



Climate Action Annual Report, 2023

To: Planning and Priorities Committee

Date: 22 November, 2023

Report No.: 11-23-4614

Strategic Directions

- Transform Student Learning
- Create a Culture for Student and Staff Well-Being
- Provide Equity of Access to Learning Opportunities for All Students
- Allocate Human and Financial Resources Strategically to Support Student Needs
- Build Strong Relationships and Partnerships Within School Communities to Support Student Learning and Well-Being
- Embed the Truth and Reconciliation Commission of Canada: Calls to Action and the United Nations Declaration on the Rights of Indigenous Peoples in policies, bylaws, and Board governance structures

Recommendation

It is recommended that the Climate Action Annual Report, 2023 be received.

Context

At its December 2019 meeting, the Board of Trustees endorsed the City of Toronto's climate emergency declaration.

In October 2021, the Board established an aspirational goal of net-zero greenhouse gas (GHG) emissions by 2050. It also decided that the Director would present an annual climate action plan to the Board, including an update on building-related GHG emissions, and the Environmental Legacy Fund's revenue and projected expenditures.

These annual reports summarize concrete, strategic actions planned for the upcoming school year, designed to help the TDSB respond to the climate crisis.

Actions reported in our two previous reports have resulted in tangible progress, including:

- Approval for the design and construction of Ontario's first mass timber school to replace Poplar Road Public School;
- A 10% reduction in electricity consumption across 40 schools in Learning Networks (LN) 3 and 4 between April and September 2023, for a savings of \$142,763 and a reduction of 892,268 kWh of electricity; equivalent to the annual consumption of 94 average Ontario households;
- Four fully electric maintenance vehicles now in service, and approval obtained for the operation of five electric buses on the Toronto Islands;
- Electrical conduit installation in progress to make 27 parking lots EV-charging ready, as part of lot-replacement projects;
- 1,190 large trees will be planted this year, approximately four times more than our annual average in previous years;
- TDSB educators were offered diverse professional learning opportunities to deepen pedagogy and approaches for teaching climate and environmental education through a collaboration with the Ontario Institute for Studies in Education (OISE) at the University of Toronto. Approximately 470 participants attended environment and sustainability education (ESE) webinars, 350 attended an ESE conference, and over 150 attended a year end celebration and networking event;
- 134 TDSB schools and outdoor education centres EcoSchools-certified in 2022/23, with 51% achieving Platinum certification; and
- Launch of Youth Climate Action Grant program in 2021/22 in collaboration with the City of Toronto, with a total of \$165,485 in grant funding now provided to the TDSB from the City of Toronto and a private donor.

Appendix A provides a summary of the status of actions that were included in the 2021 and 2022 Climate Action reports.

Both the TDSB's Environmental Sustainability Community Advisory Committee and the Joint Management–Labour Environment Committee have had opportunities to comment on the actions outlined in the report that follows, under the heading Actions for Change.

The components of this report that contribute to facility renewal will support and align with the TDSB's Capital Revitalization Strategy.

A climate out of control

The scientific evidence is now abundantly clear: human activities, such as burning fossil fuels, are directly linked to the climate crisis and the effects of a warming climate are accelerating across the globe. According to the World Health Organization, between 2030 and 2050, climate change is expected to contribute to an additional 250,000 deaths per year from undernutrition, malaria, diarrhea, and heat stress alone.¹

This year, global temperatures shattered records and reached dangerous new highs. September 2023 was 0.5 degrees Celsius warmer than the prior record, and July and August were approximately 0.3 degrees Celsius hotter than previously recorded.² As this news broke, UN Secretary General António Guterres remarked: that “the era of global warming has ended. The era of global boiling has arrived.”³

2023 saw a new wave of extreme weather events fueled by climate change:

- All summer long, an unprecedented number of Canadian wildfires have affected air quality in communities across North America, including Toronto. On June 28, 2023, Toronto was ranked the worst city in the world for air quality due to wildfire smoke.⁴ As of October 31, 2023, 18.6 million hectares of Canadian forest have burned during the 2023 wildfire season.⁵
- An estimated 250 millimeters of rain—the equivalent of three-months’ worth of rainfall—flooded parts of Nova Scotia in less than 24 hours.⁶
- Ocean temperatures around the state of Florida exceeded 100 degrees Fahrenheit, posing detrimental risks to marine life⁷, and raising the

¹ World Health Organization. (2023, October 12) *Climate Change: Key facts* <https://www.who.int/news-room/fact-sheets/detail/climate-change-and-health#:~:text=Key%20facts,malaria%2C%20diarrhoea%20and%20heat%20stress>

² Hausfather, Z. (2023, October 13). I study climate change. The data is telling us something new. *The New York Times*. <https://www.nytimes.com/2023/10/13/opinion/climate-change-excessive-heat-2023.html>

³ Niranjana, A. (2023, July 27). ‘Era of global boiling has arrived,’ says UN chief as July set to be hottest month on record. *The Guardian*. <https://www.theguardian.com/science/2023/jul/27/scientists-july-world-hottest-month-record-climate-temperatures>

⁴ Vega, M. (2023, July 19). Toronto’s air quality is among the worst in the world due to wildfire smoke. *Toronto Star*. https://www.thestar.com/news/gta/toronto-s-air-quality-is-among-the-worst-in-the-world-due-to-wildfire-smoke/article_81645fb7-20ed-5a77-9979-33a23bba85f1.html

⁵ Canadian Interagency Forest Fire Centre Inc. (2023, October 31), *Fire Information*. <https://www.cifffc.ca/>

⁶ Sylla, Z. (2023, July 23). ‘Biblical proportions’: 3 months’ worth of rainfall floods Nova Scotia, forcing evacuations as crews search for missing people. *CNN*. <https://www.cnn.com/2023/07/23/americas/nova-scotia-canada-rain-floods/index.html>

⁷ Hernandez, J. (2023, July 26). *With Florida ocean temperatures topping 100, experts warn of damage to marine life*. NPR. <https://www.npr.org/2023/07/26/1190218132/florida-ocean-temperatures-101-marine-life-damage>

“thermodynamic potential for hurricanes.” A new study indicates that, in an increasingly warm Atlantic Ocean, hurricanes are now twice as likely to grow from a weak storm into a major hurricane within just 24 hours.⁸

- In June 2023, Antarctic sea ice levels hit a record low, covering nearly a million fewer square miles than expected based on decades-long observations. A continued reduction in sea ice could raise sea levels and increase ocean water temperatures.⁹

In the words of Guterres, “climate change is out of control”¹⁰, and the effects are happening in real time, across the globe.

What legacy will we leave?

One of the TDSB’s strategic directions is to create a culture for student well-being. The climate crisis is having a profound impact on the health and well-being of young people.

In a national survey that asked 1,000 Canadian youth, aged 16-25, about their emotions related to the climate, nearly half indicated that they feel humanity is doomed.¹¹ While this has left many young people feeling hopeless and afraid about their future, some have turned to litigation to amplify their voices and compel governments to act.

In spring 2023, the youth-led case *Mathur v. Ontario* made Canadian history when Justice Vermette ruled that courts can consider whether a government’s response to climate change infringes upon human rights.¹² In its decision, Ontario’s Superior Court found that the province’s climate targets fell “severely short” of what scientific consensus has determined necessary to limit the effects of climate change to people and the environment.¹³ In the words of Justice Vermette, “Every tonne of CO₂ emissions adds to global warming and leads to a quantifiable increase in global temperatures that

⁸ Erdenesanaa, D. (2023, October 20). Atlantic hurricanes are getting stronger, faster, study finds, *The New York Times*. <https://www.nytimes.com/2023/10/19/climate/hurricane-intensity-stronger-faster.html?searchResultPosition=1>

⁹ Erdenesanaa, D, and Abraham, L. (2023, August 2). Antarctic sea ice is at a ‘very concerning’ record low. *The New York Times*. <https://www.nytimes.com/2023/08/02/climate/antarctic-sea-ice-record-low.html>

¹⁰ Guardian staff and agencies. (2023, July 7). *UN says climate change ‘out of control’ after likely hottest week on record*. The Guardian. <https://www.theguardian.com/environment/2023/jul/07/un-climate-change-hottest-week-world>

¹¹ Field, E., and Galway. (2023). Climate emotions and anxiety among young people in Canada: A national survey and call to action. *The Journal of Climate Change and Health, Volume 9*.

¹² Chalifour, N., Dobbeltsteyn, E, and Collins, L. (2023, July 4). *Youth climate champions win a court victory*. The Tyee. https://thetyee.ca/Opinion/2023/07/04/Youth-Climate-Champions-Court-Victory/?utm_source=instagram&utm_medium=social&utm_content=070423-insta&utm_campaign=editorial

¹³ Superior Court of Justice - Ontario. (2023) <https://www.canlii.org/en/on/onsc/doc/2023/2023onsc2316/2023onsc2316.html>

is essentially irreversible on human timescales.”¹⁴ While the case, which argued that insufficient climate action violated Charter rights, was ultimately dismissed by the Ontario Superior Court, the seven youths will be appealing this decision at Ontario’s Court of Appeal.

More recently, youth in Montana led a landmark case affirming that the state’s constitution guaranteed a right to a stable climate, and that the promotion of fossil fuels by state officials was a violation of this right.¹⁵

Today’s decision-makers are failing the largest generation of youth in history, who will bear the burden of climate change. Within urban settings, such as Toronto, the adverse effects will continue to be concentrated amongst residents who are already economically and socially marginalized. The choices we make now and in the near term will influence the degree to which generations of young people will experience a hotter and different world.¹⁶ Solutions to help mitigate the effects of climate change, such as the City of Toronto’s ambitious TransformTO Net Zero Strategy, do exist. It is the rate at which governments and others with influence mobilize these solutions that will determine the fate of our planet.

What legacy will the TDSB leave behind?

The financial case

We have a moral obligation to act. But there is also a compelling financial case for doing so.

For example, the TDSB’s \$3.4 billion operating budget is under tremendous pressure. In June 2023, the Board of Trustees approved a three-year deficit-recovery plan, which includes reducing central staffing and departmental budgets, and using money from the sale of TDSB property to offset operating costs.

Utility costs for electricity, natural gas, and water in the last school year were \$75 million and are projected to increase by 40% over the next seven years. By the 2029/30 school year, utilities are expected to cost at least \$104.9 million, or \$30.5 million more annually

¹⁴ Ecojustice. (2023). Mathur et. al. v. His Majesty the King in Right of Ontario Media Backgrounder: Ontario Superior Court Decision. https://ecojustice.ca/wp-content/uploads/2023/04/Media-Backgrounder_Mathur-et-al-Decision_FINAL.pdf

¹⁵ Noor, D. (2023, August 20). *Montana’s landmark climate ruling: three takeaways*. The Guardian. <https://www.theguardian.com/us-news/2023/aug/20/what-happened-montana-climate-trial-decision>

¹⁶ Intergovernmental Panel on Climate Change (2023). Climate change 2023 synthesis report: Summary for policymakers. https://www.ipcc.ch/report/ar6/syr/downloads/report/IPCC_AR6_SYR_SPM.pdf

than last year. These utility costs will put the TDSB's operating budget under even more extreme pressure unless consumption is reduced.

For more information, see Appendix B.

How big is the opportunity?

Among institutions within Ontario's broader public sector, the TDSB is second only to the City of Toronto in its greenhouse gas (GHG) emissions.

When compared to other school boards in Ontario, the TDSB's GHG emissions far exceed its counterparts in absolute terms since it has the most schools, but it is also well above average per square foot.

The TDSB's energy intensity per square foot—which is a combined measure of electricity and natural gas—is well above the weighted average of all school boards in Ontario, even when normalized for weather and when our older building stock, pools, and steam plants are accounted for.

Our GHG emissions per square foot, primarily due to natural gas for space heating, is 50% above the weighted average compared to all Ontario school boards.

Our high level of energy consumption suggests a big opportunity to lower utility costs and reduce GHG emissions. As noted above, we have already reduced electricity consumption in two Learning Networks, which indicates that significant savings are achievable.

A 20% reduction in electricity and natural gas consumption would bring us closer to the provincial average and save an estimated \$12.8 million a year. A similar reduction in GHG emissions would be greater than the total emissions from all the 184 schools in the Thames Valley District School Board.

