



Story Elementary School

Conceptual Schoolyard Redevelopment Plan

December 2022

Acknowledgments

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Conceptual Plan Drawings:

Existing Site Plan

Proposed Site Plan

Stormwater Green Infrastructure Plan

Arts, Outdoor Education, and Community Engagement Plan

Land Acknowledgment

We acknowledge that Milwaukee lies on traditional Menominee, Potawatomi, and Ho-Chunk homeland along the southwest shores of Lake Michigan, part of North America's largest system of freshwater lakes. On this site, the Milwaukee, Menominee, and Kinnickinnic rivers meet, and the people of Wisconsin's Menominee, Ojibwe, Ho-Chunk, Oneida, and Mohican sovereign nations remain present to this day.

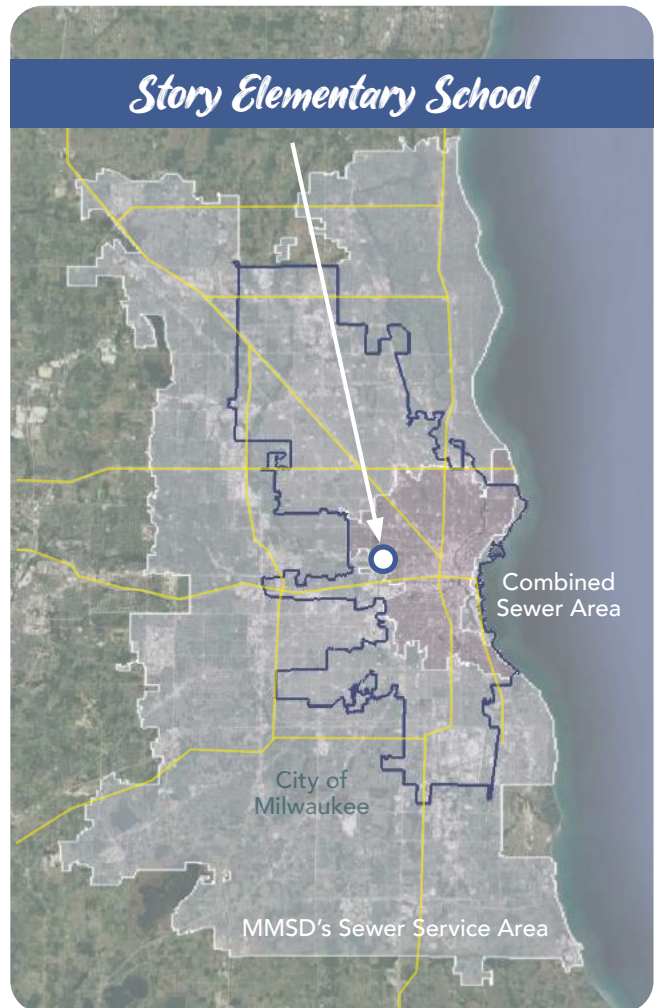


Existing schoolyard at Story Elementary School

Introduction

Impervious surfaces (hardscapes including asphalt and concrete) characterize so much of our built environment that we no longer even notice how they shape the contours of our urban communities. Excessive imperviousness leads to sewage overflows and basement backups, degrades the quality of our rivers and lake, and costs us millions each year in economic losses and infrastructure repair, all of which deter investment and impede socioeconomic progress. Schools surrounded by seas of splintering asphalt offer opportunities to replace imperviousness with beautiful, nature-inspired landscapes that increase urban biodiversity, educate, and inspire.

Through funding provided by the Milwaukee Metropolitan Sewerage District and the Fund for Lake Michigan, the nonprofit Reflo and its partners collaborate with five schools annually to develop conceptual schoolyard redevelopment plans that holistically address the issue of each school's imperviousness. This document compiles over a year of conceptual planning in order to provide a single, feasible vision for redeveloping a greener, healthier schoolyard. These projects also provide a multitude of STEAM (science, technology, engineering, arts, and mathematics) curricular connections as well as triple-bottom-line (social, environmental, and economic) benefits for the students, school, and community.



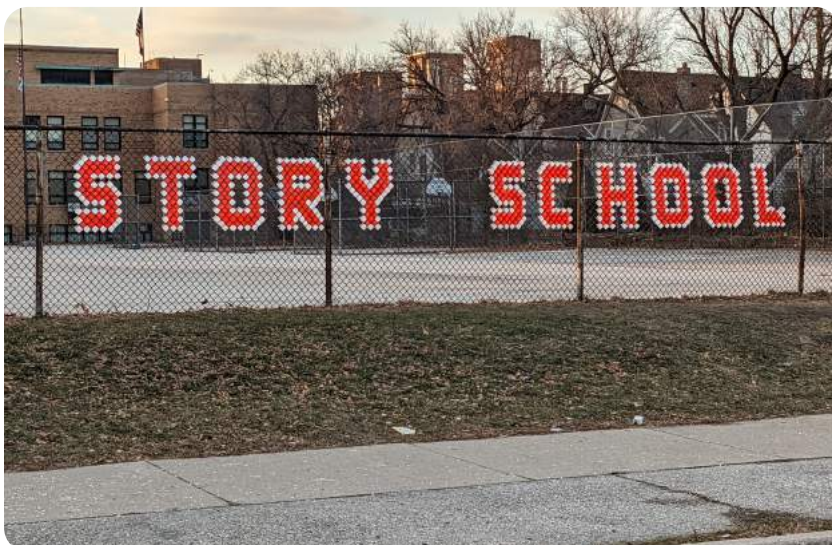
School Story

Story Elementary School is an architectural gem nestled on a quiet street in the Miller Valley neighborhood of Milwaukee located near the Molson Coors and Harley-Davidson corporate headquarters. Our beautiful, art-filled building provides a safe and inclusive learning environment. Our English as a Second Language (ESL) program serves our multilingual, diverse population. Story offers many academic enrichment opportunities in a multicultural setting that celebrates our students' unique identities and cultures. We reinforce positive student behaviors that create a kind, respectful, and accountable culture for all.

Story welcomes all families and respects diversity. All staff members, in partnership with parents and families, are fully committed to providing high quality instruction in order to prepare students for college and career readiness. Students are empowered to meet current

and future challenges to develop social awareness, civic responsibility, and personal growth. Our licensed teachers and talented staff emphasize success in reading, mathematics, language arts, science, technology, and provide enriching experiences through art, music, and physical education classes.

The new green space will provide resources and experiences that allow students to advance their education of sustainability, growing local, healthy foods, and managing stormwater effectively. All will benefit from a calming, natural environment during recess, in physical education classes, and during cross-curricular outdoor learning and play experiences. We look forward to transforming the schoolyard into a vibrant outdoor space that encourages healthy relationships with the environment, student-led learning and exploration, and a life-long love for learning with our children.



Story Elementary School

3815 W Kilbourn Avenue
Milwaukee, WI 53208

- Milwaukee Public School
- Grades: K4 through 8th
- 392 students
- 84% economically disadvantaged
- 13% special education
- Combined sewer area
- Menomonee River watershed

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Conceptual Redevelopment Plans

On an annual basis, the nonprofit Reflo and its partners, with the support of the Milwaukee Metropolitan Sewerage District (MMSD), works through the Green Schools Consortium of Milwaukee (GSCM) to select and collaborate with schools that are interested in redeveloping their schoolyards. Planning efforts incorporate creative applications of stormwater green infrastructure, outdoor educational elements, and other features that improve the social, environmental, and economic health of the school and community. With the approval of school and district administrators, schools apply for and are selected to receive conceptual planning support. The over year-long collaborative planning process has resulted in the production of this

conceptual planning document, which is intended to guide the multi-year redevelopment.

Story Elementary School's conceptual plan includes many stakeholder perspectives including those of students, parents, teachers, administrators, maintenance staff, neighborhood residents, and project partners. The plans are intended to be feasible and to support the school's and project stakeholders' needs and interests. Significant care was taken to consolidate project ideas and coalesce around one unified project vision. As the project progresses through the fundraising and detailed design phases, project components will be further defined and best fit to the amount of funds raised.

Story Elementary School's Mission:

Story welcomes all families and respects diversity. All staff members, in partnership with parents and families, are fully committed to providing high quality instruction in order to prepare students for college and career readiness. Students are empowered to meet current and future challenges to develop social awareness, civic responsibility, and personal growth.

Network of Support

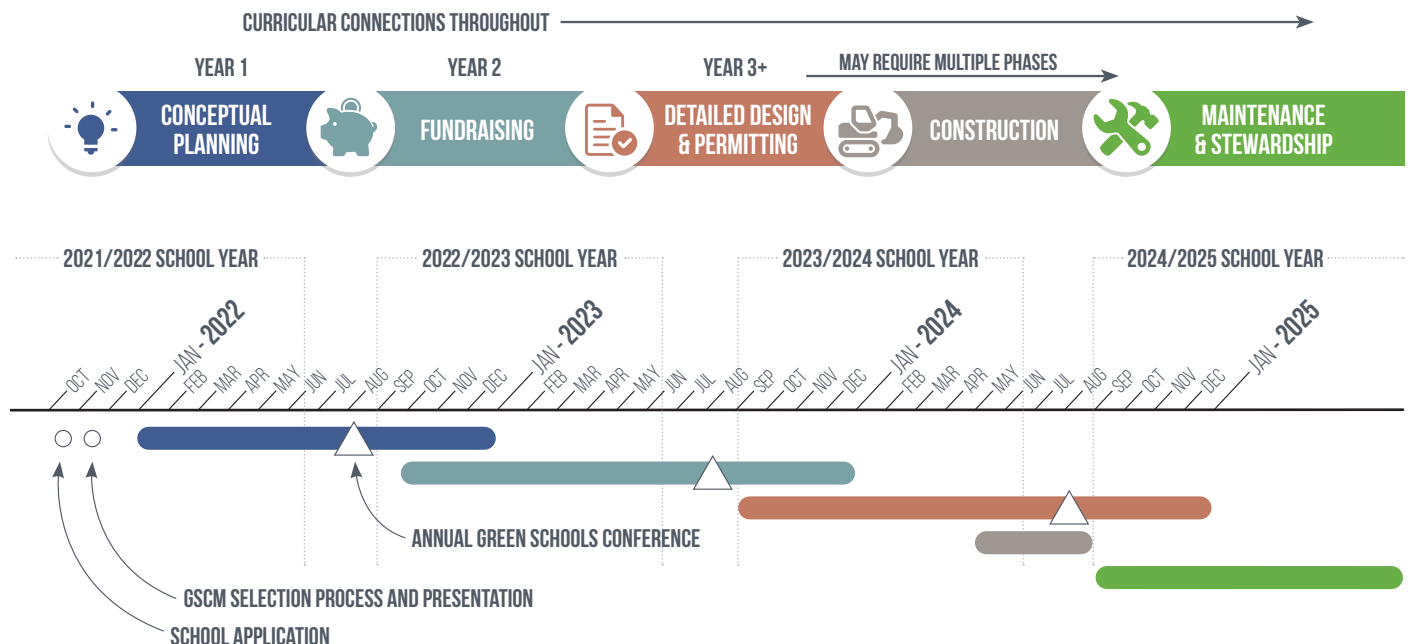
The GSCM is a local network of practitioners, agencies, and funders that are committed to supporting greener, healthier schools and ecoliteracy in the Milwaukee area. The GSCM gathers on a bimonthly and annual basis to share resources and lessons learned. The 6th Annual Green & Healthy Schools Conference hosted more than 500 participants and over 70 exhibitors. Each year the GSCM also hears from schools that are interested in schoolyard redevelopment projects and collectively decides which projects to support, in part, based on need and enthusiasm.



