



McLennan Report for SPS 2020

Sustainability Vision, Goals and Strategy

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For questions and more information about this document, please contact the following:

Ian A. Brown
Resource Conservation Specialist, Facility Operations
iabrown@seattleschools.org

Seattle Public Schools (SPS) contracted the McLennan Group to catalog current and past District Sustainability and Conservation efforts. SPS also tasked the McLennan Group to capture SPS community aspirations and goals for the future regarding these topics. In three separate sessions involving input from many different stakeholders, McLennan gathered information regarding resource conservation, sustainability, and equity and inclusion issues. This report summarizes the results of those meetings.



SEATTLE PUBLIC SCHOOLS

SUSTAINABILITY VISION, GOALS AND STRATEGY

NOVEMBER 24, 2020



We respectfully acknowledge the Suquamish and Duwamish peoples, who, throughout the generations, stewarded and thrived on the land where we live and work.

ACKNOWLEDGMENTS

The Core Team of Capital Projects and Resource Conservation would like to thank the many teachers, students, parents, design professionals, administrators and district colleagues who attended the stakeholder engagement workshops One and Two and who participated by survey to share a diverse perspective about and experience with environmental justice, environmental education, and sustainability initiatives.

Core Team:

Richard Best, Director of Capital Projects, Project Director
Rina Fa'amoe-Cross, Resource Conservation, Project Manager
Ian Brown, Resource Conservation, Project Moderator
Graham Goodman, Resource Conservation, Project Moderator
Deborah Northern, Equity & Engagement Manager, Department of Racial Equity Advancement
Rebecca Asencio, K-12 Planning Coordinator
Fred Podesta, Chief Operations Officer
Frank Griffin, Director, Facility Operations
Paul Cathcart, Sr. Facilities Planner
Mike Kennedy, Capital Projects, ME Coordinator
Jeanette Imanishi, Sr. Project Manager
Eric Becker, Sr. Project Manager
Mike Skutack, Sr. Project Manager
Daniel Williams, BEX Oversight Committee
Duncan Griffin, BEX Oversight Committee

Stakeholder Participants:

Jessica Levine	Lauren Allen	Margot Lavitt
Jennifer Hall	Jamie Gephart	Flora Wright
Joanne Querin-Sorenson	Bethany Sjoberg	Kameron Poulsen
Carrie Bauer	Jill Biondolillo	Asigiah Aly
Angie Nall	Nayiri Haroutunian	Oscar Kiehn-Hernandez
Dr. Rachel Petrik-Finley	Gretchen DeDecker	Jana Gamaleldin
Sara Waldron	Aaron Smith	Simona Cerenzia
Joe Szwaja	Emme Collins	Chelsey Wheeler
Kate Ayers	Sean Girvan	Tarah Reynolds
Marian Wagner	Linda Sebring	Becca Fong
Jeannie Revello	Mary Margaret Welch	Holly Briscoe
Noam Gundle	Christine Benita	Tasha Mosher
Randy Self	Nancy Peterson	Kristin Likus
Marian Fink	Carlos Del Valle	Becky Dobbins
Laura Tyler	Joshua Parker	Christel Petersen
BichNgoc Duong	Tina Christiansen	Behnosh Najafi
Steve Pratt	Rachel Nakanishi	Kristian Kicinski
Jonathan Greenberg	Treena Sterk	Jesse Walton
Connor Lee	Craig Murphy	
Steve Pratt	Shannan Leitner	
Jonathan Greenburg	Danielle Lavitt	

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EXECUTIVE SUMMARY



“There is one, and only one solution, and we have almost no time to try it. We must turn all our resources to repairing the natural world, and train all our young people to help. They want to; we need to give them this last chance to create forests, soils, clean waters, clean energies, secure communities, stable regions, and to know how to do it from hands-on experience.”

Bill Mollison, the father of permaculture

EXECUTIVE SUMMARY

INTRODUCTION – BASIS FOR THIS WORK

The Seattle Public School district has been a leader in implementing sustainability measures over the last decade. With each new BEX/BTA Levy project, school buildings have been retrofitted for energy, water, or waste – now improving operations in 85% of school buildings. The conservation and operations teams have been able to measure 17.5% energy savings, 7.5% water savings and a 19.6% increase in recycling resulting in \$1,400,000 in savings. The district has 10 solar schools and 64 Certified Washington Green Schools, engaging students in the process of measuring and bringing about positive changes. Over 8000 pounds of food have been diverted from the landfill and shared with the community. There is much to celebrate as the district has been recognized for these achievements with a Green Ribbon Award over multiple years.

With this history of proven leadership, it is no surprise that the champions for sustainability and environmental justice throughout the district are ready to take the next step. They recognize there are more savings to be found by removing more waste from the system. They observe that improving performance in schools also improves the quality of life for students and faculty and that solutions provide educational opportunities. Even more, they are listening to the students' urgent cries for leadership in addressing climate change. They are eager to find and model solutions that go beyond doing less harm to those that begin to repair damage and create conditions for living systems to regenerate.

It is with this in mind that SPS hired the McLennan Design team to listen to the voices of school policy makers, curriculum experts, teachers, students, parents, administrators, facility operations experts, champions for equity and resource conservation specialists. The team was charged with articulating the district's vision for a climate positive, zero-waste, and responsible water future and documenting recommendations and pathways for achieving this vision.

This report describes the work of five months of engagement, discovery, and analysis of the high-level opportunities for ongoing leadership. The **Background** section explains why regeneration is essential for this time and place. In **Overview and Engagement**, the process of engaging with stakeholders is described. The **Discovery** section summarizes the review of existing policy, and documents conducted. The **Analysis** section makes observations about what is working well, and shares lessons learned from the engagement and goal setting process. The **Synthesis** section brings together all these ideas into a playbook of recommendations and a timeline for achievement.

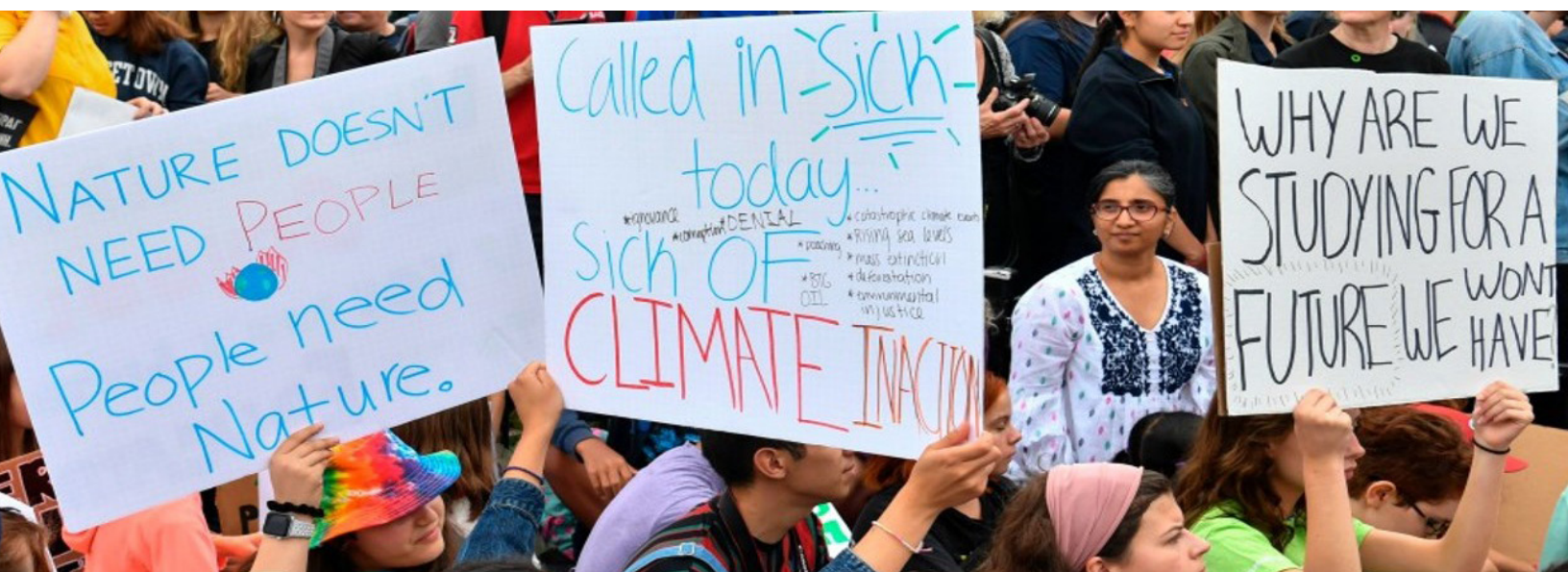
EXECUTIVE SUMMARY

SOCIAL AND ENVIRONMENTAL CONTEXT

Seattle Public Schools (SPS) is committed to ensuring equitable access, closing the opportunity gap, and providing excellence in education for every student. An essential part of preparing every student with a 21st century education is having a hands-on working knowledge of living systems. Understanding the biological and human health connection to functioning eco-systems and climate science is essential in the age of the Anthropocene, where human activity is the dominant influence on the increasingly fragile climate and environment. There are new economic paradigms and opportunities awaiting this generation as they solve the problems created in previous generations. Above all, they need an intuitive and holistic understanding of how to work together as people from many different cultural backgrounds to solve the challenges of this age. As a part of the sustainability work ahead, SPS seeks not only to build resilient schools that maintain function during a disruption, but more to prepare students to be resilient themselves for whatever the future brings.

It is no longer enough for a school district to be concerned about resource conservation and reducing the environmental footprint of the institution. The world's scientists have warned for many decades that every living system has been in decline, and the rate of that decline is increasing. The age of incrementalism and mitigation has passed. It is time to leap forward into the age of regeneration, where humans begin to better understand and participate with living systems while strengthening the community systems that support them.

This generation is asking a new question, "Why are we studying for a future we won't have?" The challenges facing this generation require a new way of approaching almost every aspect of daily life to meet the needs of this generation without sacrificing the ability of future generations to meet their needs. It requires an equitable re-distribution of benefits with a dramatic reduction in resource use. It requires an immediate shift (within 10 years) to climate positive strategies while students learn how to observe and understand the systems that regulate all life on earth.



EXECUTIVE SUMMARY

OVERARCHING RECOMMENDATIONS

The **Synthesis** section of this report, defines overarching recommendations that evolved from stakeholder priorities and the consultant's observations. They are summarized here:

It is recommended that in alignment with the district's mission, vision, resolutions, and policies, the Board of Education for Seattle Public Schools adopt the following vision and goals relative to Environmental Justice:

Use today's financial and human resources to provide environmental justice and health benefits equitably across our community and into the future by empowering the SPS community to accomplish the following:

- Be a Carbon Positive School District by 2040
- Be a Zero-Waste School District by 2030
- Be a Responsible Water School District by 2040

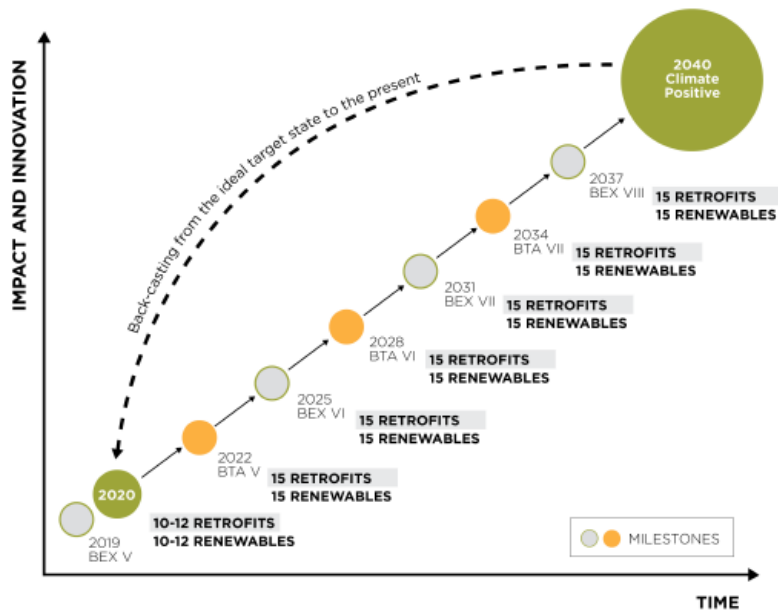
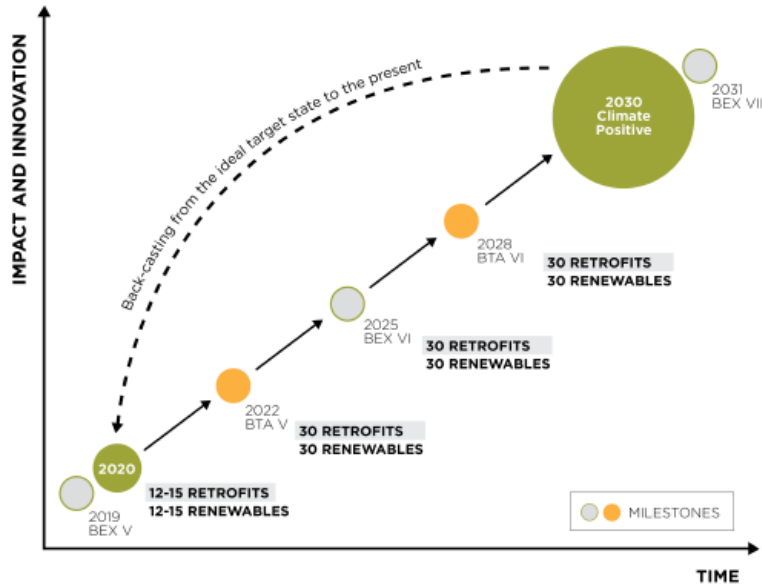
To accomplish these goals, it is necessary to update existing policies, procedures, and standards with new targets and strategies. It means building upon the impressive measurement work of the past decade and liberating that data to celebrate accomplishments and provide more insight into future work. It means continuing to complete retrofit work focused on upgraded performance with each levy cycle. Finally, it means adding renewable energy technology to the district's portfolio at a steady pace.

From this point forward, all new construction should meet the newly established targets of carbon positive, zero waste and responsible water. Retrofits and renewable energy projects can be completed within the structure of the current BEX/BTA Levy cycles over the next 10-20 years. This report outlines two different scenarios for how to leverage the levy cycles.

The first scenario is an accelerated schedule designed to meet the targets by 2030. This scenario will be easier to achieve if a building portfolio audit determines that many schools are already meeting some of the targets, or if the district determines that this is a high priority for investment because it has a reasonable rate of return. Completing the portfolio analysis is a high priority next step.

The second scenario, if more retrofit work is required, allows the district to spread the retrofits and renewable energy projects out over 20 years, to move at a pace that is similar to the current pace of BTA/BEX Levy projects. In either scenario, the most underperforming and under-invested schools should be the first to receive upgrades and renewable energy to garner the greatest savings early in the process.

EXECUTIVE SUMMARY









The group used a Back-casting technique (from The Natural Step), to set the vision of Climate Positive by 2030 (ideal) or 2040 (conservative) as a vision far out on the horizon, and then cast backward to today and set key milestones to be able to achieve that vision.

EXECUTIVE SUMMARY

PLAYBOOK RECOMMENDATIONS

The **Synthesis** section of this report also includes a playbook of recommendations that have evolved from the engagement process and the consultant teams' observations in the categories of: **policy**, **staffing**, **education**, **equity**, **measurement** and **buildings + sites** designed to show each task in terms of what is required, why it is important and what resources are needed. References and helpful resources are also provided to guide staff. Each recommendation is projected on a timeline that helps staff to focus on immediate next steps while beginning to plan for future mid-term and long-term work. These recommendations outline a scope of work that will lead to the next levels of performance and help the district reach a carbon positive balance, become zero-waste, and incorporate responsible water targets within this decade or the next.

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	2 DEVELOP CENTRALIZED GREEN PURCHASING STANDARDS	PG. 50
	3 CREATE A DISTRICT RESILIENCE PLAN	PG. 52
	4 EXPLORE AN AGREEMENT FOR A DISTRICT-WIDE SOLAR	PG. 53
 Staffing	5 EMPOWER LEADERSHIP	PG. 57
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EXECUTIVE SUMMARY



POLICY

In the near-term, it is necessary to develop a policy requiring new building performance standards that include carbon positive, zero waste and responsible water targets. It is also necessary for the district to explore purchasing options for a district-wide solar program as well as a centralized green purchasing program. Finally, adopting a resilience plan for the district is recommended.



STAFFING

In the mid-term, it is recommended that the district hire or promote a Chief Sustainability Director and a Chief Environmental Justice Director to add focus and accountability to all these initiatives.



EDUCATION

In the near-term, a Comprehensive Sustainability and Resilience Plan is necessary to tie together and measure all the disparate initiatives happening across disciplines. It should include baseline data as well as the modeled impacts of various strategies to determine priority and payback.

As the Curriculum team updates curriculum for the district it is a good time to collaborate to integrate sustainability into that work. Meanwhile, strengthening the existing Green Teams program is an essential educational opportunity already available but needing more support.



EQUITY

A critical next step in influencing future BEX/BTA projects is updating the Capital Factors Criteria to integrate sustainability and environmental justice as social equity has been integrated.

At any time, the district can pursue a JUST Label with the International Living Future Institute to be transparent – and celebrate – their labor and equity initiatives with the community.



MEASUREMENT

In the near-term, a third-party verified 2020 Carbon Footprint Baseline is essential to identify the opportunity areas of greatest impact for future work. Existing data needs to be organized and communicated for the district to be able to celebrate achievements and focus on new targets. In addition to measuring the reduction of the District's negative footprint, it is also essential to measure the positive outcomes the District has within the community – handprints –to show progress with environmental justice.

EXECUTIVE SUMMARY



BUILDING + SITES

In the near-term, it is possible to utilize the International Living Future's Living Building Challenge (LBC), a regenerative design rating system, to evaluate the current BEX V projects to identify opportunities that may be within the project budget and schedule but could improve the performance of the next round of building projects. New projects should then require LBC Core + Petal certification to align with the district's new targets. Meanwhile, it is necessary to develop a retrofit schedule that focuses on the highest impact and the equitable distribution of benefits across the portfolio.

In the mid-term, it will be necessary to update standards, processes, and procedures to ensure the new targets are well integrated at every step of the team selection, design, and construction processes. Standards should also be updated to include biophilic design strategies, Living School Yard program strategies and stormwater solutions.

NEXT STEPS

District staff have been doing amazing work to implement the resolutions, policies, and standards for over a decade and now have measurable progress to celebrate. This means that the answer to any future improved performance is already in the room with the passionate and dedicated champions of sustainability and environmental justice throughout the district. They have already implemented many of the best practices that make Seattle Public Schools a leader among peers. To move to the next level, staff are asking for more information about where they can focus efforts to impact greater change.

The very next step is to provide baseline data from a district-wide comprehensive carbon footprint analysis. Then follow with a comprehensive sustainability and resilience plan for the district that will guide the updating of standards and practice already in place in time to impact upcoming levy cycles. The Synthesis chapter of this report is a playbook that includes additional mid- and long-range targets born of the rich dialogue with teachers, student and curriculum experts to create the spaces and programs within the schools that will allow students in this generation to learn first-hand what the living world and climate science has to teach them.

BACKGROUND

“Our relationship with nature is more one of being than having. We are nature: we do not have nature.”

- STEVEN HARPER

BACKGROUND

Why Regeneration?

