



MARY LYON ELEMENTARY SCHOOL

TACOMA PUBLIC SCHOOLS | TACOMA, WA, USA

2020 JAMES D. MACCONNELL AWARD SUBMISSION



EXECUTIVE SUMMARY

History, Community, and Collaboration

Mary Lyon Elementary School (MLES) in Tacoma, lies just four miles from the water’s edge of Puget Sound in Northwest Washington, USA. Beginning as a one room school house in 1909 and growing to a 270-student facility, the existing 18-classroom brick and stucco building was severely limited in its ability to provide appropriate facilities for elementary school students.

Surrounded by single-story family dwellings, the new school serves a community that in recent years has been underserved and economically challenged. With a highly diverse population, 30% of Mary Lyon students are learning English as a second language. Though living close to Pudget Sound, many have never visited it, a fact that became a key driver in the planning and design strategy for the new building.

Conceived through Tacoma Public Schools’ A Vision for the Elementary Learning Environment to serve the needs of next generation learners, the new building reflects the community of which it is a part. The planning process involved educators, students, parents, neighbors, and community partners, who were all active participants in setting the vision, priorities, and design parameters for the project.

The visioning and programming process incorporated a focus on the specific needs of the disadvantaged, language learners, autism students, and pre-Kindergarten programs. Inclusivity and equity were key drivers in all project decisions, resulting in a school that has a transformative impact on students and the community. Stakeholder engagement allowed all voices to be heard and continued from initial visioning until the new school opened.

The design process was driven by research focused on providing the most effective learning environments, given the site constraints, community aspirations, and specific student needs. By coupling this evidence based approach with broad stakeholder consultation, the following goals expressed as themes emerged:

- Learning, Exploration, and Travel
- Understanding and Connecting with the Natural World
- Community Pride
- Empathy

“Go forward,
attempt great things,
accomplish great things.”

Mary Lyon
1797-1849



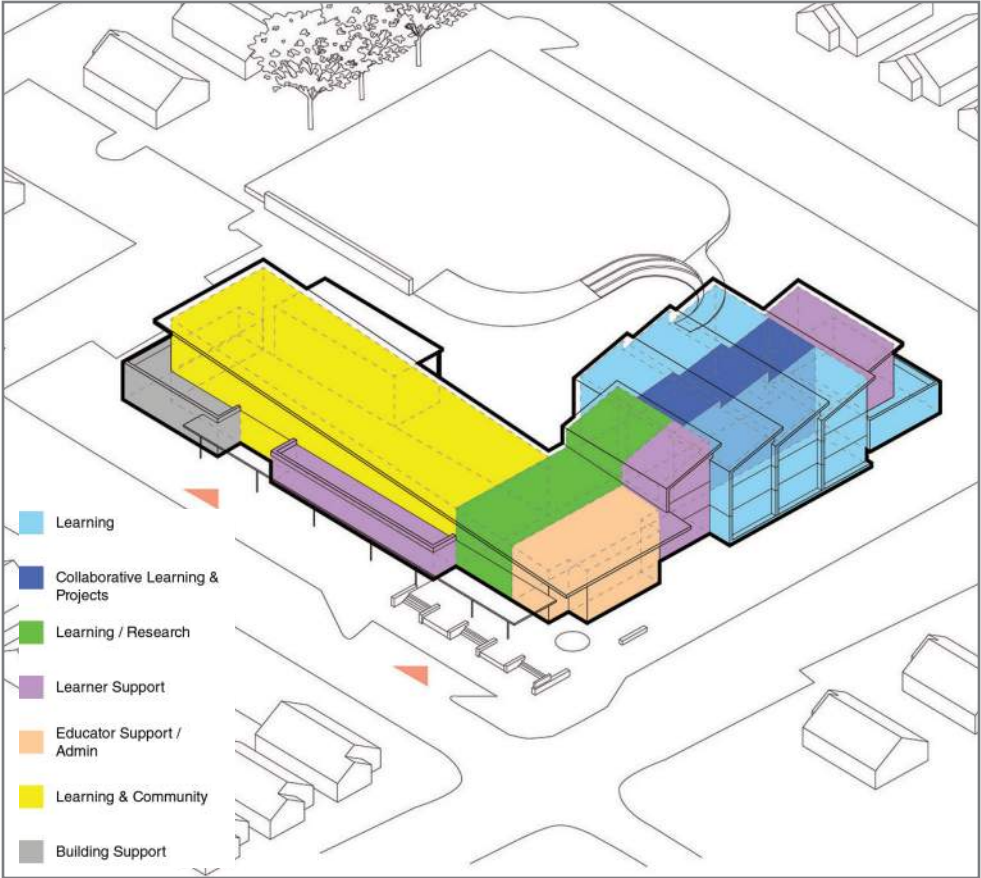


Site, Massing, and Climate

The parcel of land on which the new school is located is a fraction over three acres in area. Given the needs of bus and parent drop off, as well as staff parking, the only effective way to maintain sufficient outdoor play space was to make the classroom wing three stories — an unusual solution for an elementary school. The main elevations of the building are also placed as close as possible to the street edge to provide maximum outdoor area.

The resulting form provides a series of opportunities that were exploited by the design team. Nestled among single-story dwellings, the school directly engages with its neighbors both tectonically and volumetrically. The elevations are broken down into constituent, relatable components that enable the building's mass to sit comfortably next to smaller structures. Outdoor play spaces sit directly next to adjacent sidewalks, and create an invitation for after hours access and community use.

Precipitation levels in the Pacific Northwest are also accounted for, with a generous oversailing entrance canopy providing protection for waiting parents, and a triple downspout serving the long span mono-pitched roof (south facing for future solar array installation) terminating in a kinetic sculpture that celebrates the movement of water.



Library, Learning Neighborhoods, and Community Access

The fulcrum of the school is a triple-height library connecting each of the learning neighborhoods with the gymnasium, community living room, music room, multipurpose room, and drama space that are available for community use. The community living room was created as the result of a clearly articulated desire on the part of the District and the community for a specific space within the school for community use. In order to realize this additional program area, the school proposed that students could move outside, under a covered walkway, to access the cafeteria, without transiting the gymnasium. This kind of creative and flexible thinking is evidenced throughout the finished project.

The learning neighborhoods have differentiated and flexible learning spaces, with special programs integrated within the general education environment. Characterized by transparency, interconnectedness, and flexibility, they provide equitable learning spaces that integrate indoor, outdoor, and project-based learning. The relative height of the building is used to provide views of Puget Sound, and Mount Rainer in the distance. In keeping with the life and philosophy of the woman for whom the school is named, students are encouraged to connect meaningfully with their immediate surroundings, while looking beyond to the wider world, and the part they play in it.



Environmental Awareness and Community Pride

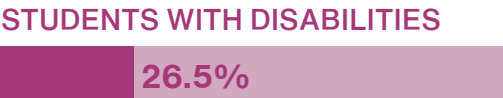
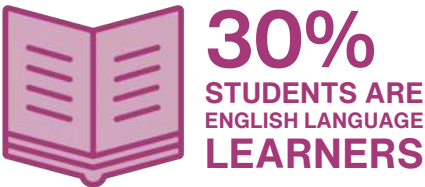
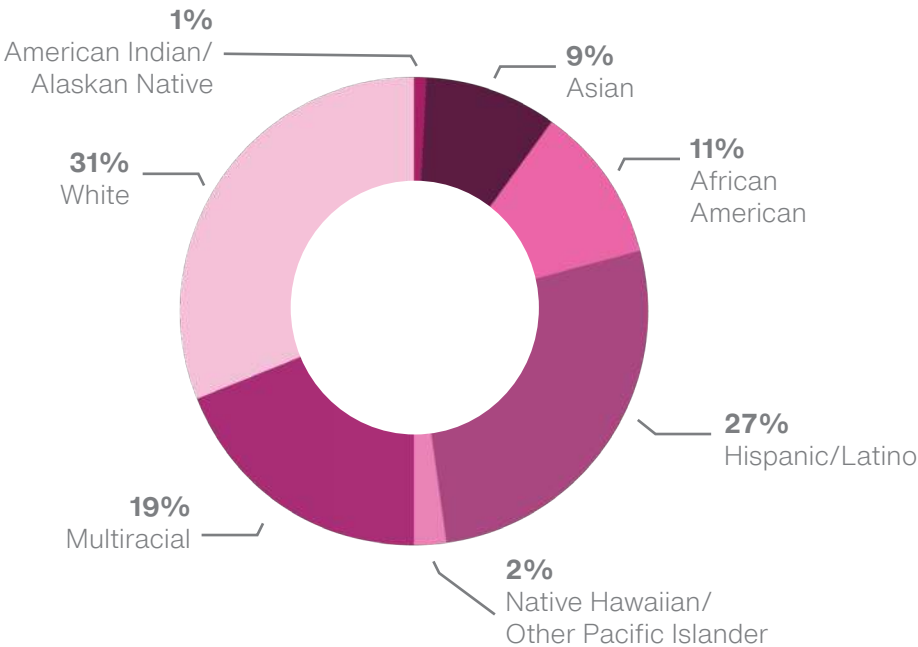
As a place that models and celebrates the natural environment, the new Mary Lyon Elementary School provides inspiring learning opportunities about our place in the natural environment and our role as stewards. Each of the floors is themed toward an element of nature, with informational graphics, points of learning, and design elements that celebrate the wonder of the natural world.

Since opening, the new school has become a source of civic pride and a valued community resource. Parents, students, teachers, and administrators have expressed their delight in being part of the design process, and their ability to live and learn in the new building.