Project Development Process and Timeline

The following process diagram and timeline visualizes the major project development phases that a typical schoolyard redevelopment project in the Milwaukee area undertakes when supported by Reflo and the Green Schools Consortium of Milwaukee. The process begins in October with schools applying to receive a conceptual planning grant provided by Reflo and the

Milwaukee Metropolitan Sewerage District. Schools that advance to the second stage are then asked to present to the GSCM's Project Selection Committee on their need and enthusiasm. Following the selection, five schools are awarded the planning grant and begin the conceptual planning process with monthly Green Team meetings starting in January the following year.





Stormwater Green Infrastructure

Green infrastructure is a strategy that diverts stormwater runoff from entering the sewer system and **manages stormwater where it falls** through a more sustainable means, mimicking natural water systems. Green infrastructure can also provide creative opportunities to incorporate STEAM (science, technology, engineering, arts, and math) concepts in student learning and promote community engagement. The school grounds currently contribute a significant amount of stormwater runoff that can lead to area flooding and impaired water quality for our rivers and lake. The conceptual redevelopment plan includes multiple green infrastructure strategies to manage as much stormwater as feasible on the school grounds.

Story Elementary's conceptual plan calls for removal of approximately **28,200 sq. ft.** of asphalt and replacing it with new green space and mixed-use recreation and educational areas. The design includes two new outdoor classroom areas, bioswales, a synthetic soccer field with an underground cistern beneath it, porous groundcovering, and the addition of 30 stormwater trees. The inclusion of a variety of native plantings allow for unique spaces on the schoolyard that can represent natural Wisconsin ecosystems, complete with student-created signage. The plan manages approximately **120,390 gallons** of stormwater per rain event.

Story needs and deserves to have a playground that supports all grade levels and student needs with unique and exciting outdoor learning opportunities and experiences. I'm excited to see additions to the schoolyard that will engage our students and help build a stronger sense of community and belonging.

Elizabeth Pampuch – Speech & Language Pathologist





Asphalt Removal

Hard surfaces like asphalt and concrete are the primary sources of stormwater runoff. Replacing hardscapes with more porous landcovers and other types of green infrastructure helps infiltrate stormwater into the ground and prevent it from running off into the sewer system. These changes promote better stormwater management, reduce the heat island effect, improve social-emotional outlook, improve urban habitats, and increase biodiversity.



Bioswales

Bioswales typically capture polluted stormwater runoff from roads and parking lots, infiltrating that water into the ground and cleaning it naturally. They are planted with vegetation that helps to soak up and clean the polluted runoff. They can be installed as meandering or straight channels depending on the land that's available, and are designed to maximize the time rainwater spends in the swale.



Stormwater Trees

Trees reduce stormwater runoff by capturing and storing water, improving water quality by decreasing the amount of pollutants that enter rivers, streams, and lakes. Tree roots help slow down and store runoff, which further promotes infiltration into the soil, decreasing erosion and flooding events. Stormwater trees also improve air quality, reduce urban heat island effect, increase habitat for wildlife, and provide recreational and aesthetic value.



Native Plantings

Vegetation native to Wisconsin has adapted to the region's climate and soils. Native plants typically have deeper root systems that help them withstand both droughts and heavy rains and also allow for greater stormwater infiltration. These native plant sensory gardens also promote biodiversity and provide habitat for pollinator species.



Rendering of Story Elementary's conceptual schoolyard redevelopment by CDS

Green Schools Consortium of Milwaukee
A Green & Healthy Schools Wisconsin Regional Network



Outdoor Education and Healthy Food Access

As illustrated in the infographics produced by Children & Nature Network and Cream City Conservation Corps (found in the Planned Curricular Connections section of this document), access to outdoor classrooms on school grounds can significantly **enhance learning** outcomes and social-emotional well-being. Raised bed gardens also offer the opportunity to provide low-cost, **healthy food** options to students, their families, and the surrounding communities. Successful Green Teams use school gardens as **educational opportunities** to explore topics such as water and life cycles, ecosystems, economics, geometry, conservation, and social studies.

Story Elementary's schoolyard redevelopment includes two **outdoor classroom areas** complete with seating and materials to support outdoor learning. A shade structure will cover one learning area while mature trees will provide shade in a second nature-inspired learning area. Additional **raised beds** will support pollinator species, garden-based lessons, and other curricular connections. Nearby green infrastructure including bioswales and native planting areas also serve as unique learning spaces. **Interpretative signage** throughout the schoolyard will support student-curated tours and encourage learning through self-guided exploration.

Green schoolyards promote academic achievement through hands-on, experiential learning and by enhancing the cognitive and emotional processes important for learning.

It will be refreshing to have a more interactive schoolyard where children can engage in meaningful outdoor learning and play activities. The greener environment will help students with self-regulation and build social-emotional learning skills with the opportunity to participate in activities that fit their individual needs and interests.



Kendra Spain – 5th Grade Teacher



School Gardens

School gardens range in scale from the typical 4-by-8-foot raised bed garden, to hoop houses, to larger-scale greenhouses. Milwaukee-area schools have successful demonstrations of each scale of school garden and are best sized based on the interest level and capacity of the school's Green Team to manage the gardening operations.



Healthy Food Access

Some communities do not have easy access to low-cost, healthy foods. On top of providing engaging outdoor learning opportunities, school gardens are excellent opportunities to provide fresh, locally grown produce. Culinary arts lesson plans and tasting programs can demonstrate how healthy food can also be tasty food.



Culturally Relevant Curricular Connections

Developing lesson plans that are culturally relevant to students can help to create a sense of inclusiveness and promote positive learning outcomes for all students. For example, school gardens can include a diversity of crops that support exploration of different cultures and can demonstrate that food production is an important component of all cultures.



Outdoor Classrooms and Interpretative Signage

Outdoor classrooms can include natural green space and/or built shade structures. Seating and shade elements are common design features to accommodate longer class periods outdoors. Interpretative signage can serve to engage local artists and support learning not only by students, but also by the surrounding community.



Professional local artist Reynaldo Hernandez with students from Parkside School for the Arts during an unveiling of the new outdoor murals they created together at the school.



Arts and Community Engagement

The arts can be a simple yet profound way to address **educational equity** in our communities. Through the use of arts-enhanced and arts-integrated classroom methodologies, teachers can implement strategies that support curricular connections, maximize student engagement, and further academic success. Green and healthy themes can be explored through visual and performing art forms as students build their knowledge, investigate human impacts on the environment, analyze perceptions, and enhance personal connections to the natural world.

Green and healthy schools provide a unique opportunity to support the development of **social-emotional learning** (SEL) through the integration of the arts and environmental education. Arts @ Large and Milwaukee Public Schools are committed to designing programs that promote SEL while creating supportive learning environments that address the needs of the whole child. School staff receive training about the impacts of trauma, explore ways to meaningfully **engage families**, and support youth through experiential learning to better position them for potential future careers.

Natural areas promote child-directed free play that is imaginative, constructive, sensory rich and cooperative.

Our school is multicultural and values inclusivity. We would like the outside environment to be as welcoming and safe as the inside of our building and each classroom. Our staff is dedicated to green initiatives and providing safe, green-themed outdoor learning opportunities. I'm excited for more outdoor spaces to use in fresh air - which will help our busy bodies and growing brains!

Rindee Mowery – Speech & Language Pathologist





Social-Emotional Learning

The arts can be an incredible vehicle to model best practices in Social-Emotional Learning (SEL). SEL is the process of developing fundamental skills for life success within supportive, participatory learning environments. These skills include recognizing, managing emotions, setting/achieving goals, feeling/demonstrating empathy for others, establishing/maintaining positive relationships, and making responsible decisions.



Visual Arts

The use of visual arts strategies in the classroom can lead to greater engagement and deeper learning by the student. When paired with a project such as a schoolyard redevelopment, the works of art created by the students will not only beautify the space, but also provide a sense of ownership and accomplishment to celebrate with the students and their families. With the visual arts, the invisible becomes visible!



Performing Arts

The performing arts can be an incredible tool to activate spaces within the school environment. Theatrical performances and activities are a great way to explore a space and learn how to create meaningful interactions between students and nature, develop empathy for other forms of life, and learn to embrace sustainability as a community practice.



Exhibition

Creating student-led exhibitions is a great way to build an understanding of how nature sustains life. Through research and design, students can learn from content experts and share their experiences and knowledge through docent-led exhibits.