For more detailed information, see Appendix C.

Actions for Change

This report details 53 actions the TDSB will undertake this year in response to the climate emergency, divided into ten areas of focus:

- I. Buildings
- II. Transportation
- III. Grounds and Green Roofs

- IV. Waste Diversion, Recycling and Organics
- V. Education and Engagement
- VI. Urban Indigenous Education
- VII. Outdoor Education
- VIII. System Improvements
- IX. Environmental Legacy Fund
- X. Playing Field Reserve

I. Buildings

The actions outlined in this section will put the TDSB on the pathway to achieving significant reductions in electricity and natural gas consumption.

These actions are designed to provide a greater focus and alignment across key departments and divisions, particularly between Facility Services and Business Services, and within Facility Services so that staff in Sustainability, Operations, Maintenance, Capital Services and Design and Renewal are all working together constructively to achieve clearly articulated goals and targets.

Success is unlikely without a common purpose and resolve, and close alignment and collaboration between key staff across departmental silos.

Actions outlined in this section are subdivided between (1) Building Operations and State of Good Repair, and (2) New Schools and Major Additions.

Building Operations and State of Good Repair

We must be clear about our intention to lower our building related GHGs, primarily from natural gas used to heat our buildings, and our utility costs by reducing both natural gas and electricity use.

Action 1: Set the following targets

- a) Reduce electricity and natural gas consumption by 10% in the 131 schools in Learning Centre 1 (LC1) by August 2025

Since April, staff in our Building Systems Help Desk have worked collaboratively to reduce electricity consumption with caretakers, Facility Team Leaders, and Maintenance Team Leaders in Learning Networks 3 and 4, which represent about one third of the schools in LC1.

Efforts are underway to expand this work to all 131 schools in LC1.

If this target is met, the annual cost avoidance for LC1 schools will be an estimated \$1.78 million.

For more information, see Action 4 below.

b) Reduce natural gas consumption by 20% in eight schools with high savings potential by August 2026

See Action 5 below for more details.

c) Reduce GHG emissions by 60% in one pilot school through a deep energy retrofit by August 2026

See Action 6 for more information.

Action 2: Optimize use of School Condition Improvement (SCI) funding and data its projects provide

a) Use School Condition Improvement (SCI) funding more strategically to replace failing building systems

The Ministry of Education addresses the TDSB's \$4 billion repair backlog primarily through the School Condition Improvement (SCI) funding, which comes with rules for how the money can be spent.

The TDSB's SCI allocation for the 2023/24 school year is \$245.9 million.

Seventy percent of the SCI funding must be used to replace key buildings components (e.g., roofs, windows, boilers) and systems (e.g., electrical, mechanical) that have been identified as urgent and high priority, based on assessments of school condition that are recorded in a Ministry of Education database.

The remaining 30% can also be used to renew deteriorating interior finishes and improve poor site conditions.

Significant reductions in natural gas and electricity consumption are not possible without focused and sustained investments into replacing key building components that are at the end of their life. Fortunately, replacing failed building systems can be prioritized for investments under the SCI funding guidelines outlined above.

For the SCI spending targets required to lower utility costs and GHG emissions, see Appendix D.

b) Improve the tracking and reporting of SCI investments into projects that save energy

Since SCI investments into projects that lower operating costs and GHG emissions are critical, this work must be tracked, analyzed, and reported.

To this end, staff will be asked to identify projects that include energy saving measures (e.g., heat pumps, LED lighting, steam to hot water conversions, pneumatic to electronic controls replacements, BAS upgrades) on a revised funding request form for renewal projects.

For projects that include these measures, design consultants will be required to provide estimates of the expected utility savings and GHG reductions as part of their scope of work.

This information will be tabulated annually, used to guide future decision-making, and included in future annual climate reports, starting in 2024.

Action 3: Focus efforts on LC1, then scale up

One of the biggest challenges to making improvements and changing practices at the TDSB is its enormous size and complexity.

To improve the chance that a new initiative will be successful, it can help to work at a smaller scale first. Special attention will be paid to developing, applying, and verifying a coordinated and coherent energy saving methodology in LC1 schools, representing about a quarter of all schools.

Our intention is to prove that the model is successful in one Learning Centre, and then bring forward a plan to replicate it across the three other Learning Centres in a future report.

Action 4: Implement the following *energy saving methodology* in LC1

- Expand the scope of the Building Systems Help Desk to all schools in LC1;
- Continue to establish custom BAS schedules for all LC1 schools, based on input from Head Caretakers;
- Regularly analyze utilities usage data to guide decision making and resource allocation so that the schools with the highest energy savings potential are prioritized.
- Be more responsive and agile in addressing issues that are contributing to high energy consumption as they emerge;

- Ensure staff have the capacity, expertise, and access to resources so that problems can be fixed quickly; and
- Undertake more planned energy saving projects in LC1 schools, such as retrofitting LED lighting and modifying BAS controls in large gymnasiums to include occupancy sensors.

Action 5: Reduce natural gas consumption by 20% in eight schools with high savings potential over three years

The TDSB will be participating in Enbridge's new whole-building *Pay for Performance* (P4P) program.

Eight schools with high natural gas savings potential have been selected: Beverley Heights MS, Cameron PS, Beaumonde Heights JMS, Anson Taylor JPS, Sir William Osler HS, Central Etobicoke HS, Bruce JPS and Gosford PS.

As part of the program, Enerlife Consulting will work with TDSB staff over a three-year period to drive deeper savings in all schools, year over year. A combination of capital improvements (e.g., heating system, ventilation and building automation upgrades) and operational and behavioural improvements (e.g., additional BAS sensors, and upgrades to air handling systems) will be undertaken at participating schools.

On top of increasing energy savings and lowering operating costs, Enbridge will provide an annual performance incentive of \$0.30/m³ and a bonus incentive of \$0.20/m³ for schools that achieve 20% natural gas savings.

These energy reduction targets would reduce annual operating costs in the eight pilot schools by \$264,456 and would earn the TDSB \$374,446 in utility incentives.

Action 6: Reduce GHG emissions by 60% in one pilot school through a deep energy retrofit

The TDSB's 2022 Climate Action Report committed to initiating more holistic, deeper energy retrofits at a small group of schools considered to be good candidates.

Since then, an investment-grade feasibility study has been completed for Withrow Avenue JPS, which is one of a group of 33 similar schools that are considered excellent candidates for GHG reduction projects due to their air-sourced heating and cooling systems.

The study recommended a deep energy retrofit scope of work that includes:

- a. Replacement of all air-handling units with new units utilizing a heat recovery pump system
- b. Upgrades to building automation system (BAS) and HVAC components
- c. New interior and exterior LED lighting, including ceiling replacements
- d. Replacement of perimeter heating terminal equipment
- e. Replacement of vestibule fan-powered heaters

These measures qualify for School Condition Improvement funding.

The estimated project cost is \$3.8 million, which will result in a 66% reduction in GHG emissions, a 52% reduction in energy intensity (electricity and natural gas combined), and \$34,000 in annual utility savings. On top of that, the school will also receive much-needed, brand-new ceilings as part of the project.

This project will be procured using a unified “design-build” approach rather than the phased “design-tender-construct” model traditionally used at the TDSB. The design-build approach promises to promote innovation and best value solutions. Many Ontario municipalities and colleges and universities are now using this approach on multi-measure and complex projects. These projects typically address multiple “state of good repair” projects in a single procurement process.

Our intention is to undertake more of these deep energy retrofits based on the outcome and the lessons learned from the pilot.

Action 7: Continue to convert steam boiler plants to hot water boilers

The TDSB is unique in Ontario school boards for the number of schools still heated by steam, a method commonly found in schools built prior to World War II.

Steam-heated schools tend to be inefficient due to the age of the plant and poor condition of pneumatically operated valves and thermostats. Converting these systems to hot water boilers and radiators can result in significant energy savings.

Thirty-five projects have been completed or are in the process of being completed since the 2019/20 school year.

For the 2023/24 budget year, six more projects are planned.

Action 8: Establish hybrid rooftop air handling units as the TDSB's standard for "state of good repair" replacement projects

Many schools use packaged rooftop air handling units to provide localized heating, ventilation, and cooling for areas such as gymnasiums and libraries. Many rooftop units are at the end of their useful life and need to be replaced.

A hybrid rooftop unit uses a heat pump to provide heating and cooling for most of the year. The unit is also equipped with a supplemental heating method, either gas-fired or electric, to provide additional heating during very cold weather when heat pump efficiency is low. A typical winter has few extremely cold days, so gas consumption and GHG emissions will be significantly reduced over a full year of operation.

As hybrid rooftop units cost only marginally more than standard units, our intention is to specify hybrid rooftop units for replacement projects as the TDSB's standard.

Sixteen to twenty-one installations are anticipated for the 2023/24 school year.

Action 9: Start converting T-8 fluorescent lighting systems to LED lights

LED lighting is now a mature, proven, energy-efficient technology that should replace the older T-8 fluorescent lighting found in most schools and office buildings.

Not only does LED significantly reduce energy costs, but its longer lamp life reduces maintenance costs.

LED conversions for five schools are currently in the tendering stage. Another two projects are planned for this year and are in the early design stages.

Based on these initial seven projects, our intention is to develop a lighting design standard for the TDSB by the end of this school year, to be used for future projects.

Action 10: Implement improvements to building automation systems (BAS)

Building automation systems (BAS) are computer-based systems that control the operation of heating, cooling, ventilation, and air conditioning (HVAC) within buildings.

State-of-the-art, networked BAS are the foundation for improving building efficiency, particularly over the TDSB's vast portfolio.

After 30 years of effort, the TDSB has networked BAS in most schools. However, further improvements across our building portfolio can be made by:

- a. Establishing connections to surveillance systems so that BAS goes into unoccupied mode when caretakers' close schools at the end of the day,
- b. Modifying BAS controls in large gymnasiums to include occupancy sensors, starting in LC1, and
- c. Introducing BAS control of irrigation systems.

Action 11: Maximize revenue for the Environmental Legacy Fund

Below are two opportunities to maximize the revenue from the Environmental Legacy Fund:

- a. Diligently monitor and repair TDSB-owned solar photovoltaic (PV) projects

The TDSB has installed capacity of about 38 megawatts (MW) of solar PV on 358 buildings. Ten of those projects are owned by the TDSB and generate revenue for the Environmental Legacy Fund under a 20-year contract with the Ontario Power Authority.

To maximize this revenue, problems must be identified when they arise, and the systems fixed quickly. For every day that systems are down for maintenance, revenue is lost. Renewed efforts are underway to carefully monitor and fix the systems when required.

- b. Streamline the process for securing utility incentives and rebates

As part of the 2021 Climate Action Report, the Board of Trustees approved the recommendation that utility incentives be directed to the Environmental Legacy Fund so they can be reinvested into GHG reduction initiatives.

Applying for incentives requires collecting and submitting detailed documentation, which can be a very time-consuming and onerous process. To streamline the process, coordination and collaboration among staff will be improved, particularly between Sustainability, design consultants, and Construction Project Supervisors.

These efforts will help ensure we maximize opportunities to earn utility rebates and incentives.

New Schools and Major Additions

Action 12: Implement guiding principles that consider sustainability and climate responsibility for new Capital replacement schools and major additions

New schools and major additions give the TDSB an opportunity to consider sustainability and climate responsibility holistically, across all disciplines, during the project development process.

Beginning in 2023/24, the TDSB will implement the following guiding principles for new Capital replacement schools and major additions:

- a. Use the example of our sustainability strategies to educate and inspire children and youth to participate in climate action.
- b. Employ regenerative design thinking to positively impact larger systems, such as ecosystems, water ecosystems, clean water supply, and communities.
- c. Prioritize the health, wellness, and equity of children and staff who occupy the building. Balance these aspects with performance targets that measure natural daylight, access to nature, and fresh air, which all enhance cognitive performance.
- d. Consider our responsibility to today's youth as well as future generations through low carbon design that accounts for both operational and embodied carbon, for the whole life cycle of the buildings and its components.
- e. Design new buildings to withstand climate changes well into the future.