SCOPE OF WORK AND BUDGET

STUDENT POPULATION

Pre-Kindergarten – Fifth Grade



BUILDING DETAILS



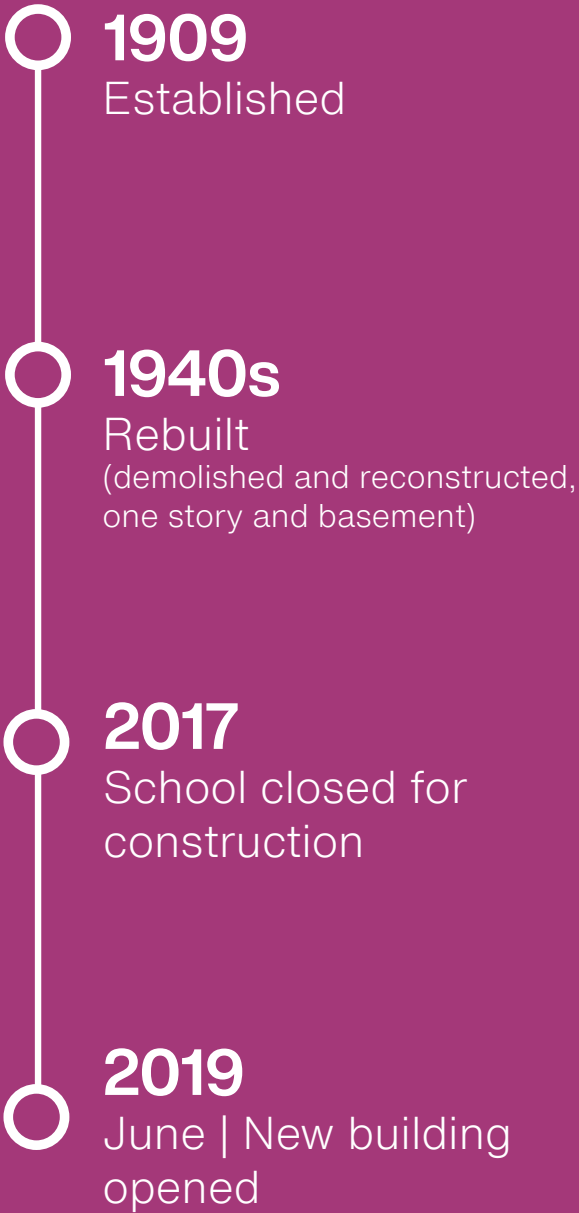
SITE DETAILS



SPECIALTY PROGRAMS



SCHOOL HISTORY



01

SCHOOL AND COMMUNITY ENGAGEMENT

The Community of Tacoma

Tacoma owes its genesis to the confluence of geography, politics, and industry. Incorporated in 1875, the city encompasses a deep water port, and following the lobbying efforts of its first mayor and his supporters, was selected to be the western terminus of the Northern Pacific Railroad. For much of the city's life it has depended on industries extracting and processing timber, fish, and minerals from the surrounding mountains and waterways. Like many North American cities, it has been through periods of economic expansion and decline, shifting demographics, and revitalization. Today, the city is seeking to reestablish itself through cultural initiatives focused on downtown historic buildings and new museums. The largest employers in the area are a nearby military base, healthcare providers headquartered in the city, and the State of Washington.

Southeast Tacoma, the area directly served by the new school, is highly diverse in terms of culture, language, and demographics. Many residents are low-mid level wage earners, with 89% of students qualifying for free and reduced meals. The area has been historically underserved by the city and school district.





Stakeholders

Stakeholders involved in the project — from visioning and programming to design — included students, educators, district staff, neighbors, and community members, each representing a diverse cross-section of the school community. Their role was formalized through a Design Advisory Committee.

Through a series of workshops, stakeholder meetings, and public engagement sessions, the following themes were found to be meaningful to the various stakeholder groups.

Students

- Camaraderie and inclusivity
- Generous active and gathering space
- Innovative and project-based learning space
- Quality environmental conditions
- Quality physical elements
- Empathy for teacher and staff space
- Creativity and fun

Staff

- Engage community
- Ensure basic needs
- Cultivate language
- Nurture inclusivity
- Support collaboration
- Optimize tools and eliminate barriers

Community

- Shared areas should be bigger!
- Centralize or intersperse support functions (no consensus)
- Find a way to bring in natural light
- Find a way to connect to the outdoors
- U-shapes and radial shapes are popular, reinforcing a suggestion of central gathering
- Create an entry lobby or plaza that respects the handoff of children and acts as the community living room
- Create courtyards and gardens and connect them to the neighborhoods



Challenges

The primary challenges faced by this community are a combination of socioeconomics and historic neglect. This combination of reduced social mobility and lack of trust in societal institutions meant that many community members had little expectation that their voices would be heard, or that significant change could be achieved. The challenge therefore fell to the district and design team to develop belief in the process, such that stakeholders would be willing to expend the necessary effort and energy needed to make their voices, ideas, and dreams heard.

An example of these low-bar expectations was the common request for the new school to consider a gymnasium without central columns and a ceiling higher than a typical house. A view of the old gymnasium space can be seen above, and serves to typify the educational adequacy of the previous building, which was highly inadequate in terms of space, building services, safety, finishes, and learning support.

The school is located in an older residential neighborhood with no significant nearby assets suitable for a school or young students. This placed even greater importance on the school to respond to community needs for learning, socialization, and activity.

Available Assets

The biggest asset that the project had throughout was the dedication and passion of district personnel, school administrators, teachers, students, parents, and community members. Once the engagement process began, and people became comfortable expressing their hopes, desires, and needs, the project picked up momentum quickly and was sustained throughout the design and construction process.



Value of Process and Project to Community at Large

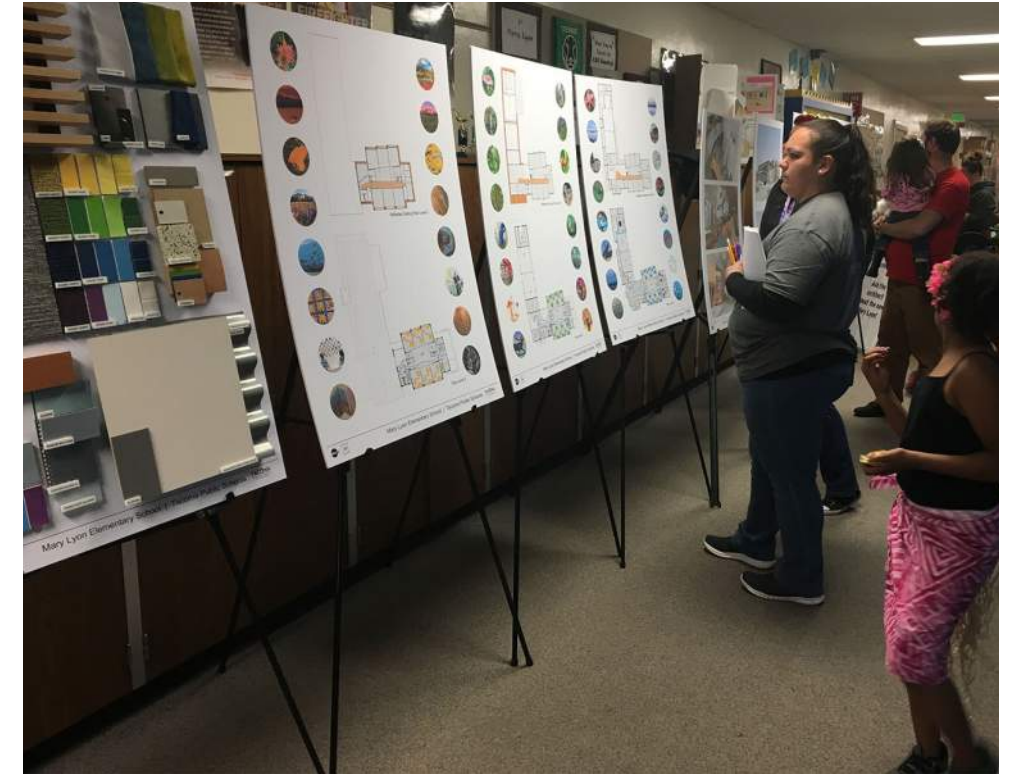
The process and design for the new Mary Lyon began with Tacoma Public Schools' A Vision for the Elementary Learning Environment. This far reaching and highly aspirational document, published in 2014, sets out the 'story, vision, and process' of Tacoma Public Schools, relative to elementary education. It was the foundation and driving force behind every aspect of the work needed to bring the new Mary Lyon Elementary School to completion.

Process Overview

The process for developing a school-specific vision, guiding principles, educational specifications, and design for Mary Lyon was guided by the Vision for Elementary Learning document referenced above. This process involved continuous stakeholder input from visioning and programming, through design and construction.

This resulted in the comprehensive alignment of process, educational specifications, and final design. The entire project team, including designers, community members, staff, educators, parents, and students, was continuously challenged to embrace, embody, and implement the vision and principles.

This continuity of engagement helped create confidence in the process, and credibility in the assertion that all voices matter. Ultimately, the design's responsiveness to stakeholder input has informed curriculum development at the school, as the various learning opportunities offered by the design became apparent.



Learner-Centered Pedagogy

The pedagogy envisioned by the school district placed learners at the center. The elements needed for successful learning outcomes were instilled in the vision and guiding principles provided by the school district, that in turn were reinforced by those developed with the school. Founded on brain research and evidence-based approaches to pedagogy, the process focused on creating optimum environments for in-depth learning based on inquiry, collaboration, critical thinking, communication, and creativity.

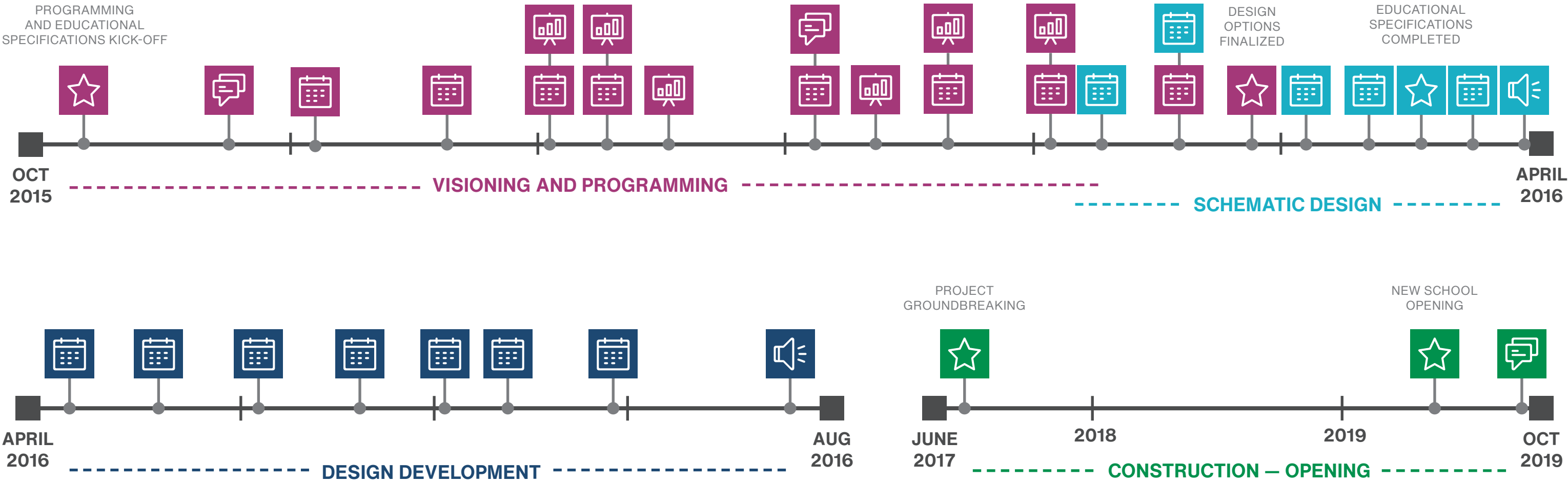
At all stages an empathetic relationship with stakeholders was pursued to both create the most effective learning environment and instill a sense of empathy among students. This required respecting the needs and characteristics of each individual, different learning styles and associated activities, and providing for change and evolution over time.