‘Regenerative design is an acknowledgement that the act of building can be a catalyst for positive change within the unique place which it is situated. It is an approach to design that supports the co-evolution of human and ecological systems in a partnered relationship. Regenerative development focuses on stakeholder processes and built projects that collectively are focused on enhancing life in all its manifestations – human, other species, ecological systems – through an enduring responsibility of stewardship.” Raymond J Cole

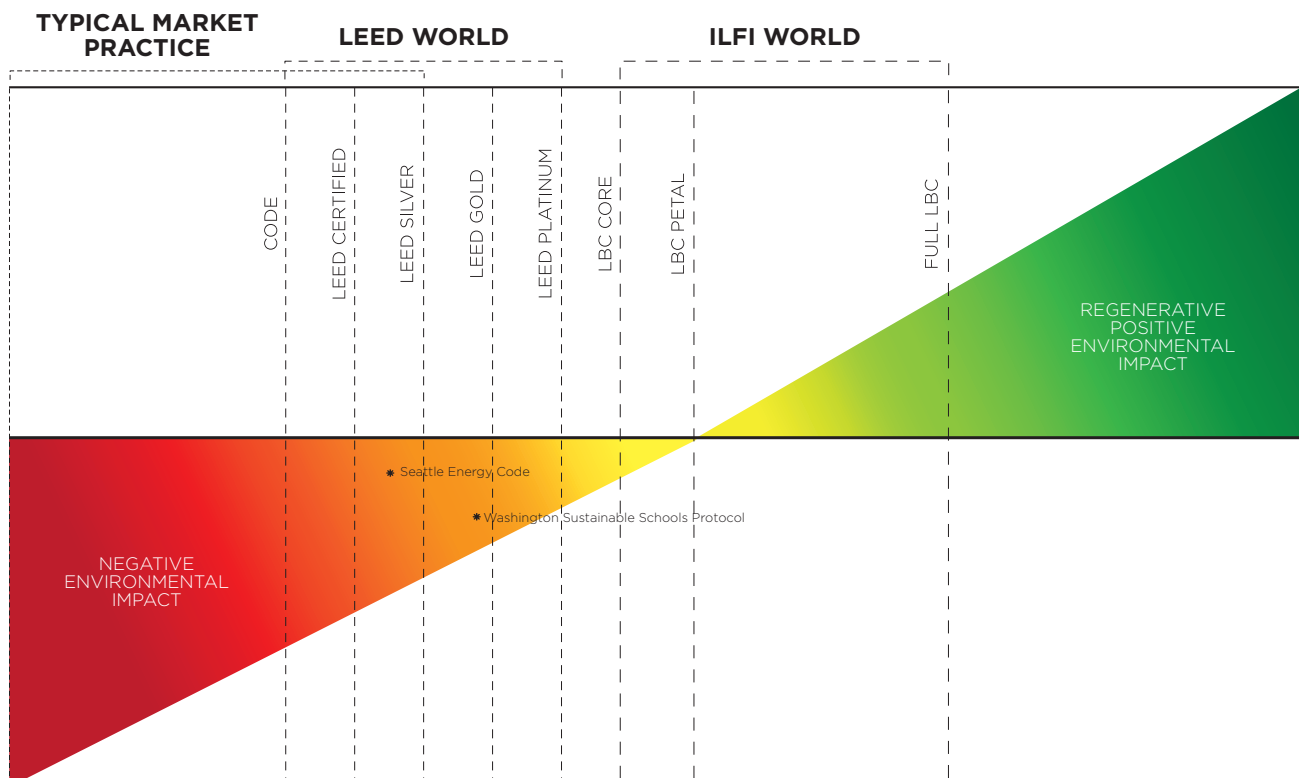
As one of the students who participated in engagement pointed out, it is much more interesting to think about regeneration, than about sustainability and reaching “neutral”. She was interested in knowing what is beyond doing less harm, what does it mean to act regeneratively? It makes sense when the youth today have not known a world without the effects of climate change that they may wonder what it would be like to thrive on Earth. They have the perspective that all their parent’s and grandparent’s attempts to mitigate and make incremental improvements have not been successful enough to avoid looming catastrophes.

These youth are looking for a fundamental shift. They are looking to leap past the inadequate attempts to slow down destruction and move straight to solutions that are healing, restoring, and building resilience. They want to regenerate the community structures and the ecological systems that are broken and degraded. They are giving older generations the courage of conviction to let go of their incremental approach to improvements and dive straight into the deep green solutions that could, if employed in the next decade, create this last chance at a future that can be manageable.

BACKGROUND

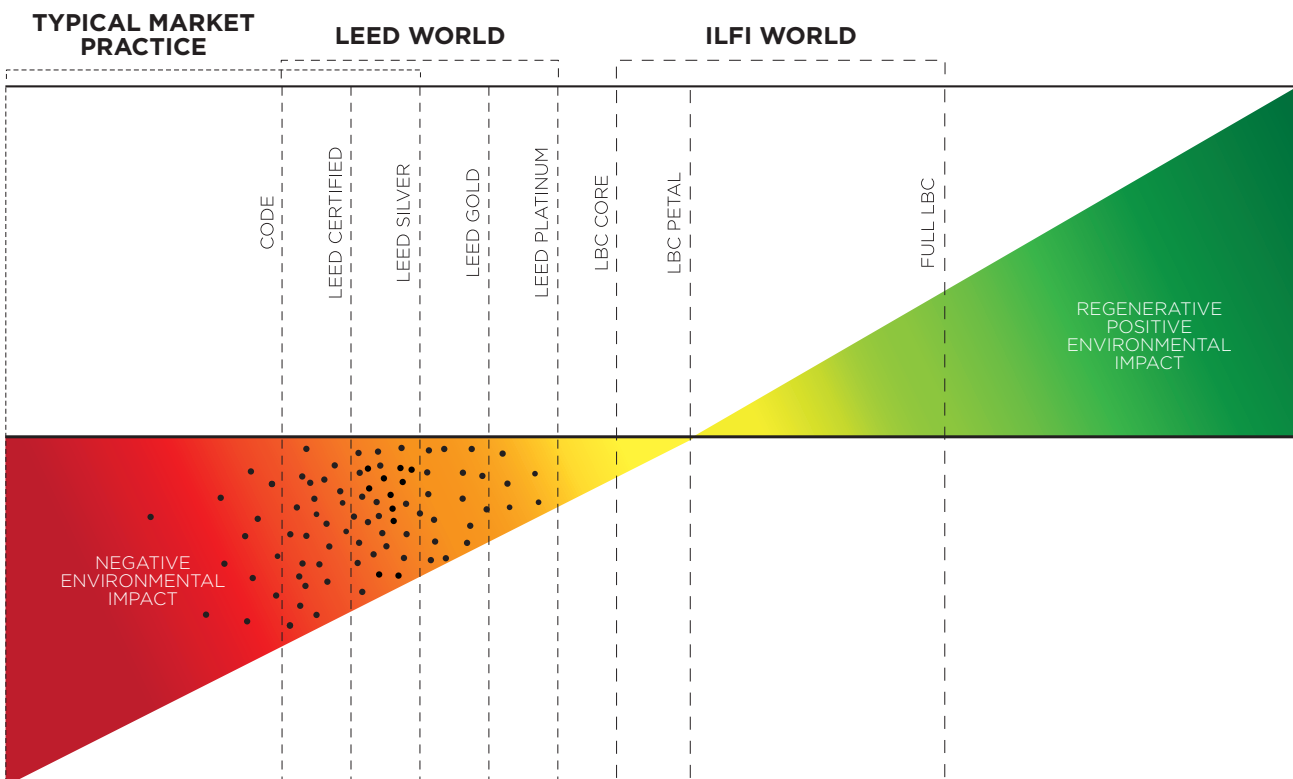
Regeneration is not a static state or a destination that can be reached. There is a path moving toward regeneration that is a continuum from degradation toward stability into thriving and then continues to evolve infinitely. Sustainability, the idea that a certain state must be reached, maintained and sustained could be counter to regeneration which seeks to constantly evolve toward more vitality. When an organization strives to be more sustainable, they must first understand what they are trying to sustain and evaluate conditions that will allow life to thrive and evolve.

The following diagram is a useful framework for understanding the landscape of this continuum as it relates to the building industry. Typically, building markets contain many existing building projects that are performing below code. Various green buildings seek to perform better than code. Leadership in Energy and Environmental Design (LEED) has for a couple of decades defined levels of building performance that are better performing than code. The Seattle Energy Code and the Washington Sustainable Schools Protocol generally equate to LEED Silver building performance on this scale. Living Buildings, as defined by the International Living Future Institute's (ILFI) Living Building Challenge (LBC) are beginning to define what it means to cross from the red zone, where buildings are doing less harm, into the green zone where projects are doing some good, (the regenerative zone). The goal in the coming decade must be to leap boldly and swiftly from red to green, from degradation, past neutrality and steadily charting a course of regeneration.



BACKGROUND

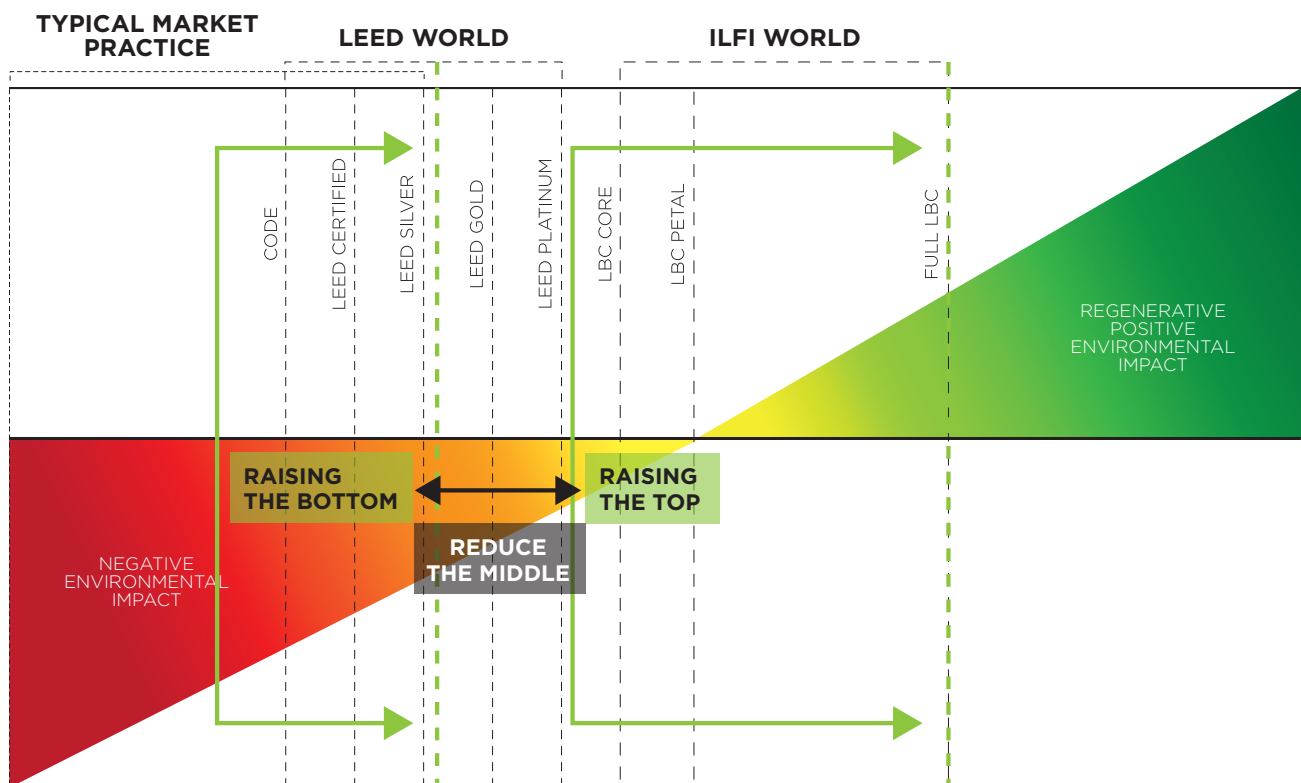
The next scattershot diagram is a conceptual sketch of where the SPS District's portfolio of buildings likely falls with many existing buildings on the wrong side of the code line (and still needing retrofits). The bulk of the newer buildings and recent retrofits are clustered between a code and Platinum LEED levels of performance. This is not to diminish the hard work of managing these buildings toward better performance - better than most school districts - but it does show that incremental improvements are still only doing less bad and not yet having a positive environmental impact.



BACKGROUND

This framework can be a useful way for the school District to be thinking about two buckets of work in the coming decade. There are opportunities to raise the bottom bar up for the existing portfolio. This means transforming the worst performing buildings from under-served neighborhoods into better performing buildings by prioritizing early retrofit work.

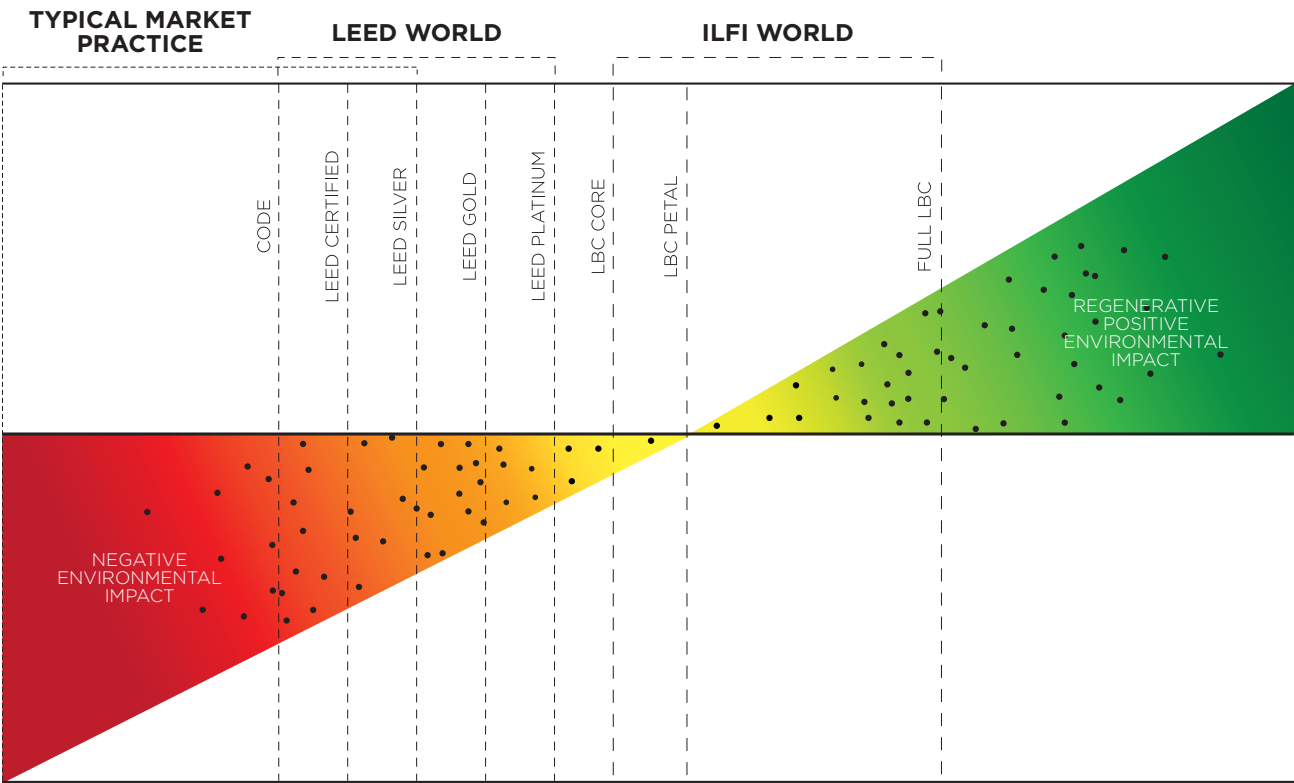
Simultaneously, there are opportunities to leap ahead and raise the top bar toward regeneration for all new facilities. This means that new construction can target net-positive energy performance, zero operational waste and responsible water strategies. For example, this might mean reducing the Energy Use Intensity of new buildings below 15 kBtu's/sf/year by reducing loads and utilizing strategies. These projects might include renewable energy on-site and battery storage for resilience. It might mean managing 100% of storm water on-site with a native landscape and storm water best practices. By reducing water demand through fixture and equipment selection it might mean collecting rainwater for non-potable water demands. Raising the bar will mean incorporating innovations in composting and recycling systems and education to improve the diversion rates.



BACKGROUND

The work of the coming decade (or two) is to transform the SPS portfolio as in the diagram below. Remembering that the goal is to sustain the conditions that are conducive to life, to healing, to stronger community, toward greater resilience and to allow these systems to evolve and thrive.

As energy and water performance improves, renewable energy comes into production and waste loops begin to become closed-loop circular systems and well established habits, the district can move into measuring the positive impact - handprint - within the community. For example, students might begin to measure how much native habitat is being restored and how much atmospheric carbon it is sequestering by those plants and soils. Food availability and improved nutrition can be measured. The district can offer community resilience and an area of refuge during a disruption. There will be so Washington Green School certifications influencing the future careers of generations of students.



OVERVIEW AND ENGAGEMENT

A photograph of a Black man and a young boy. The man is smiling broadly, holding a small, round cake decorated with green frosting, white stripes, and orange sprinkles. The boy, wearing a red sweater, is looking down at something on the table, possibly a drawing or a craft project. The background is a classroom setting with colorful decorations on the wall.

“The more that you
read, the more things
you will know. The more
that you learn, the more
places you’ll go.”

- DR. SEUSS

OVERVIEW AND ENGAGEMENT

At the end of 2019, McLennan Design was awarded a contract for consulting services by Seattle School District No. 1 as part of a request for Sustainability, Resource Conservation and Energy and Carbon Reduction Policies and Procedures Review Consultants. The scope of work was to focus on 'Discovery' in order to have the McLennan Design team understand the challenges and opportunities within the District related to a variety of sustainability issues and how those opportunities relate to both existing facilities and future facilities.

The scope consisted of reviews of relevant documents provided by the Capital Projects and Planning team as well as a process of stakeholder engagement and interviews intended to reveal how sustainability currently works within the culture and priorities of key stakeholders. From this initial discover phase, an initial set of recommendations was to be developed.

In the first quarter of 2020, we began our work to review existing SPS work to date including existing policies that have been approved by the district. Then the engagement process began with stakeholders as described below.

ENGAGEMENT

McLennan Design was engaged to facilitate two, four-hour work sessions with a diverse group of stakeholders to understand their perspectives, goals, and ideas relative to sustainability initiatives within the district. Following these sessions, the consultant team was to facilitate one, eight-hour work session with the core team to begin to add structure to the opportunities uncovered during engagement and document review phase. These meetings were intended to be in person, but COVID-19's shelter-in-place orders necessitated a new approach to engagement using online tools and conferencing. This engagement process turned out to be highly positive, informative, and successful in providing feedback and helping to prioritize institutional goals.



OVERVIEW AND ENGAGEMENT

WHY ENGAGEMENT?

It is essential and appropriate that ideas for improving the health, wellbeing and resilience of a community come directly from within that community, rather than being imposed from the outside or from a small group of individuals. For that reason, it is essential that the make-up of any advisory stakeholder group resemble the diversity of the community. The facilitator's role is merely to listen, to ask provocative questions and to create a safe space for conversations to be held that will invite participation and a constructive exchange. The facilitator must also remove as many barriers to participation as possible to ensure that a digital divide does not impede the diversity of perspectives gathered. Engagement is never as perfectly diverse as might be ideal, but it is important to be intentional in inviting diversity and crafting a comfortable opportunity for many perspectives to contribute.

Any institution must have three levels of support for structural changes to become deeply embedded in the culture of that organization. There must be a focused top-down leadership in support for a vision, and willingness to direct resources toward implementation. There must be a solid grassroots or bottom-up belief in the vision, the need for the change, and the goals and the actions required to achieve it. There must also be capable leadership from the middle-out with day-to-day champions who will push ideas and goals into implementation and measure progress toward the goals. Engagement creates a critical opportunity for all three of these types of leader to listen to one another, to broaden perspectives and to support each other in creating lasting institutional change.