Action 13: Meet the Toronto Green Standards V4 Tier 2 for all new projects that require Planning approvals commencing in January 2024

The City of Toronto has adopted an ambitious strategy to reduce community-wide GHG emissions in Toronto to net zero by 2040 through Toronto Green Standards (TGS). The Net Zero Strategy triggers new and accelerated implementation actions for school projects that require Site Plan Approval from the City of Toronto. The current minimum standard is to meet TGS V4 Tier 1. V4 Tier 2 must be met by 2025. The TDSB commits to accelerate the Toronto Green Standards (TGS) requirement by meeting V4 Tier 2 beginning in 2024, which will also make TDSB eligible for the Development Charge Refund Program to assist in funding improvements.

Action 14: Engage a sustainability consultant for all new schools and major addition projects

A sustainability consultant will be engaged at the beginning of the design phase to set and measure performance targets and to guide the project toward reducing environmental impacts, increasing building functionality and flexibility, improving occupant health, and reducing operating costs. The consultant will also conduct project life-cycle analysis, energy auditing, and material analysis to provide measurable outcomes and benchmarking that will guide design decisions. The consultant will undertake climate resilience assessments that identify the main hazards, their expected impacts, and means of mitigating the impacts through the design. The sustainability consultant will also guide the project team through applicable sustainable certifications to ensure TDSB commitments are recognized.

Action 15: Mandate low carbon components in widely used building materials

Mandate low carbon components in widely used building materials such as concrete, both cast-in-place and precast. This avenue is high impact with minimal capital cost increase.

Mass timber is another material with low-carbon benefits. The new Poplar Road Junior Public School, currently in design, will be the first mass timber school in Ontario. Mass timber sequesters carbon and replaces more carbon-intensive materials. It also reduces construction waste and construction time and improves occupant wellness. Learnings from this modular project will be applied to future school projects.

Action 16: Introduce sustainable design scoring criteria for selecting architects and prequalifying general contractors

This scoring system will reward consultants and contractors with a track record for sustainability as demonstrated by efforts to implement carbon reduction practices. Introducing experience in sustainability as a qualifier will ensure it is a priority throughout the design and construction of new projects.

Action 17: Reduce greenhouse gas dependency and prioritize passive systems and sustainable electrical equipment/infrastructure

New schools and major additions will prioritize passive ventilation and daylight harvesting to decrease building maintenance costs, enhance building performances and improve health and wellness.

Ontario's Provincial Climate Change Impact Assessment Report predicts that by 2050, we will have approximately 60 extreme heat days annually.¹⁷ The buildings we design today will be in use beyond 2050, so sustainable cooling systems must be considered. The TDSB will commit to installing heat pumps in all new schools and geothermal systems where appropriate to reduce dependency on natural gas-fueled systems.

Action 18: Select one new school project to participate in the Enbridge Savings by Design Program

The Savings by Design Program is an opportunity for the TDSB to gain feedback from industry experts. The Enbridge program encourages energy performance that is 40% better than Ontario Building Code. The selected project will participate in a full-day design assistance workshop with green building experts and receive free energy modelling to evaluate and optimize design choices. The results of this pilot project will assist other Capital projects to achieve TGS V4 Tier 2 requirements.

Action 19: Ensure new schools can support solar PV installation

The TDSB commits to designing new schools and major additions to allow for installation of rooftop solar PV panels including structural requirements and spatial requirements for electrical rooms.

Action 20: Improve urban ecology through site design of new schools

Proper site design can support urban agriculture and local food production and encourage its use as a teaching tool, while also addressing food security and food sovereignty. The TDSB commits to offering new schools these site design and learning opportunities.

Other design features that improve urban ecology include stormwater management and green roofs. Rain gardens are landscaped features that collect stormwater as it runs off grass, roofs, or asphalt. New school projects will also incorporate rain gardens in site design, to be located adjacent to heavily salted bus drop-off areas.

Action 21: Design schools with flexibility for future accommodation needs

Design new schools that are flexible to adapt to a growth or reduction of program spaces. This will minimize demolition. Where feasible, design for vertical expansion by

¹⁷ Ontario Ministry of the Environment, Conservation and Parks. (2023, January). *Ontario Provincial Climate Change Impact Assessment Technical Report*. <https://www.ontario.ca/files/2023-08/mecp-ontario-provincial-climate-change-impact-assessment-en-2023-08-17.pdf>

strengthening structures to allow another floor to be built. This will maintain a smaller building footprint.

II. Transportation

The TDSB is unique among school boards in the range of in-house services it provides, including a large maintenance and construction team, security services, and a distribution centre. To support these functions, the Board owns and operates 701 vehicles. It also rents about 81 vehicles a year for in-house construction projects.

Most of the vehicles are powered by either gasoline or diesel engines. Fleet GHG emissions represent about 3% of the TDSB's total emissions. The TDSB owns four fully electric Ford Transit vans, which are used by our Maintenance department.

Fleet efficiency is managed using GPS-based software that monitors individual usage, idling time, and speed. The data is used to optimize vehicle use and route selections to minimize annual fuel usage.

Action 22: Transition to EV vehicles when renting is required to support in-house construction projects

Due to budget pressures, no new vehicle purchases to replace our aging fleet are planned for the 2023/24 budget cycle.

But there is an opportunity to replace rental vehicles with internal combustion engines with comparable electric vehicles. To this end, staff are in the process of obtaining competitive bids for EV rentals.

We will subsidize the anticipated incremental cost increase using the Environmental Legacy Fund. To support EV rentals, electric charging infrastructure will be installed at Oakburn Centre, where they will be based.

Action 23: Operate fully electric school buses on the Toronto Islands

The TDSB's transition to electric school buses will begin with a pilot project on the Toronto Islands. In September 2024, five electric school buses will replace the diesel-powered buses that currently service the Toronto Public/Natural Science School. To support this transition, an electric charging station will be installed at the Island School, funded by the Environmental Legacy Fund.

This makes financial sense because of the cost of fuelling diesel buses on the mainland and the time involved in ferrying the buses back and forth across the water.

Action 24: Continue to install conduit for electric charging stations as part of parking lot replacement projects

Since our first Annual Climate Action Report in 2021, 27 parking lots have been or are in the process of being replaced, and all of them include electrical conduit. The conduit will facilitate installation of EV charging stations without having to remove asphalt to install the wiring. Future installations will be easier and far less expensive. Conduit will continue to be installed in all future parking lot replacement projects.

Action 25: Study the feasibility of installing a network of EV charging stations for staff to use during the school day and the public after hours

The TDSB and Toronto Lands Corporation (TLC) staff have submitted a grant proposal to The Atmospheric Fund (TAF) for funding to assess its building portfolio to leverage opportunities to provide electric vehicle (EV) charging in parking lots for TDSB fleet and staff, as well as to the broader community, to use.

If selected, the TDSB would retain a consultant with expertise in EV charging and work with an advisory committee to:

- Explore different business models to determine
 - the best suited operating model (e.g., self-owned and operated, contracted out to a third-party operator, or municipal partner), including costs and revenues, and
 - the financing options, including incentive programs, partnership opportunities, grants, and any other internal/external funding streams
- Develop a process and criteria for prioritizing parking lot conversion (e.g., electrical capacity, parking capacity, location of parking lots relative to electrical panels, community demand for EV charging), and
- Apply the criteria above to produce a prioritized list of parking lots, based on the scoring.

If the TDSB's grant application to TAF is successful, \$20,000 from the Environmental Legacy Fund will be used to support this work.

Action 26: Continue to support active, safe, and sustainable transportation

Since the Board of Trustees adopted a Charter for Active, Safe and Sustainable Transportation (ASST) in 2013, the TDSB has made significant progress in promoting awareness and action around active transportation.

In the 2023/24 school year, with financial support from the City of Toronto, the number of School Travel Planning programs has increased at both the TDSB and Toronto

Catholic District School Board (TCDSB). School Travel Planning attempts to identify travel barriers experienced by students and families and aims to develop workable solutions that promote active and sustainable options, in collaboration with the school community, staff, and City partners. To support the amalgamation of TDSB and TCDSB School Travel Planning programs, which have historically operated independently, oversight has transitioned to the Toronto Student Transportation Group.

III. Grounds and Green Roofs

As the second-largest property owner in Toronto, the TDSB has been working with local school communities to green its school grounds for many years.

The deepening climate crisis means that Toronto will experience many more days of extreme heat and more intense storms delivering much larger volumes of water in shorter periods of time, putting stormwater infrastructure to the test.

Our focus now will be to offset the urban heat island effect and prepare for more intense rainfall by continuing to invest in four areas:

- Maintaining the trees that make up our urban forest and planting new ones,
- Sustaining healthy grass fields,
- Improving the permeability of school grounds to absorb more stormwater onsite, and
- Better maintaining our green roofs and building new ones.

The following actions will support these objectives.

Action 27: Create a small team in Sustainability to oversee tree planting, green roof maintenance and grass field renovations

Improvements can sometimes be made through small changes to how existing staff are organized.

In this case, a team of two will be formalized within Sustainability, reporting to the Senior Manager, to put a sharper focus on this priority.

This team will build on the work we are already doing on tree planting and grass field renovations. They will also oversee better maintenance of green roofs, a new responsibility.

Action 28: Increase the capacity of our trades to take on in-house tree planting, and green roof maintenance

The TDSB has a team of in-house tradespeople that are highly skilled and motivated to improve the quality of grass playing fields. This work is funded from Renewal.

Efforts will be made to add tradespeople to this team so that they can also take on the in-house tree planting work and green roof maintenance. Funding to pay for additional crew will be provided by the Playing Field Reserve. For more information, see Part X below.

Staff will also endeavour to leverage the Focus on Youth program to provide more opportunities for young people to gain valuable work experience in groundskeeping.

Action 29: Plant 1,000 trees in 2024

Trees provide critical environmental benefits, including wildlife habitat, shade protection, carbon dioxide absorption, and filtering of air pollutants. Research also indicates that planting more trees is the most effective way to reduce the city's temperature.

The presence of trees on school grounds has also been linked to improved mental health and is proven to support student learning. Recent research from the University of Toronto found the proportion of tree cover on TDSB school grounds to be a predictor of student achievement and that the effects of tree cover were most pronounced in schools that had the highest level of external socioeconomic challenges.

The TDSB's large tree planting program began in 2006. Since that time, an average of 300 large caliper trees have been donated by the City of Toronto and planted by in-house trades each year. Over the last two years, many more trees have been planted, as promised in our last two annual climate reports.

Our goal for the 2024 season is to plant another 1,000 trees, the majority at high-needs schools in the suburban parts of the city that are tree deficient and measurably hotter than areas of Toronto that have more mature tree canopies.

Tree species and planting locations will be strategically selected to enhance the long-term health of our city's tree canopy by making it more climate resilient and biodiverse. Trees will be planted to meet or exceed the Toronto Green Standard's soil volume requirements.

In addition to supplying free trees, the City of Toronto has donated annual funding to help with the cost of planting and watering the trees.

Action 30: Focus on the quality of tree planting

Particularly for large site projects that include many new tree plantings, we will require that landscape consultants retain a certified arborist. This will ensure contractors plant trees properly, as per the TDSB's specifications and best arboricultural practices. The goal is a higher survival rate for the trees over time, which will protect the investment.

Action 31: Ensure all site improvement and landscaping projects strive to incorporate tree planting

Site improvement and landscaping projects are an efficient and cost-effective opportunity to incorporate more trees into schoolyards, which will enhance the impact of the project.

Action 32: Plant trees in generous soil volumes, particularly in harsh growing conditions

There is not much point in planting trees if they end up dying after a few years or their growth is forever stunted due to the lack of growth space for their roots. The goal is to plant trees in conditions where they will thrive for a long time.

Small school sites in densely populated neighbourhoods are often harsh environments for trees, particularly where hard surfaces dominate the yard and surrounding areas.

Soil cells help trees thrive in the harshest conditions. They expand beneath hard surfaces and support the pavement above while allowing for large volumes of soil below and preventing soil compaction. Staff will identify opportunities where soil cells would best support new trees in harsh conditions as part of large landscaping projects, subject to available funding on a case-by-case basis.

