. These include a January 2024 presentation to the [House Education Committee](#) and a [webinar presentation](#) in November 2023. In addition, the AOE has created [a website](#) with additional resources and links to the final reports for each school building.

SYSTEM	COST
Structure	\$1,952,744
Building Façade	\$21,204,568
Roofing	\$33,066,032
Interiors	\$67,083,264
Conveying	\$1,222,640
Plumbing	\$13,162,520
HVAC	\$23,245,008
Fire Protection	\$2,300,976
Electrical	\$13,941,344
Fire Alarm & Electronic Systems	\$11,519,496
Equipment & Furnishings	\$5,196,800
Special Construction & Demo	\$3,166,336
Site Development	\$3,758,632
Site Pavement	\$21,053,768
Site Utilities	\$408,784
Follow-up Studies	\$1,398,032
Energy Savings Opportunity	\$12,296

LEADERSHIP · SUPPORT · OVERSIGHT

SYSTEM	COST
Accessibility	\$1,510,088
Other (H0001)	\$0
TOTALS (4.271% inflation)	\$225,203,328

There are two entries in the above table that warrant further explanation.

The **Follow-Up Studies** are comprised of recommendations to investigate certain observed concerns (structural, underground fuel storage, hazardous material testing, etc.) further and the cost associated with performing these studies do not capture the project costs that may develop as a result of the investigative studies.

The **Accessibility** line item is comprised of recommendations to investigate observed ADA concerns and the costs associated with performing these investigations do not capture the project costs that may be developed as a result of the investigations.

Appendix C: School Facilities Assessment Cost Project Summary

With a minimum projected annual average of \$300 million in project costs over the next 20 years, a review of four different levels of construction spending was considered to understand the impact spending level has on the projected costs into the future. In each of the four spending scenarios, it was assumed that the construction would be level funded over time without annual inflation increases. The levels of spending considered were for understanding the impact on the overall cost burden and did not consider what the percentage cost share would be between the State and Local Districts. In other words, a theoretical 20 million construction program could potentially have a 30/70 split between the State and the Local Districts, with the State contributing 6 million towards construction and the Districts contributing 14 million towards construction, but the overall reduction to the project costs would be 20 million. The annual spending levels considered were 20 million, 50 million, 100 million and 150 million.

It is notable that in each of the four spending scenarios, annual construction spending does not match the average annual need, resulting in unmet project costs that must be accounted for by carrying them over into the next year's project needs. This drives an ever-increasing annual amount of project costs over the 30 years considered. The situation could be slightly improved if there was consideration of an annual increase in construction funding level equal to inflation. At the 150 million spending level, with inflation adjusted spending, it takes until 2054 to catch up to the need.

The accompanying tables model the cost projections over 30 years for the four levels of spending considered.

Funding Scenario: State Construction program of \$20,000,000 of combined state and local funding.

Column A: Year	Column B: Annual average amount of project needs from Statewide Facilities Assessment Study	Column C: Unmet project costs from prior year. (Previous years Column F)	Column D: Annual average amount of project needs + Unmet project costs from prior year. (Column B + Column C)	Column E: Project annual total spending (20 million of combined state and local funding. Not adjusted for annual inflation.)	Column F: Unmet project costs. Cloumn D - Column E
2024	\$300,000,000	\$0	\$300,000,000	\$20,000,000	\$280,000,000
2025	\$300,000,000	\$280,000,000	\$580,000,000	\$20,000,000	\$560,000,000
2026	\$300,000,000	\$560,000,000	\$860,000,000	\$20,000,000	\$840,000,000
2027	\$300,000,000	\$840,000,000	\$1,140,000,000	\$20,000,000	\$1,120,000,000
2028	\$300,000,000	\$1,120,000,000	\$1,420,000,000	\$20,000,000	\$1,400,000,000
2029	\$300,000,000	\$1,400,000,000	\$1,700,000,000	\$20,000,000	\$1,680,000,000
2030	\$300,000,000	\$1,680,000,000	\$1,980,000,000	\$20,000,000	\$1,960,000,000
2031	\$300,000,000	\$1,960,000,000	\$2,260,000,000	\$20,000,000	\$2,240,000,000
2032	\$300,000,000	\$2,240,000,000	\$2,540,000,000	\$20,000,000	\$2,520,000,000
2033	\$300,000,000	\$2,520,000,000	\$2,820,000,000	\$20,000,000	\$2,800,000,000