STAKEHOLDER DIVERSITY

As part of the discovery process, the consultant team worked with a core team from Capital Projects, Resource Conservation, and the Department of Racial Equity Advancement (DREA) to identify a diverse group of stakeholders to form the working group representing many different perspectives including: students, teachers, parents, administrators, staff focused on transportation, food service, finance, curriculum integration and from the DREA team. We invited student leaders to participate from across the district, through the network of Green Team participants, and through the YMCA Earth Service Corp program.

OVERVIEW AND ENGAGEMENT

Because in-person meetings were not possible during the pandemic, the engagement work was hosted virtually utilizing a video conferencing platform that could be accessed via computer or smart phone. In addition to virtual meetings, an online survey was sent to all invited participants. In a few cases, Resource Conservation leaders made personal phone calls to capture feedback from those who could not attend because they were responding to pandemic-related emergencies, or because computer access might be a challenge. We invited students to reach out to their peers through social media networks because often students respond better to peer networks than to email. During this time, it was impossible to completely bridge the digital divide.

Turn out for both sessions and the survey were good considering the pandemic disruptions that competed with meeting time. Of the 75 people invited to participate, approximately 34 were able to participate in the first session, 47 participated in the survey and approximately 30 participated in work session two. Exact counts were not taken, as the virtual environment allowed students and teachers who had classes to come and go as needed. Of the 15 students invited to participate only 3 were able to attend, however their participation was meaningful and inspiring. These students should be commended for their participation and articulate contributions. They challenged the adult participants to think big and reach for strong goals. Many passionate and engaged teachers were also able to share insights. It was recognized that food service and transportation staff were underrepresented among participants.



OVERVIEW AND ENGAGEMENT

A summary of each of the workshop discussion topics and responses are as follows:

STAKEHOLDER WORK SESSION ONE – MAY 13, 2020

Participants were welcomed, a brief presentation celebrated district success, framed the challenge, shared common vocabulary and concepts, and provided inspiring examples of possible goals. In the large group, participants introduced themselves and were invited to share what they would like the district to do relative to sustainability if they bound by nothing and could dream of anything. In small groups the participants generated a list of goal and strategy ideas in the following categories:

- **Educational Systems**
- **Equity**
- **Health and Wellbeing**
- **Carbon Footprint (Energy, Embodied Carbon and Transportation)**
- **Water Systems**
- **Site and Living Systems**
- **Materials and Resources**
- **Economic Sustainability**

After sharing goals, as well as ideas for projects, initiatives, policies or programs, the large group did a closing round where participants summarized their vision in three words.

Meeting notes are included in the Appendix.

SURVEY MAY 20 – JUNE 8, 2020

Survey participants were asked the same essential questions on the survey as in the work session to give each person a chance to see what others had said and to add to the suggestions. After some consolidation of similar ideas, the goals suggested in the work session were shared and participants were asked to rank them in order of importance within each of the eight categories. There was also an opportunity to add new ideas to the list and to add overarching comments about goals, projects, policies, practices initiatives and strategies.

Survey results are summarized in the Appendix.

OVERVIEW AND ENGAGEMENT

STAKEHOLDER WORK SESSION TWO – MAY 27, 2020

Participants were welcomed, a brief presentation reported results from work session one and the preliminary survey results. In the large group, participants introduced themselves and were invited to share one strength of the SPS community that has allowed the district to be successful in implementing sustainability initiatives so far.

In small groups, the participants worked with the goals receiving top votes to discuss challenges and then ideas for overcoming those challenges. After exploring resources that were needed to overcome challenges and build upon the strengths of the district, participants in the large group were invited to close with one important solution or answer they found within the conversation.

Meeting notes are included in the Appendix.

CORE TEAM WORK SESSION THREE – JUNE 10, 2020

A brief presentation reported results from work session one, two and the final survey results. The goals had been consolidated into six primary goals, into which all of the goal, strategies, initiatives, policies, project and procedure ideas could fit within. Teams discussed whether the goals represented what they heard from participants. Then for each goal, the group generated implementation steps and tried to determine near-term, mid-term and long-term steps and resources needed for implementation. Participants were also polled to rank the goals in order of priority.

Meeting notes are included in the Appendix.

DISCOVERY

A close-up photograph of a young child with dark hair, wearing a light blue shirt, focused on drawing a green leaf in a spiral-bound notebook. The child is holding a wooden pencil and has just finished drawing the outline of the leaf. The background is a soft-focus outdoor scene with green foliage.

“Be the change you wish
to see in the world.”

– GANDHI

DISCOVERY

“The real voyage of discovery consists not in seeking new landscapes but in having new eyes.”

Marcel Proust

As part of the scope of work the consultant team reviewed specific environmental Resolutions and Policies and Superintendent Procedures.

ENVIRONMENTAL RESOLUTIONS, POLICIES AND ACTION

SPS has resolutions and policies in place for over a decade making the connection between environmental justice and social justice and guiding the actions of the district relative to sustainability issues:

- **Resolution 2006/2007 – 18 The Climate Change Resolution** commits each department to develop a long-range action plan and to take actions that will further reduce greenhouse gas emissions and resource consumption as part of the Seattle Climate Partnership and model leadership throughout the community. This resolution, over a decade old, is reportedly not as widely referenced as it was after inception.
- **Resolution 2012/2013 – 12 The Green Resolution** recognizes the progress already made applying sustainable design criteria to district school construction program and directs staff to expand this effort to reduce environmental impact and operational costs without exceeding project budgets, including:
 - One community campus in BEX IV will be designed for shared use of core facilities.
 - All major capital projects will initiate with a sustainable design charrette.
 - Educational opportunities around sustainable design will be maximized.
 - Restoring native habitats and landscapes will be studied and emphasized for use with environmental science education studies.
 - The district will incorporate sustainable practices when addressing maintenance backlogs in existing buildings.
 - Pursue funding partners and leverage incentive programs.

DISCOVERY

- **Policy No 6896 - 2012 Drinking Water Quality and Access** dictates quality drinking water available to all students
- **Policy No 6810 - 2017 Natural Resource Conservation** dictates that the district wisely manage the use of natural resource such as energy, water, and other natural resources, and maintain programs that support conservation and education programs with a goal of maintaining sustainable, healthy school environments through long-term resource management. The policy is overarching and broad and the details are in the Superintendent's Procure, which is easier to update.
- **Superintendent Procedure 6810 SP - Natural Resource Conservation** details temperature set points, scheduling of HVAC equipment, covers lighting expectations, waste disposal, recycling and composting, new construction and remodels, maintenance and procurement, conservation outreach and training, occupant responsibilities, school grounds and gardens, transportation and anti-idling.

DOCUMENT REVIEW

SPS shared example projects that represented typical integration of sustainability into design and construction standards. They shared how they select design and construction consultants. They shared how they educate staff and custodial teams to operate and maintain those buildings. Finally, they shared some of their data and achievements. The list of documents reviewed follows:

- Magnolia Elementary School case study
- Landmark Schools program
- A sample RFP for design/construction services & referenced standards
- Washington Sustainable Schools Protocol 2018
- General Design Standards
- Training programs offered to staff
- Water and energy performance data available
- A summary of the commissioning audit being conducted for all schools
- The Green Ribbon Award submission
- Sample Job Descriptions for Chief Sustainability Director positions at peer districts

DISCOVERY

DOCUMENT REVIEW

Further to the resolutions and policies reviewed, key background issues emerged from a review of the Seattle Public Schools Strategic Plan. These issues are essential to sustainability policy going forward and are important to highlight within this work.

2019-24 SEATTLE PUBLIC SCHOOLS STRATEGIC PLAN

DISTRICT MISSION

Seattle Public Schools is committed to ensuring equitable access, closing the opportunity gap and excellence in education for every student.

DISTRICT VISION

Every Seattle Public Schools' student receives a high-quality, 21st century education and graduates prepared for college, career, and life.

This Mission and Vision connects directly to the need for the district to provide leadership in social and environmental justice. This generation of students has never known a time without concern related to climate change, resource scarcity or inequity. They will come of age during the height of the Anthropocene, when human activity has been the dominate influence on climate and the environment. Their first opportunities to contribute to society will be launched during the final decade when humans can still reverse current patterns and trends before critical thresholds and turning points are surpassed. To prepare them to be resilient problem solvers and solution creators amid change and uncertainty, their education must include deep and applied experience in repairing living systems and building social resilience.

THEORY OF ACTION

WHEN WE FOCUS on ensuring racial equity in our education system, unapologetically address the needs of students of color who are furthest from educational justice, and work to undo the legacies of racism in our educational system...

BY doing the following:

- Allocating resources strategically through a racial equity framework
- Delivering high-quality, standards-aligned instruction across all abilities and a continuum of services for learners

DISCOVERY

- Creating healthy, supportive, culturally responsive environments from classroom to central office
- Working directly and consistently working in partnership with families and communities who represent students of color who are furthest from educational justice: and
- Making clear commitments and delivering on them

THEN we will eliminate opportunity and achievement gaps and every student will receive a high-quality, world-class education.

A RACIAL EQUITY FRAMEWORK

"To achieve educational justice, SPS Strives to provide safe learning environments, curriculum that incorporates a student's life experiences and culture, and instruction delivered by high quality, culturally responsive educators. Unfortunately, many students from certain ethnicities have not historically experienced equitable opportunities for all or part of their educational journey (including African and African American, Asian Pacific Islanders and Pacific Islander, LatinX, and Native American students). These students are our priority – with an intentional focus on African American males.

Our Theory of Action is guided by the principles of "Targeted Universalism." Our universal goal is that every Seattle Public Schools' student receives a high-quality, world-class education and graduates prepared for college, career, and community. Targeted Universalism holds that targeted and differentiated efforts are required to meet the needs of specific student populations, so every student meets the universal goal. By focusing on students of color who are furthest from educational justice, especially African American males, we will make the greatest progress toward our collective vision.

We believe that an intentional focus on African American males will ultimately benefit every student. We will refine our systems and structures that will ultimately be used to better meet the needs of students throughout SPS. We will also learn how to develop and provide differentiated efforts to meet the needs of specific populations, allowing us to better serve the needs of additional student populations."

The Theories of Action further underscores the need to have environmental solutions incorporated directly into the curriculum as well as into the facilities themselves at every school, starting at the schools that have been furthest from environmental justice in the past. To ensure that all students have access to the best environment for learning, the facilities need to protect human health and wellbeing and reveal solutions for the conservation of natural resources. Students need to understand the connections between health and wellbeing and the health of their living systems. It is also important to underscore that negative environmental impacts usually disproportionately affect people of color around the country and the world and that the school environment could be the first visible place to reverse that trend.

DISCOVERY

ENVIRONMENTAL JUSTICE

Environmental justice and social justice go hand in hand. When a natural disaster strikes in a community it always reveals the slow disaster of inequity and social injustice that have existed for decades or generations. During this global pandemic, for example, the challenges of providing emergency health care in communities that have been systematically left out of the health care system has disproportionately impacted mortality rates. When children are sent home from school to shelter in place, this acutely impacts the 5000 SPS students who may have already been experiencing homelessness and the many more who are food insecure within their households.

During recent years with regional wildfires, the diminished air quality impacts those children with asthma, obesity, and compromised immune systems often disproportionately impacting neighborhoods of concentrated poverty and social injustices where lack of health care, poor indoor air quality at home and poor nutrition or food access compromise overall health.

The disruptions of a changing climate will impact all living things in every part of the community. For those already living in the margins, further disruptions will prove disastrous. For this reason, environmental justice is a social justice and this team is honored to help the district embed this thinking into their sustainability practices going forward.



ANALYSIS

A blurred photograph of a modern building interior. In the foreground, a wide staircase with light-colored steps and a dark metal railing with a perforated pattern leads down. Several people are walking on the stairs, their figures blurred to convey motion. To the left, a walkway with a similar railing runs parallel to the stairs. In the background, a large glass-walled area, possibly a library or study hall, is visible with more people and a sign that says "EXIT ROUTE". The overall atmosphere is one of a busy, contemporary educational or professional environment.

“That which we persist
in doing becomes easier
for us to do; not that the
nature of the thing itself
is changed, but that our
power to do is increased.”

— RALPH WALDO EMERSON

ANALYSIS

The review of the policies, resolutions, procedures, and stakeholder engagement revealed that from the top down, from the bottom up and from the middle out, SPS has the leadership required to institute any changes. One stakeholder participant observed, “When we can find each other, we are great collaborators.” Another observed, “I’ve only been here a year, but everyone that I run into seems to be really committed to their work.” One participant noted, “We have a lot of really smart and talented people, but they are also willing to listen to new ideas and include new voices.” These are strengths indeed! There is much to celebrate in the internal culture of cooperation and open mindedness encountered at SPS.

The resolutions and policies already in place coupled with committed champions have made it possible to launch a sustained effort of continuous improvement. There are many achievements to be celebrated including:

- **The Green Ribbon Award**
- **89 out of 104 schools have been retrofitted for energy, water or waste**
- **Reduced energy by 17.5% (since 2008)**
- **Reduced water use by 7.5% (since 2008)**
- **Increased recycling by 19.6% (since 2008)**
- **Learning Gardens in 80% of schools**
- **Saved \$1.4 million in waste and energy costs**
- **10 solar schools**
- **64 Certified Washington Green Schools**
- **8000 pounds of food diverted from the landfill and shared with the community in the 2018/19 school year. 21,700 pounds diverted in the 2019/20 school year.**

ANALYSIS

OBSERVATIONS

A review of procedural documents shows that there has been incremental progress toward incorporating sustainability best practices into SPS standards, but that there is plenty of room for improvement across multiple categories of sustainability. For example, the desire for high-performance design achievement is not explicit in requests for proposals. Resolutions, policies, and The Washington Sustainable School Standards are briefly listed in the reference section, but the requirements have not completely infiltrated into standards to guide design and construction teams. It may be necessary to change the current ranking system for scoring professionals to award points for having sustainability credentials or proven performance with green building certifications. Performance targets and goals are not explicitly stated in RFQs.

The Washington Sustainable Schools Protocol is the primary referenced standard to describe what performance targets might be. This standard combines best practices from LEED for Schools, The Collaborative for High Performance Schools (CHPS) programs and other green building best practices for schools and sets forth a very tentative minimum standard that is no longer adequate to achieve some of the district's policies and resolutions. If certification were pursued based on this standard, the projects would generally achieve mid-range levels of performance. There is plenty of room to provide a higher set of targets and aspirational goals to improve overall performance consistent with SPS Policies as outlined in the Synergy section of this report. Design and construction professionals will generally respond to and deliver whatever the district asks for if the performance targets are explicit and enforced throughout the procurement process.

While internally the Capital Projects group requires more rigorous performance targets, it is worth noting that the referenced standards do not explicitly state those improved targets. The referenced rating systems for schools tend to result in an additive and reductionist approach to design. Teams often layer required new strategies on top of business as usual. The result is often higher cost. To achieve the next level of performance for the same cost, an integrative approach to design is required as well as a true understanding of 'order of operations' thinking that seasoned green design professionals understand. The district expressed a desire to engage professionals that understand how to first reduce loads, then utilize passive strategies, to integrate systems and then to use technology appropriately. Referenced standards need to be updated to reflect this thinking as a requirement.

Current standards and practices could be enhanced to ensure even higher levels of performance and success consistent with SPS Policies and Resolutions. Throughout the engagement process, Facilities staff underscored the need to have standards and procedures updated to be consistent with Policy. The consultant team agrees that this is essential to success.

ANALYSIS

LESSONS LEARNED FROM ENGAGEMENT

The participants in the engagement sessions demonstrated a deep understanding of and commitment to the mission, vision, and resolutions of the Seattle Public Schools. Some of the common themes suggested the following important SPS values and principles:

- **Do the math:** For every action there should be general understanding that resources will be used toward greatest impact. Therefore, it is essential to have a baseline for each action taken against which progress can be measured and in order to prioritize actions.
- **Order of operations:** There is a built in logic to how best to implement changes, by first reducing demand for resources, then to provide basic services with passive strategies, and finally to apply technology appropriately to solve the remaining challenge. This thinking is similar to the mantra, “reduce, reuse, recycle.”
- **Educational Opportunities:** Many systems that are implemented to reduce consumption or to restore living systems offer an opportunity for education. The process of organizing and managing change within an institution are also important life skills to learn.
- **Let’s get outside:** There is a recognition of the many benefits of connecting students and teachers to quality outdoor environments.
- **Equity on our minds:** The laser focus on equity within SPS culture has become a cherished and heart-felt shared value. It is also clear that environmental justice and social justice go hand in hand.
- **Tell our stories:** SPS has done a lot of work to collect data, implement new strategies and push goals forward into implementation. Yet the stories of success are not broadly known among stakeholders. It is important to liberate and visualize data, tell stories, and share lessons learned more broadly within the community.

ANALYSIS

- **Ideas in the toolkit:** The stakeholders and staff have no shortage of ideas about how to implement the next level of actions and achievements. The ideas are in the room.

As engagement progressed, a vision began to take shape. Participants were asked what they would do if they looked way out on the horizon to imagine where they would go relative to sustainability if they were bound by nothing.

BUILDING A VISION

To open Work Session One, the participants were asked to share what they each hoped the district would accomplish if they were bound by nothing. The complete list is shared in the appendix, but here are some of the highlights:

- Provide a wider array of environmental curriculum (student)
- Eliminate single-use plastics (student)
- Understand all facets of environmental leadership including regenerative design - moving beyond sustainability (student)
- Create more connection to the outdoors (student)
- Put more emphasis on water
- Create a position for a chief sustainability officer
- Update the bus fleet with latest tech such as hybrid / electric
- De-pave schools
- Design schools and capital projects as vehicles for environmental justice by addressing first the schools in communities with the most environmental disparity
- Design schools that provide resilience and community support
- Give teachers the freedom (from standards-based teaching and curricular fidelity) to integrate sustainability into the curriculum
- Provide more opportunities for social-emotional learning in outdoor spaces
- Provide access to fresh food
- Design net-zero buildings 30-year life cycle with no mechanical moving parts
- Conduct a system audit/baseline for the district
- Share information about all the ways that sustainability can save money and avoid cost
- Show our students that we are taking action!

ANALYSIS

A VISION IN THREE WORDS

During Work Session One, the facilitators asked participants what their vision was for sustainability in three words. They responded with the following:

- Innovation Is Key
- Designing For Disassembly
- Self, Community, Planet
- Awareness Toward Future
- Passionate Collaborative Progress
- Work Toward Change
- Simple by Design
- Communicating our Stories
- Sustainability not Neutrality
- Connect to Why
- Low Hanging Fruit
- Regenerative Innovation Today
- Redistribute All Wealth
- Group Effort + Commitment
- Share the Stories
- Celebrate our Stories
- Empower and Cultivate
- Trees, Water, People
- Communicate, Communicate, Communicate
- Awesome Forward Thinking
- Embrace, Engage, Enrich
- Interrupt Status Quo
- Sustainability Isn't Optional
- Science, EV (electric vehicles), Solar
- History, Solutions Forward
- You Inspire Me
- Environmental Justice Engagement
- Gotta Get Gardenin'
- Strategic Plan Alignment
- These People Care
- Passion for Change

ANALYSIS

DISTRICT STRENGTHS

In Work Session Two, facilitators asked, “What are SPS’s Strengths that have helped the district to accomplish what has already been achieved?” They called out these cultural strengths that will also help to carry the district forward to new levels of achievement. The complete list is shared in the appendix, but here are some of the highlights:

- Showing up and being present for the voices in the room
- Commitment and perseverance over 30 years
- A diversity of ideas generate excellence
- Willingness to ask what is best for the community rather than individuals
- Passion for students, equity, and sustainability
- People are eager and willing to learn
- The students own it - they are excited, idealistic, and passionate
- With collective agreement, change happens fast
- SPS loves our students and wants them to have a future
- Once we find each other we are good collaborators
- SPS understands the connection between equity and sustainability
- Courage to do business as unusual
- There are adults here who care (student)

ANALYSIS

POTENTIAL BARRIERS

In Work Session Two, facilitators asked participants to describe a few of the common barriers that might impede progress. They identified these potential challenges:

- The lack of director-level authority/focus for sustainability with the power to convene people and ensure accountability (even though there is broad support throughout the organization).
- Any time that operations budget are disconnected from capital planning budgets, there is a risk that first cost could wins over long-term operational savings.
- Behavior change is difficult and often more education is needed for custodial staff, operations teams and building occupants.
- While there has been a lot of energy and water data collected, it is hiding on the website and many potential champions do not know it is there or how to summarize or interpret the data to guide change.
- It is difficult for the facilities team to make targeted recommendations for reducing climate impact when they do not yet understand the whole carbon footprint picture, the data is incomplete, and the areas of greatest impact are not yet made clear. A baseline carbon footprint is essential.