Making Design Accessible and Inspiring Future Designers

It was important during the process of design to allow stakeholders to access the proposed building intuitively. Utilizing our in-house virtual reality (VR) capabilities, the design team ran a series of events in which members of the Design Advisory Committee and the general public could be given a tour of the new building, as it was proposed during various stages of design development, using a VR headset and back pack to explore the virtual environment. Doing so created an opportunity for students and siblings to experience the latest technology relative to visualization and immersive VR, which was meant to ignite their interest in design and technology.





Project Timeline



LEGEND

-  **Public Engagement Events**
These events usually included project updates to the wider community.
-  **Design Advisory and Steering Committees meetings**
The Design Advisory and Steering Committees consisted of students, educators, district staff, neighbors, and community members, each representing a diverse cross-section of the school community.
-  **Stakeholder Group Sessions**
Stakeholder Group Sessions consisted of a larger population of each stakeholder group.

-  **Other meetings**
Additional meetings were held throughout the process to either discuss big-picture items or update multiple groups on the current status of the project.
-  **Milestones!**
From project deliverables to groundbreaking, each milestone marked an important step in the project process.

District-Generated Values

Contained within the Tacoma Public Schools’ A Vision for the Elementary Learning Environment document are the following statements about what the built environment will seek to achieve, which were foundational to the process.

The built environment will:

- Be learner-centered and designed to foster and support life-long learners.
- Support a learning model that is interdisciplinary, experiential and intergenerational.
- Foster a caring school community that values trust and respect between adults and students.
- Support positive, cooperative and nurturing relationships: adult to adult, adult to student, and student to student in both work and socialization.
- Be sized for personalized learning, collaboration, community facilitation and stewardship supporting contemplative space, small group, large group, school-wide and community-wide.
- Be responsive to human needs of light, air, sound and connection to natural environment exceeding acoustic standards in every classroom and space.
- Be inspirational with colors, natural day-lighting, artificial lighting, finishes and branding, with areas for student work to be displayed and presented.
- Embrace values such as community and empathy to establish a positive culture.
- Be designed to meet student physiological needs to provoke critical thinking.
- Promote safety and security – provided by clear hierarchy of site and building organizations.
- Be an inquisitive learning environment.
- Become a community asset, maximized to promote use by our partners and the community at large.
- Be risk tolerant and implement innovation.
- Be flexible and agile, to allow for customizable space for a wide variety of teaching and learning opportunities for both in terms of daily change and facility convertibility.
- Support a professional learning community where collaboration is encouraged, through team planning areas and transparency for promotion of best practices.
- Be planned for the future.

Project Specific Vision and Guiding Principles

Using the above statements as a jumping off point, the project team worked collaboratively with the Design Advisory Committee to develop the specific Mary Lyon Vision Statement and Guiding Principals, which were provided in English and Spanish.

Mary Lyon Elementary School Vision Statement

Mary Lyon Elementary School will proudly represent its neighborhood, engage its community, and embrace its diverse population of learners, creating a vibrant, transformative next generation learning environment where excellence thrives and students are enabled to go forward and accomplish great things.

La Escuela Primaria Mary Lyon representará su barrio con orgullo, cambiar la comunidad y abrazar a su poblacion diversa de estudiantes, creando un ambiente de apredizahe dinamica y transformadora de la proxima generaci3n donde prospera la excelencia y los estuadiantes pueden seguir adelante y lograr cosas grandes.



Mary Lyon Elementary School Guiding Principles

Through the visioning process, the stakeholders developed a set of more specific requirements for the design as follows:

- Support understanding of one's place in the NATURAL WORLD, stewardship for resources, and learning OUTDOORS.
- Celebrate NEIGHBORHOOD SPIRIT and express PRIDE in this place's unique character and worth.
- Cultivate COMMUNITY PARTNERSHIPS, promoting engagement, connection, and ownership.
- Provide a WELCOMING school that is SAFE and SECURE.
- Foster INCLUSIVITY by nurturing individual age, cultural, and special needs groups.
- Create EQUITABLE learning experiences that reflect and celebrate our DIVERSE community.
- Support a VARIETY of learning needs via DIFFERENTIATED OPPORTUNITIES to think, create, discover, impart, and exchange.
- Empower students through SELF-DIRECTED and COLLABORATIVE problem-solving activities.
- Provide AGILE, FLEXIBLE, and NURTURING environments that support differentiated learning, strong relationships, and educational change.
- Embrace TECHNOLOGY as a crucial learning tool that bridges school and community.
- Equip teachers and students with the RESOURCES to use space in innovative ways.
- Provide professional work environments that allow all staff to focus on students' support and personal growth.

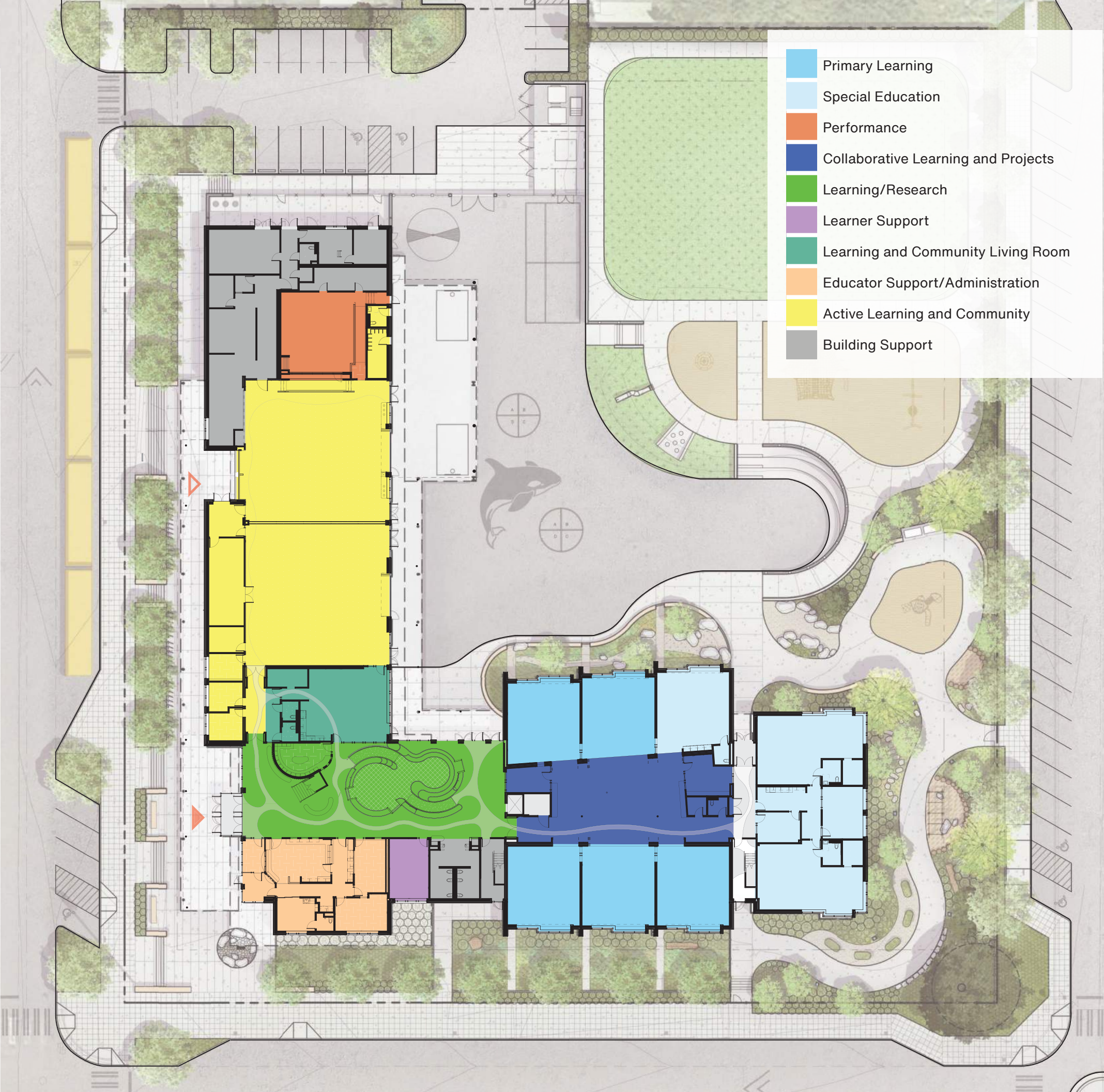
As is evident in the statements above, the value to the wider community for engaging in the process of determining how the new school should be planned was significant. People felt respected, valued, and above all heard. Our hope is that the experience demonstrates what can be achieved when a group of people set out with a common goal, grass roots support, and a vision for how the future might be a better place than the present.

02

EDUCATIONAL ENVIRONMENT

Educational Vision and Goals

Relative to the educational environment, a series of guiding principles were established that spoke to the vision and goals for the school, and how those would support a diversity of learning and teaching styles within a highly adaptable and flexible space.



“ WHEN IT RAINS, IT CHIMES. IT’S WHIMSICAL. IT’S MUSICAL. IT’S INTERACTIVE. IT’S A DOWNSPOUT, TOO. THIS PUBLIC ART PIECE OUTSIDE THE NEW MARY LYON ELEMENTARY...IS MEANT TO INVITE STUDENTS TO GET CLOSE TO ART AND INSPIRE THEIR OWN CREATIVITY. THE SCHOOL’S “SEA TO SKY” CLASSROOM THEME INFLUENCED THE ART PIECE, WHICH CHIMES WHEN RAIN RUNS THROUGH IT.

Tacoma Public Schools
Press Release



GUIDING PRINCIPLE

Celebrate neighborhood spirit and express pride in this place’s unique character and worth.

The prominent artwork by a local community artist at the main entry celebrates rainwater, gathering, and the vibrancy of the community’s multicultural population.

The curbside entry plazas prominently fronting the site, configured to face the main approach from the neighborhood commercial strip nearby, provide shelter and welcoming outreach to pedestrians, cyclists, and passengers arriving from multiple directions.

Structured and informal seating elements invite gathering; a digital board allows expressions of pride and community information; curbside rain gardens provide visual interest, student and community learning opportunities, and a demonstration of our place in the Puget Sound ecosystems; and play areas subtly secured from the streets all engage the neighborhood.

Transparency provides clear views into the library and community spaces from front and flanking streets. A large interior video display provides visitors and passersby with school information and history, notices of community events, and student work.

The bright colors at the projecting classroom window elements provide a clear expression of classroom identity, natural references, glimpses of students in their learning environment, and a strong image that respects neighborhood scale and diversity.

Wood reclaimed from the previous school’s stage is repurposed to provide visual and tactile engagement opportunities celebrating the community’s roots in the forests of the region. The central library, accessed from the main entry, provides both differentiated learning spaces and community gathering opportunities.