Rendering of Story Elementary's conceptual schoolyard redevelopment by CDS



Recreation and Other Site Improvements

Naturalized spaces provide opportunity for cooperative play and help children **develop resilience** skills as they navigate novel environments and encounter new challenges. Well-supported and engaging recreational opportunities can also help increase attention spans, improve social-emotional learning, and encourage team building. Creative applications of **visual arts** on walls and ground coverings can help guide students in independent and group physical fitness activities. These recreational improvements can enhance critical thinking and problem-solving skills, reduce instances of childhood obesity, and promote other **positive health outcomes**.

Story Elementary's conceptual plan includes a **synthetic turf soccer field**, colorful asphalt markings that support game play and agility, **nature play areas**, and gaga ball pits. Balance logs and stumps will support gross motor development and the addition of **musical instruments** will provide a variety of play experiences. **Artistically designed benches** are intended to help beautify the space and provide areas for rest. Significant thought was put into the flow of how students move through the various spaces with special consideration for activities such as basketball, sensory paths, and pavement marking activities like four square and hopscotch.

Meaningful, positive experiences in nature guide children, youth and adults toward care for nature.

I am excited that we will be removing a lot of the concrete so when people play football, they won't get hurt when they fall. With all of the new changes, kids won't be so bored and will have lots of choices during recess!

Fuad Mohamed – 5th Grade Student



Nature Play

The incorporation of balance beams, loose parts, boulders, play mounds, and other nature-inspired features encourages imaginative, cooperative free play as students work together to explore their environment. These naturalized play features support the physical, social-emotional, and motor skill development of youth while promoting creativity and critical thinking.



Outdoor Recreation

Green schoolyards support a wide range of recreation activities that provide additional opportunities for student choice compared to traditional schoolyards. Youth may participate in quiet, solitary explorations or opt for organized group play. Varied recreation components allow children to build cooperation and negotiation skills and strengthen the connection between play and learning.



Game Play

Organized game play can provide students with the structure and support needed to approach challenges with confidence and build negotiation skills. Popular playground games like hopscotch and four square are often maintained while new games are also introduced through structured play activities. Youth are encouraged to experience the green schoolyard through free play and create new games led by their curiosity and imagination.



Mindfulness

Mindfulness practices encourage us to be present, attentive, and accepting. They provide an opportunity to learn how to be peaceful and kind while also reducing anxiety and promoting happiness. Areas designed for quiet play, sensory exploration, and reflection help students build self-awareness and emotional regulation by connecting with the natural world.

3



Planned Curricular Connections

It is important that the schoolyard redevelopment include plans for actively using the redeveloped space. This section provides a high level overview of how the school plans on making the most out of the new schoolyard components and connecting the exciting redevelopment to the curriculum.

The envisioned outdoor spaces will help build strong classroom communities, promote Social-Emotional Learning (SEL), provide dedicated space for conflict resolution, and support a variety of curricular lessons for our K4 through 8th grade students. Story Elementary

staff will be able to utilize the outdoor spaces to provide students with new experiences in learning right outside their classroom door.

Through creative play and and multi-sensory experiences, Story Elementary will promote a spirit of inclusion and support involvement in recreation and wellness activities for all students. Students will be able to apply academic skills and improve comprehension through hands-on, engaging experiences in a learning environment that extends beyond the school's walls and builds a positive connection to nature.

I am excited for the students to use their creativity and natural sense of exploration to learn more about the school, nature, and themselves.



Lisa Yang – K5 Teacher

Literacy and Language

The redeveloped schoolyard offers many opportunities to enhance our students' literature and language skills. Students will be able to develop language and speaking skills as they explore nature on the playground. Children will be encouraged to observe and make direct connections with their environment to help **internalize new vocabulary** as they are engaged in hands-on experiences on the schoolyard that will enhance their **learning and comprehension**.



Lower elementary students will use the new schoolyard to deepen their **descriptive language** skills as they observe what they see, feel, and hear to write stories inspired by nature. This space will also be used for **class read-alouds**, independent reading time, and small scale performances.

Upper elementary students will use the outdoor classroom as a meeting space for **independent reading** and writing circles. They will participate in reader's theater presentations in the outdoor classroom and use observations from the environment to inspire their **creative writing**.

Middle school students will use the green spaces as alternative environments for **journaling**. The students will benefit from having comfortable outdoor areas for group work and planning presentations. They will use the outdoor classroom for drama, **literary performances**, and other activities.

Social Studies

Students of all grades will learn about the process of creating the green schoolyard at Story as an example of how individuals can work together to create **positive changes** in their communities.

Lower elementary social studies introduces students to the concept of **community**. Beginning in Kindergarten, students learn to embrace their **unique identities** while also celebrating their friends' differences. This understanding sets the foundation for their years-long exploration of the importance of being a good citizen, the interdependence of the economy, the value of different cultures, and the impact of individuals and institutions on the world around them. Children will further connect their learning to the schoolyard with **geography** units focused on studying important landmarks in their communities.

In **upper elementary**, social studies instruction expands from students' local community to their city and state, the nation, and world. In addition to exploring **Milwaukee's history** and its major rivers and waterways, children will investigate our state's indigenous plants and trees growing on the schoolyard as part of their First Nations units of study. Students will also explore the **environmental, social, and economic benefits** of the green infrastructure and schoolyard amenities included in the redevelopment project.

Middle school students learn to form and defend arguments about different policies, economies, and histories from all around the world. The outdoor classroom and seating areas are a perfect place for students to practice **debate**, claim testing, and critique with their classmates. Students will perform social environmental analysis and **explore careers** involved in completing the schoolyard redevelopment project as they learn about engineering and design.

I am excited about Story's playground redevelopment! Providing more green spaces for our school and neighborhood communities will benefit both children and adults alike. I am looking forward to observing students play, work, create, and question things in a way that they may not have done before.

Marcella Horvath – 3rd Grade Teacher



STEM Connections

The green schoolyard offers many STEM (science, technology, engineering, math) curricular connections. The natural learning environment provides a safe, convenient space to practice observation, **conduct research**, and promote collaborative learning for all ages. Students will investigate life science concepts including **biodiversity**, life cycles, animal habitats, and seasonal changes. In addition, the new schoolyard will provide opportunities to study **earth and physical sciences**.



Youth will be able to **plant, maintain, and observe** native plantings as they grow and see firsthand how they help manage stormwater in the area and change throughout the seasons. In addition, the natural elements provide beautiful living examples of **geometry, symmetry, and patterns** that will support the math curriculum across grade levels.

Students will explore **pollinator species** and connections to healthy foods with our growing school garden program. Investigations of **insects**, symbiotic relationships, and habitats such as raised beds and pollinator gardens will provide rich, cross-curricular learning experiences for all grade levels.



Lower elementary students will study plant life cycles, **weather**, animal habitats, and natural resources as they explore using their five senses. Children will discover patterns found in nature and take **measurements** practicing one to one correspondence with real-life objects. Students will compare and contrast living and non-living things in nature and investigate the differences between native and **invasive species** on the schoolyard.

Upper elementary students will explore green infrastructure and the **water cycle** using the schoolyard as their classroom. The stormwater management and **green infrastructure** features will tie into our science study of **landforms**, erosion, and engineering design solutions. The bioswales will support the curriculum focused on native Wisconsin plants and the water cycle. In addition, children can learn the science of **sustainability** and environmental science as they collect data such as air temperature and rainfall, making explicit connections to the schoolyard. Cisterns, bioswales, and runoff will soon be common knowledge to Story Elementary students as they learn how their playground area affects their neighborhood, city, and Lake Michigan.



Middle school students will have the opportunity to study **biological relationships**, habitats, and conservation without leaving school grounds. Our new schoolyard will allow students to experience **ecological succession** and species interactions firsthand as they observe living plants and animals begin to grow and thrive in the new green spaces at Story. Children will conduct hands-on research, collect **environmental data** and have a natural classroom to track weather patterns and investigate soil composition, moisture, and functions.

Art Connections

The outdoor spaces will encourage creativity and expression for the **visual and performing arts**. Children will be able to learn through movement and experience as they explore the green space and find inspiration for art projects, creative writing, **dramatic play**, and poetry. Natural elements may even become the subject of art installations created by students with the support of local artists.



Music classes will use natural materials to explore with sound and recognize music in nature. Students will be encouraged to exercise their visual art skills through observational drawings and to create music outdoors with natural objects. These **immersive experiences** in nature will significantly support student development and help develop positive **shared experiences** with their community.



Story Elementary School encourages a **culturally responsive** environment. The redeveloped schoolyard will make Story's public space accessible for all to enjoy. With the expansion of creative outlets outside of the school building, our students and families will have a chance to explore and create meaning during and after school. Expanding a student's art and cultural experience is essential to making youth more **compassionate** to the wider world.



Serving Diverse Learners

Story Elementary serves children from many countries, representing many different **cultures from around the world**. Because students internalize new vocabulary best when they are exposed to it in multiple ways, in different kinds of situations, hands-on experiences on the schoolyard will enhance their **learning and comprehension**.

We believe language is best learned by providing rich, high-interest learning experiences in a low-stress environment. Our English as a second language (ESL) program serving our multilingual population will be enriched with access to concrete objects and real-life materials that will benefit students' **vocabulary acquisition**. All children benefit from engaging, hands-on experiences, which would be facilitated by the green space.



The new schoolyard's interactive features allow for increased gross motor activities, which also support language, physical, and **social development**. Structured, free play activities, and increased student choice at recess will support **inclusive interactions** between children of all backgrounds and abilities. Students will be able to develop language and speaking skills as they explore nature on the playground and observe living examples of new science vocabulary in its context and draw **personal connections** to the environment.

Community Engagement

Story works to provide family and community engagement opportunities in a **safe and supportive climate**. Our staff encourages respecting, taking care of their school environment, and learning more about nature. We value our **partnership** with the Urban Ecology Center at Washington Park, where our students are engaged in outdoor learning throughout the seasons. We are excited to build upon these experiences and continue to enrich their learning on Story Elementary's new schoolyard.



We look forward to connecting family and community members to help support the **maintenance and stewardship** of the new green spaces and the ability to host fun, school-wide events in a welcoming outdoor space. Continued **collaboration** with Near West Side Partners and Neighborhood House of Milwaukee will provide rich connections with the neighbors and local businesses that will bring additional opportunities for engagement, relationship-building, and a strong sense of support in our community.