PRIORITIZED GOALS

After Work session One and the Survey, the following goals rose to the surface as the top goals in each category - see next page. The numbers in parenthesis after each goals is the number of people who voted to prioritize that goal.

Seattle Public Schools - Sustainability Goals



Educational System

- 1 Integrate sustainability into core curriculum (37)
- 2 Let buildings and outdoor spaces teach (24)
- 3 Provide advanced/applied learning opportunities (16)



Health & Wellbeing

- 1 Provide connections to outdoors (26)
- 2 Provide daylight and fresh air for all (21)
- 3 Provide fresh, healthy culturally diverse meals (17)



Equity

- 1 Target Universalism to benefit all (22)
- 2 Hire a Chief Sustainability Director (20)
- 3 Empower an Environmental Justice Director (20)
- 4 Incorporate sustainability and equity into SDAT (18)



Carbon Footprint

- 1 Prepare a system-wide carbon footprint (31)
- 2 Design with passive systems first (19)
- 3 Be carbon neutral by 2030 (18)
- 4 Demonstrate net-positive carbon on a project (18)



Water Systems

- 1 Reduce water consumptions across the district (22)
- 2 Achieve net-positive water for new construction (22)
- 3 Demonstrate rainwater capture at each school (18)



Site and Living Systems

- 1 Eliminate fossil fuels and petrochemicals from maintenance (26)
- 2 Develop regenerative site practices (24)
- 3 Provide natural areas at all schools (22)



Materials & Resources

- 1 Become a zero-waste district by 2030 (32)
- 2 Eliminate single-use plastics (31)
- 3 Require centralized green purchasing (22)



Economic Sustainability

- 1 Invest in preventative maintenance (37)
- 2 Include human health and carbon in financial decisions (25)
- 3 Invest capital funds in future operational savings and life-cycle cost benefits (22)

SYNTHESIS

A young girl with dark hair in pigtails is seen from behind, wearing a blue backpack and a blue skirt. She is standing in a field of yellow flowers, looking towards a blurred background. The word "SYNTHESIS" is written in large white letters at the top.

“Collaboration allows us to know more than we are capable of knowing ourselves.”

– PAUL SOLARZ

SYNTHESIS

“What you do makes a difference, and you have to decide what kind of a difference you want to make.”

Jane Goodall







The facilitators provided the engagement participants with some broad categories to work with that would encourage them to think systematically and comprehensively about a broad range of sustainability issues. The result was a long list of goal and strategy ideas. The participants then refined and prioritized those ideas to share their relative importance within the culture of the institution. The results of the prioritized ideas were summarized in the Analysis section.

The consultant team looked at all those ideas and noted similarities and synergies between them. They could be grouped with an order of operations that lead to some specific implementation steps. The following recommendations are a synthesis of all the goal and strategy ideas from the participants and the consultants now grouped and combined into overarching recommendations by work type.

Recommendations in this chapter are organized into a playbook recommendation and reinforced the overarching recommendations introduced in the Executive Summary and defined on page 47. These have evolved from stakeholder goals and priorities as well as from the consultant team’s observations.

PRIORITIZED GOALS

Each playbook recommendation in the following pages is explained in terms of what is required, why it is important and what resources are needed to move it forward. References and helpful resources are also provided to guide staff. Each recommendation is projected on a timeline that helps staff to focus on immediate next steps or to plan for future mid-term and long-term work. These recommendations outline a scope of work that will lead to the next level of performance as the district reaches for new targets.

 Policy	1 UPDATE PERFORMANCE TARGETS FOR CARBON POSITIVE PERFORMANCE	PG. 47
	2 DEVELOP CENTRALIZED GREEN PURCHASING STANDARDS	PG. 50
	3 CREATE A DISTRICT RESILIENCE PLAN	PG. 52
	4 EXPLORE A PURCHASE AGREEMENT FOR DISTRICT-WIDE RENEWABLE POWER	PG. 53
 Staffing	5 EMPOWER LEADERSHIP	PG. 57
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	18 INTEGRATE BIOPHILIC DESIGN INTO ALL SCHOOLS	PG. 93
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	20 MODEL EMBODIED CARBON IN BUILDINGS	PG. 98
	21 PLAN SUSTAINABILITY RETROFITS	PG. 101
	22 REQUIRE LBC CORE + PETAL CERTIFICATION (NEW PROJECTS)	PG. 103



POLICY





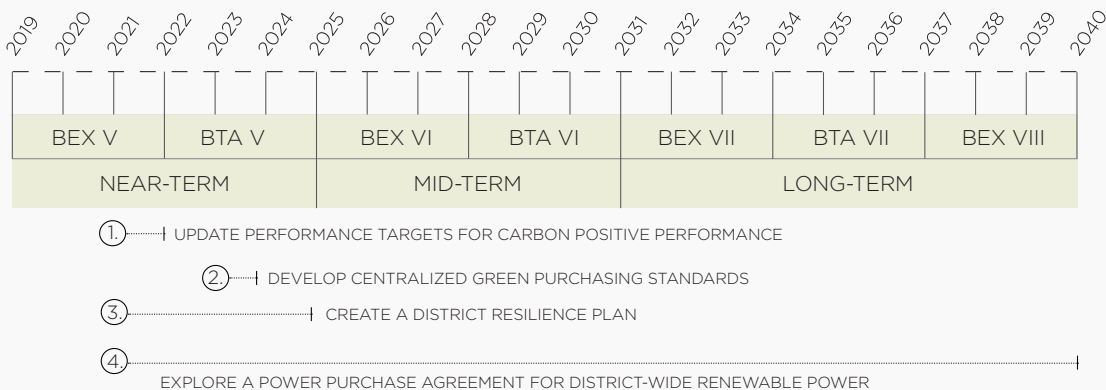
Policy



The consultant team reviewed SPS’s existing resolutions and policies that provide the framework for adopting and embracing issues of sustainability and social equity throughout the district. The existing resolutions and policies are helpful and generally adequate to enable the desired goals. They have led the district toward improved performance over fifteen years and to this scope of work as an organizing framework for recommendations. They are open ended enough for staff to be able to incrementally improve that performance toward carbon positive, water, and conservation aspirations.

Nonetheless, the existing policies could be strengthened with specific performance targets, strategies and a roadmap for improvement as outlined in these recommendations overall. In a few places new policies should be created to fill in gaps related to issues important to the district. This section focuses on a few of those. These will further support staff in implementing the necessary changes within the institution to improve performance over time.

Policy Recommendations in Time





UPDATE PERFORMANCE TARGETS FOR CARBON POSITIVE PERFORMANCE

What:

- Be a Carbon Positive District by 2040 – which means that 105% of the District's annual Scope 1 emissions (directly from combustion or from district vehicles), Scope 2 emissions (indirectly from purchased electricity, steam or heating and cooling), and optionally Scope 3 emissions (indirectly from consumptions of goods and materials) are first reduced, then offset on a net-annual basis with district-generate renewable energy (such as on-site or off-site solar or wind power), or through the purchase of Green E Certified carbon offsets. On-site energy storage is encouraged for annual fluctuations and added resilience during grid-disruptions. This likely requires building enclosure and systems upgrades to existing buildings - because building energy uses is often the largest impact category. It promotes the phase-out of natural gas use. It might require bus and maintenance vehicle upgrades to electric supplied by solar by 2040. It would be important to tie these potential strategies to a carbon footprint analysis that reveals the areas of highest impact and priority. This policy should align with the WA Clean Buildign Act HR 1257, requiring conservation and carbon reduction.
- Be a Zero Waste District by 2030 – From a 2020 Materials Management Baseline, reduce the district's operational and construction waste to zero (functionally 95%) by reuse, recycling, composting, food sharing and the use of durable or compostable goods. Student stakeholders call for a ban on single-use plastics. An ideal target is to reduce single-use plastics (including lamination) each year with a complete phase out by 2025.
- Be a Responsible Water District by 2040 – From a 2020 baseline, reduce water consumption by a minimum of 50 percent in new buildings and by 30 percent in existing buildings. All stormwater must be processed on-site, and no potable water is allowed for irrigation. All projects should comply with the Responsible Water Core Imperative of the Living Building Challenge version 4.0. New projects may choose Net-Positive Water as a stretch goal to improve water performance.

Why:

The 2006/2007 Carbon Resolution refers to building standards (Washington Sustainable Schools Protocol Schools or LEED Silver) that have become outdated and today would not be adequate to help the district achieve its climate positive aspirations. Similarly, Natural Resources Conservation Policy 6810 and Superintendent Procedure SP 6810 lay the foundation for conservation, but do not list specific targets, nor do they outline a process of improving performance over time. Setting clear targets will ensure accountability and measurable progress toward the aims of the existing policies. Targets should be measurable and performance based.

The term “positive” or “net-positive” refers to producing/collecting slightly more energy or water than



is needed for and storing that for added resilience. Moving to positive creates enough flexibility and resilience within the system to float during years when unexpected changes may otherwise cause the district to miss the zero mark. Positive is also a more motivating concept than neutrality.

The stakeholder participants, particularly the students, asked for all these targets to be met by 2030. The year 2030 is certainly an ideal target, given that the International Panel on Climate Change forecasts devastating and irreversible impacts to the planet if the world does not drastically reduce pollution and drawdown carbon from the atmosphere by the year 2030. The City of Seattle, for reference, intends to achieve a 58% reduction by 2030 and carbon neutrality by 2050.

Whenever possible, we encourage even faster adoption. However, to achieve this target by 2030, the district might need to touch approximately 30 retrofit projects in each BEX/BTA Bond cycle between 2022 and 2028 with sustainability and renewable energy upgrades as well as vehicle fleet upgrades. This seems like an unrealistic rate given available resources and other seismic and functional improvements needed. To target the date of 2040 would allow each BEX and BTA Levy cycle to include 15 upgrades, a more manageable pace. Certainly, the district's footprint will see significant improvement in their carbon footprint by 2030 on this schedule. It should also be noted that not all of the district's 109 buildings will require upgrades.

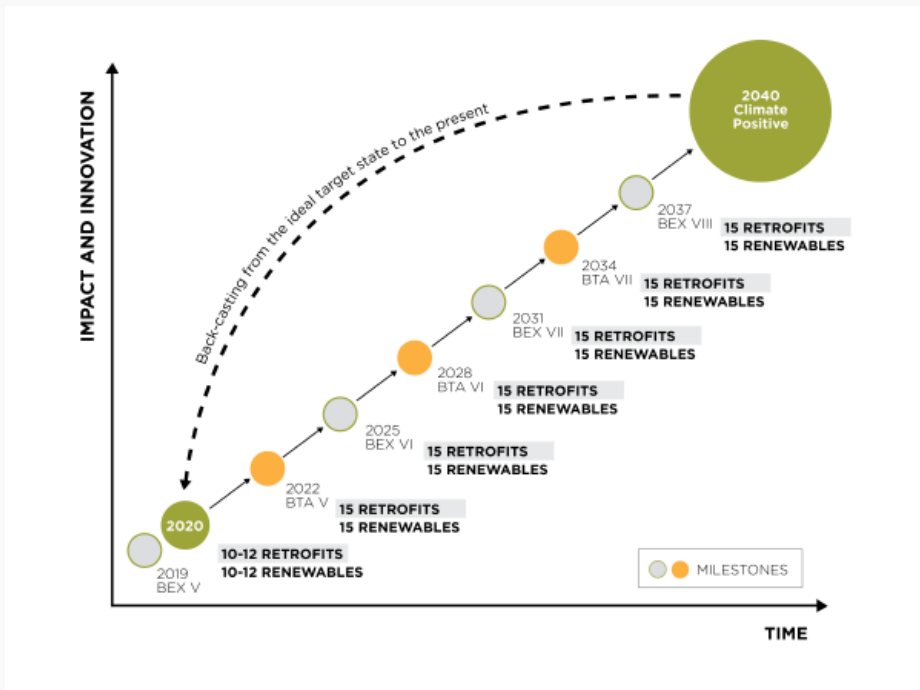
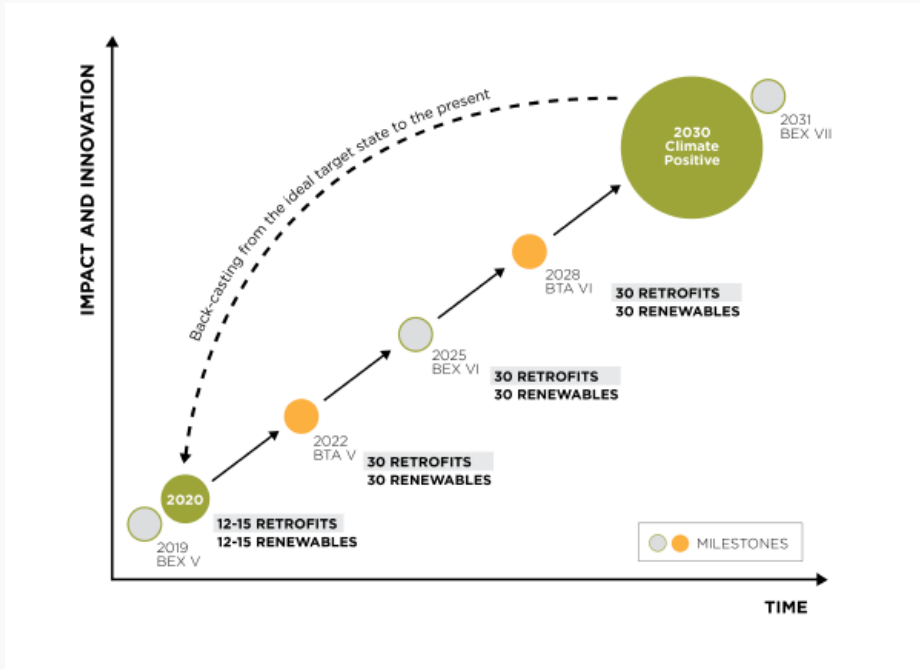
References:

[City of Seattle Climate Plan](#)

Resources Needed:

- Prioritize BEX & BTA Levy funding to accomplish these goals once data is available to understand the scope and priorities of work needed
- Understand the state of existing buildings toward the target – perhaps many buildings have already met the energy and water reduction targets and the schedule could be accelerated.
- Seek funding partners for renewable energy and retrofit work
- Continue to build regional partnerships in recycling, composting and food sharing

1 Policy



An ideal scenario where the district achieves Carbon Positive by 2030. A more conservative scenario where the district achieves Carbon Positive by 2040

2 Policy



DEVELOP CENTRALIZED GREEN PURCHASING STANDARDS

What:

It is recommended that the district adopt an existing green purchasing plan (perhaps from the references below) or create its own customized plan and negotiate with vendors who can provide sustainable options for supplies, electronics, equipment, and furnishings. Then, require that all purchases be made through a central purchasing and procurement group to ensure compliance and to provide opportunities for bulk/strategic purchasing.

This purchasing plan would emphasize products that are more sustainable such as:

- Local or Regionally produced
- More durable, reusable, or repurposed products
- High recycled content materials
- Rapidly renewable materials (sourced domestically)
- FSC Certified wood and paper products
- Equipment that use less energy or water than standard
- Products better for human health and indoor air quality and avoid 'redlist' chemicals
- Products with a lower embodied carbon footprint
- Bulk products with less packaging (such as sustainable school supplies)
- Green Cleaning products that do not contain hazardous chemicals or waste
- Products that come with third-party certifications when possible and ingredients transparency (GreenGuard, SCS, FSC, C2C, ROHS, Declare etc.)

Why:

Stakeholder participants shared that the district has many central purchasing resources and many green supply catalogs to choose from. Some teachers and administrators know about and use those resources, but this is by no means a universal process. Because there are so many opportunities for a central purchasing agent to negotiate with vendors for volume purchase savings, for more sustainable products and to keep a precise inventory of supplies, it is essential to utilize a central purchasing program throughout the district to save money and minimize waste. Additionally, negotiating savings on equipment and furnishings that also meet carbon, energy, indoor air quality and water goals is the best way to ensure that the district is getting the best deal possible for the desired performance.

2 Policy



It may cause internal challenges at first if teachers are used to ordering at will, but with a little planning an efficient procurement system can get what they need quickly, while making more sustainable and economical choices. In theory the teachers will get more of what they need when the district saves money. Taking advantage of group buying power make sustainable school supplies available is one way to improve the equitable distribution of supplies to all kids.

References:

[GSA Green Purchasing](#)

[EPA Green Purchasing](#)

[EPA Green Purchasing](#)

[State of Washington Green Purchasing](#)

[City of Seattle Green Purchasing](#)

[King County Green Purchasing](#)

[King County Green Purchasing Guide](#)

[King County Directory's Association \(bulk purchasing cooperative\)](#)

Resources Needed:

- Skilled purchasing and procurement staff



Central Green Purchasing of more sustainable equipment and supplies

3 Policy



CREATE A DISTRICT RESILIENCE PLAN

What:

In addition to the seismic upgrades to schools, to ensure that the Seattle Public Schools are places of community support and refuge during disruptive events, and to protect the safety of children and teachers, it is recommended that the District develop a comprehensive resilience plan. Resilience is the ability to adapt to changing conditions and to maintain or regain functionality and vitality in the face of stress or disturbance. It is the capacity to bounce back after a disruption. The resilience plan might include:

- Resilience from what? What are the types of disruptive events and situations that may leave the school less functional or the population vulnerable?
- Resilience for whom? Are certain schools equipped to shelter community members, or to be an area of refuge for children and teachers? Do some schools and neighborhoods need effective evacuation plans?
- Resilience to what extent? What are the critical functions that need to be maintained? What are the basic elements of comfort and safety that require passive survivability strategies?
- Resilience for how long? If children, teachers, or community members can shelter in the schools, how long can that be sustained? What supplies and stores may be necessary?
- Resilience Design Principles. How can schools be designed to withstand and maintain functionality and safety during many types of disruptions?

Why:

Resilience and Environmental justice are interconnected. When natural disasters strike, they often hit hardest in neighborhoods where deferred maintenance and infrastructure updates are the longest overdue. Communities with socio economic disadvantages often have the least resilience during major disruptions. If schools can help to protect or provide refuge, they will become an essential asset to the community in times of trouble. This global pandemic is an example of how the schools were a point of service and support to families facing food insecurity. Having a resilience plan can provide basic safety as well as added functionality to a community struggling to survive.

References:

[The Resilient Design Institute's Resilient Design Principles](#)

Resources Needed:

- Consulting Services to create an existing resilience audit and a plan for growing and building resiliency into all facilities and future facilities
- In-house staff time to administer and organize resilience planning work and changes

4 Policy



EXPLORE AN AGREEMENT FOR A DISTRICT-WIDE SOLAR

What – Recommended Goals/Strategies:

- Assess the school building portfolio for suitability of solar and utilize NREL or related tools to estimate cost effective options for purchasing solar outright as a baseline for comparison
- Explore purchasing options for a district-wide solar program including a Power Purchase Agreement for on-site or off-site solar
- Issue an RFP to seek competitive bids for various purchasing options
- Negotiate favorable terms
- Add on-site solar based on a data driven analysis that evaluates the impact on overall carbon footprint reductions, financial and educational benefits, and prioritizes the projects based on highest impact or priority to support the achievement of net positive carbon goals between 2030 and 2040

Why:

All electricity at SPS is purchased from Seattle City Light (SCL). Given the energy mix of SCL of 91% renewable and a 9% carbon credit program to offset the remaining energy in their portfolio, SPS currently views all of its electricity as carbon neutral. Hence, a Power Purchase Agreement (PPA) only makes sense if SPS wants to have solar on its schools AND attempt to lock in a portion of its future electric costs at a pre-determined rate.