GUIDING PRINCIPLE

Cultivate community partnerships, promoting engagement, connection, and ownership.

To support both limited budgets, ease of supervision, and a concept of learning everywhere, the design incorporated main circulation spaces into larger spaces, thus nearly eliminating all corridors.

When a desire for a 'community living room' became apparent through the visioning and design process, space was created within the program by providing exterior circulation between the lunchtime and presentation activities in the multipurpose room and the remainder of the school.

This shared space includes a kitchenette, meeting space, and storage cabinets for different community and school groups who use of this space. Located between the library and gym, it has direct access to both and to the exterior, allowing after-hours and separate access from the school.

A long standing tradition of the school is for parents to drop off and pick up their children from the playground. This allows for secure access and play before and after school at a time that meets the needs of busy parents with sometimes conflicting schedules for work or in caring for extended family members. Students have ready access to outdoor and covered play areas, landscaped areas for rest or quiet reflection, and to the gymnasium and multipurpose room for breakfast or indoor activities and clubs.

The open shared learning areas at the learning neighborhoods integrate circulation with collaboration, project, and classroom breakout activities. They are readily accessible from the library on each floor and can further supplement community access and use of the school's resources.



GUIDING PRINCIPLE

Provide a welcoming school that is safe and secure.

Creating clear lines of sight and abundant transparency for adult supervision was a key design strategy to create a welcoming, safe, and healthy environment. It was important to develop a very robust strategy for dealing with any kind of intruder threat in a way that is intuitive to use, quick to implement, and embedded within the architecture. The solution involved the creation of a series of secure 'lines' within the entrance and circulation sequence from main entry to classroom.

Beyond arrival and departure times, visitors pass through a secure vestibule, with administrative staff controlling entry into the main school, with clear lines of sight into all main areas and entries. Each learning neighborhood is provided with secure doors that are ordinarily held open and sit within recesses in the wall, but upon activation of the fire or security alarm, close securely, allowing students and staff to shelter in place or escape through the exits at the other end of the block. Each classroom is provided with full-height foldable sliding glass partitions that allow the classroom to expand into the shared learning space. Across the entire length of this glazing, on the classroom side, is a curtain that runs seamlessly across the space to block any view into the classroom. These curtains are also used by teachers to create learning zones throughout the day. All classroom doors are also provided with a secure lock.

In the common areas of the building, benches are provided adjacent to display cases for student work or projects created in the community living room. Health and hygiene practices are emphasized through the placement of handwashing stations adjacent to main circulation spaces, outside student restrooms, and in the cafeteria.





GUIDING PRINCIPLE

Foster inclusivity by nurturing individual age, cultural, and special needs groups.

Accent colors, unique to each floor, provide clear orientation and wayfinding while providing a link to the overall educational design theme of connecting to the environment.

The school carefully balances the need for inclusion with spaces for students with specialized needs through the location of places for individualized academic support, life skills learning, and social-emotional regulation. The overarching strategy is that special education is delivered within the general education context, wherever possible. Each learning neighborhood is provided with a suite of support spaces that can be used for group or project work, or special education support.

When full inclusion is impractical, specific purpose spaces are provided to cater to student needs including spaces that provide regional support for the District's autism program. These more specialized areas are located adjacent to, but with an element of separation from, the learning neighborhoods, a solution that resulted from much deliberate discussion with school and district staff.

Elements within each space are designed to meet differentiated social, emotional, and learning needs of the full range of the student population. A blend of moveable and fixed seating and nooks in each classroom and the library offer varied opportunities of scale for prospect, refuge, and shelter.



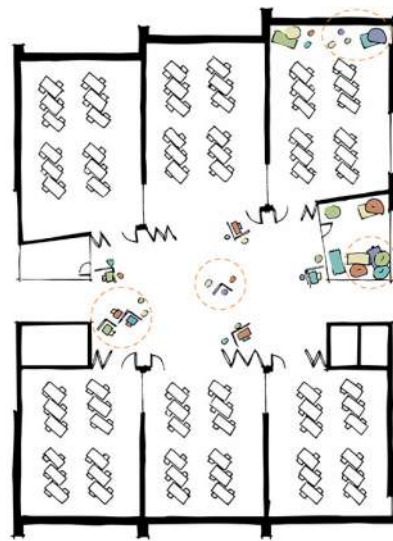
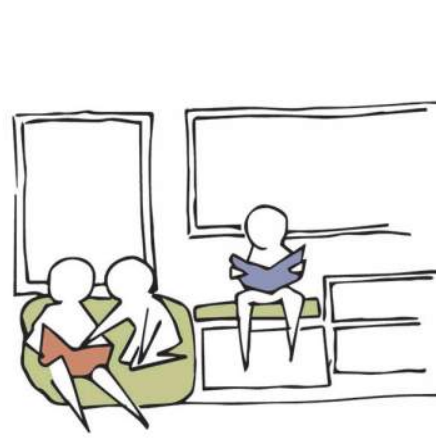
GUIDING PRINCIPLE

Create equitable learning experiences that reflect and celebrate our diverse community.

Signage panels at each learning space provide educators agency to personalize their environment by providing a continual reminder to all students of the greater school community and their role models and values. Tackable display panels are located throughout the school to give agency to the school, educators, students, and the community.

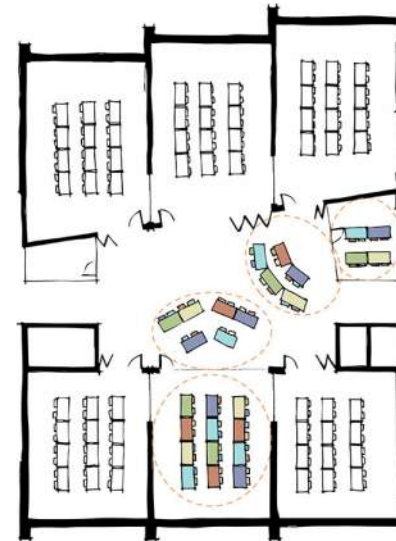
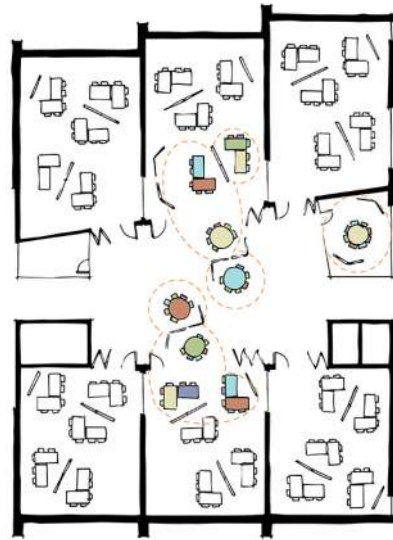
The “tidal pools” seating area in the open library provides a passive way for educators to corral those students, such as some in the autism program, who have a tendency to suddenly run in unpredictable ways. Locating these functions near the entry provides the ability for monitoring and ready access from the administration and principal’s office, should assistance be needed. The circular form creates a sense of embracing for students needing to control their sensory input while the warmth of the wooden wall and “forest canopy” ceiling panels provides a more individualized scale within the larger space.

Informal seating at strategic points along main circulation paths (there are almost no corridors) provide opportunities for socializing or learning while gathering or simply waiting for an excursion or a ride home.



GUIDING PRINCIPLE

Support a variety of learning needs via differentiated opportunities to think, create, discover, impart, and exchange.



The design process involved careful study of research focusing on how brains learn and respond to stimuli, the differentiated activities that support deep learning, and the types of spaces needed to support those activities.

Movable soft seating, bean bag chairs, and seat cushions provide flexibility and ergonomic choice. Students are given the opportunity to select their preferred seating, based on personal preference and the tasks being undertaken.

Nesting areas are provided at nooks throughout the building, for individual or paired use. Smaller groups can access soft seating that provides sheltered enclosure particularly suited for students requiring careful attention or shepherding. Larger organized groups for story time or direct instruction can assemble in the classrooms, shared learning areas, and library. In fact, the central library was named “the largest classroom” by the school, with direct access to the learning neighborhoods on all three floors.

Outdoor connections within the building are both literal and metaphorical. The ground floor “tidal pools” offer two group gathering spaces nestled within curving bookshelves. All levels also have water theme designed within the floor, allowing students to follow the tributaries and giving staff a convenient way of engaging students kinetically, while managing their transitions between spaces.

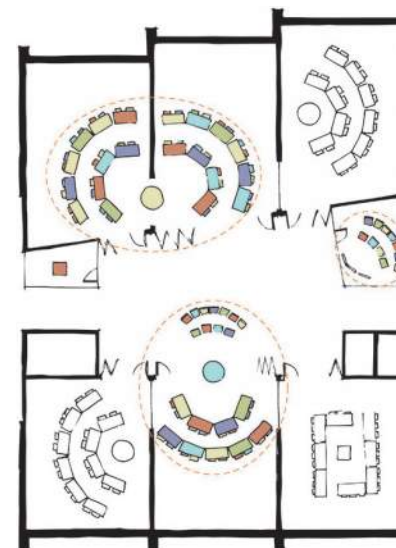
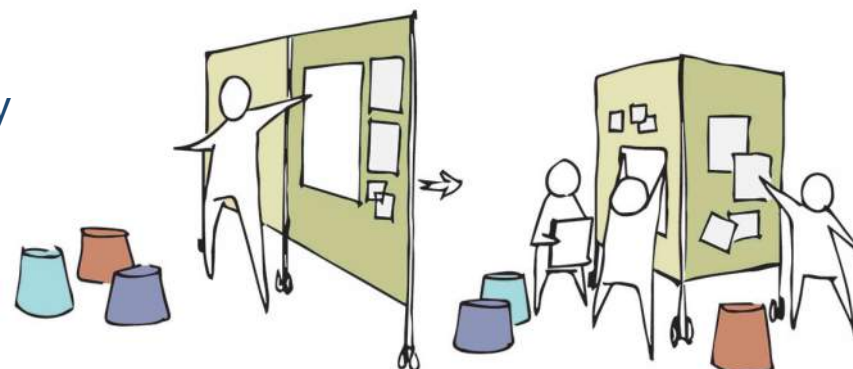
The second floor library instructional area provides more traditional grouping of students with multiple connections for mobile presentation stations and video monitors. This floor offers tables and chairs suitable for direct instruction, research, or small groups, while the third floor provides more intimate presentation and rehearsal space.

All levels provide differentiated experiences ranging from intimate nestling spaces to larger group areas, research and book materials, abundant natural light, and views into the playground, outdoor learning areas, or the neighborhood and mountains beyond. A range of opportunities are thereby created for self-direction, research, inquiry, and problem-solving including:

- Individual
- Large/Small Group
- Collaborative
- Directed
- Independent
- Inquiry-Based
- Hands-On
- Project-Based
- Specialty Guided Support and Tutoring

“ Besides the classrooms, shared learning spaces help us to spread students out so different groups can do their work independently without a single space getting too crazy...”