Action 33: Protect existing trees during construction projects

Even though the TDSB and the City require existing mature trees to be protected during construction projects, enforcement is not consistent. As a result, some contractors are not fulfilling the requirements. Our intention is to include provisions in contract documents to financially penalize contractors who do not follow the stated tree protection requirements. Implementation details will be determined in the coming year.

Action 34: Improve the permeability of school grounds

In late September 2023, New York City experienced extreme downpours that overwhelmed its stormwater infrastructure and caused widespread flooding and significant property damage. Halifax had a similar experience earlier in the summer.

To mitigate the risk of flooding, cities need to increase permeable surfaces so that the water associated with extreme volumes of rain over short periods of time has a place to go, other than through stormwater infrastructure that was not designed for these types of storms.

The TDSB has a unique opportunity to create more permeable grounds throughout the city where water can be absorbed onsite rather than directed to storm sewers that can become overwhelmed.

One of the biggest opportunities to create more permeable sites is when asphalt school grounds and parking lots are at the end of their life. Asphalt replacement projects will be designed to reduce paving where possible and to create islands with trees within paved areas so that water can flow and be absorbed as part of the drainage strategy for the site. Not only will less water be directed into storm sewers, but the trees will thrive, cooling the area and providing opportunities for students to get out of the sun.

For an example of one such project, see Appendix E.

Action 35: Continue the transition to battery-operated outdoor tools

Gasoline-powered lawn and garden equipment, such as lawn mowers, string trimmers, and leaf blowers, are a source of GHG emissions that also generate hazardous toxic and carcinogenic exhaust and fine particulate matter.

Extensive evidence exists on the adverse health effects of exhaust emissions and other fine particulates, including cardiovascular disease, respiratory disease, and cancer. At the same time, the technology of cordless battery electric power tools, particularly for push mowers, leaf blowers, and string trimmers, is mature.

Transitioning to battery-electric tools not only benefits the health of workers and the public, it eliminates the time-consuming burden of purchasing the fuel, transporting, storing it safely, and mixing gasoline and oil (which is needed for some of the equipment). The maintenance backlog associated with gasoline-powered equipment will also be reduced as they are replaced by battery-powered equivalents.

This year, caretakers at five schools have been using a variety of brands of commercial-grade battery-operated lawn mowers, string trimmers, leaf blowers, and hedge trimmers. The equipment has been rotated every few weeks so that caretakers have a chance to use all the brands. After each round, caretakers complete an online assessment of the equipment.

The next stage in the process is to invite suppliers to submit competitive bids for the equipment deemed to have performed well during the testing period. A contract is

expected to be in place for spring 2024. Funding from the Environmental Legacy Fund will be used to help subsidize the incremental increase compared to the cost of conventional equipment.

IV. Waste Diversion, Recycling and Organics

Action 36: Support schools with waste reduction

Each year, as part of the EcoSchools Canada certification program, TDSB EcoSchools complete a variety of environmental and climate change actions that help them assess their environmental practices and make improvements through educational projects, campaigns, and challenges.

In the 2023/24 school year, a “Green Bin Organics Program” action was introduced to exclusively support waste reduction in TDSB schools. It outlines the process for operating the City of Toronto Green Bin Organics Program within TDSB schools and sites and assesses the extent to which a school has implemented the Green Bin Organics Program.

Additionally, the existing “Sorting Your Waste” EcoSchools Canada action has been revised for TDSB schools to include a focus on reducing contamination. It will assist schools with tracking and reducing contamination in their garbage and recycling bins, raise awareness within school communities, and help schools establish effective waste-sorting programs. This action will become mandatory for all TDSB schools attempting EcoSchools Canada certification.

Action 37: Rebuild the capacity to improve waste diversion rates

Schools need help to make significant and sustainable improvements to their waste diversion rates. Hiring a full time Waste Management Specialist, funded from the Environmental Legacy Fund, would provide support to schools, and increase the TDSB’s overall capacity to divert waste. The duties of this staff person could include:

- maintaining metrics on the TDSB’s waste diversion, including establishing a baseline and identifying quantitative goals for the future;
- monitoring federal, provincial, and municipal acts, regulations, and by-laws pertaining to waste and recyclables and liaising with government officials to ensure Board programs comply;

- identifying opportunities to reduce or eliminate waste by incorporating sustainability into the TDSB’s procurement processes and contributing to the circular economy;
- reaching out to members of the school community with education and support about waste management and recycling;
- providing waste audit support to schools; and
- developing and delivering Caretaking waste management training.

V. Climate Education and Engagement

A 2020 study found that “education, if designed appropriately, can potentially be as effective as other established climate change mitigation techniques”.¹⁸ The following actions are designed to support students and staff engaging in climate change education.

Action 38: Launch a TDSB student environmental network

The 2022 Climate Action Report outlined a plan to establish an environment-focused advisory group for TDSB secondary students, to amplify the climate action work and voices of youth.

In 2023/24, this advisory group will be launched. Recruitment for the group will be advertised to all schools, regardless of their EcoSchools certification. Groups targeting youth, such as the Toronto Youth Environmental Council (TYEC), the TDSB Student Senate, and the EcoSchools Canada Youth Advisory Committee, will be engaged to inform the structure, membership, and implementation of the student environmental network.

Over the course of the school year, members of the advisory group will be led through a design-thinking process to help determine yearly actions and priorities.

Action 39: Increase the capacity of schools to address climate change through the EcoSchools Canada Certification Program

In 2022/23, the TDSB had 134 EcoSchools. While the number of schools achieving Platinum EcoSchools certification has remained relatively consistent over the years (69 schools in 2022/23), the total number of certified EcoSchools has experienced a substantial decline since the COVID-19 pandemic.

¹⁸ Cordero EC, Centeno D, Todd AM (2020) The role of climate change education on individual lifetime carbon emissions. PLoS ONE 15(2): e0206266. <https://doi.org/10.1371/journal.pone.0206266>

There has been significant turnover of school based TDSB staff in recent years, including many EcoSchools champions. To support staff who may be new to the EcoSchools program, or who are returning after a pause, “getting started” support will be made available to staff.

Additionally, Sustainability staff attended the TDSB’s Beginning Teachers Conference to introduce attendees to the EcoSchools Program and Sustainability Office supports.

Action 40: Support students to take climate action through the City of Toronto Youth Climate Action Grant Program

In 2022, the City launched its Youth Climate Action Grant Program as a pilot to provide funding support to TDSB students and groups who want to be active advocates for climate action in city schools and neighbourhoods.

Through this initiative, grants of up to \$1,000 are made available to student-led groups consisting of two or more TDSB students from Junior Kindergarten to Grade 12.

To assist with refining project objectives and establishing a project plan that is achievable, student teams will be offered one-on-one coaching support from Sustainability/EcoSchools staff in advance of submitting a grant application in 2023/24.

Action 41: TDSB Youth Leadership Conference

The TDSB EcoSchools annual Youth Leadership Conference aimed to engage, connect, and empower secondary school EcoTeams to act on climate change. Informed by the International Youth Day 2023 Green Skills for Youth: Towards a Sustainable World, this year’s conference theme centred around green jobs to help students understand and actively pursue opportunities that will mitigate climate change and promote just and sustainable societies.

Staff and students were introduced to a panel of key individuals from TDSB Sustainability and local labour and trade unions who build climate resilience through their work. The panels and educational workshops highlighted opportunities and skills in green industry careers and emphasized that transitioning to a decarbonised economy is a crucial step to halt the crisis. Students and staff also learned what they can do now to build climate resilience in their lives and at school.

Feedback from participants was positive. They appreciated the active opportunities to bond with their team, the information and ideas gained, and the inspiration to engage meaningfully in actions at school and in the community. They also suggested they need

more direct and explicit connections to collective civic actions and student-led workshops with more sharing among teams.

Action 42: Continue to deliver EcoSchools Kickoff workshops for teachers

EcoSchools Elementary Kickoff workshops provide K-8 staff the opportunity to learn about the EcoSchools Canada program and to build capacity for taking environmental and climate action with students in the school and community.

The 2023/24 workshops focused on the role educators play in helping students navigate from anxiety and fear to hope and action when they think about climate change. Through multiple sessions, educators connected with experts in mental wellness, outdoor learning, and climate change education to explore how to rebuild personal resilience while addressing the climate crisis and learn strategies to empower young people to do the same. Educators also had time to explore resources available to support student learning and to work with educational partners in acting on climate change.

Action 43: Continue to offer professional learning opportunities in environmental and sustainability education for TDSB educators in collaboration with the Ontario Institute for Studies in Education at the University of Toronto (OISE/UT)

In 2017, the TDSB formalized its long-standing collaboration with the Ontario Institute for Studies in Education at the University of Toronto (OISE/UT) to support professional development in environmental and sustainability education for TDSB educators. Since that time, TDSB educators have been offered many opportunities, including an annual environmental education conference, professional learning lectures, workshops, and webinars, and Additional Qualification Courses in Environmental Education.

Subject to the renewal of a new three-year agreement, the 2023/24 school year will mark the seventh year of this collaboration and aims to introduce the following additional supports:

- **Climate Literacy and Leadership Program:** Up to 20 TDSB educators will be offered the opportunity to deepen their professional learning through a Board-wide, year-long professional learning community.
- **Summer Institute in Climate Change Education (CCE):** This three-day, intensive summer institute will introduce the principles and practices of CCE to a maximum of 40 educators. It will be held in August each year at one of the Toronto Outdoor Education Schools.

- **Climate action meeting and mentoring for administrators:** Principals and Vice-Principals will develop their knowledge and expertise in supporting climate change education and climate action in TDSB schools.

Action 44: Support urban-centre based food literacy climate action for youth

Sustainability and Outdoor Education staff will be collaborating with the Ontario Science Centre to develop a professional learning opportunity for teachers that will help integrate equity, diversity, and inclusion into learning about climate action. This initiative aims to support the implementation of classroom learning about urban-centre-based food-literacy climate action that targets youth in grades 4-8.

The professional learning objectives of this initiative are to:

- Integrate equity, diversity and inclusion into learning about climate action;
- Integrate inquiry instructional approaches in science education focused on climate action; and
- Develop resources for both the TDSB and the Ontario Science Centre that advance responsive and relevant learning about climate action.

Action 45: Connect schools to newly planted trees on their grounds

Newly planted trees offer a unique opportunity to integrate nature into TDSB school grounds while also providing outdoor classrooms that are inviting and engaging for students and teachers.

In 2024, to help educate staff and students about trees—their benefits and stewardship needs—and to support them using their school grounds as outdoor classrooms, curriculum-connected student workshops will be delivered at 16 high-needs schools where over 700 large trees have been planted.

See Action 29 for more information on the TDSB's tree planting program.

These workshops will be delivered by TDSB Educational Partners, funded by a City of Toronto Greening Partnership Grant, and the Environmental Legacy Fund. This project aims to ensure the long-term health and success of the newly planted trees through education and engagement.

VI. Urban Indigenous Education

The Urban Indigenous Education Centre (UIEC) identifies Indigenous Land-Based Education as a priority. The priorities in community engagement, partnerships,

curriculum development, research, and truth and reconciliation through Indigenous perspectives is supported and guided by the Elders Council as reimagined ways to decolonize and Indigenize programming and facilities throughout the TDSB that “holistically” support the well-being and achievement of all students.

Conversations continue to be held exploring ways of implementing Indigenous Sovereignty. The opening of the Boyne Natural Science School as an Indigenous Land-Based Learning Site speaks to the importance of Indigenous education across TDSB schools and Indigenous approaches to the issues of climate change. We remain committed to honouring the Truth and Reconciliation Commission of Canada: Calls to Action and to creating additional opportunities for students to learn from Indigenous perspectives and teachings on and from the Land.

UIEC staff engage teachers in learning from Indigenous perspectives, the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP), and the Truth and Reconciliation Commission (TRC) Calls to Action 62 and 63 as underscored by the TDSB’s Strategic Direction of Truth and Reconciliation along with TDSB’s commitment to Indigenous Education through the Multi-Year Strategic Plan, connections to curriculum, developing resources to support K–12 student and teacher learning, and about the work of the UIEC to support Indigenous students and their families.