If a Power Purchase Agreement is determined feasible and desirable, the district can explore agreements that provide educational, economic, and environmental benefits from solar installations without the upfront investment costs. Companies that offer PPAs for schools are well versed in legal and administrative challenges related to working with the state or utility companies and handle the day to day management of installation projects, freeing district staff to focus on other things. The systems provide reliable power, help to make utility costs predictable and include predictable cost savings over time.

References:

<https://www.nrel.gov/docs/gen/fy16/65567.pdf>

Resources Needed:

- Staff time to administer and evaluation of available programs, incentives and their feasibility
- Legal review of options



STAFFING

Staffing



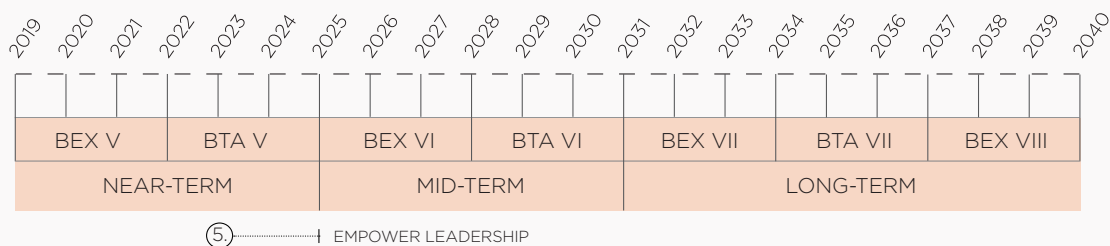
What:

For an organization to thrive and create lasting change, it is necessary to have leadership and environmental champions from the top down, the bottom up and the middle out. During Engagement and Discovery, it became clear that the District is fortunate to have many strong champions for sustainability on the board, within the management structure, within departments, among staff, teachers and of course among the student leaders who participated. This is a remarkable asset. It may well be that all the leadership needed in the future can come from within the organization, but it should always be recognized that ‘extra work’ even for a good cause typically takes a lower priority than someone’s primary responsibilities.

As a result, the lack of focused leadership at the director level dedicated specifically to these issues was felt keenly and expressed by many within the hierarchy of the organization. There is no shortage of current directors who care about sustainability and environmental justice, but there are not directors for whom sustainability and environmental justice is their sole focus and responsibility. The Resource Conservation team works tirelessly to collect and share information, to develop programs and teach staff to implement strategies and to provide mentorship and measurement for initiatives. They invite people to participate in initiatives across the organization, but they do not have the authority to hold groups accountable to meet the policies and resolutions.

The following recommendations could add to the leadership already present within SPS and increase exponentially their ability to implement change.

Staffing Recommendations in Time





EMPOWER LEADERSHIP

What – Recommended Goals/Strategies:

It is recommended that the District create two new Chief Director positions:

- Chief Sustainability Director – A position, likely connected to the Resource Conservation Group, that would work across departments to coordinate the many sustainability initiatives. This person would oversee environmental performance and objectives, align policies around the environment to actionable steps, tell the district's stories, manage resilience planning, disseminate information, convene collaborative efforts, report annual progress toward performance targets, and coordinate with Capital Projects and Facilities, Purchasing, Nutrition Services, Transportation and DREA to ensure that the benefits of sustainability are distributed to all students and communities.
- Chief Environmental Justice Director – A position, likely connected to DREA, that would work across departments and in collaboration with the Chief Sustainability Director to ensure that sustainability and equity are broadly held and equitably distributed across the school district - targeted first in schools that have been furthest from environmental justice knowing that improvements in the conditions in these schools will have a ripple effect benefiting the entire district. This person will work to ensure that the benefits of sustainability are tied to equity initiatives and distributed to all students and communities.
- Both the CSD & CEJD could add to the diversity of the School Design Advisory Committee to ensure that both sustainability and equity are included in school design decisions from the beginning of the planning process.

Why:

To empower the champions for sustainability and environmental justice to have the authority to convene staff across departments, these positions would assist the current directors who are currently shouldering the leadership burden in these areas. These positions would be able to build in accountability and report progress to the board. These positions would become champions, mentors, and storytellers within the district and provide institutional memory and leadership for significant changes as outlined in this report. For initiatives that are currently languishing because champions are spread too thin, it would lend extra hands and focus to those programs. These leaders can work with Curriculum and Capital Projects teams to support the integration of sustainability and environmental justice into the physical and curricular infrastructure of the district.

References:

- The Resources Conservation team acquired sample job descriptions from peer schools in San Francisco and Portland through their sustainability directors' network. They can share lessons learned from other districts.

Resources Needed:

- Salaries and benefits for two positions at the Director Level



EDUCATION



Education

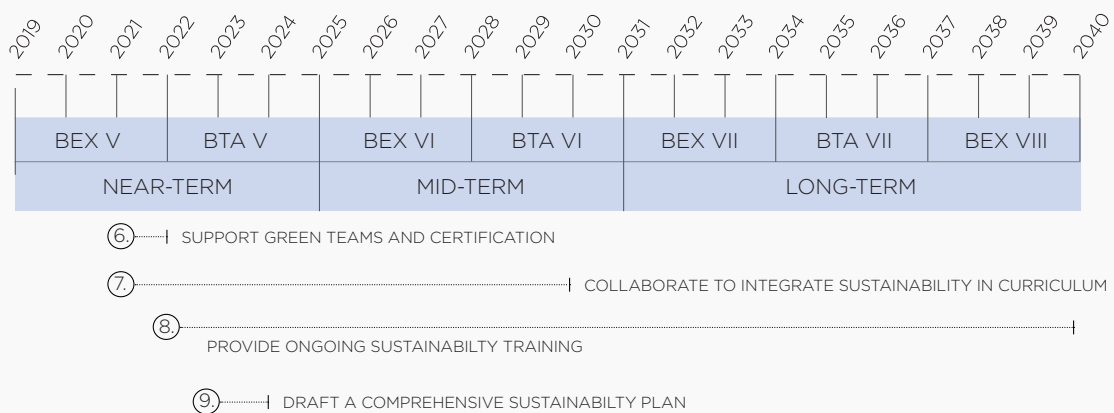


What:

There are many passionate champions within the district dedicated to providing training and educational programs for the next generation and for the staff who need to participate for programs to be successful. The district has a robust network of volunteer parents and community members willing to help. The student Green Teams are a tremendous educational asset already available and poised to provide that immediate integration of sustainability into educational programs. With additional support for programs that already exist, the educational potential can be exponentially improved.

The following recommendations outline educational programs and tools that will help build institutional knowledge, guide actions based on data and strategy and embed sustainability deeply into the culture and daily operations of the schools.

Education Recommendations in Time





SUPPORT GREEN TEAMS AND CERTIFICATION

What – Recommended Goals/Strategies:

SPS already has many schools participating in the Washington Green Schools Green Teams and certification program as a voluntary school club program yet adoption of the program is not universal in the district and so some schools have more opportunities for students to engage than others. It is recommended that the district invest more deliberately and universally in this program and support green teams at every school. The program would require:

- Providing “clock hours” continuing education or compensation for teachers who provide extra mentorship for the program
- Making the program available as a course for credit
- Ensuring that every school has a green team and the required mentorship
- Providing opportunities for green team student leaders from different schools to connect and learn from each other during special events
- Encouraging teams to align projects with the district’s performance goals in the program areas of Energy, Healthy School Buildings, School Grounds & Gardens, Transportation, Waste and Recycling, or Water.
- Encouraging certification.
- Celebrating successes and build upon the legacy of each class from year to year

Why:

The Washington Schools Green Team program and certification pairs student groups with mentors and allows the students to determine which areas they would like to instigate programs for within their schools. They create the baseline measurement systems, determine what changes to institute, implement those programs and then measure success against the baseline. When they achieve a certain amount of success in determined areas, they can seek certification for the school and their achievements. Currently this program is an extracurricular club mentored by volunteer teachers and community leaders, as such participation varies widely by school and from year to year within a school. This program offers tremendous educational potential, in teaching this generation how to navigate institutional changes as well as how to measure the impact that behavior has on climate and living systems. If this program became a class that was well supported by the district, it could immediately increase the potential for integrating sustainability in the curriculum. Students could also be exposed to Green Team learning opportunities at multiple times throughout elementary, middle school and high school work on increasingly more challenging problems. A fully supported program also increases the equitable distribution of the programs benefits.

6

Education



References:

<https://www.wagreenschools.org/our-programs/certify-your-school/>

Resources Needed:

- Compensation or incentives for teachers to prioritize the program within each school.
- The program will require a coordinator to organize the teams at each school and monitor progress. This coordination could be a responsibility of the Chief Sustainability Officer, or his/her delegate.
- Annual Green Team Events and Celebrations
- Continue to Team with AmeriCorps volunteers





COLLABORATE TO INTEGRATE SUSTAINABILITY IN CURRICULUM

What – Recommended Goals/Strategies:

As the science curriculum is currently in the review and development process, it is recommended that the District take this opportunity to engage passionate teachers and Resource Conservation staff (or a future Chief Sustainability Director) as well as the Department of Racial Equity Advancement in collaboration to more deeply integrate sustainability into curriculum. While changing curriculum can be a long and complex process, there are so many rich opportunities for applied learning projects within the broad subjects of sustainability and environmental justice. There are opportunities to link high-performance building retrofits with applied learning opportunities. It would require:

- Providing teachers additional training about how sustainability connects to their core subject
- Providing teaching tools and facilities
- Integrating sustainability into the core curriculum so that it does not have to be an extra/added element
- Providing support and flexibility for teachers willing to try new things that might be outside of the testing model and curricular fidelity they are required to follow
- Coordinating with experts in the curriculum development process
- Looking for ways that high performance building strategies and technologies can become part of applied learning

Why:

Integrating sustainability and environmental justice into the science curriculum as well as arts and humanities is essential to developing a 21st century education. The teachers who participated in the engagement expressed their passion and creative energy around developing applied learning opportunities for their students. They shared the many barriers that exist in trying to implement anything extra on top of the core curriculum they are already required to cover, especially with the amount of time dedicated to standardized testing. While some of these barriers may be unchangeable within the given system, it was clear that two things could help. One, integrating sustainability into the required curriculum and two, allowing teachers more flexibility to develop applied learning opportunities. The educational potential of applied sustainability concepts is worth exploring and the opportunity is at hand, as a significant curriculum change is already underway. This is the perfect time for collaborative effort.

References:

[Greening the Educational Experience: Strategic Entry Points for Sustainability in Existing Curricula](#)

[Sustainable Education in K-12 Classrooms](#)

[The Center for Global Studies PennState](#)

Resources Needed:

- Collaboration time for key staff



PROVIDE ONGOING SUSTAINABILITY TRAINING

What – Recommended Goals/Strategies:

It is recommended that the District make improvements to their current training programs. Currently programs are offered in the summer in conjunction with other training events and attendance is not always required by those who may most need the training. There needs to be programs for facilities and maintenance staff, food services staff, custodial contractors (both managers and custodians), building users and teachers to be able to administer and implement sustainability programs such as composting, recycling, green cleaning or proper building operations. Programs and educational materials that instruct about how to use the building or how to sort waste already exist, but they are not universally required and reportedly not very engaging. Despite repetition, there is a constant need to reinforce the behavioral aspects of implementing sustainability programs. This will require:

- Custodial manager and custodial contractors to attend live training or prepare training videos annually
- Collaboration with custodial unions to improve the dialogue and find mutually beneficial solutions where there are conflicts between work that is needed and contract limitations
- Providing an annual social and education event for student Green Team Leaders to come together to share lessons learned and celebrate successes across schools; providing student volunteers and volunteer coordinators access to critical leadership training
- Building operators, principals, and teachers to attend an annual sustainability summit and awards celebration with inspiring guest speakers, engaging training materials, and continuing education credits or “clock hours”
- Improving the educational materials to make them “sticky,” inspiring and engaging to different audiences
- Evaluating educational materials to make sure that they are accessible, multi-lingual, graphically clever and culturally responsive

Why:

Required continuing education is always a challenge, but nonetheless is essential. The materials need to be culturally relevant, worthy of continuing education credit and inspiring. The message of what to do must be paired with why it matters. The environmental movement has suffered because so often the statistics and the metrics are delivered as dire warnings about large patterns that individual people cannot relate to. For example, it is hard for an individual citizen to relate to how their energy is produced, or large mobility trends. But each citizen can be responsible for the recycling and composting of valuable materials and nutrients. Each person can participate in making a school garden or outdoor learning environment better. Each person can turn off lights and equipment and remember to close the windows before they leave. It is important to empower and inspire people to see the larger impacts of small everyday actions. It is important to celebrate successes and allow them to inspire next year’s champions.

8

Education



References:

The Resource Conservation Team has many educational materials to share

[The Center for Green Schools has a network of sustainable design directors and champions who share annually](#)

Resources Needed:

- Compensation or “Clock Hours” for teachers to participate
- Ongoing negotiations with custodial unions
- Curriculum opportunities from US Green Building Council



Students often perform an essential role in implementing sustainability programs and filling in the gaps where volunteer effort is necessary. Providing leadership training for students and volunteer coordinators can help these essential volunteer-based programs to be more successful.



DRAFT A COMPREHENSIVE SUSTAINABILITY PLAN

What – Recommended Goals/Strategies:

When the District has a detailed baseline measuring its carbon footprint, the district will be able to develop a comprehensive sustainability plan to guide the implementation path toward recommended performance goals. It is necessary to have a comprehensive plan that is grounded in data and helps map out the remaining work toward reaching carbon positive, zero waste and responsible water goals. A comprehensive sustainability plan will focus on steps in the right order strategically based on impact, equity, and economic return. The plan would include a suggested timelines and detailed operational plans.

A comprehensive sustainability plan might include:

- A summary of the baseline carbon footprint of each school and the entire district operations, detailing areas of impact and opportunity
- An organized summary of the baseline energy data for each building and characterize energy use breakdowns
- A summary of baseline water use of all buildings
- Targets for reducing Scope 1, 2 & optionally 3 emissions and decarbonizing the district
- Transportation strategies to reduce personal automobile commuting to and from school as well as improving the efficiency of fleet of vehicles and electrification
- Water conservation goals and strategies based on mimicking natural water systems
- Food service plans that eliminate waste through use of dispensers, durable or compostable goods composting and food sharing while providing fresh, healthy, and culturally diverse meals
- Materials management that implements green purchasing, elimination of single use plastics, use of durable and compostable goods, reduced operational material consumption and waste
- Human Health standards for active design, green cleaning, green chemistry, indoor air quality, material transparency and reducing red list chemicals
- Wellbeing guidelines that incorporate biophilia (love of life and connection to living things,) beauty, cultural expression and biodiversity into the school buildings and grounds
- Natural Systems and regenerative design strategies including the integration of biophilia, which intentionally connects students to living systems.
- Educational opportunities for integrating sustainable processes, technologies, and solutions into applied educational experiments and classroom activities



- A strategy for distributing the benefits of sustainability retrofits first in schools and neighborhoods furthest from environmental justice.
- Resilience strategies - integrating the Resilience Plan described in this report

The district has already made a tremendous start with some energy or water retrofits in 85% of its school buildings. There are 10 schools with solar installations. There are gardens in 80% of the schools. The Resource Conservation Team team already has food sharing and composting programs in place. School green teams are improving or ensuring compliance with mandatory recycling programs in many schools. SPS works closely with Washington Green Schools, and many individual schools receive recognition through certification every year. The (difficult to earn) national Green Ribbon Award for achievements at the District level was received for the first time in 2020. So, much of the low-hanging fruit has already identified and work has begun, although it is reported that implementation is uneven, and sustainability programs always require ongoing work. To make sure that these programs exist in all schools, and to plan for the next level of impact, future work must be guided by data and a strategy that moves beyond low-hanging fruit into the initiatives that require sustained engagement based on science. SPS staff has already proven, from the newest employees to seasoned facility managers, that when they have the data to show areas of impact needed, and a plan in place to guide new work, that they will drive projects to implementation. A comprehensive sustainability plan will guide and unite these champions across departments and throughout the district.

References:

https://centerforgreenschools.org/sites/default/files/resource-files/Whole-School_Sustainability_Framework.pdf

Resources Needed:

- Consulting Services to work with staff to develop a comprehensive sustainability plan
- Staff time collaborate with the planning team
- The comprehensive benchmark data as outlined in this report is required



EQUITY





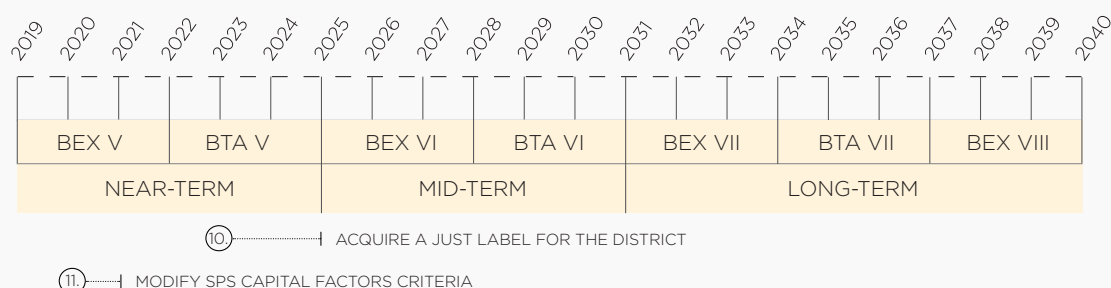
Equity

What:

The consultant team found that the focus on equity described in the District's Mission and Vision and Theory of Action is alive within the day-to-day culture of the organization. Every conversation during engagement was grounded in discussions around equity within the district. The passionate champions leading sustainability initiatives all had equity in their hearts and minds as they explored new ideas together. The participants in engagement made the connection that environmental justice is social justice and that neighborhoods that have often been targeted by institutional racism have also borne the brunt of environmental degradation. Similarly, as staff deal with the emergency of the pandemic, it is ever present and clear that those who were living in the margins before, are the most vulnerable during this disruption.

This school district has taken a stand to unapologetically ensure that it will serve those historically furthest from justice first, knowing that to do so will have a ripple effect of benefits for the entire district. Scientifically and mathematically, it is also true that if the district targets the schools with the worst energy and environmental performance and the most deferred maintenance, they are likely to have similar results in restoring equity. The following recommendations suggest ways to celebrate and measure progress toward equity and environmental justice in order to meet district goals.

Equity Recommendations in Time



10 Equity



ACQUIRE A JUST LABEL FOR THE DISTRICT

What – Recommended Goals/Strategies:

SPS already has many equity and social justice programs in place. To celebrate and be transparent about those achievements and practices, it is recommended that the District seek a JUST label from the International Living Future Institute (ILFI) to track progress. JUST is not a certification program but a transparency platform for organizations to disclose their operations, including how they treat their employees and where they make financial and community investments. Organizations can use their label on their website to demonstrate social equity issues and see how they improve through time. The district can require or encourage contractors to be transparent about their JUST practices as well. Indeed, this is an element of achieving the Living Building Challenge Core Certification, recommend elsewhere in this report. Steps to acquiring a JUST label include:

- Register as a member of ILFI and download the user manuals.
- Compile non-personal data and information to complete the application in the categories of: Diversity and Inclusion, Equity, Employee Health, Employee Benefits, Stewardship, Purchasing and Supply Chain.
- Submit the application for review by ILFI and the label will be entered into their database.
- Make improvements over time to JUST practices, and keep the dialogue open.
- Renew and update the label annually.