Due to the industrial location of our school, the lack of green space in the area leaves students and teachers alike yearning for a greener, more engaging outdoor space. I believe that all students deserve access to outdoor education and an inviting school yard no matter their zip code. This project has the potential to make a huge impact on the school and the community at large. I am eager to work together to show these students that their community values their learning environment!



Emily Hendersen – 3rd Grade Teacher

Health & Wellness

Story Elementary students are encouraged to be physically active and make **healthy choices** as part of their lifestyle. With the new green playground, students will be able to participate in organized games, team sports, and free play activities as they explore their new surroundings. Children will be able to experience outdoor sports like **soccer, basketball, and gaga ball** in dedicated spaces on the schoolyard.



Families and community members will be welcomed to enjoy the new recreation features and walking paths in effort to promote an active and healthy community. Ultimately, these improvements will help our students and community enjoy the beauty of nature while increasing sense of place, **physical fitness**, wellness, and a positive connection with the neighborhood.

Social-Emotional Well-Being



All students at Story will benefit from a calming environment where they can interact in a safe and relaxing space. Each day, our students practice **self-regulation** and mindfulness activities. Fresh air, green space, and native planting areas will support creative **mindfulness activities**, encouraging students to connect to their environment through sensory experiences enriched with bright colors, scents, and textures. The **sensory gardens** will provide a space where students can reflect, develop independent skills related to managing their feelings, and reset. Having this garden devoted to peace and calm will help us raise healthy individuals and support our students' social-emotional learning and well-being.



Benefits of Green and Healthy Schoolyards

Nature Can Improve Academic Outcomes

Spending time in nature enhances educational outcomes by improving children's academic performance, focus, behavior, and love of learning.

BETTER ACADEMIC PERFORMANCE

Learning in natural environments can:



BOOST PERFORMANCE
in reading, writing, math, science and social studies
1, 2, 3, 4, 5



ENHANCE
creativity, critical thinking and problem solving⁹

Seeing nature from school buildings can foster academic success^{6, 7, 8}

ENHANCED ATTENTION

Spending time in nature can help children focus their attention:



FOCUS AND ATTENTION
10, 11, 12, 13



ADHD SYMPTOMS
14, 15

The greener the setting, the better the focus^{14, 15}

INCREASED ENGAGEMENT & ENTHUSIASM

Exploration and discovery through outdoor experiences can promote motivation to learn:



INCREASED ENTHUSIASM FOR LEARNING
1, 16



GREATER ENGAGEMENT WITH LEARNING¹⁷



MORE IMPULSE CONTROL¹⁰



LESS DISRUPTIVE BEHAVIOR
20

Nature-based learning is associated with reduced aggression and fewer discipline problems:^{18, 19}

SUPPORTING RESEARCH

¹Lieberman & Hoody (1998). Closing the achievement gap: Using the environment as an integrating context for learning. Results of a Nationwide Study. *San Diego: SEER*. ²Chawla (2015). Benefits of nature contact for children. *J Plan Lit*, 30(4), 433-452. ³Berezowitz et al. (2015). School gardens enhance academic performance and dietary outcomes in children. *J School Health*, 85(8), 508-518. ⁴Williams & Dixon (2012). Impact of garden-based learning on academic outcomes in schools: Synthesis of research between 1990 and 2010. *Rev Educ Res*, 83(2), 211-235. ⁵Wells et al. (2015). The effects of school gardens on children's science knowledge: A randomized controlled trial of low-income elementary schools. *Int J Sci Edu*, 37(17), 2858-2878. ⁶Li & Sullivan (2016). Impact of views to school landscapes on recovery from stress and mental fatigue. *Landscape Urban Plan*, 148, 149-158. ⁷Wu et al. (2014). Linking student performance in Massachusetts elementary schools with the "greenness" of school surroundings using remote sensing. *PLoS ONE* 9(10): e108548. ⁸Matsuoka, R. H. 2010. Student performance and high school landscapes. *Landscape and Urban Planning* 97 (4), 273-282. ⁹Moore & Wong (1997). *Natural Learning: Rediscovering Nature's Way of Teaching*. Berkeley, CA: MIG Communications. ¹⁰Faber Taylor et al. (2002). Views of nature and self-discipline: Evidence from inner-city children. *J Environ Psy*, 22, 49-63. ¹¹Mårtensson et al. (2009). Outdoor environmental assessment of attention promoting settings for preschool children. *Health Place*, 15(4), 1149-1157. ¹²Wells (2000). At home with nature effects of "greenness" on children's cognitive functioning. *Environ Behav*, 32(6), 775-795. ¹³Berto et al. (2015). How does psychological restoration work in children? An exploratory study. *J Child Adolesc Behav* 3(3). ¹⁴Faber Taylor et al. (2001). Coping with ADD: The surprising connection to green play settings. *Environ Behav*, 33(1), 54-77. ¹⁵Amoly et al. (2014). Green and blue spaces and behavioral development in Barcelona schoolchildren: The BREATHE Project. *Environ Health Perspect*, 122,1351-1358. ¹⁶Blair (2009) The child in the garden: An evaluative review of the benefits of school gardening. *J Environ Educ*, 40(2), 15-38. ¹⁷Rios & Brewer (2014). Outdoor education and science achievement. *Appl Environ Educ Commun*, 13(4), 234-240. ¹⁸Bell & Dymont (2008). Grounds for health: The intersection of green school grounds and health-promoting schools. *Environ Educ Res*, 14(1), 77-90. ¹⁹Nedovic & Morrissey (2013). Calm, active and focused: Children's responses to an organic outdoor learning environment. *Learn Environ Res*, 16(2), 281-295. ²⁰Ruiz-Gallardo & Valdés (2013). Garden-based learning: An experience with "at risk" secondary education students. *J Environ Educ*, 44(4), 252-270.

Green Schoolyards Can Provide Mental Health Benefits

Green schoolyards can enhance mental health and well-being and promote social-emotional skill development.

GREEN SCHOOLYARDS HELP KIDS FEEL:

CALMER & LESS STRESSED^{2,3}

Views of green landscapes from classroom windows helped high school students recover more quickly from stressful events.⁴

POSITIVE & RESTORED³

Forest schools enhanced positive and decreased negative emotions.⁵

RESILIENT²

Natural areas enhanced feelings of competence and increased supportive social relationships that help build resilience.²



GREEN SCHOOLYARDS PROMOTE SOCIAL-EMOTIONAL SKILLS

PRACTICE RELATIONSHIP SKILLS²

Children demonstrated more cooperative play, civil behavior and positive social relationships in green schoolyards.^{6,7}



DEVELOP SELF-AWARENESS & SELF-MANAGEMENT

Green schoolyards can reduce aggression and discipline problems.^{6,7}

Gardening at school helped students feel proud, responsible & confident.²



SUPPORTING RESEARCH

¹www.nlm.nih.gov/health/statistics/prevalence/any-disorder-among-children.shtml ²Chawla et al. (2014). Green schoolyards as havens from stress and resources for resilience in childhood and adolescence. *Health Place*, 28, 1-13. ³Kelz et al. (2015). The restorative effects of redesigning the schoolyard: A multi-methodological, quasi-experimental study in rural Austrian middle schools. *Environ Behav*, 47(2), 119-139. ⁴Li & Sullivan (2016). Impact of views to school landscapes on recovery from stress and mental fatigue. *Landscape Urban Plan*, 148, 149-158. ⁵Roe & Aspinall (2011). The restorative outcomes of forest school and conventional school in young people with good and poor behaviour. *Urban For Urban Gree*, 10(3), 205-212. ⁶Bell & Dymont (2008). Grounds for health: The intersection of green school grounds and health-promoting schools. *Environ Educ Res*, 14(1), 77-90. ⁷Nedovic & Morrissey (2013). Calm, active and focused: Children's responses to an organic outdoor learning environment. *Learn Environ Res*, 16(2), 281-295.

Green Schoolyards Encourage Beneficial Play

Natural areas promote child-directed free play that is imaginative, constructive, sensory-rich, and cooperative.



ENCOURAGING IMAGINATIVE, COOPERATIVE FREE PLAY

GREEN SCHOOLYARDS CAN:

- Accommodate different ages & abilities ^{2,3}
- Sustain children's interest ^{4,5}
- Offer a variety of options that appeal to a wide range of play interests ²
- Promote cooperation & negotiation ^{4,6}
- Strengthen links between play & learning ^{2,3,4}

GREEN SCHOOLYARDS CAN SUPPORT DIFFERENT TYPES OF PLAY ^{2,4,7,8}

DRAMATIC PLAY

Loose parts—such as sticks, stones, acorns & pinecones—engage the imagination.

EXPLORATORY PLAY

Natural areas provide opportunities for children to explore.

SOLITARY PLAY

Areas under bushes or other nooks allow children to engage in alone time and contemplation.

CONSTRUCTIVE PLAY

Building things out of natural materials helps children learn hands-on skills.

LOCOMOTOR PLAY

Natural items such as logs and rocks can be carried. Looping paths allow walking, running and biking.



SUPPORTING RESEARCH

¹Rideout et al. (2010). Generation M2: Media in the lives of 8-18 year olds. Kaiser Family Foundation <https://kaiserfamilyfoundation.files.wordpress.com/2013/01/8010.pdf> ²Dymont & Bell (2008). Grounds for movement: Green school grounds as sites for promoting physical activity. *Health Educ Res*, 23(6), 952-962. ³Stanley (2011). The place of outdoor play in a school community: A case study of recess values. *Child Youth Environ*, 21(1), 185-211. ⁴Dennis et al. (2014). A post-occupancy study of nature-based outdoor classrooms in early childhood education. *Child Youth Environ*, 24(2), 35-52. ⁵Luchs & Fikus (2013). A comparative study of active play on differently designed playgrounds. *J Adven Educ & Outd Learn*, 13(3), 206-222. ⁶Acar & Torquati (2015). The power of nature: Developing pro-social behavior towards nature and peers through nature-based activities. *Young Children*, 70(5), 62-71. ⁷Chawla (2015). Benefits of nature contact for children. *J Plan Lit*, 30(4), 433-452. ⁸Cloward Drown & Christenson (2014). Dramatic play affordances of natural and manufactured outdoor settings for preschool-aged children. *Child Youth Environ*, 24(2), 53-77.