Feedback from the post-occupancy survey





“Different heights on different floors and alternative options have been a learning experience for staff and students, but I think ultimately more beneficial than not when appropriate norms are set.”

Feedback from the post-occupancy survey



GUIDING PRINCIPLE

Provide agile, flexible and nurturing environments that support differentiated learning, strong relationships, and educational change.

The user-controlled opening of the classrooms provides opportunities for teacher collaboration and shared instruction, as well as supporting adult monitoring and fostering a sense of community among all students in the neighborhood. These centralized learning areas are adjacent to each other, interconnected visually, and located on every floor. Transparency is used to connect all learning spaces to enhance collaboration, community, and monitoring.

Wet areas are consolidated for group project-based learning, with access to sinks, waste and recycling bins, and drinking fountains. Flexible spaces support a variety of activities and programs, including art, science, and life skills.

The shared learning space is the central organizing feature at the heart of each floor's learning neighborhood. It is durable, highly flexible, and supports a full range of collaborative, maker, individual, and group learning. Each is provided with a small flex room for mentoring and direct tutoring, large visual displays for neighborhood announcements or presentations, and tackable

surfaces for displaying work. Folding retractable partitions allow for easy reconfiguration of learning neighborhoods and individual classrooms in multiple configurations.

Furniture within the learning neighborhoods is carefully considered to provide for a variety of ergonomic options, allowing students and teachers to personalize their experience based on activity, body type, and personal preference.

Outdoor learning is focused on environmental engagement in both informative and playful ways. Informational plaques are located throughout the grounds, providing QR codes to easily access further material about the ecosystem of the exterior play areas.

Supporting the Curriculum

The educational environment is supportive of the school curriculum in many ways. The curriculum has been specifically targeted to meet the unique needs of the Mary Lyon population, including its loop teaching system, focus on project-based learning, focus on language learners, the needs of the disadvantaged, and the special needs of the autism students.

Loop teaching involves a teacher remaining with the same cohort of students through multiple academic years. The design supports this in a number of ways. The grouping of classrooms by neighborhoods allows similar age groups to be clustered together even when not in the same classroom. Each cohort and its teacher(s) can remain in the same space for multiple years, thus providing stability and instilling a greater sense of ownership and pride in one's own space.

The same features and services (storage, technology charging, in-floor power outlets, sinks for drinking, handwashing, and project cleanup) in each neighborhood ensure equity of access and opportunity for all. This also applies if a teacher and the class with whom they are "looped" moves between neighborhoods.

Project-based, experiential, hands-on learning is facilitated within each neighborhood through the open, shared collaboration/makerspace space at its heart. This space complements classrooms to provide additional opportunities for project-based, hands-on, and collaborative learning amongst all students. Older grade levels study science here, all students use it for science and art projects, and the youngest use it as a model kitchen for skills development. The outdoor learning gardens and rooftop learning deck support hands-on environmental and science-based inquiry, research, and projects.

The school's philosophy is summed up as "we are all language learners." This inclusive approach for all, irrespective of national, cultural, or linguistic origins, is reinforced with the central design theme common to all: our natural environment, in particular the local region. Graphics of native flora and fauna are provided on glass railings throughout the central library and in the outdoor learning gardens. Names of birds, fish, animals, and plants have also been displayed with the graphics on elevator doors.

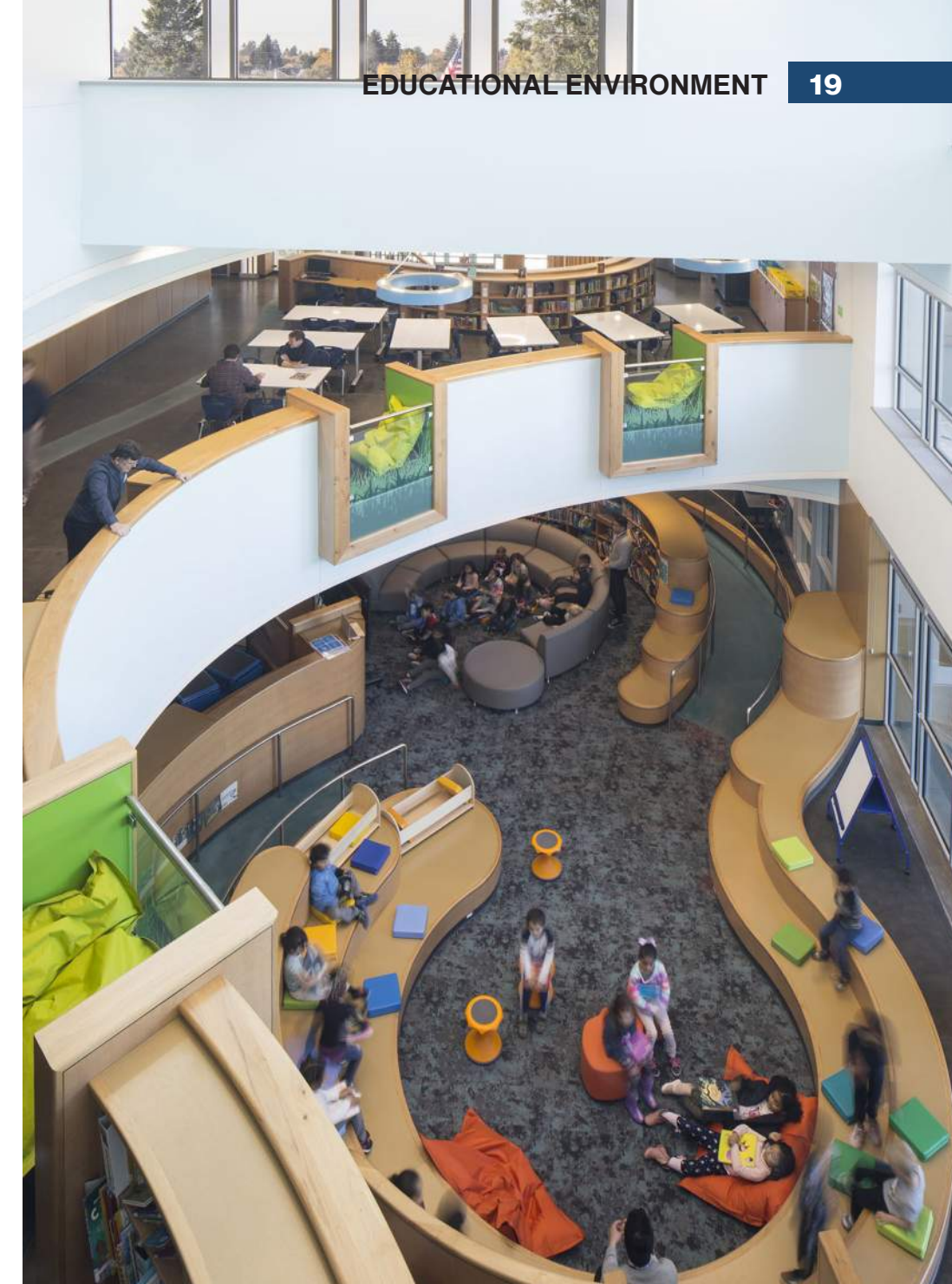
In a school where 89% of students are eligible for free or reduced meals, and where the school is distant from community assets such as libraries or social venues, the community living room plays a central role in the health of this neighborhood. This flexible and multi-use space provides a shared area used by the school and community groups, including for the following purposes:

- Student mentoring by teachers or members of the community.
- Parent Teacher Student Association (PTSA) events for cultural exchanges or school-related functions.
- Community members accessing computers or library resources for email, internet, learning, resume preparation, and employment applications.

The autism students are immersed within the general education areas as much as possible, including shared access for arrival, departure, and to the secure outdoor learning and play areas. A major design consideration for autism students is sensory stimulation and control. Cushioned walls and floors in secure alcoves are provided for those needing to act out in a physical way. A sensory room provides a safe place for indoor physical activity, with special equipment, cushioned floors, walls free of projections, and services located well out of reach of highly energetic and creative students.

Visual, tactile, and auditory stimulation is provided in varying ways: bright colors, reveals and projecting dowels at interior wall panels, and curved library seats and shelving all invite touch; and the blue textured "watercourse" floor pattern reduces footfall sounds in common areas. Exiting strategies ensure code-required emergency exiting did not provide students with a propensity for running unpredictably to be able to leave the safe confines of the fenced site.

A key aspect of the curriculum is creating an empathetic environment to support healthy and positive learning. The central design theme of connecting to the natural environment provides direct visual, metaphorical, emotional, and instructive relationships. The needs of educators were also recognized as critical to their support of students. Staff orientated features include a staff lounge suitable for collaboration, washrooms close to the classrooms, visibility between classrooms to support team teaching and the ability to leave their classroom.



“With shared learning there’s enough space for students to do more independent pbl [project-based learning] projects that’s harder to do when you have to be contained in a single classroom.”

FEEDBACK FROM THE POST-OCCUPANCY SURVEY

03

PHYSICAL ENVIRONMENT

Physical Attributes of the Environment

Before beginning the process of determining what the physical environment of the new school should be, the project team undertook a mapping exercise to develop an understanding of how students in the existing school used the physical environment afforded to them, and the different learning modalities they employed.

The process involved a detailed study of the general characteristics of students focused on three aspects:

- Students in this era
- In-depth examination of Mary Lyon students
- Learning styles and approaches of Mary Lyon educators



Next Generation Learners

Research demonstrates that in general terms students of the current era can be characterized in the following ways.



They have shorter attention spans than previous eras.



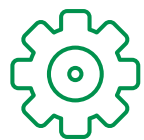
They are tech savvy.



They are more globally aware.



They deal with more socioeconomic uncertainty.



They live with rapid change.



They are driven and entrepreneurial.



They are diverse.



They intend to change the world.



A Day in the Life of a Mary Lyon Student

The characteristics of next generation learners are certainly true of Mary Lyon students. However, in order to better understand these specific students, an exercise was undertaken to map ‘A Day in the Life of a Mary Lyon Student’ to develop an evidence-based understanding of how an individual student at this school spends their time in group, in/near and visible/remote from the classroom.