Why:

The goal of the JUST program is to elevate dialogue around social justice concerns in all organizations. It helps to create a common language and framework for social justice issues and provide a baseline against which to measure progress each year. SPS could be the first school district in the world to participate which would show of incredible leadership.

JUST helps organizations to discuss and then improve human resource policies and make better places for employees to thrive. To accomplish these goals, JUST asks organizations to be transparent about their practices. JUST can build in accountability around District values and build confidence with taxpayers and community members that SPS is a safe place for students, teachers, and staff. The district can also set an example of justice for others to follow in the community they serve.

References:

[JUST 2.0 Reference Manual](#)

10 Equity



Resources Needed:

- Membership and JUST Label fees (based on the number of employees)
- Staff time to complete the application (generally HR Staff)

Just 1.0

Just.

Organization Name: Super Paint Corp.
Organization Type: LLC
Headquarters: Amherst, NJ
Satellite Facilities: Portland OR, Houston TX, Montreal CAN
Number of Employees: 3,220

Social Justice and Equity Indicators:

Diversity

- ☐ ☐ Non-Discrimination
- ☒ ☐ Gender Diversity
- ☒ ☐ Ethnic Diversity

Equity

- ☒ ☒ Full Time Employment
- ☐ ☐ Pay-Scale Equity
- ☒ ☐ Union Friendly
- ☒ ☐ Living Wage
- ☐ ☐ Gender Pay Equity
- ☒ ☐ Family Friendly

Safety

- ☒ ☐ Occupational Safety
- ☒ ☐ Hazardous Chemicals

Worker Benefit

- ☐ ☐ Worker Happiness
- ☒ ☐ Employee Health Care
- ☒ ☐ Continuing Education

Local Benefit

- ☒ ☐ Local Control
- ☒ ☐ Local Sourcing

Stewardship

- ☐ ☐ Responsible Investing
- ☒ ☐ Community Volunteering
- ☐ ☐ Positive Products
- ☒ ☐ Charitable Giving
- ☒ ☐ Animal Welfare

THE SOCIAL JUSTICE LABEL

INTERNATIONAL LIVING FUTURE INSTITUTE™

Just 2.0

Just.

Organization Name: ABC Corporation
Organization Type: Service Provider
Headquarters: Seattle, Washington
Office Locations: 30
Number of Employees: 10,750

Social Justice Indicators:

Diversity & Inclusion

- ☒ ☒ Gender Diversity
- ☐ ☐ Ethnic Diversity
- ☒ ☐ Inclusion
- ☒ ☐ Engagement

Equity

- ☒ ☒ Full-Time Employment
- ☐ ☐ Pay-Scale Equity
- ☒ ☐ Freedom of Association
- ☒ ☐ Living Wage
- ☒ ☐ Gender Pay Equity

Employee Health

- ☒ ☒ Physical Health
- ☒ ☐ Well-Being

Employee Benefits

- ☒ ☐ Health Care
- ☒ ☐ Retirement Provision
- ☒ ☐ Family/Medical Leave
- ☒ ☐ Training/Education

Stewardship

- ☐ ☐ Local Communities
- ☒ ☐ Volunteering
- ☐ ☐ Animal Welfare
- ☒ ☐ Charitable Giving
- ☒ ☐ Positive Products

Purchasing & Supply Chain

- ☒ ☐ Equitable Purchasing
- ☐ ☐ Supply Chain

THE SOCIAL JUSTICE LABEL 2.0

ABC-001

EXP. 12/30/2020

INTERNATIONAL LIVING FUTURE INSTITUTE™



MODIFY SPS CAPITAL FACTORS CRITERIA

What – Recommended Goals/Strategies:

Through a tremendous engagement process with community stake holders, and through many board work sessions, the District has developed a process for evaluating multiple competing interests and scoring capital project needs based on a balance set of criteria. This methodology is commendable, particularly in that 33% of the evaluation criteria is weighted by a Social Equity Index. It is precisely this focus and integration of equity issues into business as usual that has enabled the district to make progress on these issues. Because Environmental Justice is social justice, it is recommended that the district place similar focus on its carbon positive, human health, zero waste and responsible water goals within this scoring system. It is likely that the overall scoring system need not change but that the following considerations be added to the Capital Factors categories:

- Educational Adequacy – SPS could include a factor for buildings and sites that reveal educational opportunities, either through immersion and exposure to new systems and technologies, or by hands-on interaction. Schools lacking outdoor learning spaces and connection to nature could be prioritized.
- Building Conditions – Factors could include Energy Use Intensity (EUI), embodied carbon, or Water Use Intensity (WUI). Indicating a building’s solar readiness and decarbonization status could be factors. Zero (operational) waste infrastructure such as composting and recycling could also be a factor. In this way, the potential impact of the facility’s ability to reduce the districts carbon footprint could be prioritized.
- Health, Safety and Security – could include factors for indoor air quality, healthier building materials, and avoiding red list chemicals in materials, operations, and maintenance practices. Access to daylight, fresh air, ventilation effectiveness and views could be factors. In this way, indoor environmental quality could be prioritized.
- Right Size Capacity – could include factors for durability and flexibility over 100 years. Planning schools with modular thinking, design for disassembly, or potential shared uses over time allows the neighborhood populations to ebb and flow from young families to retirees and back again, without causing schools to be torn down or rebuilt.

Why:

The district has a system in place that took considerable effort to build and create. It appears to be highly effective already and could be further strengthened. It is hoped that a minor modification to what already exists could further improve the impact of this decision-making tool.


References:

[Board Policy 6901 Capital Levy Planning & BEX V Guiding Principles](#)

[Board Policy 6901 Capital Levy Planning & BEX V Guiding Principles](#)

Resources Needed:

- Board and Staff time to review and incorporate recommendations

Capital Factors SUMMARY SCORES (67% Combined Weight)				Equity Factor (33% weight)	OVERALL SCORE
16.75%	16.75%	16.75%	16.75%	33%	100%
Educational Adequacy (average of 3 factors)	Building Conditions (average of 4 factors)	Health, Safety & Security (average of 5 factors)	Right Size Capacity (2021-22 projected enrollment / right size capacity)	School Equity Index (based on demographic profile of students enrolled in each school)	OVERALL WEIGHTED SCORE

The current Capital Factors and Equity Factor set the stage for ensuring that benefits and retrofits will be distributed equitably throughout the district.



MEASUREMENT



Measurement

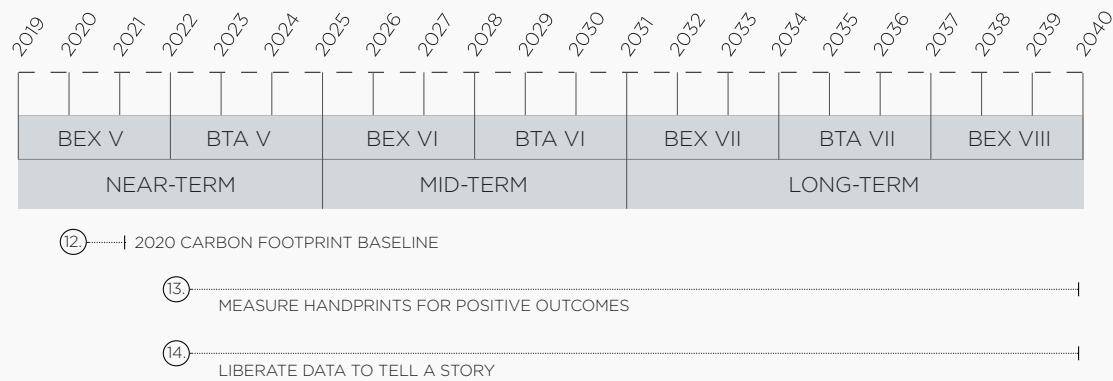


“You can’t manage what you can’t measure.” - Peter Drucker

Capital Projects and Resource Conservation staff have been faithfully collecting data and learning from that data for a decade. When the consultant team asked for energy and water data, there was data available going back to 2008 in well maintained spreadsheets, many posted on the website. And yet, throughout the engagement process, it became clear as participants continued to ask for data or when misunderstandings perpetuated, it was clear that the data had not been curated or communicated effectively across the District. Stories of efforts already in progress or past achievements have not yet become a part of the institutional knowledge.

Most organizations do not do enough to celebrate their small wins or their large victories. Rarely is post-occupancy work completed to allow lessons learned from the past to improve the future. Most institutions struggle to keep a knowledge base updated and interactive over time and as staff changes. These recommendations make suggestions about key studies that are needed to help guide work for the next decade, and to encourage the District to share information more broadly with stakeholders in accessible ways.

Measurement Recommendations in Time





2020 CARBON FOOTPRINT BASELINE

What – Recommended Goals/Strategies:

A carbon footprint is a more and more common approach that people and organizations are using to quantify the impact they have on the environment, particularly as their behaviors relate to climate change. It is also often used as a proxy for other environmental issues and impacts. To start calculating a district-wide carbon footprint, there are accepted protocols organized around various types or 'scopes' of emissions with standard practices used to define boundaries and guide calculations. This work is incredibly important, as understanding the relative categories and distribution of the footprint would allow the district to prioritize where to decarbonize in terms of greatest impact.

The first thing that must be determined is how much of various greenhouse gases are being emitted by the organization's behaviors, purchases, and operations. These gases are then converted to carbon dioxide equivalents usually reported in metric tons of CO₂ equivalent (MTCO₂e).

It is recommended that the district conduct a comprehensive carbon footprint baseline study to guide and prioritize all future footprint reduction work. There are several standard forms and protocols that can be used to make this task easier and the results universally recognizable. The study should include:

- Establish a baseline year of 2020 and use past data if available to help in initial trends analysis and early quantification.
- Draw the boundaries for this work based on the following:
 - **Scope 1** = Direct emissions under SPS control due to fuel consumption (such as Natural Gas) on-site, or for fleet vehicles (buses & maintenance vehicles)
 - **Scope 2** = Indirect emission from purchased electricity, steam, heating, and cooling
 - **Optionally, Scope 3** = Other indirect emissions out of SPS control such as purchased goods and services, capital goods, food service, transportation, waste generated during operations, business travel, employee, or student commuting, etc.
- Analyze opportunity areas
- Calculate the potential impact of various reduction strategies
- Outline a pathway to decarbonization – in the context of Washington state utility forecasts, the lifecycle benefits, and the advantages of decarbonization, fuel switching, and electrification
- Develop a timeline of activities critical to achieve carbon positive by 2040

**Why:**

Many department leaders shared that they were on board with reducing the district's carbon footprint but expressed the need to understand how the effort they might expend would fit in the overall priorities. Many wanted to know where they would quickly see the most significant impacts. And some departments are yet missing from the conversation because they do not yet understand how their work fits into the overall carbon footprint story. Having this information is critical to motivation for change. SPS staff want to be guided by data and information. Having this information is also the best way to assure taxpayers that any investment will be made wisely toward the greatest impact.

References:

[EPA GHG Inventory and Target Setting Self-Assessment Tool with resources](#)

[New Jersey Schools Calculator Program and downloadable calculator tool](#)

[Cool California School GHG Inventory and Calculators](#)

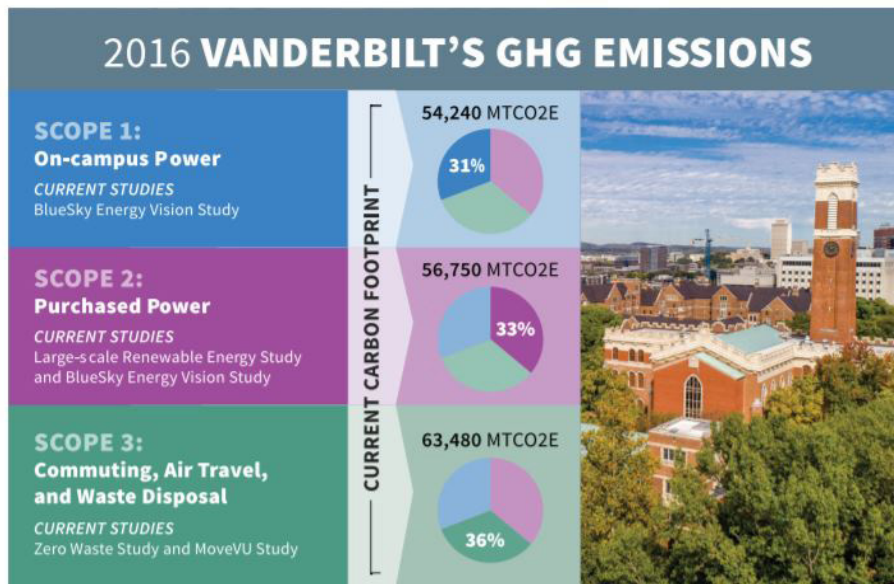
[SFUSD Carbon Reduction Plan for inspiration](#)

[GHG Protocol Tools](#)

[Vanderbilt Universities BlueSky Energy Vision \(for inspiration\)](#)

Resources Needed:

- Consultants help to make use of SPS data, collect missing data, make conversions, input the data into standard protocol tools, then analyze the results and make recommendations
- Database tools and building automation systems to store information from one year to the next and to help automate data collection
- Student Green Teams, with mentors, could also assist with gathering data or interpreting information



Potential Greenhouse Gas Emissions Reductions

By implementing the three primary points on the pathway to NZE+R (energy conservation, renewable energy, and transformational strategies) it is possible to reduce Scope 1 and 2 emissions significantly over time.

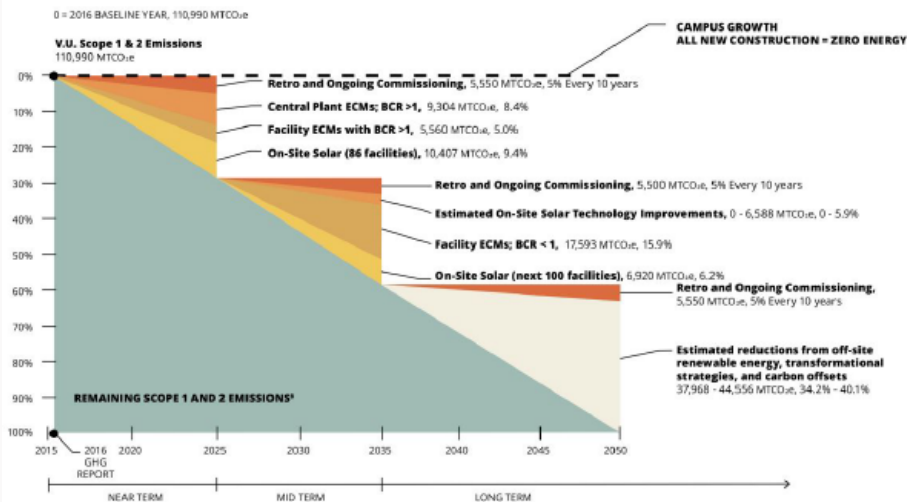


Figure 7. Potential Scope 1 & 2 Greenhouse Gas Emissions Reductions with all BlueSky Vision Strategies

Excerpts from Vanderbilt Universities BlueSky Energy Vision Executive Summary showing how carbon footprint calculations can be used to help measure and prioritize actions over time toward a carbon neutral goal.



MEASURE HANDPRINTS FOR POSITIVE OUTCOMES

“The possibilities are endless because our creativity is unlimited. The key is to begin.”

- Dr. Greg Norris, Harvard Life Cycle Scientist

What – Recommended Goals/Strategies:

It is recommended that the District measure not only how they can reduce their negative impacts on the environment and within the community, but also in measuring the positive and creative impacts, or handprints, that they have on living systems and within the community and student's lives. Every individual and organization has both a footprint and a handprint which can be measured. Opportunities to measure and increase positive handprints are limitless but might include:

- Helping to improve the lives and communities within the District's supply chain (for example farmers who provide food to the district)
- Helping to support local and regional businesses with similar values, to develop and strengthen local economies and provide employment within the region
- Improving native habitats and protecting local riparian zones as well as providing essential greenspace in neighborhoods
- Breaking down food deserts and helping communities struggling with food insecurity
- Helping communities to find and develop solutions to prevent homelessness
- Restoring equity and educational justice in communities that have not been well served in the past
- Providing resilience and a haven for communities during a disturbance
- Modeling and encouraging local adoption of the JUST label

Because there is no limit to creative handprints, it would be worthwhile to engage stakeholders in an ideation exercise to expand the potential opportunities for handprinting.

**Why:**

Dr. Greg Norris, the father of handprinting, says, “Lifecycle assessment is the act and art of footprinting, measuring the unfortunately negative impact we have as we go about our lives and daily operations on Earth. If footprints are all that we have in life cycle assessment, and since we can never reduce our footprints to zero, it would seem the planet would be better off if we were never born. But, if we can measure a positive impact on the same systems for which we have a footprint, and if that positive impact is greater than our footprint, then the net effect of our presence on earth is a positive one. Handprinting retains the need to always work at reducing our footprints, but it also gives us an opportunity to maximize and measure the gifts that we give while we are here on earth.”

A community brings about what they focus on. If they are measuring the incremental destruction of life and carbon footprints, soon degraded systems are all they will see. But the opposite is also true. When a student participates with a living system and observes nature regenerating and thriving, the potential of life inspires awe and participation.

Several students during engagement expressed an interest in the concept of regenerative design, which requires more than just stopping destructive trends, but also trying to regenerate living systems that have been degraded. Regenerative design seeks not merely to stop injustices in communities, but to build healthy places for people to thrive. Measuring handprints is a regenerative act because it encourages a focus on the good that a community can do and the ways that they can help one another and living systems. By focusing on creative handprints, the District is likely to bring about good in the community.

It should be kept in mind that a school in its essential mission is a ‘handprint’ generator. To equip young minds to be good citizens and leaders in the world is a handprint. It could transform educational paradigms to measure and tell those stories over time.

References:

[ILFI's Living Product Challenge Introduces the concept of Handprinting in a product's life cycle](#)

[Dr. Greg Norris introduces Handprints](#)

Resources Needed:

- Creativity!
- Life-cycle science





LIBERATE DATA TO TELL A STORY

What – Recommended Goals/Strategies:

It is recommended that the District capitalize on the decade's worth of data locked in spreadsheets and liberate that data to tell stories and inspire action. Liberating data to tell a story might require:

- Installing IoT (Internet of Things) devices that can automatically report performance data to the cloud
- Selecting a database tool (tools such as Lucid OS or SkySpark) and building control systems that can help collect data from IoT devices and store that data for use by facility managers monitoring building performance, as well as for use in educational dashboards
- Developing dashboards for each school, to allow students and teachers to compare and interact with their results for educational purposes
- Developing an annual sustainability report that compares year over year progress toward District goals.
- Continue seeking third party certification with Washington Green Schools, as required, but celebrate the results and achievements with assembly award programs that recognize individual contributions and celebrate a legacy of achievement.
- Developing an SPS brand of infographics that help to communicate to multiple audiences the progress that's being made
- Reviewing all publications for accessibility and cultural relevance

Why:

SPS collects energy, water, and waste data for all buildings, but the data remains in spreadsheets on the Resource Conservation Website and is difficult for a layperson to visualize or interpret. Creating some infographics like Portland or San Francisco school districts use, and compiling annual report that tells stories, celebrates achievements, and shows progress toward goals is important to the educational potential of the information. This work could be a core part of the responsibilities of a Chief Sustainability Officer.