Green Schoolyards Can Increase Physical Activity

Green schoolyards can promote physical activity by offering a variety of active play options that engage children of varying fitness levels, ages, and genders.

85%

OF EDUCATORS AND PARENTS

said green schoolyards support a wider range of play activities than other types of schoolyards.²

MORE OPTIONS, MORE ACTIVITY

PROMOTE

trees logs
shrubs rocks

running jumping climbing lifting²

Variety in landscaping increases variety in active play.²

MEETING DIVERSE & CHANGING NEEDS

GREEN SCHOOLYARDS COMPLEMENT CONVENTIONAL PLAYGROUNDS WITH OPPORTUNITIES FOR

LIGHT & MODERATE PHYSICAL ACTIVITY

that are more appealing to some children.^{3,4}

GREEN SCHOOLYARDS CAN CONTRIBUTE TO

GIRLS' PHYSICAL FITNESS ★★★★★

Physical activity decreases as children grow, especially for girls. Green schoolyards sustain activity as children age and preferences change.^{5,6,7}

SUPPORTING RESEARCH

¹www.cdc.gov/physicalactivity/data/facts.htm ²Dymnt & Bell (2008). Grounds for movement: Green school grounds as sites for promoting physical activity. *Health Educ Res*, 23(6), 952-962. ³Barton et al. (2015). The effect of playground- and nature-based playtime interventions on physical activity and self-esteem in UK school children. In *J Environ Health Res*, 25(2), 196-206. ⁴Dymnt et al. (2009). The relationship between school ground design and intensity of physical activity. *Child Geogr*, 7(3), 261-276. ⁵Brink et al. (2010). Influence of schoolyard renovations on children's physical activity: The Learning Landscapes Program. *Am J Public Health*, 100(9), 1672-1678. ⁶Mårtensson et al. (2014). The role of greenery for physical activity play at school grounds. *Urban For Urban Gree*, 13(1), 103-113. ⁷Pagels et al. (2014). A repeated measurement study investigating the impact of school outdoor environment upon physical activity across ages and seasons in Swedish second, fifth and eighth graders. *BMC Public Health*, 14(1), 803.

INFOGRAPHICS PROVIDED BY THE CHILDREN & NATURE NETWORK

Supporting references and research on the benefits of nature can be found at childrenandnature.org/research

children & nature
NETWORK

Diversity, Equity & Inclusion Lens In Green & Healthy Schools

As schools across the Milwaukee area take part in greening their schoolyards for the health benefits of students and teachers alike, this segment is offered as an addendum to addressing environmental injustice and cultivating culturally relevant curricular activities.

DIVERSITY: The unique differences between us that make a difference.

*What diversity is not: a
euphemism for people of color.*

There are many facets of diversity, such as ability, socio economics, gender identity/expression, sexual orientation, immigration status, religion, etc.

It is important for educators not to discredit the significance of their students' unique identities and lived experience. It is also important to acknowledge difference as a *value-add* to the classroom. Allowing students the opportunity to practice navigating conversations about a difference in an affirming way helps build empathy, innovation, and collaboration. Consequently, educators should be mindful of how their own unique identities and experiences, consciously and unconsciously, inform how they lead the classroom.

Source: Hines, Mack T., White Teachers, Black Students, Rowman & Littlefield, 2017



EQUITY: A process of ensuring everyone has access to what they need to thrive.

*What equity is not: giving everyone
the same thing, such as equality.*



We all have strengths and areas of growth opportunity. Educators with a **growth mindset** recognize that their students can learn anything, it's a matter of identifying the teaching style that will create the most impact for each student. This also means recognizing that not all students start out at the same place, nor have access to the same resources or experiences.

Critical takeaways: Diversity is often used as a euphemism for people of color. This notion promotes the fallacious assumption that 1. A single person can be diverse and 2. White people are not racialized and therefore excluded from diversity efforts and problematically perceived as the "norm," the "baseline" against which people from all other ethnicities and cultures are measured.



For more information and educator support in embedding equity into curricular connections, please email info@creamcityconservation.org

No matter how homogeneous or diverse the classroom, every student benefits from culturally relevant curricula. When educators use materials that depict characters, language, culture, and more from a diversity of backgrounds, perspectives, and abilities it creates a sense of belonging as students see themselves reflected in the teachings.

INCLUSION: Celebrating, welcoming, valuing, and leveraging differences.

*What inclusion is not: ignoring,
overcoming, or tolerating difference.*



WHY AN EQUITY LENS IS IMPORTANT TO SCHOOLYARD DEVELOPMENT

Climate Change – With regards to environmental injustice, people of color are hit first and worst.

The U.N. Climate Report 2018 states our world has 12 years to take critical action before the effects of climate change are irreversible.

Source: Climate Change Is Not A Future Problem for POCs., U.N. Climate Report 2018

82% of public school educators are white.

Culturally competent educators contribute positively to the social-emotional well-being of students. Educators that push color-blindness and discourage exploration of difference may harm students by making them feel as though they themselves are not seen and that diversity is taboo.



Source: The State of Racial Diversity in the Educator Workforce, July 2016 US Dept. of Education; White Teacher, Black Students by Mack T. Hines III.

Critical takeaways: The health, education, and economic disparities experienced by marginalized communities is not a coincidence. A firm understanding of the historical context and current policies and practices that fuel disproportionate effects of environmental injustice is paramount. Without this foundation, educators will not be empowered to systematically dismantle institutional oppression and rebuild social structures that ensure equitable access for all students to thrive.



4



Maintenance and Stewardship

Green infrastructure features require varying levels of maintenance and offer opportunities to engage youth in active environmental stewardship, raise awareness of environmental impacts, and make meaningful curricular connections. Some maintenance activities such as weeding, debris pickup, inspection of plant health, crop harvesting, watering, etc. can further engage faculty, students, parents, and the surrounding neighborhood in school activities and outdoor learning, while also sharing the responsibility of maintaining the new green space. It should be noted that generally, the school's Green Team will be responsible for additional maintenance needs.

To promote the longevity and active use of the redeveloped schoolyard, recommendations were made to provide features that match the maintenance capacity and planned curricular connections of the school and community. The following section provides a summary of seasonal and monthly maintenance needs for the school's new green features. Comprehensive maintenance plans will need to be developed in the project's detailed design phase to fully support the new elements.



Well-maintained green infrastructure and play spaces can help reduce the potential need for costly repairs.





Asphalt Removal

Ongoing/Monthly Considerations:

Depending on the groundcover replacement such as grass, woodchips, permeable pavement, etc., the replacement may require additional maintenance such as grass cutting, woodchip replacement, vacuuming, etc.

Seasonal/Annual Considerations:

Some asphalt areas at schools are used in winter as snow management locations. Confirming the seasonal use of the asphalt areas can help with determining the feasibility of asphalt removal and/or ways to adjust snow management.



Tree Plantings

Ongoing/Monthly Considerations:

Newly planted trees will require protection from children wanting to play around them for the first few years. Strategies such as temporary or permanent fencing, signage, or planting boxes can help allow the trees space and time to grow.

Seasonal/Annual Considerations:

Berries, leaves, sticks, and branches often fall from trees during spring or fall. The litter may not need to be actively managed. However, large amounts may need to be composted or discarded.



Raised Bed Gardens

Ongoing/Monthly Considerations:

Gardens will require ongoing weeding and watering (weekly/daily). Determining who will be responsible (ideally multiple people/groups/classrooms) beyond planting the gardens is important, especially over summer months.

Seasonal/Annual Considerations:

Spring planting and harvest events are great ways to engage the school and prepare the garden. Accounting will be needed for the cost and storage of required hoses, shovels, gloves, buckets, etc.



Native Plantings

Ongoing/Monthly Considerations:

Similar to raised bed gardens, native plantings will require ongoing weeding (weekly) as they mature. Determining who will be responsible (ideally multiple people/groups/classrooms) beyond planting is important, especially over summer months.

Seasonal/Annual Considerations:

Native plants are more resilient and require less ongoing maintenance as they mature. One to three years of weeding is required initially, but long-term expected maintenance is minimal.

5



Fundraising Targets

An important component of the conceptual planning effort was to develop plans that are feasible. Estimates of funding requirements were discussed throughout the planning effort in order to keep the designs within reasonable cost ranges. The following table of estimated costs are presented in terms of “fundraising targets” to better represent the approximate budgetary nature of the numbers.

It should be noted that the following funding targets represent conceptual, high-level estimates with many assumptions, not consultant or contractor bids based on detailed design work, which would be more accurate.

The following estimates are expected to vary from actual incurred expenses. However, significant consideration and review of the fundraising targets were provided from engineers, contractors, and school administrators with experience in schoolyard redevelopment projects.

Although the following fundraising targets are intended to incorporate reasonable cost expectations for schoolyard redevelopment, changes to the design, contracting requirements, or amount of in-kind contributions can significantly impact the following numbers either upward or downward.



It's ideal to raise enough funds to be able to complete the schoolyard redevelopment in one pass; however, in some cases, projects can take several years to be completed due to funding constraints.