VII. Outdoor Education

The TDSB is fortunate to be able to provide Outdoor Education experiences, including overnight stays, at nine locally operated sites, from the shores of Lake Ontario to the edges of Algonquin Park. The Outdoor Experiential Education (OEE) programs offered by Toronto Outdoor Education Schools (TOES) support place-based learning that helps students build practical connections to the world around them and encourages future stewardship.

Action 46: Provide meaningful curriculum-connected outdoor experiential learning opportunities to students across the TDSB

In the 2022/23 school year, approximately 40,000 students were welcomed to the TDSB’s Outdoor Education Centres. Students in Kindergarten through Grade 12 participated in learning opportunities on the land. This was the first time since 2018/19 that a full year of uninterrupted programming could be offered to students.

The TDSB attempts to ensure that every student can experience the opportunity for two day visits and one overnight visit at a TOES centre during their time at the TDSB. In 2022/23, schools were able to choose the overnight centre they would like their Grade 6 students to visit, rather than being preassigned, to encourage greater participation.

Schools were also encouraged to be strategic about which classes took advantage of the day trips to ensure that the students could participate in two visits during their elementary career.

After the closure of the Etobicoke Field Studies Centre in 2019, secondary programming continued through the Collaborative Program at Forest Valley Outdoor Education Centre. Offerings are dynamic, and programming focused on Native Arts and Culture (NAC) and Specialist High School Majors (SHSMs) are made available to students.

In 2023/24, meaningful curriculum-connected outdoor experiential learning opportunities will continue to be made available to students across the TDSB.

Action 47: Support teachers across the system in taking students outside during instructional time

In May 2021, the TDSB's Long-Term Plan for Outdoor Learning was presented to the Board. The report outlined a plan to provide additional support to schools experiencing barriers to outdoor learning. As a result, the Outdoor Learning Support to Schools Partnership was developed to provide 24 schools and approximately 50 host teachers with the opportunity to engage in curriculum-connected outdoor learning experiences in the schoolyard or within local green spaces. The host teacher and the outdoor education co-teacher co-plan, co-teach, and implement authentic curriculum-connected learning through the outdoors.

This initiative, which spans all Learning Centres, aims to improve equity of access to the outdoors, while connecting the learning to students' identities and lived experiences. Through this partnership, students explore their environment in meaningful, engaging, and memorable ways.

In 2021, the first year of this partnership, the TDSB's research department was invited to evaluate the impact of outdoor learning on the following:

- curriculum and academic performance;
- personal and interpersonal growth and development;
- connection to the environment; and
- mental health and well-being.

The findings from the Outdoor Learning Support to School Partnership were captured in the [A Collaborative Approach to Outdoor Learning Support in Schools](#) report.

In 2023/24, the Outdoor Learning Support to Schools Partnership will continue to support teachers across the system in taking students outside during instructional time.

Action 48: Begin Implementation of an Outdoor Education Equity Toolkit

The natural world is an important part of learning, and access to the outdoors increases student achievement and well-being. In 2019, TOES, under the leadership and guidance of the TDSB Equity Team, set out to develop an Outdoor Education Equity Toolkit in line with other toolkits created to support Culturally Relevant and Responsive Pedagogy (CRRP). The toolkit, released in spring 2023, aims to support educators to engage in practices that work to eliminate barriers to outdoor environments. Using the toolkit, educators can help create safe and inclusive spaces for all students when engaging in outdoor learning at our Outdoor Education Centres, in schoolyards, and in local green spaces.

The toolkit invites educators to develop their programming to:

1. transform student learning for success and well-being in and about the outdoors;
2. build strong relationships within school communities; and
3. encourage perspectives related to the environment.

In 2023/24, the toolkit will be used in program development and review at the TDSB's Outdoor Education Centres and introduced to staff across the TDSB through online professional development opportunities.

The toolkit is available publicly through both the TDSB's Equity and Outdoor Education departments [websites](#).

VIII. System Improvements

Action 49: Modernize facilities operations by building a climate-action data hub

The TDSB welcomes approximately 250,000 students and 40,000 staff each day at nearly 600 buildings in 47 million square feet of facility space. Within its buildings, it services about 96,000 rooms and an extensive network of mechanical and electrical building systems built out over more than 100 years.

If the TDSB were a city, it would be among the top-20 municipalities in Canada, larger than what are considered medium-sized cities such as Windsor, Regina, and Saskatoon.

Making the TDSB climate resilient, including achieving net zero in GHG emissions, will require that we not only modernize how we collect and organize large data sets, but that we ensure the data is readily available for analysis and reporting.

While significant progress has been made geocoding school rooftops and building mechanical systems and improving access to energy consumption data, much more work is needed to organize key data in one central hub and to keep this information up to date.

For this reason, staff will redouble its efforts to build an explicit climate-action data hub, based on the TDSB Property Maps GIS-based web platform. The hub will include accurate geocoded building and site drawings that will show the location of key attributes such as solar PV systems, mechanical and electrical equipment, underground irrigation systems, infiltration galleries, and EV charging infrastructure. The hub will also connect the location of equipment with its associated information in SAP.

The hub will include the building analysis and reporting tools in the TDSB Property Maps application, such as dashboards, and will have the ability to filter and export data. While this modernization effort will require significant, sustained attention over time, it will be a foundational component of the digital transformation that will be required for such a large institution in the decades ahead.

Action 50: Make organizational improvements to put more focus on effective climate action

In March 2020, staff reported to the Board that a technical team would be assembled within Sustainability to put more emphasis on reducing the TDSB's GHG emissions.

In the October 2021 Climate Action Report, staff indicated that they would review the duties and responsibilities of this team to prioritize activities that directly relate to reducing emissions and accelerating progress towards the TDSB's aspirational goal of achieving net zero by 2050.

In the coming months, there will be formal changes to the organizational structure within the Energy and Climate Action Team and the broader Sustainability department. Some reporting relationships within the department will be changed and duties will be updated (some eliminated, and others added). In a few cases, more significant changes to roles and job titles are anticipated.

Addressing the climate crisis will be an enormous challenge in the years ahead. The purpose of these changes is to make the team more effective at taking meaningful and effective climate action.

Action 51: Invest in professional development for staff who are leading the effort to reduce GHG emissions

Reducing the TDSB's GHG emissions requires breaking out of old mindsets and ways

of working. For the TDSB to be successful, the staff leading these efforts must be supported, particularly by access to professional learning opportunities that will equip them with the right knowledge and skills. For this reason, the Environmental Legacy Fund will be used as a funding source for staff to attend workshops, conferences, and courses. Staff who are leading the way toward reducing the TDSB's emissions will be given priority. Failure to invest in these front-line staff members will reduce the likelihood of successful initiatives.

IX. Environmental Legacy Fund

The TDSB's Environmental Legacy Fund was approved by the Board of Trustees in 2010. Since that time, revenue from the sale of carbon credits, income from the sale of electricity generated by 11 TDSB-owned solar PV projects, and sale of TDSB e-waste has been directed into the fund. In 2021/22, utility incentives from "state of good repair" projects that reduce energy consumption were added as an additional revenue source to the fund.

The Environmental Legacy Fund's ending balance as of August 31, 2023 was \$2,828,009.

Action 52: Report annually on revenue and projected expenditures for the Environmental Legacy Fund

As outlined in the 2021 Climate Action Report, the projected revenue and expenditures for the Environmental Legacy Fund will be reported annually. In 2023/24 the Environmental Legacy Fund's projected expenditures total \$850,510. For more details, refer to Appendix F.

X. Playing Field Reserve

The Playing Field Reserve was first approved in 2013 and its terms of reference were expanded in 2016.

Permit revenue from the TDSB's artificial turf fields is directed into the reserve. The reserve currently funds a full-time management level position that oversees the renovation of grass fields and the maintenance of artificial turf fields.

Action 53: Use the Playing Field Reserve to help fund tree planting and green roofs

While important for elementary schools where growing grass is not possible and for supporting secondary school athletics, artificial turf fields have a significant environmental impact. The manufacturing and installation process involves a lot of

embedded carbon, and they are very hot in the summer, which amplifies the urban heat island effect.

It is appropriate, therefore, that the revenue from the permitting of these fields helps to pay for the renovations of vibrant grass fields, tree planting to cool school communities, and green roofs to help to offset the urban heat island effect. As outlined in Action 28 above, our intention is to use funding from the Playing Field Reserve to increase the capacity of our trades to take on in-house tree planting, and green roof maintenance.

Please see Appendix G for the forecasted revenue and expenditures of the Playing Field Reserve.

Action Plan and Associated Timeline

Refer to Appendix H.

Resource Implications

Refer to Appendix H.

Communications Considerations

Staff will leverage the TDSB's existing communication channels to provide regular updates on the status of climate actions. These communication channels include the EcoSchools newsletter, System Leaders Bulletin, Trustees' Weekly, TDSB Connects, TDSBWeb and the TDSB public website.

Board Policy and Procedure Reference(s)

Policy P028 – The Environment

Appendices

- Appendix A: Action Report Card for Previous Annual Reports
- Appendix B: Utility Cost Projections to 2029/30
- Appendix C: How big is the opportunity?
- Appendix D: School Condition Improvement (SCI) Spending Targets To Lower Utility Costs and GHG Emissions
- Appendix E: Agincourt JPS's More Permeable School Ground
- Appendix F: Environmental Legacy Fund 2023-24 Forecasted Revenue and Expenditures
- Appendix G: Playing Field Reserve 2023-24 Forecasted Revenue and Expenditures

- Appendix H: Action Plan, Associated Timeline and Resource Implications




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Appendix A: Action Report Card for Previous Annual Reports











2021 Climate Action Report

	Complete
	In-progress
	Incomplete




Action	Status
<p>1. Facilitate youth-led community climate action projects</p>	<p> In the fall of 2021 a Youth Climate Action Guide was launched to support TDSB youth in mobilizing their communities towards climate action.</p>
<p>2. Increase student engagement and leadership by fostering active participation in climate change education initiatives</p>	<p> In the 2021-22 school year, the EcoSchools program, student leadership conferences and climate change education programming offered by TDSB Educational Partners provided tangible ways for TDSB youth to take leadership to actively participate in climate action.</p>
<p>3. Offer professional learning opportunities for educators to support teaching and learning that moves beyond climate change awareness to empowerment and action</p>	<p> In 2021-22, climate change education professional development opportunities for educators were offered to educators through the TDSB’s longstanding collaboration with OISE, EcoSchools kickoff workshops, and subsidies for Additional Qualification (AQ) courses in Environmental Education.</p>
<p>4. Establish Net Zero GHG emissions by 2050 as an aspirational goal for the TDSB</p>	<p> The TDSB committed to this aspirational goal following the receipt of the 2021 Climate Action report.</p>
<p>5. Participate in the City of Toronto’s Green Will Initiative</p>	<p> The TDSB is an active participant in the Green Will initiative.</p>
<p>6. Create Energy/GHG Report Cards for buildings and improve benchmarking</p>	<p> Annual Utilities Profiles have been developed for all TDSB facilities, and hourly Utilities Profiles have been made available for schools. These profiles are accessible on TDSBWeb.</p>
<p>7. Implement targeted greenhouse gas reduction projects at facilities with high levels of emissions</p>	<p> Eight schools with high emissions have been identified for the Pay for Performance program outlined in the 2023 Climate Action report.</p>
<p>8. Focus the work of the new Energy and Climate Action Team on GHG reductions</p>	<p> A lot of progress has been made on orienting the focus of the team on prioritizing GHG reductions.</p>
<p>9. Continue to invest in state of good repair projects</p>	<p> Investments continue to be made, and as outlined in this year’s report, will be increased in 2023/24.</p>




2021 Climate Action Report—Action Report Card

	Complete
	In-progress
	Incomplete




Action	Status
10. Review and update building design guidelines, standards, and practices to prioritize sustainable building strategies.	 Work in updating the TDSB’s mechanical and electrical design guidelines is well underway and should be completed in the coming months.
11. Complete the TDSB’s network of state-of-the-art building automation systems	 With the exception of one school, BAS systems have been installed in all buildings. The last school will be completed this year.
12. Establish a series of initiatives to better support caretakers with the efficient operation of buildings	 Extensive efforts have been made to support caretakers in LN 3 and 4 schools. Supports will be expanded to caretakers in all LC1 schools this year.
13. Report vehicle fleet GHG emissions annually	 The TDSB’s estimated vehicle fleet GHG emissions were included in the 2022 Climate Action report.
14. Begin transition of vehicle fleet to electric vehicles	 In 2021-22, the TDSB purchased 4 fully electric Ford Transit vans.
15. Install conduit for electric vehicle charging stations in new and renovated parking lots	 Conduit for EV charging stations is included in all parking lot replacement projects. Twenty-seven projects have either been completed or will be completed soon.
16. Continue to support active, safe, and sustainable school travel	 The TDSB continues to support active, safe, and sustainable transportation through a variety of programs and initiatives.
17. Double the size of the TDSB’s large tree planting program	 The program has more than tripled in size since the 2021 report was written.
18. Use soil cells when planting trees in harsh conditions as part of major site projects	 A lot of attention is paid to ensuring that trees are planted in generous soil volumes.
19. Launch a new Environment, Energy and Climate Action website as part of the TDSB’s public website	 The TDSB launched a new Environment, Energy and Climate Action public website in 2021-22.