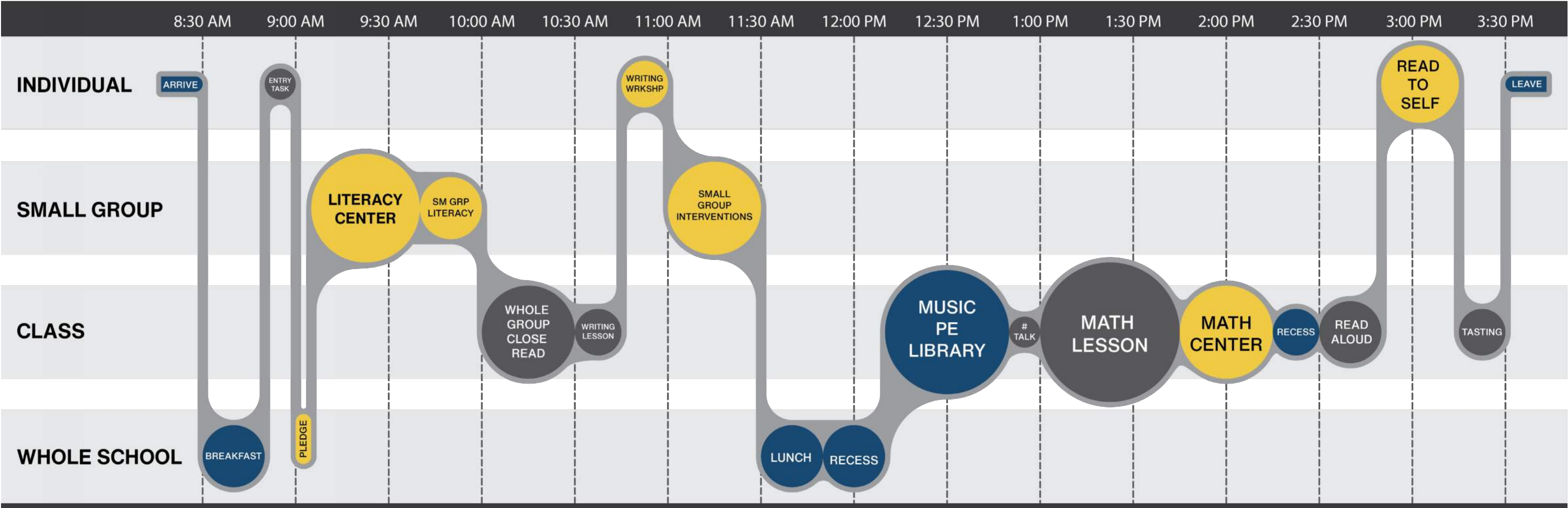
This study was developed as a school-specific test in response to recent design approaches based on the idea that students are now spending much more time distant from their main learning spaces, allowing classrooms to be smaller and thereby adding area to group spaces outside the classroom.

That model was found, through this exercise and consultation with the school, to be unreflective of the teaching and learning model that was desired. The resulting diagram honestly captured the specific culture of MLES and the design evolved accordingly.

This investigative exercise led to the clear understanding of an alignment between Mary Lyon students and the following next generation learning approaches:

- Engagement with extended learning
- Self-directed learning
- Learning through play
- Project-based and maker space learning

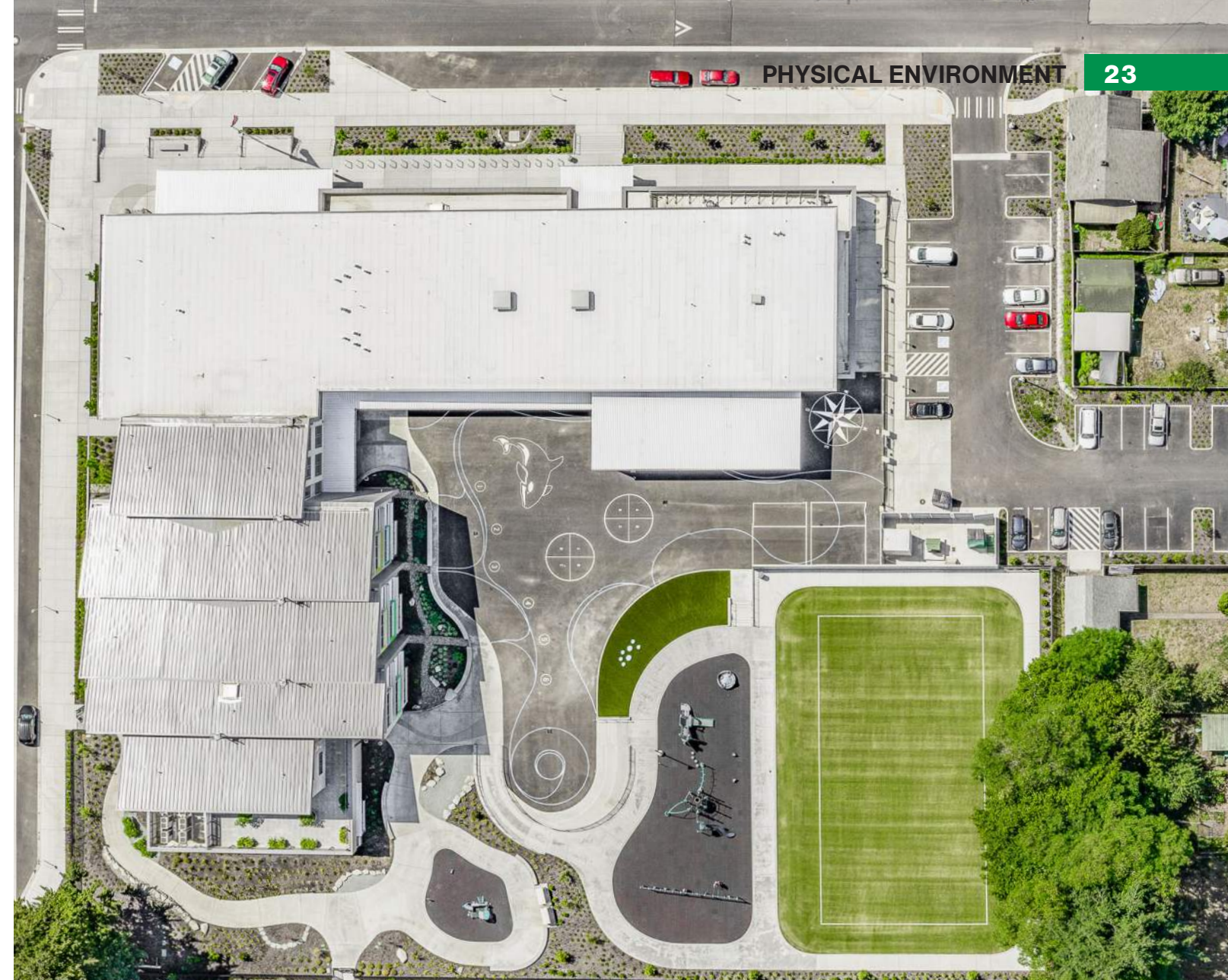
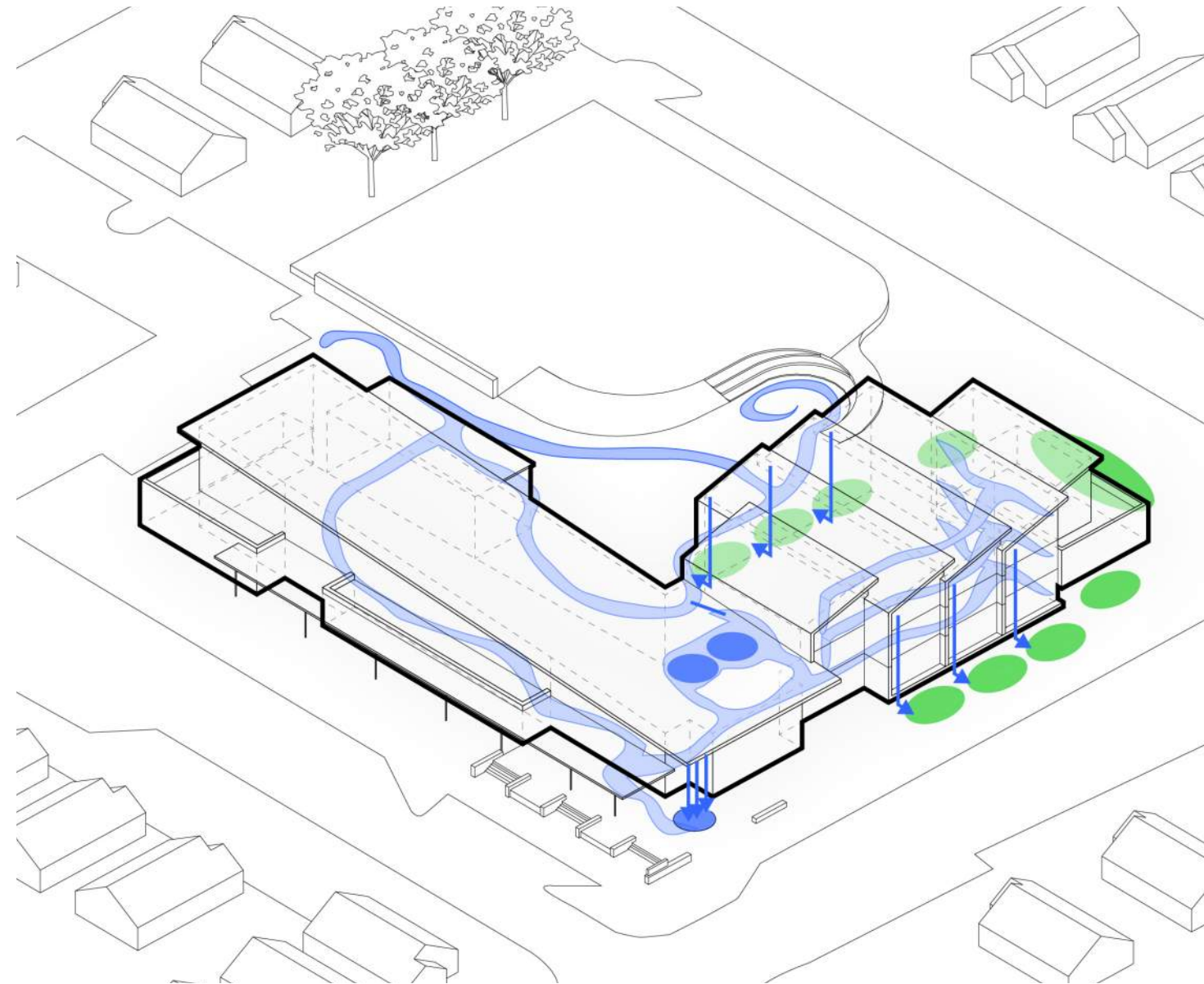
Each of these elements was therefore incorporated into the physical environment in ways previously articulated.



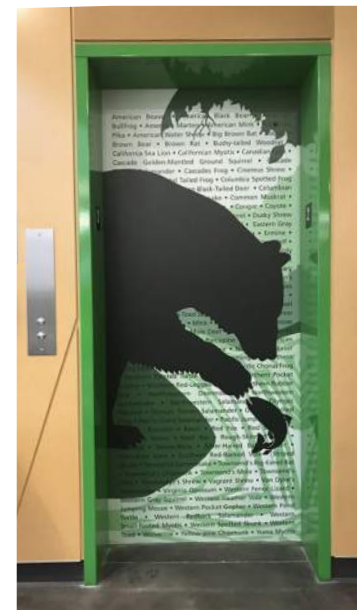
Sea to Sky: The Story of Water

The key design driver throughout the building, relative to the interior design and external play spaces, is the natural world. Many Mary Lyon students had never visited the mountains, forests, or waters of Puget Sound. They are just a few miles from the community, but not within reach of everyone. The desire was to draw student's attention to the wonders of the natural world that perhaps lie just outside of their daily experience. In doing so, it is hoped that they might be motivated to learn, explore, and be inspired by the rich biodiversity of the flora and fauna of the Pacific Northwest region.