Invitation for Support

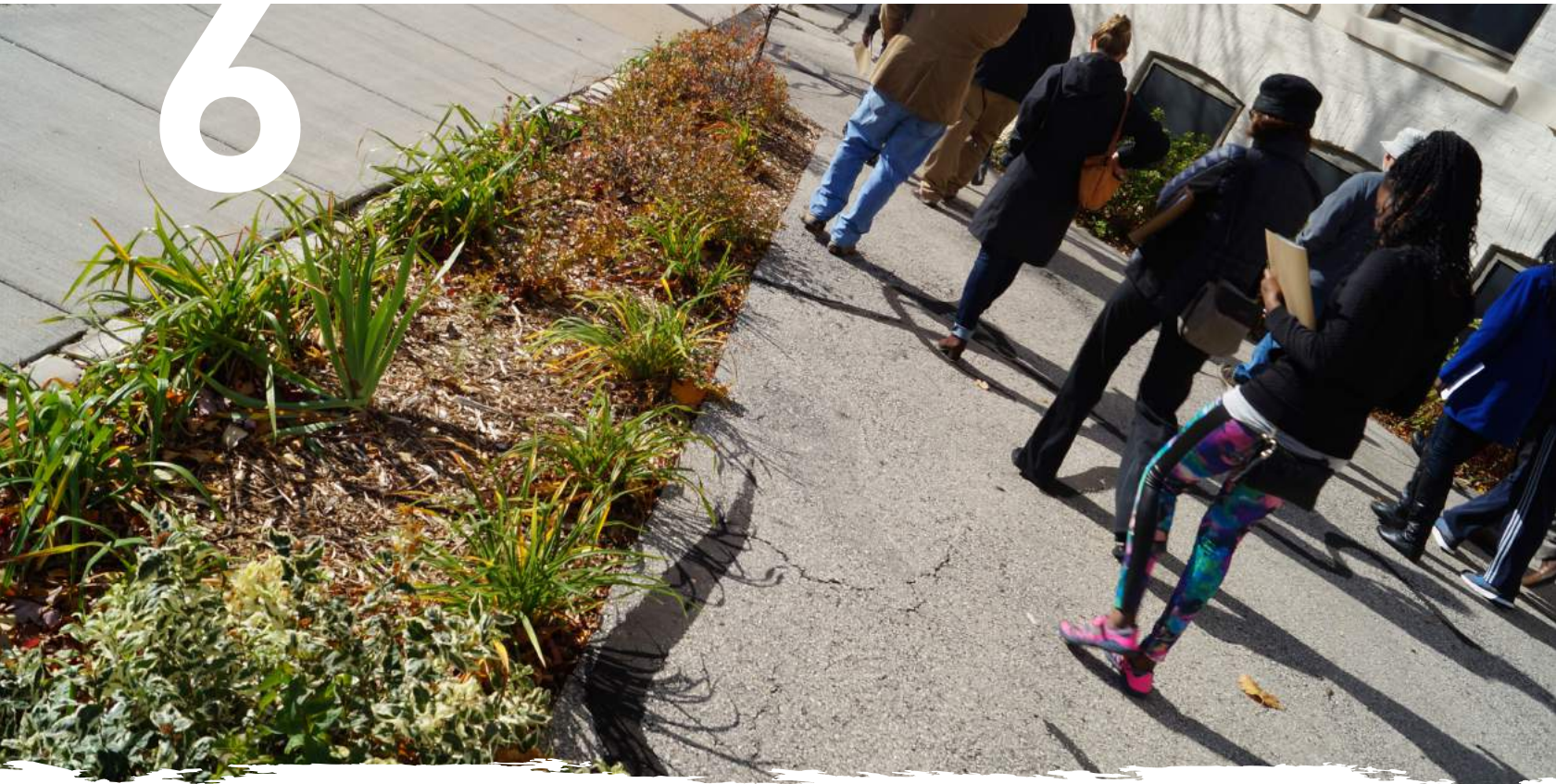
We invite your enthusiastic review of this conceptual plan document and welcome any questions you may have on the schoolyard redevelopment. Please visit Reflo's website for status updates and how to donate to the schoolyard redevelopment project:

www.RefloH2o.com



Conceptual Redevelopment Plan Fundraising Targets

	Apx. Fundraising Targets	Apx. In-kind Contribution
Stormwater Green Infrastructure		
Asphalt removal, sawcutting, mobilization, etc.	\$ 125,000	
Soil, grass, and other porous resurfacing	\$ 40,000	
Trees (and protective fencing)	\$ 20,000	
Bioswales (native plantings and protective fencing)	\$ 30,000	
Porous Pavement - Syn. Turf Soccer Field	\$ 80,000	
Underground cistern	\$ 80,000	
Above ground cistern for rainwater harvesting	\$ 5,000	
Engineering, surveying, and construction admin.	\$ 50,000	
Facilities project management	\$ 5,000	\$ 28,000
Continued Reflo project development support	\$ 15,000	\$ 15,000
Project signage	\$ 10,000	\$ 7,500
Demonstrations, workshops, tours		\$ 5,000
Water-focused curricular activities	\$ 10,000	\$ 10,000
Vegetation establishment	\$ 10,000	\$ 5,000
Stormwater Green Infrastructure Subtotal	\$ 480,000	\$ 70,500
School Gardens & Healthy Food Access		
Raised bed gardens	\$ 2,500	\$ 5,000
School Gardens & Healthy Food Access Subtotal	\$ 2,500	\$ 5,000
Recreational Improvements		
Gaga Ball pit (1) with ADA door	\$ 5,000	
Asphalt crackfilling and striping	\$ 30,000	
Tot lot improvements	\$ 35,000	
Nature play features (embedded logs and stumps)	\$ 40,000	
Recreational Improvements Subtotal	\$ 110,000	\$ -
Educational Elements		
Arts programming	\$ 25,000	\$ 5,000
Musical instruments and sensory boards	\$ 25,000	
Pollinator Garden	\$ 20,000	
Outdoor classrooms (2)		
Structures (1)	\$ 60,000	
Surfacing	\$ 15,000	
Seating	\$ 20,000	
Amenities	\$ 7,500	
Educational Elements Subtotal	\$ 172,500	\$ 5,000
Other Site Improvements		
Bike parking equipment	\$ 2,500	
Storage shed	\$ 40,000	
Pathways and fencing	\$ 25,000	
Schoolyard benches and other amenities	\$ 35,000	
Other Site Improvements Subtotal	\$ 102,500	\$ -
Total Estimated Fundraising Target:	\$ 867,500	\$ 80,500



Project Timeline and Next Steps

Although there has already been a significant amount of time and energy invested in the schoolyard redevelopment project by Story Elementary School and its partners, the compilation of this conceptual plan document realistically represents step one of a multi-year, major construction-focused redevelopment project.

The next phase of project development is fundraising, which is intended to conclude by the end of 2023. The scope of the construction is based on the funds obtained through budget allocations, grants, donations, and school fundraisers. Engineering, surveying, and

architecture firms are typically hired in fall to support the detailed design and permitting process. To minimize disruption to regularly scheduled school functions, it is preferred to conduct construction over a relatively short time frame in summer months.

Big changes like this project require a great deal of time, resources, and, most of all, commitment. Accomplishing this conceptual redevelopment plan is a major milestone itself. This plan shows the school's desire and ability to focus its efforts on meaningful outdoor education and healthy learning spaces for their students and community.



For information on how to support Story Elementary's schoolyard redevelopment:

Please go to Reflo's website: www.RefloH2o.com or send an email to: lisa.neeb@RefloH2o.com

Supporting Organizations



The Milwaukee Metropolitan Sewerage District (MMSD) is a regional government agency that provides water reclamation and flood management services for about 1.1 million people in 28 communities in the Greater Milwaukee Area. MMSD is a strong supporter of green infrastructure, with many available resources.



Milwaukee Public Schools is committed to accelerating student achievement, building positive relationships between youth and adults, and cultivating leadership at all levels. Many departments are engaged on an ongoing basis to support the multifaceted schoolyard redevelopment projects.



The Fund for Lake Michigan (FFLM) provides grants to support organizations and communities committed to enhancing the Lake's health through projects with both immediate and long-term benefits. The FFLM has been a longtime partner of the green and healthy schools movement and continuously promotes its expansion.



As a nonprofit, Reflo partners with Milwaukee-area schools, neighborhood associations, community garden groups, and local governments to promote sustainable water management such as green infrastructure through education, research, and the implementation of community-based water projects.



Community Design Solutions (CDS) is a funded design center in the UWM School of Architecture & Urban Planning (SARUP) that assists communities, agencies, civic groups, and campuses throughout Wisconsin. CDS provides preliminary design and planning services to underserved communities and agencies.



Cream City Conservation is a two-prong social enterprise: working with organizations to address internal cultures and practices that contribute to workforce homogeneity; and training and employing young adults 15–25 whose social identities are traditionally underrepresented in the environmental industry.