2021 Climate Action Report—Action Report Card

	Complete
	In-progress
	Incomplete




Action	Status
<p>20. Update the Environmental Legacy Fund’s Terms of Reference to focus support on climate action</p>	<p> Following the receipt of the 2021 Climate Action report, the Environmental Legacy Fund’s Terms of Reference were revised to include the following funding priorities:</p> <ul style="list-style-type: none"> • Building-related GHG reduction • Sustainable transportation • Building resilient school grounds • Climate change education and engagement
<p>21. Report annually on projected revenue and expenditures for the Environmental Legacy Fund</p>	<p> A report on the projected revenue and expenditures of the Environmental Legacy Fund were included in the 2022 Climate Action report.</p>
<p>22. Reinvest utility incentives to fund GHG reduction initiatives</p>	<p> Enbridge and Toronto Hydro utility incentives/rebates from state of good repair projects that reduce energy consumption have been directed into the Environmental Legacy Fund since the fall of 2021.</p>










2022 Climate Action Report—Action Report Card

	Complete
	In-progress
	Incomplete




Action	Status
<p>1. Launch the new Building Systems Help Desk</p>	<p> The Building Systems Help Desk began as a pilot for Learning Network (LN) 3 and 4 in 2022-23 and will be expanded to all schools in Learning Centre (LC) 1 in 2023/24.</p>
<p>2. Establish customized schedules for the operation of mechanical equipment</p>	<p> Completed for all schools in LN3 and LN4 and will be expanded to all schools in LC1 and for the 8 Pay for Performance (P4P) schools in 2023/24.</p>
<p>3. Further develop an interactive online platform using a Geographic Information System (GIS)-based web application.</p>	<p> Highly detailed roof drawings and interior mechanical systems have been completed and geocoded at 148 schools. The mechanical equipment at these schools have been photographed and linked to the SAP database in TDSB Property Maps.</p>
<p>4. Energy/GHG Profiles for Every School</p>	<p> New energy profiles for each school are available on TDSBWeb, including an easy-to-use tool for viewing and comparing near-real time data.</p>
<p>5. Replace building systems at the end of their life with low carbon impact choices, when feasible to do so</p>	<p> In retrospect, this action was worded too vaguely, making implementation ineffective. In this year’s report, related actions are clearer and more prescriptive, e.g., Actions 8 and 9 on heat pumps and LED lighting.</p>
<p>6. Initiate deeper building retrofits to reduce GHG emissions at schools considered to be good candidates</p>	<p> A feasibility study was completed in 2022-23, to assess the feasibility of undertaking a deep energy retrofit project at Withrow Ave. JPS. This new report commits to proceeding with a pilot project at this school.</p>
<p>7. Undertake full-life cycle costing analysis as part of the design development for new schools</p>	<p> An investment grade feasibility study was completed for a mass timber replacement school at Popular Road JPS. The project has been approved. The 2023 Climate Action report details a whole series of actions related to new school construction that supersedes this one action.</p>
<p>8. Continue the transition of vehicle fleet to electric vehicles</p>	<p> Four electric vehicles were purchased in 2021-22 as part of the TDSB’s annual vehicle replacement program.</p>
<p>9. Issue a request for proposals for two pilot projects for electric school buses</p>	<p> A Request for Proposal was issued in 2022-23. Board approval to operate 5 EV school buses on the Toronto Island was an outcome of the RFP.</p>







2022 Climate Action Report—Action Report Card

	Complete
	In-progress
	Incomplete

Action	Status
10. Ensure all landscaping projects strive to incorporate tree planting	 A large number of site projects include tree planting.
11. Plant 1,000 large-caliper trees in 2023	 1,190 trees will be planted by December 2023.
12. Ensure trees are planted in generous soil volumes, particularly in harsh growing conditions	 A lot of attention is paid to ensuring that trees are planted in generous soil volumes.
13. Identify sites that have excessive paving in poor condition and develop a program to replace deteriorated asphalt with grass and trees	 This initiative has not yet started.
14. Start the transition to cordless electric outdoor tools	 Five battery operated lawn and garden tool product lines were purchased in 2022-23 to undergo a product evaluation by Caretakers over the summer months. Feedback gathered from this evaluation will be used to inform the development of a Request for Proposal for battery-operated lawn tools.
15. Establish a TDSB Student Environment Network	 A TDSB student environment advisory group will be launched in 2023/24.
16. Increase schools' capacity to address climate change through targeted programs	 A variety of initiatives were undertaken in 2022-23 to increase schools' capacity to address climate change including supporting the EcoSchools Canada Program and City of Toronto Youth Climate Action Grant program, and working in collaboration with i-THINK on the development of a Climate Change Challenge kit.
17. Launch TDSB climate action videos	 A video was created in 2022-23 to showcase and introduce staff to the new Building Systems Help Desk. Additional videos will be created in the future as needs arise.
18. Continue to offer professional learning opportunities for educators to support teaching and learning that moves beyond climate change awareness toward empowerment and action	 Climate change education professional development opportunities for educators continue to be offered to educators through the TDSB's longstanding collaboration with OISE. In 2022-23, approximately 125 educators participated in five webinars (with another 370 watching recordings of these sessions), and 150 attended the annual conference.

2022 Climate Action Report—Action Report Card

 Complete
 In-progress
 Incomplete

Action	Status
19. Develop system-wide communications to share climate action initiatives underway at the TDSB	 Communications focused on climate action initiatives continue to be shared throughout the system.
20. Make organizational improvements to put more focus on effective climate action	 Some initial planning occurred in 2022/23. Changes are expected to be complete by summer 2024.
21. Establish a Climate Action Coordinating Committee	 A staff committee has been established.
22. Invest in professional development for staff who are leading efforts to reduce GHG emissions	 The Environmental Legacy Fund was used as a funding source to invest in professional development for staff who are leading GHG efforts. In 2022-23, staff attended conferences focused on electric vehicles and completed courses from the Canadian Institute for Energy Training. This opportunity will continue to be made available to staff.
23. Revisioning ArtsJunktion	 This initiative has not yet started.
24. Annual report on revenue and projected expenditures for the Environmental Legacy Fund	 2022/23 report on revenue and projected expenditures included in the 2022 Climate Action report.

Appendix B – Utility Cost Projections to 2029/30

As shown in the table below, the TDSB’s total utilities expenditures were \$75 million for the 2022/23 school year. Based on estimated rate increases for electricity, natural gas, and water, the TDSB’s annual utility costs are projected to reach \$105 million by 2029/30.

The estimates shown below are based on escalation projections provided by Edison Energy for natural gas, Jupiter Energy for electricity, and the City of Toronto for water.

Year	Natural Gas	Electricity	Water	Total
2022/23	\$24,639,600	\$40,187,376	\$10,216,415	\$75,043,391
2023/24	\$26,253,155	\$44,595,598	\$12,129,356	\$82,978,109
2024/25	\$26,128,357	\$45,041,554	\$12,735,824	\$83,905,735
2025/26	\$29,094,619	\$47,293,632	\$13,372,615	\$89,760,866
2026/27	\$30,528,120	\$47,766,568	\$14,041,246	\$92,335,934
2027/28	\$32,057,214	\$50,154,897	\$14,743,308	\$96,955,419
2028/29	\$33,744,600	\$50,656,446	\$15,480,473	\$99,881,519
2029/30	\$35,483,629	\$53,189,268	\$16,254,497	\$104,927,394

Appendix C – How big is the opportunity?

a) Building-related GHG emissions in the Ontario public sector

As shown in the bubble graph below, the TDSB is the second-highest emitter of building related GHGs, in absolute terms, among school boards, municipalities, hospitals, and universities in the Province of Ontario.

Currently, the highest emitter is the City of Toronto, followed by the TDSB and the University of Toronto.

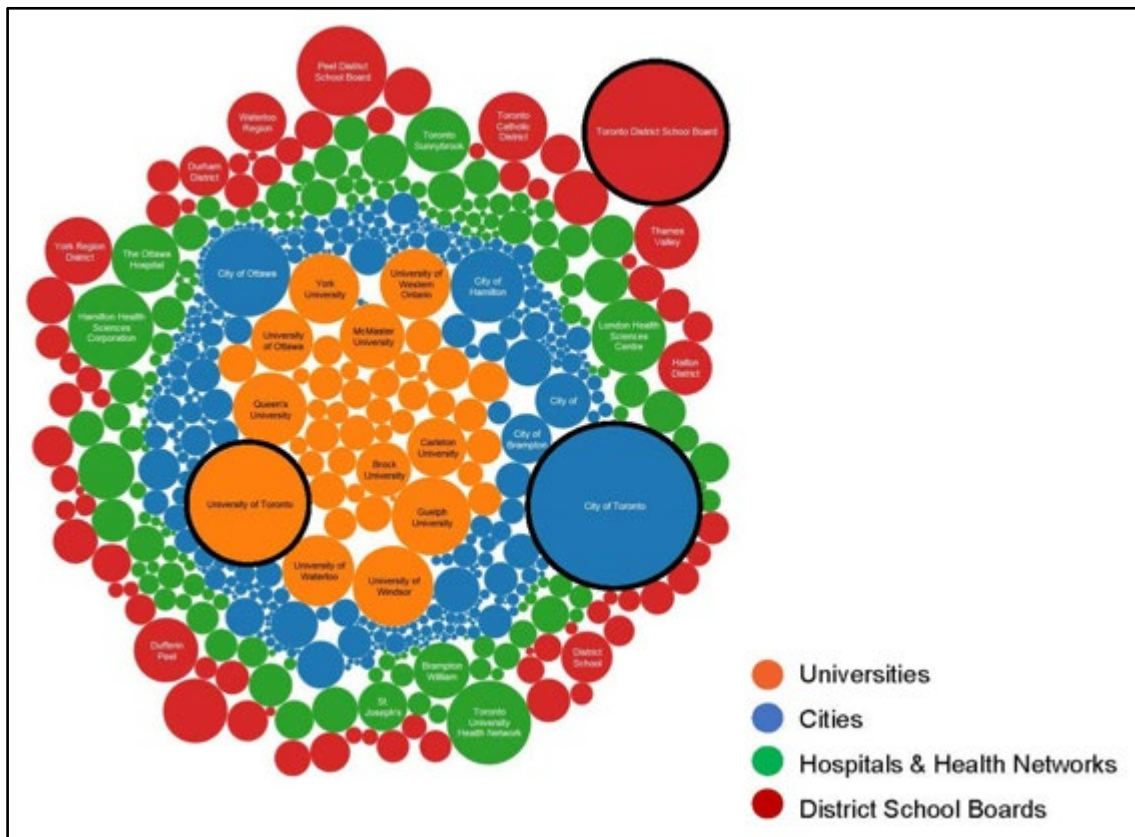
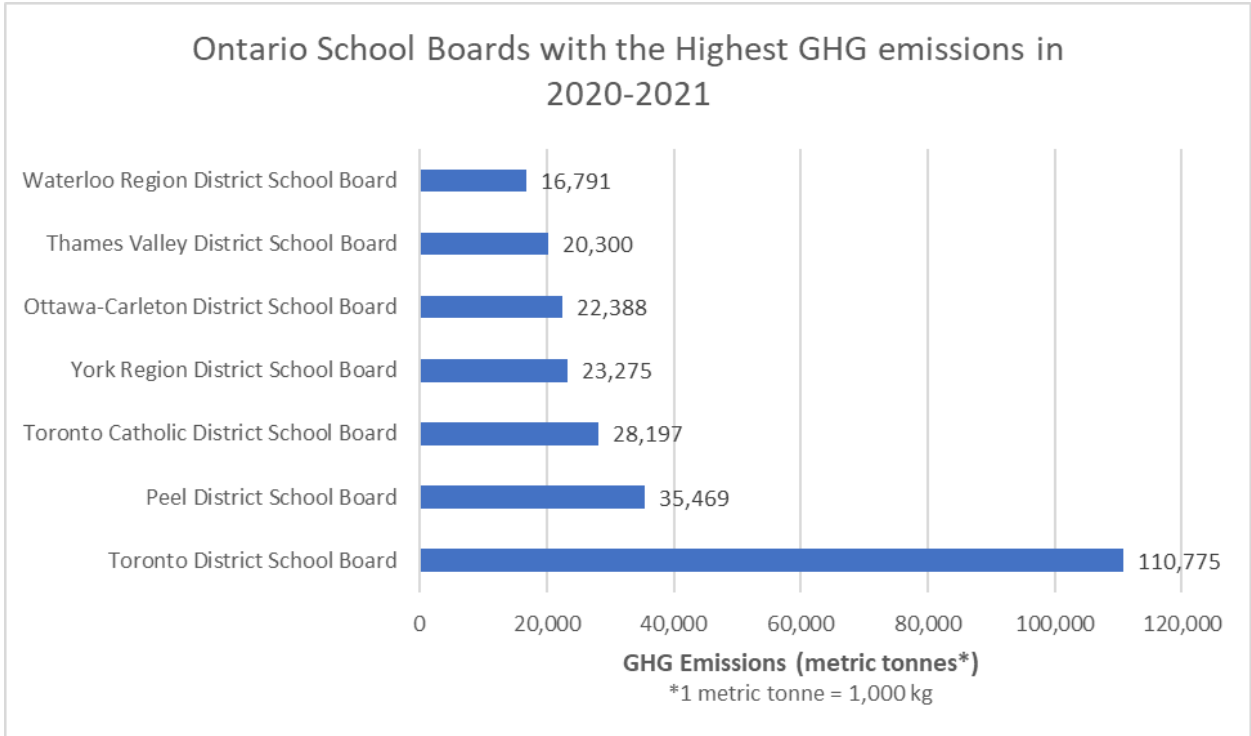