From this key driver emerged the theme of sea to sky. As grades progress upward through the school, so they inhabit at first the tributary waters of the ground floor, with its tidal pools. Next they enter the forest zone, with its tree canopies, before they finally graduate to the top 'sky' floor where they can see across the surrounding neighborhood to the Puget Sound and mountains. Throughout each 'zone' are artistic and informational representations of the plants and animals that inhabit them.



“ Rain gardens, learning deck, fish tanks, science everywhere! ”
Feedback from the post-occupancy survey





Fitting Within the Wider Community Context

The Mary Lyon community is in southeast Tacoma, a working-class residential neighborhood comprised of older single-family houses on residential streets, many without curbs or defined street edges. The building's exterior massing and design is representative of its neighborhood, its interaction with nature, and the project's sustainable goals.

Vehicular traffic for parents, visitors, and buses is located in dedicated pull-out lanes on different streets fronting the school, a separation to enhance safety and continue the school's ritual of direct handoff of students between teachers and parents on both the street and playground sides.

Each part shares a common exterior expression, a unified palate of materials in a consistent language. A rhythm of frosted glass accent panels correspond to glazed areas, offering a playful pattern and additional shading value. A variation of bright colored fiber cement accent panels are provided at window bays that project from the classrooms, reserving the most playful exterior expression for the learning spaces, where students spend the most time each day.

Sloped metal roof forms echo the character of the surrounding residential buildings while reducing the feeling of height and building mass. Additional warmth is provided by the wood soffits at these roof forms as they turn down in the wall plane. The sloped roofs highlight the expression of rainwater for landscaping on site, in support of both the school's educational and sustainable goals.

Covered play canopies provide shelters that collect, protect, and welcome people to the school. This is important at both the main entry and rear entry where the morning and afternoon rituals of parent-to-teacher and teacher-to-parent transitions occur.

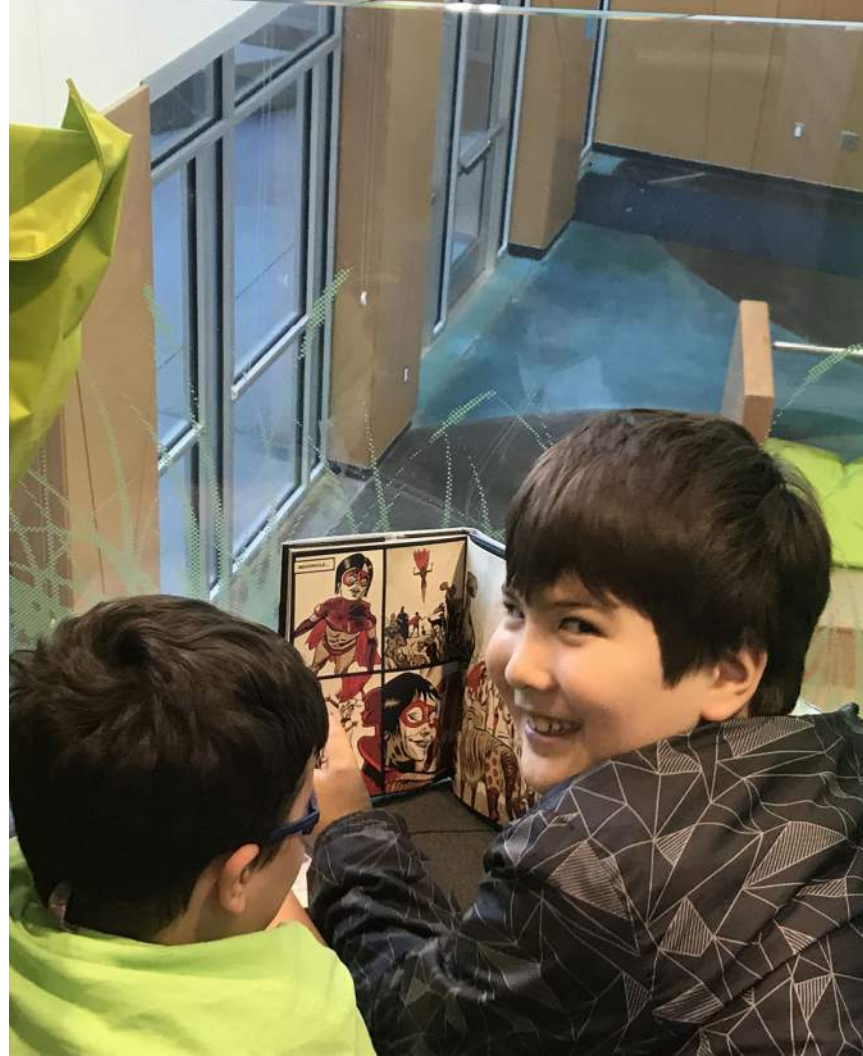
Inspiring and Motivating Students

By connecting students to their immediate, regional, and global surroundings, the building seeks to inspire curiosity, exploration, connection, and growth. The theme of water (as it trickles into the sea, evaporates into the sky, and falls as rain to feed the forest), connects to the intrinsic qualities of the Pacific Northwest.

Rainwater from the large overhanging roof is collected at the main entry and channeled into a whimsical interactive art piece inspired by a child's fantasies of sea creatures. From this source emerges the "watercourse," a stained and sandblasted pattern that winds its way into and through the building, linking the entries with circulation spaces throughout the school and the exterior. Water from the steeply sloping roofs over the classroom wing is directed via exposed downspouts to discharge directly into rain gardens in the playground and at public walkways.

The strategies and approaches described above and previously are intended to 'lift student's eyes,' both literally and metaphorically, so they can see themselves as having agency in their surroundings, and their future lives. It is hoped that the building will enable students to see that they have limitless potential. They deserve the best education, delivered in the best possible environment. Through education they have the opportunity to achieve great things and forge a life for themselves of their own choosing.

Mary Lyon came from humble beginnings, growing up on a farm in rural Massachusetts. Though her education was regularly interrupted by the need to help maintain the farm, she persevered and went on to found two colleges specifically for women. The school looks to her example in making high quality education available to a diverse group of students, with limited socioeconomic means. The building seeks to personify this philosophy in built form.



“ [The architect] listened to who our heart and soul was, and wrapped that up into a beautiful new building. ”

Anita Roth, Principal
Mary Lyon Elementary School

04

RESULTS OF THE PROCESS AND PROJECT

In June 2020, an online post-occupancy survey was circulated to the teaching, administrative staff, parents, and students to solicit their honest and anonymous feedback about their new environment. We present this information here as a way of demonstrating the results of the process and project. Feedback from the post-occupancy survey largely falls into three categories:

1. Things we clearly got right.

When feedback is comprehensively positive, the base assumption is that the intended outcomes of the process align with the actual outcomes.

2. Things we don't know if we got right or not.

When there is feedback that is split between positive and negative, either occupants have not been able to spend enough time in the building to make a balanced judgment or the design is useful to some and problematic for others.

3. Things we clearly got wrong.

When feedback is comprehensively negative, the base assumption is that the intended outcomes of the process do not align with the actual outcomes. There is one particular space that has been negatively received by staff. We are presenting this negative feedback in a transparent way, in the hope that others (and ourselves) can learn from this example.

Achieving Educational Goals and Objectives

Many of the goals and objectives for the project are educational, district, and community-focused, in that they are shared across all these areas. As such, the ones presented below against each of the three could in most cases be equally applied to the others.

The following are examples of where the planned, designed, and constructed facility achieves the educational goals and objectives that were being targeted. Some direct quotes from the post-occupancy survey forms have been included to further exemplify some of the complex viewpoints.

100%

of respondents answered yes to the following statements:

- The furniture adequately supports flexible use.
- The design adequately supports student-teacher interaction.
- The design supports student collaboration generally, inside the classroom, and outside the classroom (posed as three separate questions).
- The design of the classroom adequately supports teaching.

Student-Teacher Interaction

“ That it's open makes it so much easier to keep line of sight in different teaching moments and the sound separation from classroom to shared learning is great. ”

95%

of respondents answered that they used the following spaces on a daily or regular basis:

- Small collaboration rooms.
- Open shared collaboration areas.

Small Collaboration Rooms

“ One is used often as a cool down space, other times it's used for interventions. ”

Open Shared Collaboration Areas

“ 3rd floor does a group science lesson and I've seen several instances on all floors with guest presenters or shared learning activities in common areas. ”

91%

of respondents answered that they found the ability to open classrooms to the open shared collaboration areas either useful (67%) or adequate (24%).

Ability to Open Classrooms

“ Use it for co-teaching opportunities. ”

90%

of respondents felt that the school design adequately supports learning about the natural environment.

Learning About the Natural Environment

“ The grow beds on the learning beds and ability to bring in a salmon tank provided wonderful learning opportunities for our students. I don't think they've done as much with the various signs pointing out natural features of the grounds, but maybe we can do more with it later. ”

85%

of respondents answered yes to the following statements:

- The design of the school is a teaching/learning tool.
- The design inspires you or your students to learn more about the natural environment.

Teaching/Learning Tool

“ I think the building is a teaching/learning tool we've only begun to scratch the surface on. Kind of like using Photoshop to touch up a photo. That's not all it's capable of doing, but we haven't quite gotten to the point where we're using all the parts to it's utmost potential. ”

80%

of respondents answered that they found the Puget Sound theme to support or inspire students to learn, explore, or travel.

Puget Sound Theme Supporting Learning

“ I think it gives cues we can use for that purpose, but I don't think we're there as a staff — we've had too much to do to just figuring out and streamlining how the building works over the course of a day and school year. ”

10%

of respondents stated that they considered the open library to be successful. The biggest issue identified was (with a 55% response) the openness of the space.

Library

“ I have not come across any school that has liked the open concept for the library. Bad decision. ”

Achieving School District Goals

The following are examples of where the planned, designed, and constructed facility achieves the school district goals that were being targeted.

100%

of respondents answered yes to the following statements:

- There is sufficient flexibility in the design of the classrooms.
- The design supports student projects or project-based learning.

Flexibility of Classrooms

“ Too much flexibility I think for me to use, but I have a handful of configurations that I find to be effective. Over time they may change as my students and I grow and I appreciate that it feels like the space can handle how my teaching evolves. ”

95%

of respondents answered yes to the following statements:

- There is sufficient flexibility in the design of spaces other than classrooms.
- The digital technology provided in the school improves the teaching and learning experience.