Column A: Year	Column B: Annual average amount of project needs from Statewide Facilities Assessment Study	Column C: Unmet project costs from prior year. (Previous years Column F)	Column D: Annual average amount of project needs + Unmet project costs from prior year. (Column B + Column C)	Column E: Project annual total spending (20 million of combined state and local funding. Not adjusted for annual inflation.)	Column F: Unmet project costs. Cloumn D - Column E
2034	\$300,000,000	\$2,800,000,000	\$3,100,000,000	\$20,000,000	\$3,080,000,000
2035	\$300,000,000	\$3,080,000,000	\$3,380,000,000	\$20,000,000	\$3,360,000,000
2036	\$300,000,000	\$3,360,000,000	\$3,660,000,000	\$20,000,000	\$3,640,000,000
2037	\$300,000,000	\$3,640,000,000	\$3,940,000,000	\$20,000,000	\$3,920,000,000
2038	\$300,000,000	\$3,920,000,000	\$4,220,000,000	\$20,000,000	\$4,200,000,000
2039	\$300,000,000	\$4,200,000,000	\$4,500,000,000	\$20,000,000	\$4,480,000,000
2040	\$300,000,000	\$4,480,000,000	\$4,780,000,000	\$20,000,000	\$4,760,000,000
2041	\$300,000,000	\$4,760,000,000	\$5,060,000,000	\$20,000,000	\$5,040,000,000
2042	\$300,000,000	\$5,040,000,000	\$5,340,000,000	\$20,000,000	\$5,320,000,000
2043	\$300,000,000	\$5,320,000,000	\$5,620,000,000	\$20,000,000	\$5,600,000,000
2044	\$300,000,000	\$5,600,000,000	\$5,900,000,000	\$20,000,000	\$5,880,000,000
2045	\$300,000,000	\$5,880,000,000	\$6,180,000,000	\$20,000,000	\$6,160,000,000

Column A: Year	Column B: Annual average amount of project needs from Statewide Facilities Assessment Study	Column C: Unmet project costs from prior year. (Previous years Column F)	Column D: Annual average amount of project needs + Unmet project costs from prior year. (Column B + Column C)	Column E: Project annual total spending (20 million of combined state and local funding. Not adjusted for annual inflation.)	Column F: Unmet project costs. Cloumn D - Column E
2046	\$300,000,000	\$6,160,000,000	\$6,460,000,000	\$20,000,000	\$6,440,000,000
2047	\$300,000,000	\$6,440,000,000	\$6,740,000,000	\$20,000,000	\$6,720,000,000
2048	\$300,000,000	\$6,720,000,000	\$7,020,000,000	\$20,000,000	\$7,000,000,000
2049	\$300,000,000	\$7,000,000,000	\$7,300,000,000	\$20,000,000	\$7,280,000,000
2050	\$300,000,000	\$7,280,000,000	\$7,580,000,000	\$20,000,000	\$7,560,000,000
2051	\$300,000,000	\$7,560,000,000	\$7,860,000,000	\$20,000,000	\$7,840,000,000
2052	\$300,000,000	\$7,840,000,000	\$8,140,000,000	\$20,000,000	\$8,120,000,000
2053	\$300,000,000	\$8,120,000,000	\$8,420,000,000	\$20,000,000	\$8,400,000,000
054	\$300,000,000	\$8,400,000,000	\$8,700,000,000	\$20,000,000	\$8,680,000,000

Appendix D: Capacity and Programming Space Survey

As part of the facilities assessment, each district was asked to fill out a questionnaire relating to capacity and programming space for each school. The table below summarizes the responses to those questions.