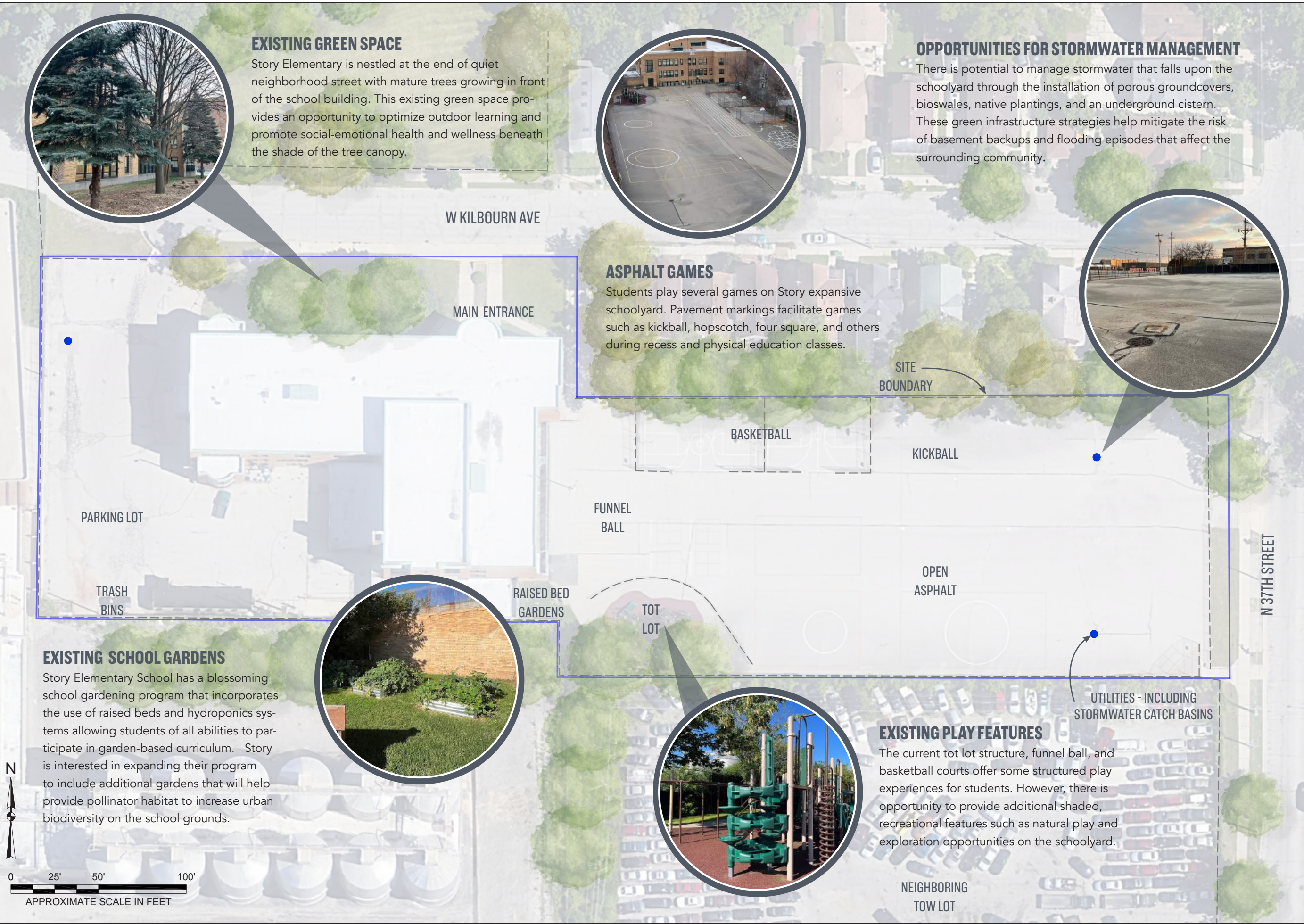
The Green Schools Consortium of Milwaukee (GSCM) is a robust local network of schools and resource providers that are motivated to promote greener, healthier schools. Through bimonthly meetings and an annual conference, hundreds of local participants have collectively shared ideas, resources, and lessons learned.



Arts @ Large activates Milwaukee's education communities to build environments that support arts-rich, lifelong learning. Arts @ Large uses the arts as a tool to engage students in academic learning and provide meaningful work for artists.

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EXISTING GREEN SPACE

Story Elementary is nestled at the end of quiet neighborhood street with mature trees growing in front of the school building. This existing green space provides an opportunity to optimize outdoor learning and promote social-emotional health and wellness beneath the shade of the tree canopy.



OPPORTUNITIES FOR STORMWATER MANAGEMENT

There is potential to manage stormwater that falls upon the schoolyard through the installation of porous groundcovers, bioswales, native plantings, and an underground cistern. These green infrastructure strategies help mitigate the risk of basement backups and flooding episodes that affect the surrounding community.



ASPHALT GAMES

Students play several games on Story expansive schoolyard. Pavement markings facilitate games such as kickball, hopscotch, four square, and others during recess and physical education classes.



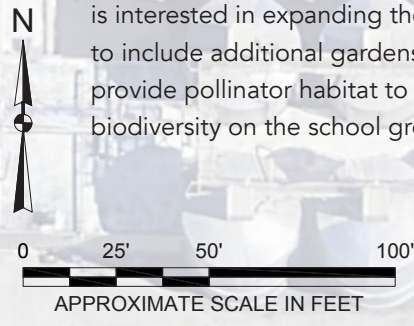
EXISTING SCHOOL GARDENS

Story Elementary School has a blossoming school gardening program that incorporates the use of raised beds and hydroponics systems allowing students of all abilities to participate in garden-based curriculum. Story is interested in expanding their program to include additional gardens that will help provide pollinator habitat to increase urban biodiversity on the school grounds.



EXISTING PLAY FEATURES

The current tot lot structure, funnel ball, and basketball courts offer some structured play experiences for students. However, there is opportunity to provide additional shaded, recreational features such as natural play and exploration opportunities on the schoolyard.



Drawing Title:

Project: Story Elementary School
3815 W Kilbourn Ave,
Milwaukee, WI 53208
Designed by: Reflo, CDS, and Story's Green Team
Drawn by: Justin Hegarty

Project No: C6.MPS.33

Figure No: 1

EXISTING SITE PLAN

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ENHANCED SCHOOL GARDEN OPPORTUNITIES

Story Elementary is excited to expand their school gardening programming to include a pollinator garden and additional native planting areas to extend learning in vibrant living classrooms that support the school's cross-curricular learning goals.



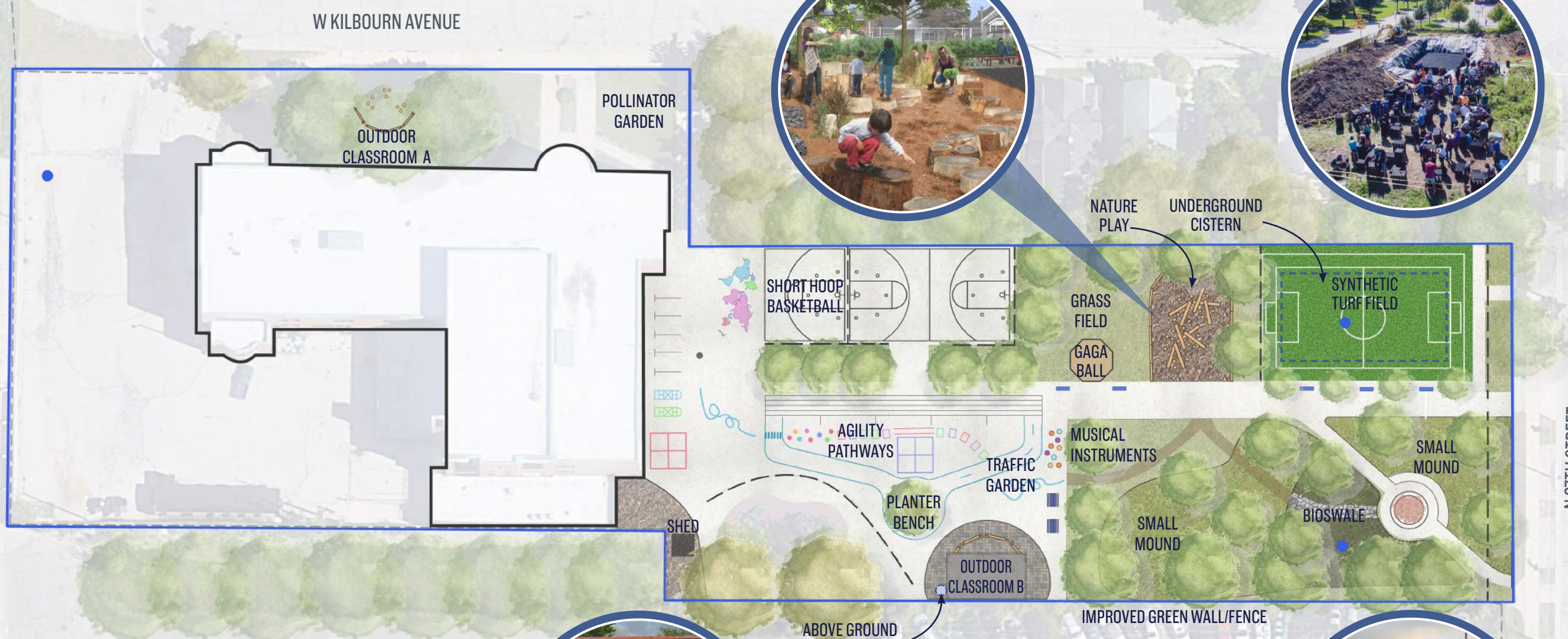
ADDITIONAL GREEN SPACE AND RECREATIONAL IMPROVEMENTS

Reducing the amount of asphalt on the school grounds is a central component of the redevelopment plan. Along with new green space, earthen mounds, and tree plantings, Story Elementary would like to include a walking pathways, colorful pavement markings, gaga ball pits, and nature play features to support exercise activities and game play.



STORMWATER GREEN INFRASTRUCTURE

Green infrastructure including porous pavement, bioswales, and a large underground cistern will help to better manage stormwater on the school grounds, where it falls, improving the aesthetics, biodiversity, recreational facilities, and the health of local watersheds.



MULTIPLE ARTS OPPORTUNITIES

There are many opportunities to include artistic elements throughout the schoolyard including murals and educational signage to support the redevelopment project. The outdoor classrooms will also provide a setting for the performing arts.



OUTDOOR CLASSROOMS AND SENSORY CONNECTIONS

To help facilitate ecoliteracy and all of the benefits that come with outdoor learning, Story Elementary would like to build two outdoor classrooms, each completed with natural seating options. The school would also like to incorporate multiple planting areas throughout the schoolyard to further support sensory exploration and mindfulness activities.