References:

[SFUSD Carbon Reduction Plan for inspiration](#)

[SFUSD Sustainability Office infographics and dashboards](#)

[SFUSD How is your school doing \(energy\)](#)

[APPLE's Environmental Responsibility Report for inspiration](#)

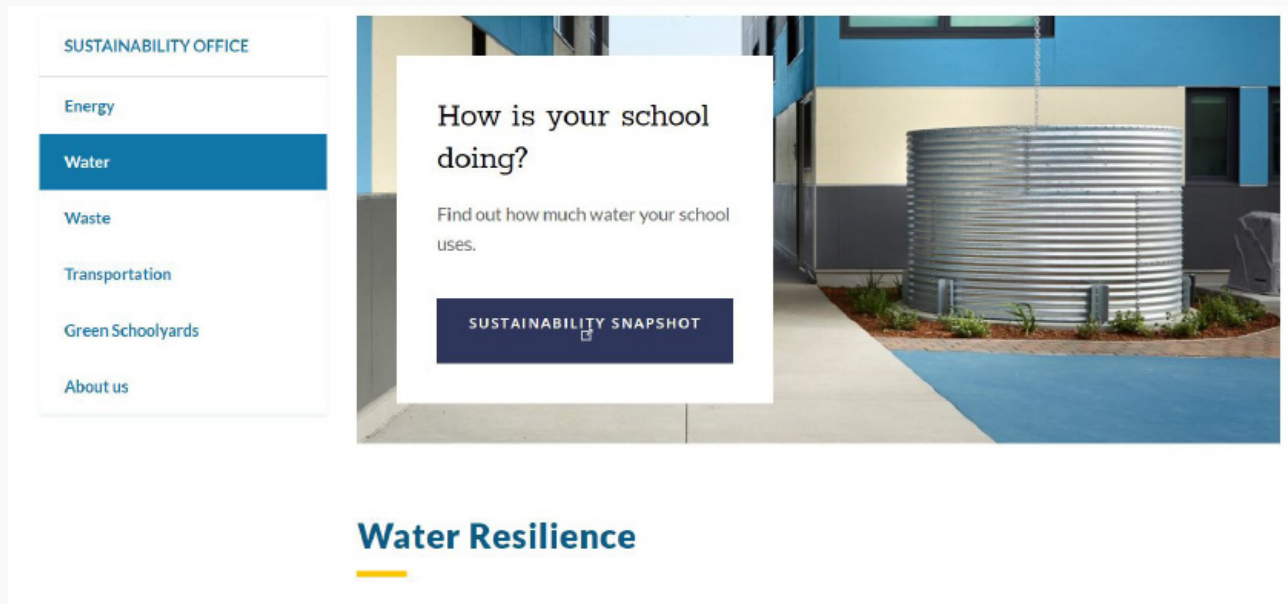
[Vanderbilt Universities Future VU program, Annual Report for inspiration](#)

14 Measurement



Resources Needed:

- Lucid OS or Sky Spark are two of many subscription tools that could be useful in storing and organizing data.
- Staff time, or student time, to input historical data and baseline carbon footprint data.



SFUSD Office of Sustainability comparing each school's performance in each of their impact areas.



BUILDINGS + SITE





Buildings + Site

What:

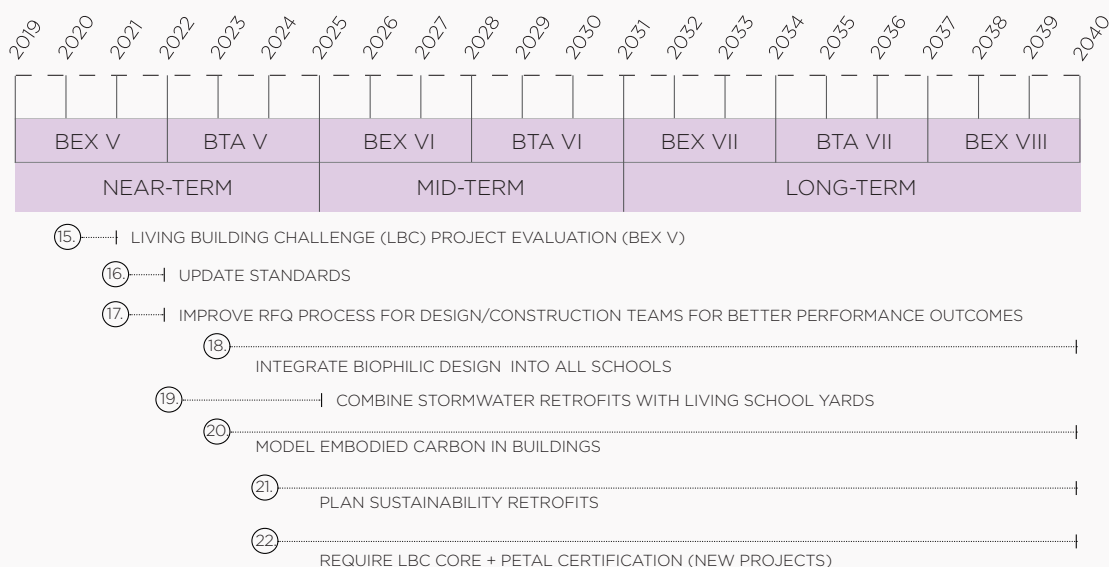
For at least ten years, the Capital Projects and Planning team, along with Resource Conservation, has been working hard to reduce energy use, water use and waste, to include recycling and composting in facilities and to improve the health and safety of buildings for all students. This is in compliance with the funds requiring Washington Sustainable Schools Protocol.

There has been tremendous progress with energy in that the average Energy Use Intensity (EUI) of the 105 school buildings is 33 kBtu/sf/year, while district modernizations and new construction projects have been performing in the target range of 15-25 kBtu/sf/year. This meets the the American Institute of Architect's Zero Tool recommendations for schools in this climate zone. District staff report that upgrades of energy or water systems have been completed in 85 percent of the school buildings.

Staff expressed confidence in being able to procure high-performance buildings with low EUI's. They are asking for the next challenge, which is to gradually decarbonize the entire district as combustion equipment comes to the end of its useful life and as solar technology becomes available for the district. Staff all seem eager to do more with water conservation and design for human health. They also want to be able to reduce the upstream and downstream impacts (or the embodied carbon) of building materials.

During engagement, participants shared that 80 percent of the schools host a school garden or outdoor natural space. While these spaces rely heavily on volunteer support, they are thriving community assets. Participants recognized the importance of connecting students to living systems as a part of their health and wellbeing as well as an educational opportunity. There is a strong desire to ensure that every school has these type of living amenities and deep connections to nature and living systems. The following recommendations are aimed at helping the district reach the next level of achievement toward carbon positive, zero waste, human health, Living School Yards, and responsible water use.

Buildings + Site Recommendations in Time





LIVING BUILDING CHALLENGE (LBC) PROJECT EVALUATION (BEX V)

What – Recommended Goals/Strategies:

The BEX V Levy cycle is already underway, and new projects are currently in design. It may be too late to introduce new performance goals for these projects that already have established budgets and schedules, but perhaps the LBC could still influence aspirational goals for the projects. While it would not be desirable to cause these projects delays or budget overruns, it is recommended that the district evaluate at least a few of these projects using the LBC framework as soon as possible in the hope of finding low or no-cost improvements. It will also help the team to understand the delta between what has been planned and budgeted and what might need to be changed if these schools were intending to achieve carbon positive or LBC strategies going forward into the next cycle. This process might uncover simple things that could improve the projects but will absolutely provide valuable lessons for planning upcoming projects and helping the district to modify its standards and procedures. The review process could include:

- Identify 3-4 projects in the BEX V cycle that seem prototypical (perhaps 1 elementary replacement project, 1 playground renovation – Mercer Middle School and Rainier Beach High School as possibilities).
- Work through the LBC version 4.0 Core Imperatives first and note which elements of the SPS standards might need to be changed.
- Complete an LBC Energy Petal and decarbonization evaluation and determine how far the project's best practices are from net-positive energy and carbon. Note what might need to change in terms of process and design to achieve this goal.
- Estimate the amount of renewable energy required and the battery storage required to meet the Energy Petal of LBC. Price this system and determine if it could fit on-site. Make plans to be able to add it in the future even if it is not a part of the current capital budget.
- Complete an LBC Water Petal evaluation and determine how far the project's best practices are from net-positive water. Note what might need to change in terms of process and design to achieve this goal.
- Utilize a third-party cost estimator, preferably with LBC experience, to determine if there is a cost delta between the current design and the LBC influenced design. If there is added cost, examine if the cost delta could be minimized with further design integration work. Determine how future projects could tunnel through apparent cost barriers.
- Develop educational and training materials to teach key staff how to utilize LBC as a possible tool in the future. It is to be noted that several private schools have utilized LBC and found it useful in reducing the total cost of ownership while advancing their educational missions.

**Why:**

The Resolution 2012/13-12 requires that four projects in the BEX V Levy cycle utilize the Living Building Challenge building rating system. The School Design Advisory Team could immediately benefit from lessons learned from this evaluation as they plan BTA V and BEX VI projects. By going through this exercise, the Capital Projects and Planning team will also understand what changes may be needed to procedures and standards.

References:

[Living Building Challenge version 4.0](#)

Resources Needed:

- Consulting fees or additional services to the current design teams (perhaps) and for an LBC consulting specialist
- Staff time to participate in the review
- Fees for an independent cost estimator familiar with LBC



UPDATE STANDARDS

What – Recommended Goals/Strategies:

The consultant team has reviewed District 004 General Design Standards, the Master and recently issued Owner's Project Requirements (2015) incorporating the Washington Sustainable Schools Protocol (WSSP) and Checklist (2015). There were no district standard specifications submitted for review. Upon review of these standards, they appear generally adequate for achieving middle levels of overall performance in health and conservation goals and for preparing schools for net-zero energy performance by implementing low Energy Use Intensities. It is recommended that district standards be revised and updated to incorporate the higher-performing targets that are suggested by the Living Building Challenge (LBC) Core + Petal framework because they best align with the overarching target of carbon positive, zero waste and water positive.. The revised standards could:

- Update the Technical Design Standards - Resource Efficient Design section to set new carbon positive, zero waste and responsible water goals. Update the Indoor Air Quality Considerations section with thresholds recommended by the WELL Building (WELL) program and LBC.
- Update the Owner's Project Requirements to reflect de-carbonization plans, net-positive energy targets, human health, and responsible water goals. Update or replace the WSSP section with revised targets - consulting LBC core plus petal standards because they align with these goals.
- Consider developing a standard specification template, that incorporates a traditional Sustainable Design Requirements section as well as material requirement described in the LBC's Healthy Interior Environment, Responsible Materials, Responsible Sourcing, Red List, Living Source Economy and Net-Positive Waste Imperatives and also recommended in WELL Air preconditions.
- Require that a Basis of Design document be updated with each submission and milestone.
- Require additional milestone review meetings for the selection of major building systems based on Life-cycle-analysis criteria.
- Provide education and training for the staff who administer these standards to make best use of the changes.

Why:

The old standards have served the district well and proven that standards are an effective way of implementing policy changes within this organization and within the complexity of the design and construction process. Therefore, it is necessary to update the standards with new performance requirements. Given the recommendations throughout this report for carbon positive, zero waste, human health, and responsible water goals, an update is required.

16 Buildings + Site



References:

[Living Building Challenge version 4.0](#)

[Portland Public Schools Guidelines and Standards \(sample specifications\)](#)

[SFUSD Getting to Zero Guidelines 2016, see the 2020 Guide in the Appendix](#)

Resources Needed:

- Consulting fees for an LBC consulting specialist to recommend changes and provide training programs as needed
- Staff time to update and ratify standard changes or to attend training for implementation

SCOPE	MODERNIZATION	
	Mandatory	Case-by-case
Envelope air sealing and insulating walls and openings	✓	
Roofs insulation, rainwater collection, and solar readiness		✓
Glazing & Shading heat minimization, high performance windows		✓
Lighting LED lighting & controls	✓	
Electrical & Metering submetering & energy monitoring	✓	✓
Kitchen electrification & energy-efficient equipment	✓	
Heating electrification & maintainability		✓
Ventilation heat recovery & filtration		✓
Controls set points & operating hours	✓	
DHW recirculation pumps & pipe insulation	✓	
H2O backflow device & high-efficiency fixtures	✓	
Schoolyard green schoolyards, stormwater mgmt. & rainwater collection		✓
Materials CalGreen, CA Section 01350 & CA Buy Clean	✓	
Waste Reduction washers, hand dryers & bottle fillers	✓	
Waste Management trash enclosures, salvage & waste manifests	✓	
Active Transportation walk/bike access & vehicle parking	✓	✓

An excerpt from SFUSD Getting to Zero Guidelines showing a checklist of modernizations required to prepare projects for net-zero energy performance.



IMPROVE RFQ PROCESS FOR DESIGN/CONSTRUCTION TEAMS FOR BETTER PERFORMANCE OUTCOMES

What – Recommended Goals/Strategies:

The consultant team reviewed recent Requests for Qualifications (RFQ) to understand how the district selects design and construction professionals. There was very little in this critical team selection document or scoring process to ensure that sustainability is a core requirement of any design or construction professional who works for the district. It is recommended that these documents and the selection process be modified in the following ways:

- Refer to and emphasize the district's performance requirements in the RFQ .
- Link to the revised performance standards recommended in this report.
- Ask design and construction professionals to share sustainable design credentials, accreditations, and examples of proven/measured/certified performance in their portfolio.
- Ask for proven experience with advanced third party certification systems such as LBC and Zero Energy, and Zero Carbon certification in particular. Such experience should be required not only for the architecture firms, but also MEP firms and especially contractors.
- Include proven performance in sustainability as part of the scoring and shortlist criteria.
- Include an agenda item for performance standard and requirements at all pre-proposal, pre-bid, and pre-construction meetings.
- Include proven performance with sustainability and life-cycle-analysis in the scoring system and selection criteria for interviews.
- Ask to see examples of life-cycle-analysis decision making tools from past projects.
- Ask to see examples of biophilic design reflected in building and site design.
- Include third-party certification administrative services in additional services agreements.

**Why:**

Since 2010, architecture firms have been able sign on to the American Institute of Architect's 2030 Commitment which states that they agree to set an energy target consistent with the AIA 2030 challenge targets for every project in their portfolio, whether their clients ask them to do so or not. To be accountable, they generically report every project in their portfolio and its energy target. While 815 firms in America have made this commitment and are currently working to design projects that are 80 percent better than a typical baseline (net-zero energy ready), many more firms have not yet even agreed to set energy goals on their projects.

Since 1998, LEED has been a tool widely available to design professionals with many iterations deriving from that standard including Collaborative High Performance Schools program (CHPS) and Washington Sustainable Schools Protocol (WSSP) tailoring it for school projects. Since 2006, the Living Building Challenge (LBC) has been a tool widely available to design professionals, useful even for projects that do not pursue certification. The ASHRAE 62.1 Standard has been around since 1973. The International Green Construction Code (IGGC) has been around since 2009. There is absolutely no reason why the district should have to engage any design or construction professionals who do not have a wide variety of high-performance projects in their portfolio to demonstrate expertise in these areas.

To ensure that the district is getting design and construction professionals who have proven experience with high performance, it is imperative to ask for proof of these qualifications in every part of the selection process. By setting performance goals as a clear expectation from the beginning, the team will understand that performance is a requirement just as important as meeting the project budget and the schedule. A team that is experienced in delivering high-performance also knows how to deliver these projects within the budget and schedule. A contractor should be able to show how they work with design and engineering teams to assist with life-cycle analysis. A team with proven performance should be able to explain and show examples of an integrative design process.

References:

[AIA 2030 Commitment Signatory Firms](#)

[LEED Accredited Professionals Directory](#)

Resources Needed:

- Staff time to update Standards
- Consulting fees for sample language



INTEGRATE BIOPHILIC DESIGN INTO ALL SCHOOLS

What – Recommended Goals/Strategies:

It is recommended that the district provide opportunities to integrate Biophilia, our innate need as humans to connect to the living world, into building and site design standards, practices, and educational programs. Integrating Biophilia might include:

- Training programs about Biophilic and Regenerative Design site practices for design professionals, District staff, garden and grounds contractors and volunteers and Green Team Students
- Include requirement for Biophilic Design in RFP language
- Include requirements for Biophilic design workshops in the programming processes for all new projects and schoolyard renovations
- Include Biophilia as a category in the Owner's Project Requirements and require it in the Basis of Design documents
- Develop Living School Yard standards for SPS that are modeled after the Green Schoolyards program
- Evaluate BEX V play yard projects as soon as possible for potential opportunities to right-size paving and enhance biophilic living system design

Why:

There are three important reasons to invite Biophilia into the design process. One, it is fun! It is like the best design candy that reminds hurried designers, hardened engineers, tired administrative staff, and weather-beaten contractors what it was like to be a child playing in the woods or running in the rain. It reminds the entire team why they decided to get into this work in the first place and whom this work is intended to benefit. Biophilia evokes a beginner's mind, opens the creative parts of the brain, and helps to restore design intuition, something that adults desperately need to do be able to do their best work.

Secondly, the results of biophilia integration are good for human health and wellbeing. Humans are hard wired to need natural rhythms to regulate sleep and awake patterns, to stimulate the brain development, to integrate new information and to engage all the senses in learning. Biophilia offers the keys to engage all senses, and therefore many different types of learning and knowing. And for children who live in places where green space or natural systems are scarce or degraded, schools can be an important haven in the life of a child and their teachers. A growing list of studies provides evidence for these health and productivity outcomes.



Third, living systems need humans to engage in their regeneration and ongoing health. It will be challenging to reverse climate change in the short term even if every single source of emissions stopped tomorrow, because the planet's climate regulating systems cannot sequester all of the carbon already emitted. The only hope of reversing climate change is a joint effort to both stop putting emissions up into the atmosphere AND in bringing some of that carbon and nitrogen, through plants, back into healthy soils and ecosystems where they become the basis of all life. Every little bit of green space matters in the next 10 years. It is especially important in urban centers where excessive hardscapes can and should be replaced with naturalized areas. Biophilia is a fun and yet very serious climate solution. Students desperately need to strengthen their connections and firsthand experience with living systems. They need to learn these life lessons with all their senses.

References:

[ILFI's Biophilic Design Institute](#)

[ILFI's Biophilic Design Guidebook 2018](#)

[14 Patterns of Biophilic Design: Improving Health & Wellbeing in the Built Environment](#)

[Green Schoolyards America](#)

[Living Schoolyard Activity Guide](#)

[Shawnee Mission School District Green Infrastructure Playbook for inspiration](#)

[Project Drawdown Review 2020](#)

Resources Needed:

- Consulting services to develop tools and standards and training program
- Staff time to seek training or participate in design work
- Design professionals who can lead Biophilia workshops



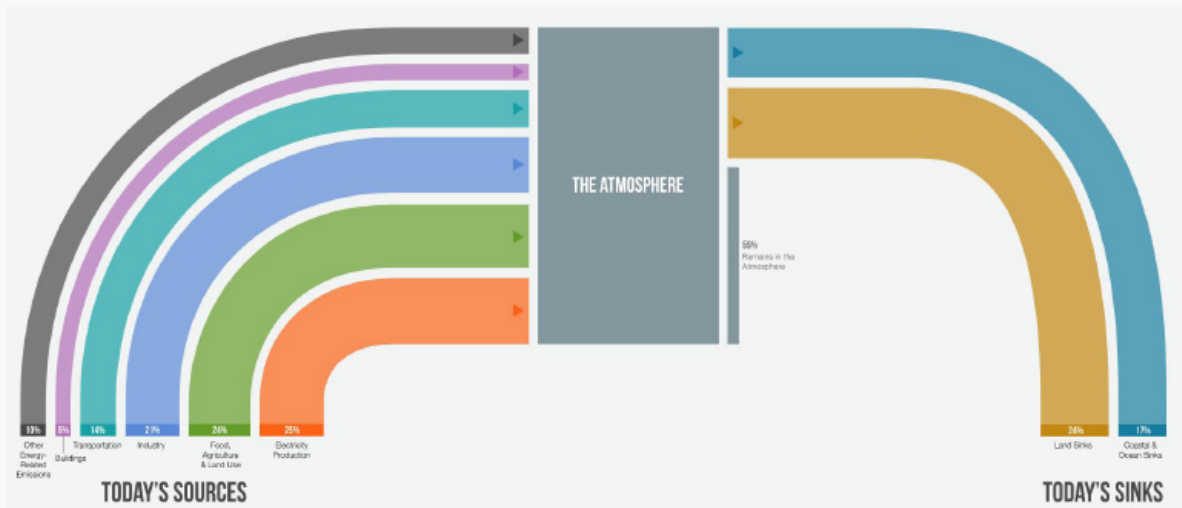
The Green Schoolyards America program offers many design guidelines for a growing movement of schools who want to get kids active



6 Core Principles of REGENERATIVE AGRICULTURE



Principles of Regenerative Agriculture can be adapted for any site design and maintenance program to ensure biodiversity, healthy soils, and clean air and water.