Survey of Capacity & Programming Space Questions	% No	% Yes
Do you have enough classrooms to meet enrollment?	28%	72%
Do you have enough space for educational programming?	41%	59%
Would you provide more programs if you had more space?	34%	66%
Do you have enough confidential space to comply with FERPA/HIPPA/IEP?	49%	51%
Do you have adequate office spaces for Administrative & Support staff?	41%	59%
Do your Cafeteria/Kitchen/Gym spaces meet enrollment needs?	37%	63%

Appendix E: Funding Models

Figure 1: RIHEBC School Bonds Issued 2021-2023
Total Bonds Issued 674,780,000

Date	School District	Amount	Maturity	Term
9/13/23	City of Warwick	20,000,000	5/15/43	20 Years
8/22/23	Exeter West Greenwich	5,540,000	5/15/44	21 Years
7/26/23	Town of Cumberland	74,125,000	5/15/53	30 Years
9/29/22	Town of Johnston	85,000,000	5/15/52	30 Years
6/28/22	Town of Portsmouth	19,510,000	5/15/45	23 Years
6/15/22	Town of Burrillville	5,950,000	5/15/38	16 Years
3/25/22	City of Newport	98,500,000	5/15/47	25 Years
3/9/22	City of Warwick	23,830,000	5/15/41	19 Years
1/7/22	City of Pawtucket	30,235,000	5/15/42	20 Years
9/30/21	Town of Smithfield	35,985,000	5/15/42	21 Years
8/10/21	Exeter West Greenwich	8,890,000	5/15/43	22 Years
6/22/21	Town of Westerly	11,205,000	5/15/31	10 Years
6/16/21	City of East Providence	124,470,000	5/15/41	20 Years
5/27/21	City of Providence Issue	100,690,000	5/15/41	20 Years
5/12/21	City of Newport	17,920,000	5/15/33	12 Years
3/23/21	Town of North Kingston	12,840,000	5/15/42	21 Years