Image source: Adapted from University of Toronto “Climate Positive Campus” slide deck.

b) Ontario school boards with the highest GHG emissions in 2020-2021¹

The TDSB has the highest GHG emissions of all school boards in Ontario, comprising 20% of the 563,715 metric tonnes of GHG emissions produced by all school boards combined.

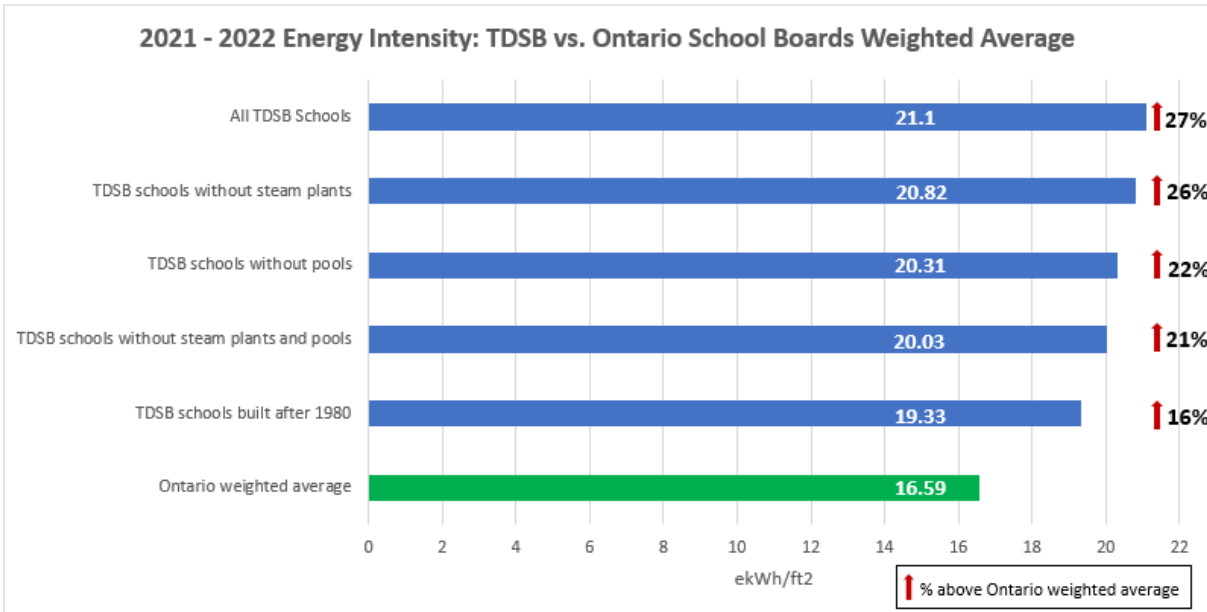
This data is weather normalized, which provides a more accurate comparison across the province.



¹ Ministry of Education: FY 2020 Analysis of Board's Energy Performance

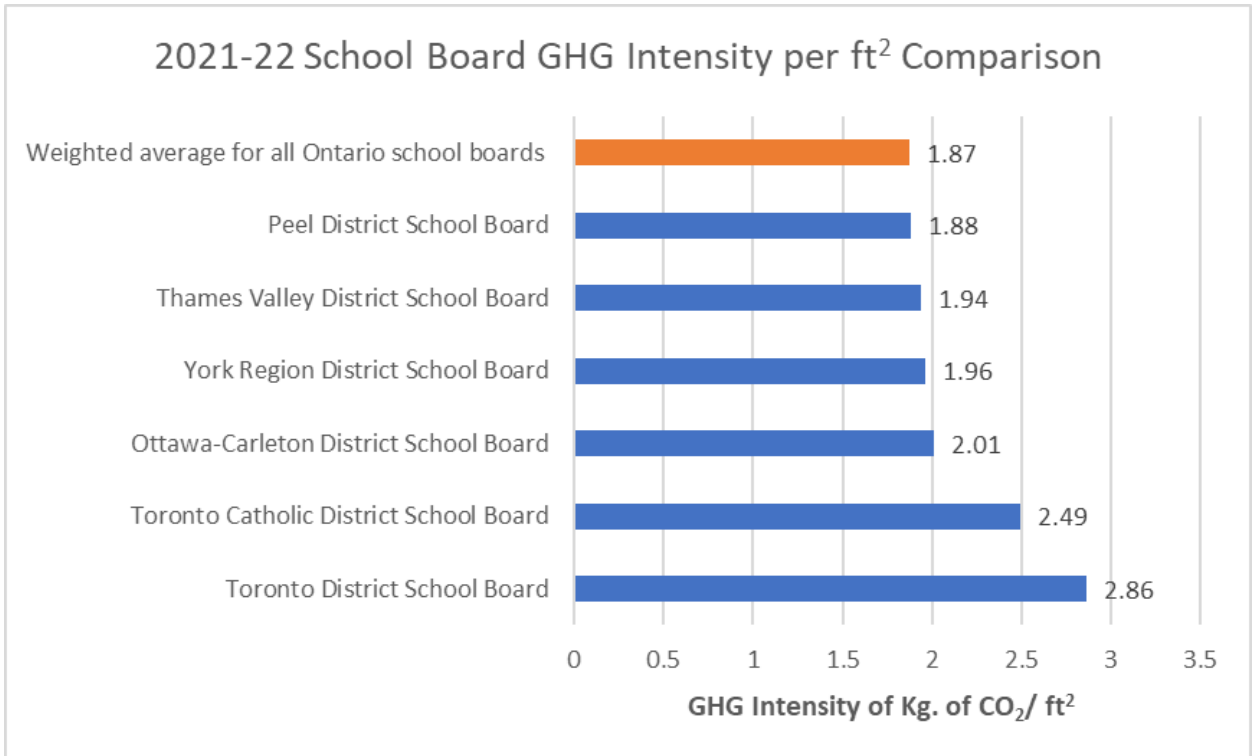
c) TDSB’s energy intensity for various subsets of TDSB schools compared to the weighted average for Ontario school boards (2021-2022)²

Energy intensity is a combined measure of electricity and natural gas consumption per sq² (ekWh/ft²).



² Ministry of Education: FY 2021 Analysis of Board’s Energy Performance & TDSB Database

d) TDSB's GHG intensity per square foot compared to other Ontario school boards (2021-22)³



³ Ministry of Education: FY 2021 Analysis of Board's Energy Performance

Appendix D – School Condition Improvement (SCI) Spending Targets To Lower Utility Costs and GHG Emissions

The table below summarizes the estimated SCI spending targets required to support reductions in utility costs and GHG emissions outlined in this report.

The estimated total to support all the actions is \$33,815,000, out of the TDSB’s \$245,900,000 allocation for 2024/25. Since these are estimates, actual spending could be somewhat higher or lower.

Action	Funding Source	2023/24 Estimated Spending Target	Notes
Action 1 (a), 3, 4 – Reduce energy consumption in LC1 by 10% by August 2025	SCI	\$250,000	BAS upgrades and mechanical repairs resulting from Help Desk interactions with caretakers.
Action 5 – Reduce natural gas consumption in 8 P4P schools by 20% in 3 years	SCI	\$350,000	\$900,000 estimated total program cost over 3 years
Action 6 – Deep energy retrofit in one pilot school	SCI	\$25,000	Professional fees to develop a design-build RFP as step one in the project. Total project cost is estimated to be \$4 million.
Action 7 – Continue to convert steam boiler plants to hot water boilers	SCI	\$25,000,000	6 projects
Action 8 – Replace roof top air handling units with hybrid systems	SCI	\$ 4,500,000	<p>Replace 15 - 20 smaller standard-sized air-handling units at various schools.</p> <p>Replace all roof-top air handling units at one school (Chester Le) with larger, custom-built hybrid units.</p>

Action 9 – LED lighting projects	SCI	\$3,200,000	7 projects
Action 10 – Improvements to BAS systems	SCI	N/A	Improvements to BAS are already budgeted for in Action items 1 and 5 above
Action 11 – State of good repair for TDSB owned solar PV projects	SCI	\$490,000	

Appendix E – Agincourt JPS’s More Permeable School Ground

When it came time to revitalize the school ground at Agincourt JPS, which included replacing large expanses of asphalt, large permeable cut outs were included in the overall design. When it rains, some of the water is directed into these areas, with the excess still going into catch basins. The trees planted in the cut-outs thrive from the extra volume of water, the generous soil volumes, and natural mulch groundcover. Previously, rainwater falling on the large expanse of asphalt would have all been directed to the storm sewer.

Including permeable cut-outs when replacing deteriorated hard surface play areas is standard practice at the TDSB.