Project Drawdown 2020 Review offers climate solutions for a new decade and shares this diagram showing that while mitigation of today's sources is still important, it is also essential to develop more strategies such as land sinks to capture pollutants that are in the atmosphere, out of balance, and bring them back into the soil where they become the basis of all life.



COMBINE STORMWATER RETROFITS WITH LIVING SCHOOL YARDS

What – Recommended Goals/Strategies:

It is recommended that every new construction or retrofit project include natural stormwater management best practices (BMPs) designed to slow stormwater, clean it, and allow it to infiltrate into healthy soils on-site. Because those best practices also look like green space amenities, they integrate nicely with Biophilia and Living School Yard recommendations. The new standards could:

- Include a SPS Stormwater BMP manual that identifies many options for biological stormwater solutions and shows them integrated with the Living School Yard standards
- Incorporate stormwater BMP requirements in RFP language to attract design and construction professionals who understand natural stormwater solutions
- Require the target of managing all stormwater on-site for all new and schoolyard renovations projects
- Include stormwater best practices as a category in the Owner's Project Requirements and requiring it in the Basis of Design documents
- Evaluate BEX V play yard projects as soon as possible for potential opportunities to reduce municipal stormwater conveyance

Why:

Stormwater BMPs look like natural play places, and children will be attracted to them. However, stormwater solutions often rely on non-compacted soils and the native plants that maintain ideal conditions for water infiltration. In that way, these features complement Living School Yard educational and natural play spaces but require some protection from the activity of children exploring their natural world. On the other hand, these features lend themselves beautifully to data and sample collection by science classes. Careful design integration allows these competing priorities to co-exist while expanding opportunities to connect with nature and improve biodiversity.

A significant reason to integrate natural stormwater best practices is to significantly reduce the cost of water and maintain non-native landscapes and the cost of stormwater conveyance. While native landscape and stormwater strategies might have a slight first-cost premium, their lifecycle cost is generally much reduced. These plant systems are not completely maintenance-free, but they do require less intense maintenance and fewer inputs once they become established. Most importantly, these landscapes can save the district increasing stormwater utilities fees and penalties by eliminating water runoff into the municipal sewer system. This also adds resilience to surrounding neighborhoods prone to flooding.

**References:**

[Green Schoolyards America](#)

[Living Schoolyard Activity Guide](#)

[Living Schoolyard Activity Guide](#)

Resources Needed:

- Consulting services to develop tools and standards and training program
- Maintenance staff training programs for native landscapes
- Design professionals who utilized natural as well as mechanical stormwater management best practices



Commodore Sloat Elementary Living School Yard Renovation, San Francisco, CA

Before renovation, 2-years, 3-years, and 10-years after renovation

20 Buildings + Site



MODEL EMBODIED CARBON IN BUILDINGS

What – Recommended Goals/Strategies:

The embodied carbon of a building material is the total carbon footprint embodied in the processes of raw material extraction, transportation, manufacturing, installation, direct use, as well as the disassembly and recycling of that material after its useful life is over. While most new building materials have a negative embodied carbon footprint, reused building materials, a few natural materials, and existing buildings that are reused, all have a positive embodied carbon footprint compared to new construction.

When the carbon dioxide that plants or trees sequester during their lifetime is captured in wood or biomass AND is greater than the carbon footprint of harvesting, processing, transporting and installing or disposing of the materials, that material is said to have a positive embodied carbon footprint. Note, this still requires sustainable forestry and harvesting methods to be a responsible choice.

While tools have been modeling embodied carbon for many decades, they have been slow and clunky until recent tools (such as Tally, EC3, OneClick) have made embodied carbon modeling of whole buildings more accessible to designers working in real-time and trying to make better choices about building materials. These tools are only as accurate as the databases behind them, but they are now capable of producing comparative results and helping design teams to balance negative and positive embodied carbon footprints within buildings.

It is recommended that the district attempt to reduce the embodied carbon footprint of materials in buildings by 25 percent from a typical baseline construction type by completing the following steps:

- Select a few typical projects within the District and have them modeled to provide a baseline of the embodied carbon that is typical within the District.
- Try substituting first structural materials, wall assemblies and then finish materials to determine where positive impacts can be found and targeted.
- Prepare “lessons learned” summaries and document them in design standards. OR
- Require design teams to model projects early in design and attempt to reduce the carbon footprint from a baseline by 25 percent.
- Model whole buildings as assemblies rather than as individual parts added together. For example, comparing brick cladding to wood cladding needs to consider the backup system, structure, clips, fasteners and so forth.
- Keep the material impacts on operational energy at the forefront of decisions as operational energy still trumps embodied carbon over many years of operation.



20 Buildings + Site

- Design for durability and flexibility over 100 years. This is to ensure that the enclosure and structure of a building is modular and can be maintained for a long time, while the interior may change and reconfigure for multiple uses over decades.
- Design school buildings to be useful for multiple community uses as neighborhoods ebb and flow from young families to retirees and back again.

Why:

The Global Alliance for Building and Construction 2018 data suggests that the production of building materials and construction itself (not including the Industrial sector) account for 11 percent of global CO2 emissions. Unlike operational carbon, embodied carbon can never be reduced once construction is complete (although it can be offset). As buildings improve their operational carbon footprint, their embodied carbon footprint will begin to be proportionately more important. Projections show that to keep global warming within 2 degrees Celsius, it is essential to reduce both operational carbon and the embodied carbon from producing materials and constructing new buildings.

Generally, about 80 percent of a new building's embodied carbon footprint is in structural materials. Materials like concrete or steel have high footprints compared to heavy timber and cross laminated timbers structures which have been gaining popularity. It is important to note that Forest Stewardship Council Certified forestry practices from regional forests are still essential to make this a responsible choice.

References:

[Urban Land Institute's Embodied Carbon in Building Materials for Real Estate](#)

[Tally Tool](#)

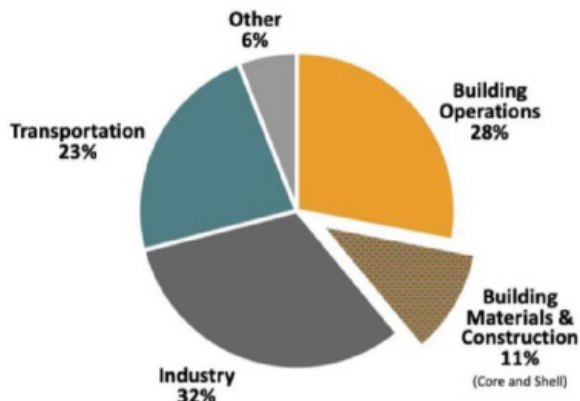
Resources Needed:

- Consulting services for modeling baseline scenarios to compare to new methods
- Additional services (perhaps) for design teams to prepare baseline and design case embodied carbon

20 Buildings + Site

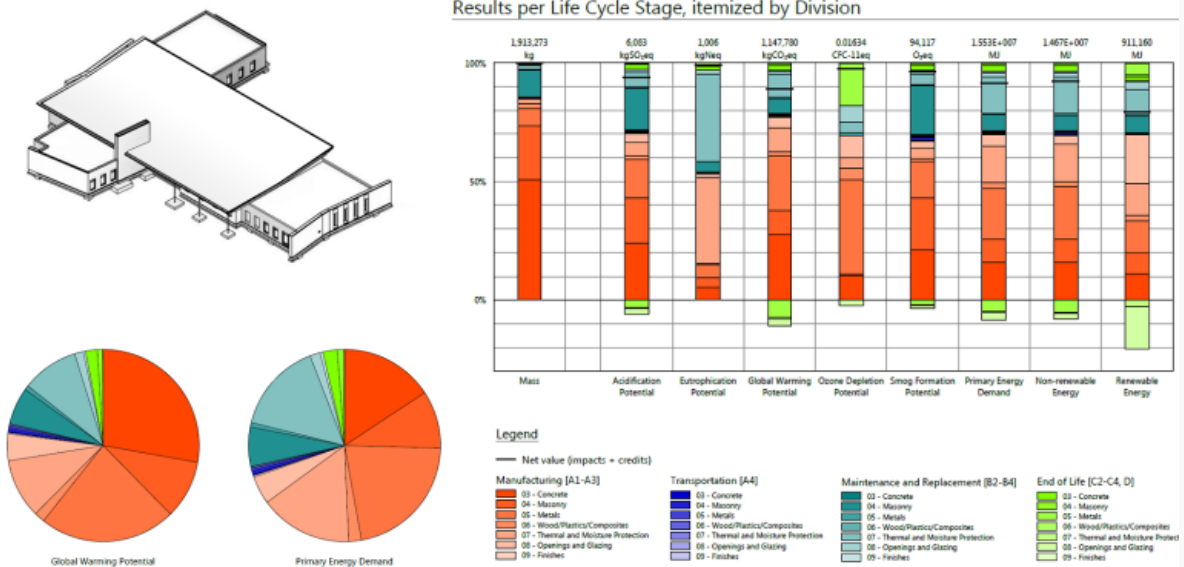


Global CO₂ Emissions by Sector



©Architecture 2030, using data from the Global Alliance for Buildings and Construction, 2018 Global Status Report.

Results per Life Cycle Stage, itemized by Division





PLAN SUSTAINABILITY RETROFITS

What – Recommended Goals/Strategies:

The District has completed many energy, water, recycling, composting, human health, and school yard retrofits over the last decade. There is a facilities audit due in August 2020 that promises to be a very detailed accounting of all the buildings' systems and the status of those systems at each school. Commissioning agents move around to all the schools and conduct regular audits collecting information and helping to maintain operations. Much information is available about the existing buildings and their performance. A review of the data happens across several spreadsheets that can be difficult to cross reference. It is recommended that the District make the best possible use of this data to help create a comprehensive plan for sustainability retrofits over the next decades. To meet the many performance targets recommended in this report, a plan for sustainability retrofits might require:

- Storing and updating available data in an interactive, searchable database tool that shares summaries and helps to interpret data in helpful dashboards or in computer aided facility management (CAFM) tool may be required to liberate data from multiple spreadsheets in a useful way. The cost of tools may be offset by a savings in staff time to manage and interpret data.
- Including new sustainability and performance criteria in the audit if it is missing from the current scope of work, but required to meet other standards suggested in this report such as energy performance, electrification status, water performance, human health and indoor air quality, waste systems, compost facilities, Living School Yards, renewables energy.
- Completing a building-by-building desktop analysis that ranks the projects in order of impact and priority based on multiple sustainability criteria.
- Placing the building and school yard retrofits on the BEX/BTA Bond cycle timeline along with the ability to meet the carbon positive and other targets within the chosen time frame (2030 or 2040).
- Integrate this planning work with the Capital Factors and Equity Factors weighted scoring system to influence the BEX/BTA Bond cycle planning efforts.
- Executing retrofits for most buildings and play yards over time as needed.
- Adding renewable energy to existing buildings as it becomes available.

**Why:**

There is a basic assumption in this recommendation that continued retrofits will be required to meet the district's carbon positive and other sustainability goals. The extent of work will need to be proven by the data in a district-wide operational carbon footprint analysis. Existing buildings are generally a large portion of any organizations operational carbon footprint and certainly so for the District. Even in systems where there is a huge transportation footprint, or in regions with cleaner electrical grids, building retrofits will likely be required to achieve carbon positive in a cost-effective way.

This recommendation also assumes that the 85 percent of buildings that have received energy or water upgrades in the recent past will be helpful, but likely not completely meet the need to decarbonize and prepare for renewable energy. Some of the natural gas-based equipment in recent retrofits is brand new. It might not make economic sense to replace that perfectly good equipment until other retrofits are in place and that equipment is further into its service life. From a strictly carbon standpoint, it may be desirable to change it sooner than imagined. It is assumed that eventually all the buildings will require retrofits to meet desired sustainability targets and carbon positive goals. If for no other reasons, it is assumed that retrofits will continue to be needed to help distribute the benefits of sustainability equitably across the district.

References:

None

Resources Needed:

- Database, Dashboard and or CAFM tools
- Engineering & design consultants to help model and analyze data and prioritize efforts



REQUIRE LBC CORE + PETAL CERTIFICATION (NEW PROJECTS)

What – Recommended Goals/Strategies:

It is recommended that all new construction projects starting with BTA V and BEX VI require Living Building Challenge (LBC) 4.0 Core Petal Certification plus the Energy Petal. The Water Petal could be an aspirational target but not as critical in this timeframe. The District could adopt many of the human health and materials petal requirements into their standards. This recommendation includes:

- Plan project budgets to cover a reasonable quality of construction for the intended program as well as renewable energy and water reuse technologies.
- Make performance targets and project goals precise and include them in the Request for Qualification documents.
- Engage experienced design and construction professionals well versed in LBC and the integrative design process.
- Hold the design and construction accountable for delivering high performance within the budget.
- Certify the projects to ensure full team cooperation and third-party verification.
- Document lessons learned, adjust, and improve standards, and share the successes as well as challenges to influence the industry.

Why:

The Living Building Challenge rating system administered by the International Living Future Institute is the third-party rating system that best aligns with the District's goals for water and carbon positive design, zero-waste and with an emphasis on health and wellbeing, connection to nature and equity. It is a rating system that measures actual performance, post-occupancy in the way that the district would like to be able to track performance ongoing. Version 4.0 of the LBC offers Core certification to define a base level of performance in each of the seven petals of Place, Health and Happiness, Energy, Water, Materials, Equity and Beauty. Petal certification in Energy and/or Water would ensure that all new projects would be meeting the District's carbon and water goals. Adopting LBC Core + Petal is the best way to immediately update and upgrade SPS building standards in the areas of greatest impact to human health and environmental justice.

This rating system is easiest to implement on new construction projects. Core certification should not add significant cost but will require process changes. New construction projects are essential to demonstrate for the students and the community what is possible.



22 Buildings + Site


References:

[Living Building Challenge version 4.0](#)

Resources Needed:

- Administrative and certification fees
- Adequate funding for the program requirements and budget for a reasonable quality of construction
- Renewable energy grants, Power Purchase Agreements, partnerships, or funding
- A willingness to explore longer-term paybacks to achieve maximum long-term savings to taxpayers



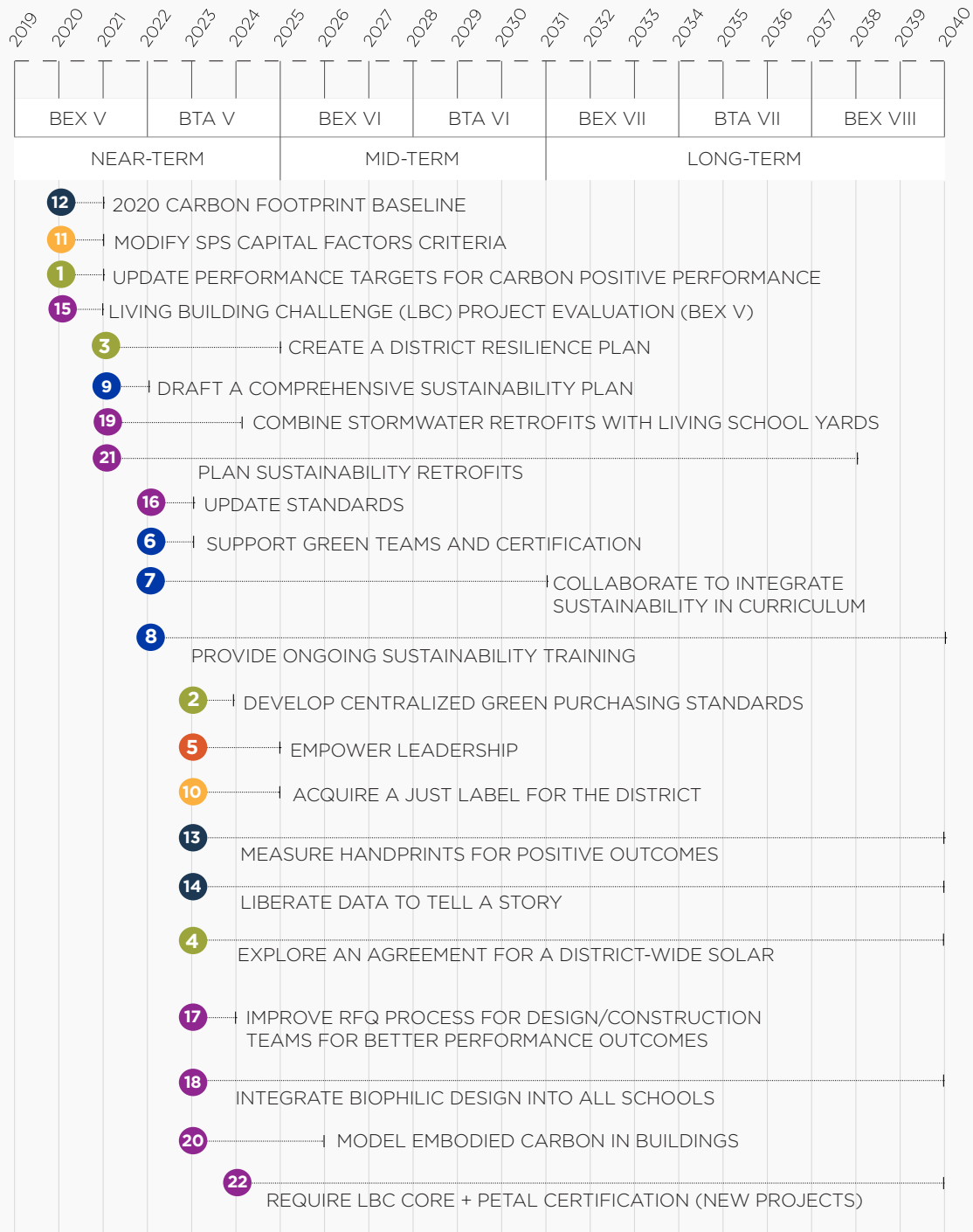
A woman with short blonde hair is smiling and looking down at a book she is holding. She is wearing a white lace top with pink floral patterns. The background is a blurred library with bookshelves.

NEXT STEPS

“It is not from ourselves
that we learn to be
better than we are.”

- WENDELL BERRY

NEXT STEPS: POLICY RECOMMENDATIONS



POLICY



STAFFING



EDUCATION



EQUITY



MEASUREMENT



BUILDINGS + SITE

NEXT STEPS

The recommendations in this report have a natural order of operations that are intended to help the district see the work ahead but be able to focus on each step in a logical sequence. The order of operations is:

- 1.** Work first on the baseline reports and studies to understand or validate what is most important and possible. This is also the time to put in place key changes that impact the BEX VI planning process.
- 2.** Complete comprehensive planning documents that will guide future implementation work and plan out the implementation details of future work.
- 3.** Update the standards and practices that will allow new goals and targets to become part of implementation. Aim to have these standards in place in time for the next BTA process to begin.
- 4.** Continue education efforts, while developing the new standards, tools and practices that are not a part of current operations or immediate BEX/BTA projects.
- 5.** Get leadership empowered at the Director level to shepherd changes, education, reporting and implementation over time.
- 6.** Implement toward the targets, measure progress, and celebrate success along the way.