Reflo
Sustainable Water Solutions

Drawing Title:

Project:
Story Elementary School
815 W. Kilbourn Ave.
Milwaukee, WI 53208

Project No:
C6.MPS.33

Figure No:

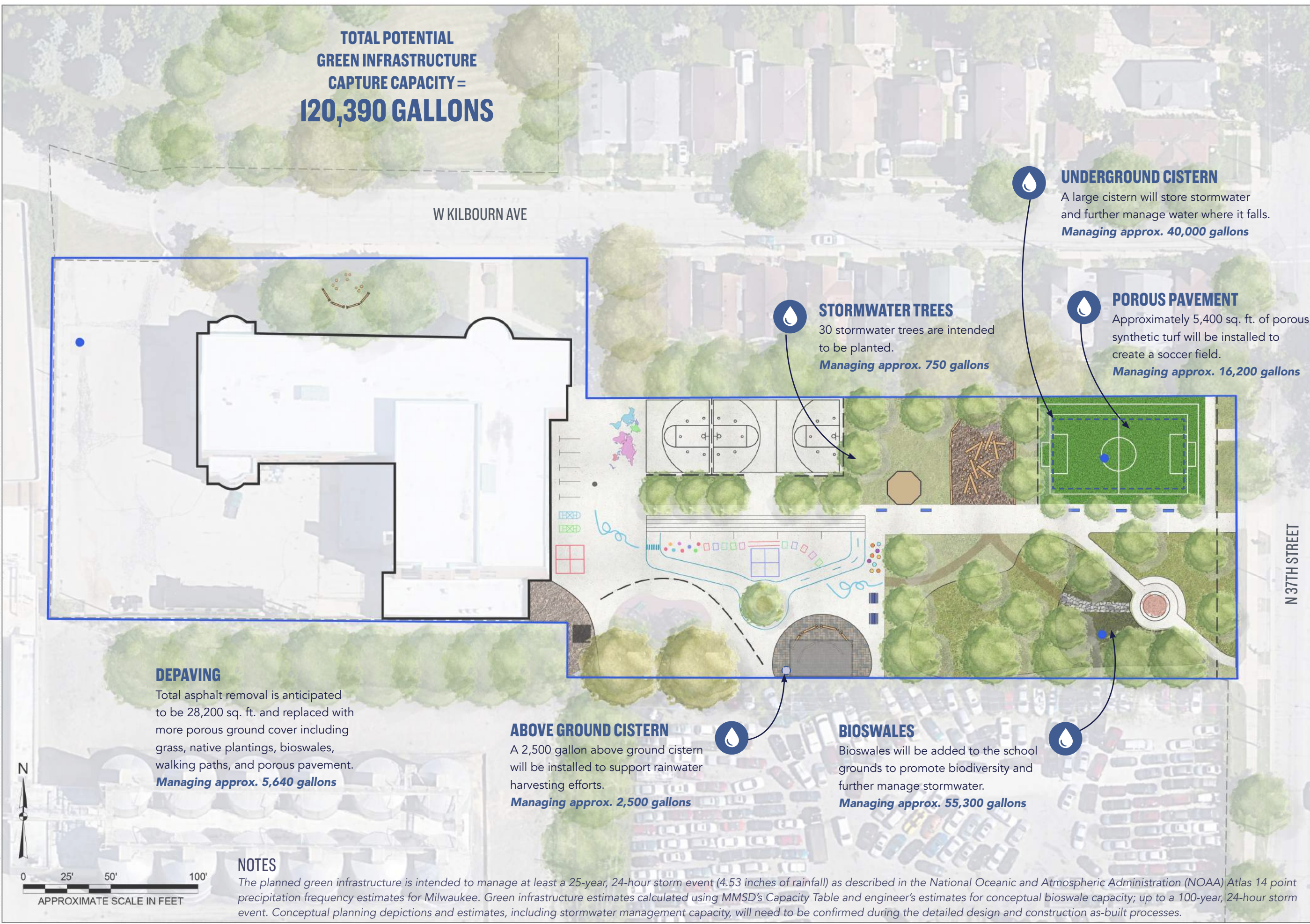
2

PROPOSED SITE PLAN

Designed By: Reflo, CDS, and Story's Green Team
Drawn By: Justin Hegarty

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TOTAL POTENTIAL GREEN INFRASTRUCTURE CAPTURE CAPACITY = 120,390 GALLONS

W KILBOURN AVE

N 37TH STREET

DEPAVING

Total asphalt removal is anticipated to be 28,200 sq. ft. and replaced with more porous ground cover including grass, native plantings, bioswales, walking paths, and porous pavement.
Managing approx. 5,640 gallons

ABOVE GROUND CISTERN

A 2,500 gallon above ground cistern will be installed to support rainwater harvesting efforts.
Managing approx. 2,500 gallons

STORMWATER TREES

30 stormwater trees are intended to be planted.
Managing approx. 750 gallons

POROUS PAVEMENT

Approximately 5,400 sq. ft. of porous, synthetic turf will be installed to create a soccer field.
Managing approx. 16,200 gallons

UNDERGROUND CISTERN

A large cistern will store stormwater and further manage water where it falls.
Managing approx. 40,000 gallons

BIOSWALES

Bioswales will be added to the school grounds to promote biodiversity and further manage stormwater.
Managing approx. 55,300 gallons

NOTES

The planned green infrastructure is intended to manage at least a 25-year, 24-hour storm event (4.53 inches of rainfall) as described in the National Oceanic and Atmospheric Administration (NOAA) Atlas 14 point precipitation frequency estimates for Milwaukee. Green infrastructure estimates calculated using MMSD's Capacity Table and engineer's estimates for conceptual bioswale capacity; up to a 100-year, 24-hour storm event. Conceptual planning depictions and estimates, including stormwater management capacity, will need to be confirmed during the detailed design and construction as-built processes.



Reflo
Sustainable Water Solutions

STORMWATER GREEN INFRASTRUCTURE PLAN

Drawing Title:

Project: Story Elementary School
815 E. Kilbourn Ave.
Milwaukee, WI 53208

Project No: C6.MPS.33

Figure No:

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Designed By: Reflo, CDS, and Story's Green Team
Drawn By: Justin Hegarty

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EDUCATIONAL SIGNAGE AND EXHIBITION

Looking at the redeveloped school grounds through the lens of exhibition, there are several opportunities to display educational themes through artistic means. Students can participate in the original creation of the signs and if panels are to be easily replaceable, portions of the signs could be refreshed with new thematic student art on a regular basis. The following is a preliminary list of potential themes:

Potential Sign Themes

- ① Bioswales and Stormwater Management
- ② School Gardens and Healthy Food Access
- ③ Outdoor Classroom - Use Schedule
- ④ Green Infrastructure Strategies
- ⑤ Project Partners and Site History
- ⑥ Native Plantings and Pollinator Species



OUTDOOR SEATING

Currently, there are limited seating options throughout the schoolyard. Seating is important for students that would like to socialize, quietly read or journal during outdoor free time, as well as for parents waiting for their children during dismissal. Benches also provide an opportunity for visual arts and sponsor recognition.

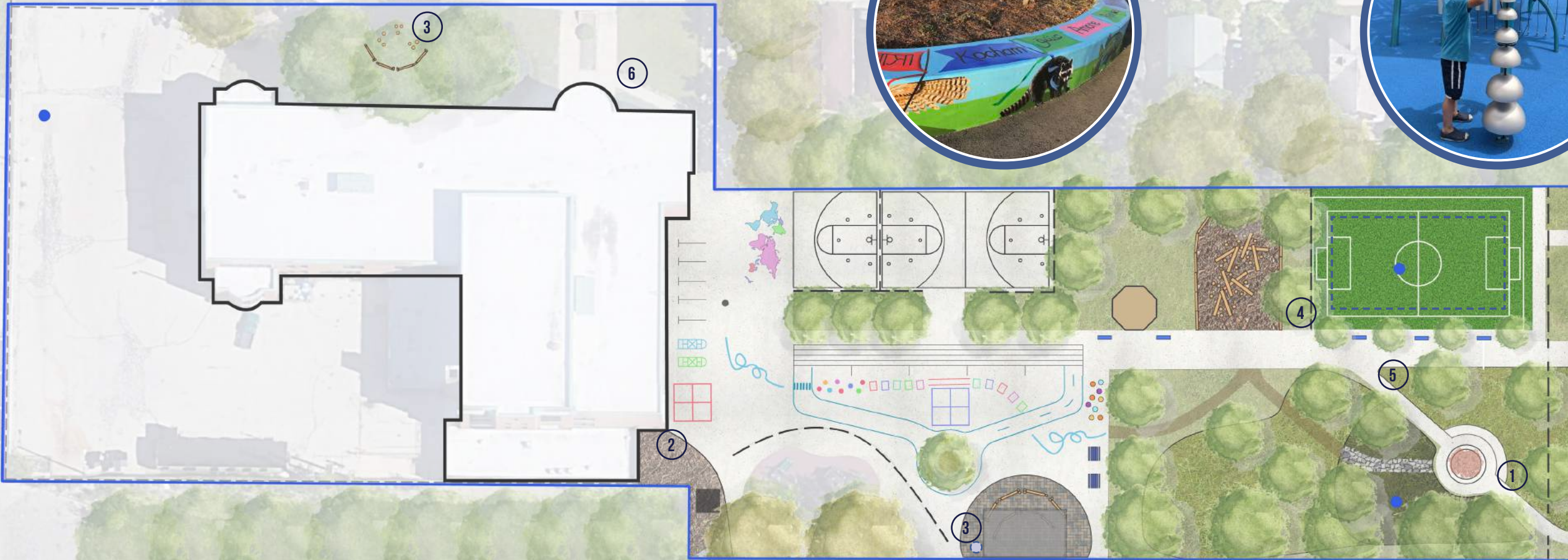


MUSICAL PLAY ELEMENTS

To enhance the learning experience and support sensory exploration, Story Elementary would like to add secured musical instruments to provide students the opportunity to hone their creativity by freely creating music on the schoolyard.

W KILBOURN AVE

N 37TH STREET



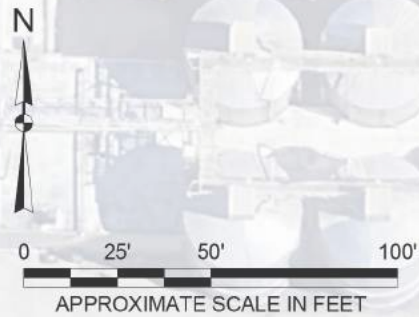
OUTDOOR CLASSROOMS AND PERFORMANCE AREA

The outdoor classroom will serve as an important focal point on the schoolyard. The space can serve classroom activities while also double as an intimate space for smaller-scale performing arts activities and community gatherings.



MURALS AND PAVEMENT MARKINGS

Story Elementary would like to further activate the schoolyard through the visual arts. There are opportunities to add murals and pavement markings to support sensory and curricular connections. Adding professionally developed murals with themes that reflect the schoolyard redevelopment can help to make the space more welcoming and connected while also providing an opportunity to engage local artists.



Reflo
Sustainable Water Solutions

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Designed By: Reflo, CBS, and Story's Green Team
Drawn By: Justin Hegarty

For more information on how to support the
Story Elementary School
schoolyard redevelopment project please contact:

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For additional information please visit

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