Figure 2: State Subsidy Estimates

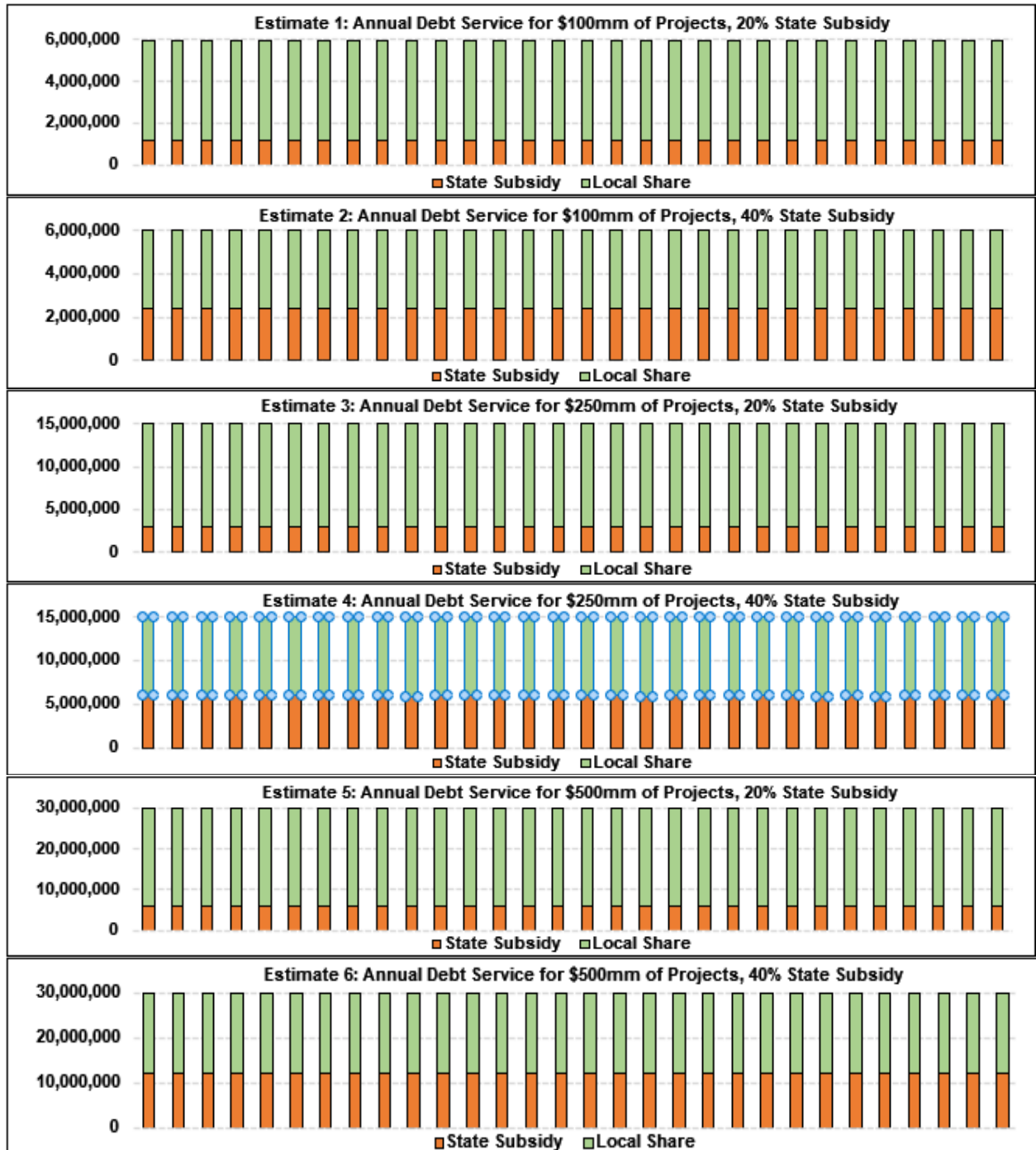
Estimate Number	1	2	3	4	5	6
Project Funds	\$100,000,000	\$100,000,000	\$250,000,000	\$250,000,000	\$500,000,000	\$500,000,000
Total Subsidy	\$35,920,893	\$71,841,786	\$89,803,608	\$179,607,216	\$179,606,666	\$359,213,332
Average Subsidy Per Year	\$1,088,512	\$2,177,024	\$2,721,321	\$5,442,643	\$5,442,626	\$10,885,252
Subsidy Percent	20%	40%	20%	40%	20%	40%

Figure 3: Annual State Subsidy Amount for Each Estimate

Year	1	2	3	4	5	6
2025	\$1,196,893	\$2,393,786	\$2,993,758	\$5,987,516	\$5,985,466	\$11,970,932
2026	1,197,500	2,395,000	2,993,200	5,986,400	5,987,450	11,974,900
2027	1,196,950	2,393,900	2,993,850	5,987,700	5,986,700	11,973,400
2028	1,197,700	2,395,400	2,993,650	5,987,300	5,987,350	11,974,700
2029	1,197,650	2,395,300	2,993,550	5,987,100	5,987,150	11,974,300
2030	1,197,800	2,395,600	2,993,450	5,986,900	5,986,950	11,973,900
2031	1,197,100	2,394,200	2,993,250	5,986,500	5,986,550	11,973,100
2032	1,197,550	2,395,100	2,993,850	5,987,700	5,986,750	11,973,500
2033	1,197,050	2,394,100	2,993,100	5,986,200	5,987,300	11,974,600
2034	1,197,600	2,395,200	2,992,950	5,985,900	5,986,950	11,973,900
2035	1,197,100	2,394,200	2,993,250	5,986,500	5,986,500	11,973,000