Appendix F: Environmental Legacy Fund 2023-24 Forecasted Revenue and Expenditures

Ending balance as of 2023.08.31				
	\$	2,828,009		
Revenue Source	2023-24 Revenue	2024-25 Revenue	2025-26 Revenue	2026-27 Revenue
Solar Installations	\$180,000	\$225,000	\$225,000	\$225,000
Utility incentives	\$480,000	\$480,000	\$480,000	\$480,000
Total Revenue	\$660,000	\$705,000	\$705,000	\$705,000
Funding Priority	2023-24 Expenditures	2024-25 Expenditures	2025-26 Expenditures	2026-27 Expenditures
I. Building-related GHG reduction	\$405,825	\$459,500	\$472,800	\$486,900
a. Temporary AutoCAD Specialist x 2 (term ends March 2024)	\$87,500	\$0	\$0	\$0
b. Permanent AutoCAD Specialist	\$23,825	\$95,300	\$98,600	\$102,100
b. Building Systems Help Desk Team Leader	\$139,700	\$144,600	\$149,600	\$154,900
c. Design Coordinator, Innovation and Special Projects	\$69,800	\$144,600	\$149,600	\$154,900
d. Energy-related professional design fees	\$85,000	\$75,000	\$75,000	\$75,000
II. Sustainable transportation	\$140,000	\$20,000	\$20,000	\$20,000
a. Premiums for EV purchases/rental subsidies	\$20,000	\$20,000	\$20,000	\$20,000
b. EV charging infrastructure	\$100,000	\$0	\$0	\$0
c. Public EV charging infrastructure feasibility study	\$20,000	\$0	\$0	\$0
III. Building climate resilient school grounds	\$25,000	\$15,000	\$15,000	\$15,000
a. Battery-operated outdoor lawn and garden tool subsidy	\$25,000	\$15,000	\$15,000	\$15,000
IV. Climate change education and engagement	\$255,860	\$220,110	\$220,110	\$220,110
a. OISE Environmental Education PD collaboration	\$115,110	\$115,110	\$115,110	\$115,110
b. Teacher release	\$55,000	\$55,000	\$55,000	\$55,000
b. Climate Change Challenge Kit workshops for students	\$25,000	\$25,000	\$25,000	\$25,000
c. Environmental art murals	\$20,000	\$0	\$0	\$0
e. Connecting schools to trees through educational workshops	\$15,750	\$0	\$0	\$0
f. Professional development and resources for staff leading efforts to reduce GHG emissions	\$25,000	\$25,000	\$25,000	\$25,000
V. Waste reduction	\$23,825	\$95,300	\$98,600	\$102,100
a. Waste Management, Recycling and Organics Coordinator	\$23,825	\$95,300	\$98,600	\$102,100
Total Expenditures	\$850,510	\$809,910	\$826,510	\$844,110
Estimated end of year balance	\$	2,637,499	\$	2,532,589
			\$	2,411,079
				\$ 2,271,969

Appendix G: Playing Field Reserve 2023-24 Forecasted Revenue and Expenditures

Ending balance as of 2023.08.31		\$1,267,140			
Revenue Source	2023-24 Revenue	2024-25 Revenue	2025-26 Revenue	2026-27 Revenue	
Artificial Turf Revenue	\$750,000	\$775,000	\$800,000	\$825,000	
Total Revenue	\$750,000	\$775,000	\$800,000	\$825,000	
Funding Priority	2023-24 Expenditures	2024-25 Expenditures	2025-26 Expenditures	2026-27 Expenditures	
I. Staffing expenses	\$138,265	\$142,975	\$147,847	\$152,888	
a. Assistant Project Supervisor, Playing fields, tree planting and green roofs	\$138,265	\$142,975	\$147,847	\$152,888	
II. Program expenses	\$500,000	\$450,000	\$450,000	\$450,000	
a. Tree planting and green roof maintenance	\$450,000	\$450,000	\$450,000	\$450,000	
b. BAS and Irrigation integration	\$50,000	\$0	\$0	\$0	
Total Expenditures	\$638,265	\$592,975	\$597,847	\$602,888	
Estimated end of year balance	\$ 1,378,875	\$ 1,560,900	\$ 1,763,053	\$ 1,985,165	

Appendix H: Action Plan, Associated Timeline, and Resource Implications

Action	Timeline	Resource Implications
<p>Action 1: Set the following targets</p> <ul style="list-style-type: none"> a. Reduce electricity and natural gas consumption by 10% in the 131 schools in Learning Centre 1 (LC1) by August 2025 b. Reduce natural gas consumption by 20% in eight schools with high savings potential by August 2026 c. Reduce GHG emissions by 60% in one pilot school through a deep energy retrofit by August 2026 	<p>Achieve by August 2025</p> <p>Achieve by August 2026</p> <p>Achieve by August 2026</p>	<p>\$250,000 SCI funding- for 2023/24</p> <p>\$900,000 in SCI funding over 3 years; \$350,000 from SCI in 2023/24</p> <p>\$4 M in SCI funding in total; \$25,000 in SCI in 2023/24</p>
<p>Action 2: Optimize use of School Condition Improvement (SCI) funding and data its projects provide</p> <ul style="list-style-type: none"> a. Use School Condition Improvement (SCI) funding more strategically to replace failing building systems b. Improve the tracking and reporting of SCI investments into projects that save energy 	<p>Ongoing</p> <p>Ongoing</p>	<p>See complete summary in Appendix D.</p>

<p>Action 3: Focus efforts on LC1, then scale up</p>	<p>Focus on LC1 for 2 years, then bring forward a plan to expand to the other LCs</p>	<p>Funding accounted for in 1a above.</p>
<p>Action 4: Implement <i>energy saving methodology</i> in LC1</p>	<p>Next 2 years and then expand to other LCs</p>	<p>Funding accounted for in 1a above.</p>
<p>Action 5: Reduce natural gas consumption by 20% in eight schools with high savings potential over three years</p>	<p>Achieve by August 2026</p>	<p>See 1b above.</p>
<p>Action 6: Reduce GHG emissions by 60% in one pilot school through a deep energy retrofit</p>	<p>Achieve by August 2026</p>	<p>See 1c above.</p>
<p>Action 7: Continue to convert steam boiler plants to hot water boilers</p>	<p>Six new projects will start design in 2023/24</p>	<p>\$25,000,000 in SCI funding</p>
<p>Action 8: Establish hybrid rooftop air handling units as the TDSB's standard for "state of good repair" replacement projects</p>	<p>Replace all roof-top air handling units at Chester Le, and another 15 to 20 units in 2023/24</p>	<p>\$4,500,000 in SCI funding</p>
<p>Action 9: Start converting T-8 fluorescent lighting systems to LED lights</p>	<p>7 projects completed by August 2024</p>	<p>\$3,200,000 in SCI funding</p>

Action 10: Implement improvements to building automation systems (BAS)	Ongoing	Funding accounted for in 1a and 1b above.
Action 11: Maximize revenue for the Environmental Legacy Fund	All TDSB-owned solar PV systems fully operational by March 2024	\$490,000 in SCI.
Action 12: Implement guiding principles that consider sustainability and climate responsibility for new Capital replacement schools and major additions	Ongoing	No new funding required
Action 13: Meet the Toronto Green Standards V4 Tier 2 for all new projects that require Planning approvals commencing in January 2024	Will start in January 2024 and then ongoing.	Will be accounted for in the budget of each project.
Action 14: Engage a sustainability consultant for all new schools and major addition projects	Ongoing	Will be incorporated in the budget of each project.
Action 15: Mandate low carbon components in widely used building materials	Ongoing	Will be incorporated in the budget of each project.

Action 16: Introduce sustainable design scoring criteria for selecting architects and prequalifying general contractors	Ongoing	No funding required.
Action 17: Reduce greenhouse gas dependency and prioritize passive systems and sustainable electrical equipment/ infrastructure	Ongoing	Will be accounted for in the budget of each project.
Action 18: Select one new school project to participate in the Enbridge Savings by Design Program	2023-2025	No new funding anticipated.
Action 19: Ensure new schools can support solar PV installation	Ongoing	Will be accounted for in the budget of each project.
Action 20: Improve urban ecology through site design of new schools	Ongoing	Will be accounted for in the budget of each project.
Action 21: Design schools with flexibility for future accommodation needs	Ongoing	Will be accounted for in the budget of each project.
Action 22: Transition to EV vehicles when renting is required to support in-house construction projects	Starting in 2023/24 and re-evaluated annually.	Cost of subsidies estimated to be \$20,000 and the cost of the EV charging infrastructure at Oakburn to be \$30,000. Funded from the Environmental Legacy Fund.

Action 23: Operate fully electric school buses on the Toronto Islands	Starting in September 2024	Cost of EV charging infrastructure estimated to be up to \$70,000, funded from the Environmental Legacy Fund.
Action 24: Continue to install conduit for electric charging stations as part of parking lot replacement projects	Ongoing	Nominal cost to be included in project budgets.
Action 25: Study the feasibility of installing a network of EV charging stations for staff to use during the school day and the public after hours	Begin in January 2024	Funding from The Atmospheric Fund (TAF) and \$20,000 funded from the Environmental Legacy Fund
Action 26: Continue to support active, safe, and sustainable transportation	2023-24	The expanded School Travel Planning Program, supporting both TDSB and TCDSB schools, will be funded through annual contributions in 2021, 2022 and 2023 from the City of Toronto (\$320,000), TDSB (\$88,800 from Sustainability) and TCDSB.
Action 27: Create a small team in Sustainability to oversee tree planting, green roof maintenance and grass field renovations	Spring 2024	Existing staffing will be used to create the team.
Action 28: Increase the capacity of our trades to take on in-house tree planting, and green roof maintenance	2024	\$450,000 from the Playing Field Reserve. See Action 53 below.
Action 29: Plant 1,000 trees in 2024	Spring to Fall 2024	Multiple funding sources: Most trees donated by the City of Toronto, additional \$100,000 grant from the City of Toronto, some funding from the Playing Field Reserve (Action 28 above). Some of the tree

		planting will be incorporated into larger projects, such as new schools and additions, or larger landscaping projects funded from SCI.
Action 30: Focus on the quality of tree planting	Ongoing	Incorporated into individual project costs.
Action 31: Ensure all site improvement and landscaping projects strive to incorporate tree planting	Ongoing	See Action 30 above.
Action 32: Plant trees in generous soil volumes, particularly in harsh growing conditions	Ongoing	See Action 30 above.
Action 33: Protect existing trees during construction projects	Starting in 2023/24	No funding required.
Action 34: Improve the permeability of school grounds	Ongoing	Less asphalt paving should result in project cost savings in most cases.
Action 35: Continue the transition to battery-operated outdoor tools	RFP completed and tools available by Spring 2024.	\$25,000 has been budgeted in the Environmental Legacy Fund to help pay for the incremental cost increase for these products.
Action 36: Support schools with waste reduction	September 2023	Existing resources will be used. No new funding required.

Action 37: Rebuild the capacity to improve waste diversion rates	Spring 2024	\$23,825 funded from the Environmental Legacy Fund for 2023/24.
Action 38: Launch a TDSB student environmental network		Existing resources will be used. No new funding required.
Action 39: Increase the capacity of schools to address climate change through the EcoSchools Canada Certification Program	2023-24	Existing resources will be used. No new funding required.
Action 40: Support students to take climate action through the City of Toronto Youth Climate Action Grant Program	October 2023	Existing resources will be used. No new funding required.
Action 41: TDSB Youth Leadership Conference	October 2023	Existing resources will be used. No new funding required.
Action 42: Continue to deliver EcoSchools Kickoff workshops for teachers	October 2023	Existing resources will be used. No new funding required.
Action 43: Continue to offer professional learning opportunities in environmental and sustainability education for TDSB educators in collaboration with the Ontario Institute for Studies in Education at the University of Toronto (OISE/UT)	2023 - 2026	\$115,110 from the Environmental Legacy Fund for 2023/24
Action 44: Support urban-centre based food literacy climate action for youth	2023-24	Existing staff resources will be used. No new funding required.
Action 45: Connect schools to newly planted trees on their grounds	2024	\$15,750 from the Environmental Legacy Fund

Action 46: Provide meaningful curriculum-connected outdoor experiential learning opportunities to students across the TDSB	2023-24	Existing staff resources will be used. No new funding required.
Action 47: Support teachers across the system in taking students outside during instructional time	2023-24	Existing staff resources will be used. No new funding required.
Action 48: Begin Implementation of an Outdoor Education Equity Toolkit	2023-24	Existing staff resources will be used. No new funding required.
Action 49: Modernize facilities operations by building a climate-action data hub	Ongoing	\$111,325 from the Environmental Legacy Fund for 2023/24
Action 50: Make organizational improvements to put more focus on effective climate action	Winter/Spring 2023/24	Existing resources will be used.
Action 51: Invest in professional development for staff who are leading the effort to reduce GHG emissions	Ongoing	\$25,000 from the Environmental Legacy Fund for 2023/24
Action 52: Report annually on revenue and projected expenditures for the Environmental Legacy Fund	Annually in the Fall	No funding required.
Action 53: Use the Playing Field Reserve to help fund tree planting and green roofs	Annually	\$450,000 from the Playing Field Reserve for 2023/24. Same as Action 28 above.