Technology

“ It helps a lot when it works. Over time we got better with it, but every now and again there are some hiccups. ”

86%

of respondents felt that there is sufficient natural daylight inside the school.

Natural Light

“ I love it! I only turn my lights on halfway through the day in the winter. Less headaches from florescent lighting. ”

80%

of respondents believe that the design supports the teaching or learning of communication skills.

Communication Skills

“ ...It gives us lots of opportunities to guide students on appropriate ways to communicate in different spaces like in a classroom versus shared learning versus the open library versus the playground, etc. ”

90%

of respondents felt that the school design supports students and learning.

Supporting Students and Learning

“ I think lots of parts of the building really let students know they were at the heart of how the building was designed--specifically thinking to furniture and some of the features like the cool down spaces and nooks, etc. ”

85%

of respondents believe that the school design supports teachers and teaching.

Supporting Teachers and Teaching

“ While it's very modular, I don't think fully using that modularity is effective--but the ability to make a couple adjustments and support to do a handful of different learning configurations during instruction is amazing. ”

75%

of respondents feel that the design supports the teaching or learning of critical thinking skills.

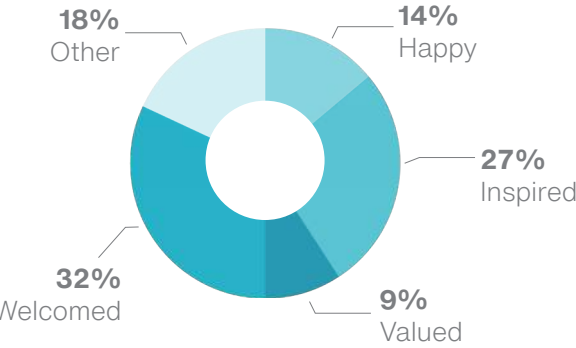
Critical Thinking Skills

“ Haven't been there long enough to know. ”

Achieving Community Goals

The following are examples of where the planned, designed, and constructed facility achieves the community goals that were being targeted.

In responding to being asked “how the design makes you feel”, people answered in the following ways:



Here are some of the 'other' responses we received:

“ All of the above and more. It feels like a home. ”

“ Feels a little sterile with the flooring decision. ”

“ Clean. ”

100%

of respondents believe that the school represents and supports the community in the way they had wanted.

Community Support and Representation

“ The collaborative nature aligns to my goals with teaching students how to be cooperative learners. ”

82%

of respondents answered yes to the following statements:

- The design makes me feel safe.
- The school feels welcoming.

Feeling Safe

“ While I say no, I don't think it's terrible--but the openness is a security concern for me in a lock down scenario that I still worry about. ”

Feeling Welcomed

“ As a teacher I feel it does. Some families might find it cold/uninviting due to safety protocols. ”

Unintended Results and Achievements

The following results are more general in nature, and some were certainly unexpected, which would suggest that they were also unintended.

58%

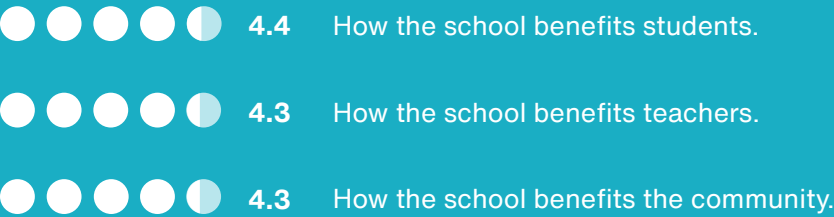
of respondents answered 'yes' to the statement “The folding glass walls in the classrooms benefit teaching/learning or safety.”

This is puzzling given the fact that there was total support for the idea that the classrooms are flexible and support project-based learning. Our tentative conclusions are that either the benefits of the movable glass walls are not quite connected in people's minds to the role they play in supporting flexible and project based learning, the fact that these partitions are glass is not seen to contribute to the overall benefit they provide, or respondents are split between the benefits to learning and the perceived compromise to safety that the glass represents.

Another unintended result is the discovery that most people are largely unconcerned about the fact that as an elementary school the learning neighborhoods are arranged on three levels. This was a cause of real concern during the planning and design process, and we were expecting some strong opinions on the issue, but in fact 55% of respondents felt “it made no difference,” and 36% actually prefer it. This would certainly be relevant when considering elementary schools as part of high rise or dense urban sites.

Overall Results

Perhaps most gratifying for the project team were the results relative to three generalized questions on the survey. Respondents were asked to rate their overall impressions of the school on a scale of zero to five against certain criteria. The mean average results were as follows:



05

EDUCATIONAL SPECIFICATIONS

The project was guided from the outset by Tacoma Public Schools' A Vision for the Elementary Learning Environment which established direction for the process and design of the school. This vision called for a flexible program framework for an innovative, school-specific learning environment focused on multiple learning styles for Next Generation Learners. Specific building blocks were provided as a basis for the planning process; these were developed and transformed to meet this school's individual needs.

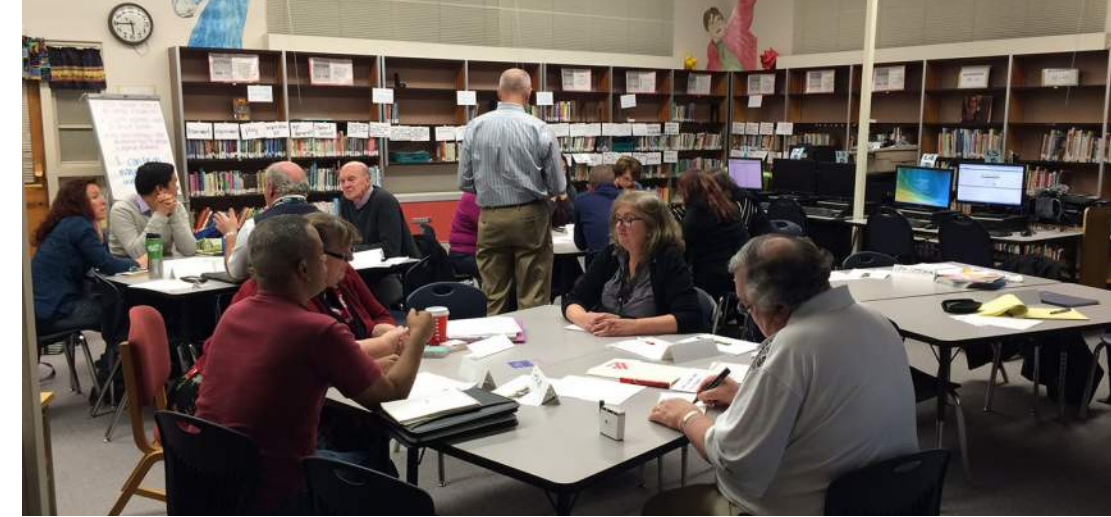
The project-specific Design Advisory Committee (DAC) was established to create a clear vision for the new Mary Lyon Elementary School, including a list of detailed guiding principles from which the school-specific educational specifications and design emerged. This committee involved school and district staff, educators, students, parents, and community members with nearly two dozen members participating in meetings and workshops over five months during pre-design.

A series of guiding visioning and planning workshops with the DAC were held at the start of the project, including several led by a professional educational facilitator. The vision and guiding principles were used as constant determinants and checkpoints during the educational planning and design of both the new facility and the emerging educational environment created by the school and district. This iterative process resulted in a cohesive pairing of educational specifications and design as they emerged in tandem, one informing the other.

Multiple approaches were explored by the committee, involving a full range of issues from placement of the school on the site, single to multiple story configurations, and detailed thematic approaches to design that would reflect the school's changing approach to learning and curriculum. Engagement and reporting out of the design team's progress to the DAC continued throughout design, documentation, and into construction. This extended iteration resulted in changes during construction to enhance the educational environment as funds became available. Most notable was the re-incorporation of folding glass walls between the classrooms and open Shared Learning Areas to accommodate flexibility of daily use and longer-term changes in pedagogy.

The DAC prioritized the guiding principles which determined key design themes; these in turn informed the planning, aesthetics, and educational opportunities suggested and provided by the design. Paramount was having the school building and site reflect and inspire student and community engagement with the natural environment through the use of planning, visual cues, materials, aesthetic treatments, and graphics. The workshops created and supported empathetic relationships that fostered broad examination of what a learner-focused school means to design, including students' promotion of professional working environments for both teachers and support staff at all levels.

Project management by both the district and design team was very active and hands-on, engaging with various user groups and community members both formally and informally throughout the project. Progress of the design and construction was conveyed to the community by the district through a series of meetings and regular on-line updates with photos and narratives. The general contractor and many subcontractors were local to the area, a response to outreach efforts to the community and a key desire of the district's efforts for local inclusion.



SIX
MONTHS



**6 STAKEHOLDER
GROUPS**



**THREE
SCHOOL
TOURS**

**TWENTY-NINE
PERSON
COMMITTEE**



06

EDUCATIONAL VISIONING DOCUMENT

“If learning happens far more outside school than within it, then how do we align our efforts and our language to build a culture that wraps around our kids so they are learning all day, every day, and throughout the year? That is the ultimate challenge for which there is no answer.”

So begins the Tacoma Public Schools’ A Vision for the Elementary Learning Environment, a farsighted document that sets the tone and ambition for the Mary Lyon Elementary School project. Structured around the three themes of ‘story, vision, and process,’ the document seeks to identify the right questions to ask when developing a school.

Embracing the uncertainty of a question-based approach is empowering to everyone involved and allows the project team to explore ideas without the specter of dogmatic orthodoxy overshadowing them.

Focusing the visioning document at a strategic level is perhaps a very obvious choice to make, but all too often such documents allow themselves to stray into territory that becomes prescriptive. By writing and publishing this document, Tacoma Public Schools laid the foundation for project teams working on their schools to ‘dream big’ and in so doing, provide the best possible educational environments to their community.

In recognizing the positive impact that schools can have in communities beyond the school day, Tacoma Public Schools understands the reality that public education is increasingly a vehicle through which broader public good can be achieved. Rather than turning their back on these challenges and opportunities, they chose to embrace the myriad ways in which schools can be used to provide public services and community support.

It is this kind of aspiration and broad perspective that engages designers in ways that drive them to accomplish their best work. Maintaining energy and enthusiasm for a process that lasts years and is mentally and physically draining, requires that everyone involved feel motivated and that their contribution has meaningful impact.

This document was a key facilitator in helping the entire project team to stay focused on the ultimate prize – a school that truly benefits students, their families, and the wider community for many years to come.

“ The visioning document isn’t an answer. It’s a list of the best questions we have that should be asked relentlessly by all people who are committed to partnering with us, including community-based organizations, the business community, and parents. ”

Tacoma Public Schools
A Vision for the Elementary Learning Environment