Year	1	2	3	4	5	6
2036	1,197,550	2,395,100	2,993,850	5,987,700	5,986,700	11,973,400
2037	1,197,850	2,395,700	2,993,600	5,987,200	5,987,250	11,974,500
2038	1,196,950	2,393,900	2,993,400	5,986,800	5,986,850	11,973,700
2039	1,197,850	2,395,700	2,993,100	5,986,200	5,987,250	11,974,500
2040	1,197,400	2,394,800	2,993,550	5,987,100	5,987,100	11,974,200
2041	1,197,600	2,395,200	2,993,550	5,987,100	5,987,100	11,974,200
2042	1,197,350	2,394,700	2,992,950	5,985,900	5,986,900	11,973,800
2043	1,197,600	2,395,200	2,993,600	5,987,200	5,987,150	11,974,300
2044	1,197,250	2,394,500	2,993,250	5,986,500	5,986,450	11,972,900
2045	1,197,250	2,394,500	2,993,750	5,987,500	5,986,450	11,972,900
2046	1,197,500	2,395,000	2,993,850	5,987,700	5,986,700	11,973,400
2047	1,196,900	2,393,800	2,993,350	5,986,700	5,986,750	11,973,500
2048	1,197,400	2,394,800	2,993,050	5,986,100	5,987,150	11,974,300
2049	1,197,850	2,395,700	2,993,700	5,987,400	5,987,400	11,974,800
2050	1,197,150	2,394,300	2,993,000	5,986,000	5,987,000	11,974,000
2051	1,197,250	2,394,500	2,993,750	5,987,500	5,986,450	11,972,900
2052	1,197,000	2,394,000	2,993,600	5,987,200	5,987,200	11,974,400
2053	1,197,300	2,394,600	2,993,300	5,986,600	5,986,600	11,973,200
2054	1,197,000	2,394,000	2,993,550	5,987,100	5,987,100	11,974,200
Total	\$35,920,893	\$71,841,786	\$89,803,608	\$179,607,216	\$179,606,666	\$359,213,332

Figure 4: Estimates for Annual Debt Service with 20% and 40% State Subsidies



Appendix F: UVM White Paper

The following white paper is included at the request of a member of the Task Force and does not represent the position of the State of Vermont.



The University of Vermont

January 10, 2023

TO: Jon Wilkinson

FROM: David Punihaole (Primary investigator)

CC: Giuseppe Petrucci (co-Primary investigator)

RE: On-site Detection of Polychlorinated biphenyls (PCBs) using handheld Raman and LIBS Spectroscopy

We propose to develop portable spectroscopic tools that enable rapid, cost effective, on-site screening to detect *total* concentrations of polychlorinated biphenyls (PCBs). This screening technology will be used to identify PCBs from sources such as surfaces, materials, and water found in buildings that can be further investigated off-site in laboratories for further quantitation and analyses. To screen for PCBs, we will employ a multimodal approach by combining laser induced breakdown spectroscopy (LIBS) with Resonance Raman scattering. The instrument will be made into a portable device and will quantify total PCBs based on chlorine content. Our targeted sensitivity will be 50 ppm, which is the threshold for action levels in both air and surface materials. The benefits of our screening technology are that it will enable the ability to directly quantitate levels of PCBs at their source, thus significantly saving on cost and analysis time.

The proposed work will be a collaboration between the Punihaole and Petrucci groups in the Department of Chemistry at the University of Vermont. The PI (David Punihaole) is an analytical and physical chemist with 15 years of experience in Raman spectroscopy and building home-built, state-of-the-art resonance Raman and stimulated Raman optical setups. The co-PI (Giuseppe Petrucci) is an analytical and environmental chemist who has been a professor at UVM for 24 years. He has experience in a variety of analytical methods, including LIBS spectroscopy.



The University of Vermont



Figure 1. Examples of most common implementation of portable LIBS. Adapted from Rokovsky et al.¹.

Our multimodal approach combines the detection sensitivity of LIBS and the chemical specificity of Raman spectroscopy. Thus, our approach provides two points of validation for higher accuracy and the reduction of false positives. The basic principle of LIBS is that a laser is focused onto surfaces, ablating a small sample of material, which emits light from atoms. The emitted light is detected and is unique for specific elements such as chlorine contained in PCBs. The intensity of the emitted light will be proportional to the total concentration of PCBs present in the sample. In contrast, Raman spectroscopy is an inelastic light scattering technique that probes vibrations that are inherently sensitive to the unique chemical compositions of molecules such as the chlorine atoms and aromatic backbones of PCBs. Raman laser excitation within electronic absorption bands of PCBs will result in strong resonance enhancement of analyte signals over background, thereby further increasing the chemical specificity of our measurements.



Figure 2. Example of a commercial handheld Raman system. Adapted from agilent.com.

Portable LIBS (Fig. 1) have been developed in the past for elemental analysis in various materials including paint and concrete¹⁻⁵. Handheld Raman systems (Fig. 2) have also been developed for on-site forensics⁶, medical diagnostics⁷, and environmental pollutant⁸ detection applications. We propose to develop a prototype portable system that utilizes 355 nm laser excitation for dual LIBS/Resonance Raman excitation. We will then develop and benchmark the measurement and data analysis methodologies for quantitative detection of PCBs in the field in the presence of other interferents.

We will additionally assess the ability of our methodology to screen a wide variety of PCB congeners/Aroclors. Finally, we will develop a user-friendly app for smart phones that can be used to automatically analyze the spectral data and provide a simple readout for PCB levels measured.

We anticipate that our novel methodology will be broadly useful for on-site screening for Vermont and other states in accessing PCB levels in school in an affordable, rapid, and user-friendly manner.

CONTACT INFORMATION

David Punahaole

Department of Chemistry

Email: David.Punahaole@uvm.edu



The University of Vermont

Tel.: 802-656-2329

82 University Pl

Innovation Hall E352

Burlington, VT 05405



The University of Vermont

References

1. Rakovský J, Čermák P, Musset O, Veis P. A review of the development of portable laser induced breakdown spectroscopy and its applications. *Spectrochimica Acta Part B: Atomic Spectroscopy*. 2014;101:269-87.
2. Ferreira MFS, Guimarães D, Oliveira R, Lopes T, Capela D, Marrafa J, Meneses P, Oliveira A, Baptista C, Gomes T. Characterization of Functional Coatings on Cork Stoppers with Laser-Induced Breakdown Spectroscopy Imaging. *Sensors*. 2023;23(22):9133.
3. Wilsch G, Weritz F, Schaurich D, Wiggerhauser H. Determination of chloride content in concrete structures with laser-induced breakdown spectroscopy. *Construction and building materials*. 2005;19(10):724-30.
4. Marquardt BJ, Goode SR, Angel SM. In situ determination of lead in paint by laser-induced breakdown spectroscopy using a fiber-optic probe. *Analytical Chemistry*. 1996;68(6):977-81.
5. Labutin TA, Popov AM, Zaytsev SM, Zorov NB, Belkov MV, Kiris VV, Raikov SN. Determination of chlorine, sulfur and carbon in reinforced concrete structures by double-pulse laser-induced breakdown spectroscopy. *Spectrochimica Acta Part B: Atomic Spectroscopy*. 2014;99:94-100.
6. Doty KC, Muro CK, Bueno J, Halámková L, Lednev IK. What can Raman spectroscopy do for criminalistics? *Journal of Raman Spectroscopy*. 2016;47(1):39-50. doi: <https://doi.org/10.1002/jrs.4826>.
7. Ralbovsky NM, Lednev IK. Towards development of a novel universal medical diagnostic method: Raman spectroscopy and machine learning. *Chemical Society Reviews*. 2020;49(20):7428-53. doi: 10.1039/D0CS01019G.
8. Li D-W, Zhai W-L, Li Y-T, Long Y-T. Recent progress in surface enhanced Raman spectroscopy for the detection of environmental pollutants. *Microchimica Acta*. 2014;181(1):23-43. doi: 10.1007/s00604-013-1115-3.