



NORTH DIVISION HIGH SCHOOL

Conceptual Schoolyard Redevelopment Plan

MARCH 2020

ACKNOWLEDGMENTS

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Community Partners:

Ascension - Wisconsin
Boys and Girls Club-CLC
Catholic Charities of the Archdiocese of Milwaukee
City of Milwaukee Health Department
College and Career Center
Community Advocates-Public Policy Institute
Greater Milwaukee Foundation
HeartLove Place
Literacy Center Services
Marquette University Service Learners
Milwaukee Area Technical College
MATC/NDHS Dental Program
Milwaukee Frontiers
Milwaukee Urban League
North Division High School Alumni Association
North Division HS Career Advisory Board
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TABLE OF CONTENTS

1

Introduction and School Story

2

Redevelopment Process Timeline and Components

3

Planned Curricular Connections

4

Maintenance and Stewardship

5

Fundraising Targets

6

Project Timeline and Next Steps

Supporting Organizations

Conceptual Plan Drawings:

Existing Site Plan

Proposed Site Plan

Stormwater Green Infrastructure Plan

Arts, Outdoor Education, and Community Engagement Plan

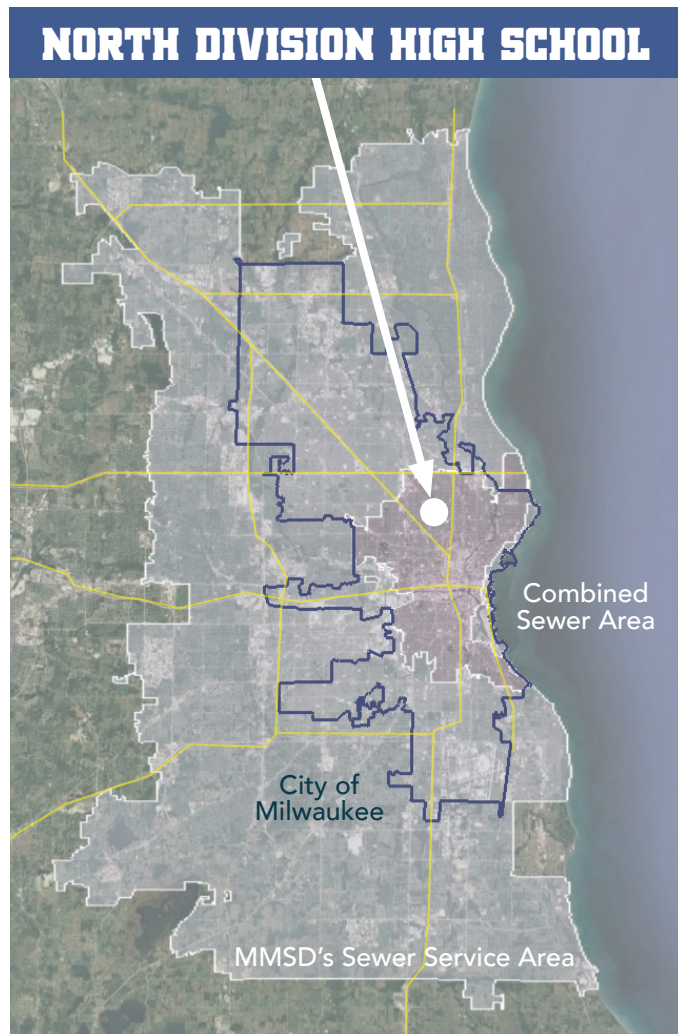


Existing school grounds at North Division High School

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 the following conceptual schoolyard redevelopment plan that holistically address the issue of the school's imperviousness. This document compiles over a year of conceptual planning in order to provide a single, feasible vision for redeveloping to 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

North Division High School's Vision is to create a positive yet challenging learning environment. As a **community school**, students will achieve their academic potential in a safe and nurturing environment. Upon graduation, we envision all students will have the skills necessary to be successful and impactful with opportunities in higher education, careers, and the community.

North Division High School is a **Legacy school** and has a long and rich history dating back to its beginnings in 1906. Notable politicians and businesspersons have attended North Division such as the Prime Minister of Israel, Golda Meir, Gwen Moore, Annette Polly Williams, Milwaukee's first African American Fire Chief, Donald Jackson, as well as musicians like Frank Glazer and Harvey Scales.

North Division High School reopened in 2011, and has set high standards for academics. North Division has STEM classes as well as Advanced Placement (AP) and Honors courses in Mathematics, English, and History. Advanced Placement courses will continue to be added as enrollment increases to include Art, Music and Spanish. Students at North Division have won App Design awards while clubs and extracurriculars like Forensics have won competitions.

Lastly, the Drumline program continues to grow from its starting enrollment of eight to over 40 students in 2018-2019! The Drumline and Majorettes play for special events, at sporting events, and in multiple parades including the Circle City Classic in Indianapolis, Juneteenth, and many Fourth of July Independence Day celebration parades.



**NORTH DIVISION
HIGH SCHOOL**
1011 W Center St.
Milwaukee 53206

- Milwaukee Public School
- Grades: 9th through 12th
- 338 students
- 89% economically disadvantaged
- 36% special education
- 1% English learners
- Combined sewer area
- Milwaukee River watershed
- 387,000 sq. ft. of impervious surfaces
- 66% of the school site is impervious

HISTORICAL NORTH DIVISION



North Division High School early 1900s (former building)

Legacy Alumni

Timolin Boyd, DDS

Doctor of Dentistry

Linda Miles Carr-Carlson

First Chief of Construction for the Commonwealth of Puerto Rico and the U.S. Virgin Islands

Robert Cocroft*

Brigadier General, United States Army

LaVaughn Cotton, MD

Doctor of Pediatric Medicine and Children's Urgent Care

Mexton Deacon, DPM

Doctor of Podiatric Medicine

Roy Bradford Evans, BA, MS, JD

Attorney at Law, Community Activist

Esthetial Ford*

National Coaches Association All-American, Basketball

Howard Fuller, PhD

Former Superintendent, Milwaukee Public Schools

Reuben Harpole, Jr.

Civil Rights Activist and Community Leader

Donald B. Jackson

Milwaukee's First African-American Fire Captain & Chief

Marlene Johnson-Odom*

Alderwoman, Milwaukee Common Council



Donald B. Jackson



Arthur Jones



Gwen Moore

PRESENT DAY NORTH DIVISION



Arthur Jones

Milwaukee's First African-American Chief of Police

James Love

United States Air Force Officer, Liason to US Department of Defense (DoD) Defense Equal Opportunity Management Institute (DEOMI)

Patricia McManus RN, PhD, CNPM

President & CEO, The Black Health Coalition of Wisconsin, Inc.

Golda Meir*

Politician, Prime Minister of Israel

Gwen Moore

Politician, Congresswoman (D-WI 4th District)

Marvin Pratt

Politician, President of the Milwaukee Common Council, Interim Mayor of Milwaukee, and Milwaukee County Executive

Velvalea "Vel" Rodgers Phillips*

Attorney, Politician, Judge and Civil Rights Activist. First African American and first woman elected to the Common Council, Judge in Milwaukee, and Secretary of State in Wisconsin

Deloris Donley Sims

Co-Founder, Legacy Bank

Annette "Polly" Wade Williams

Politician, WI State Representative



Golda Meir



Marvin Pratt



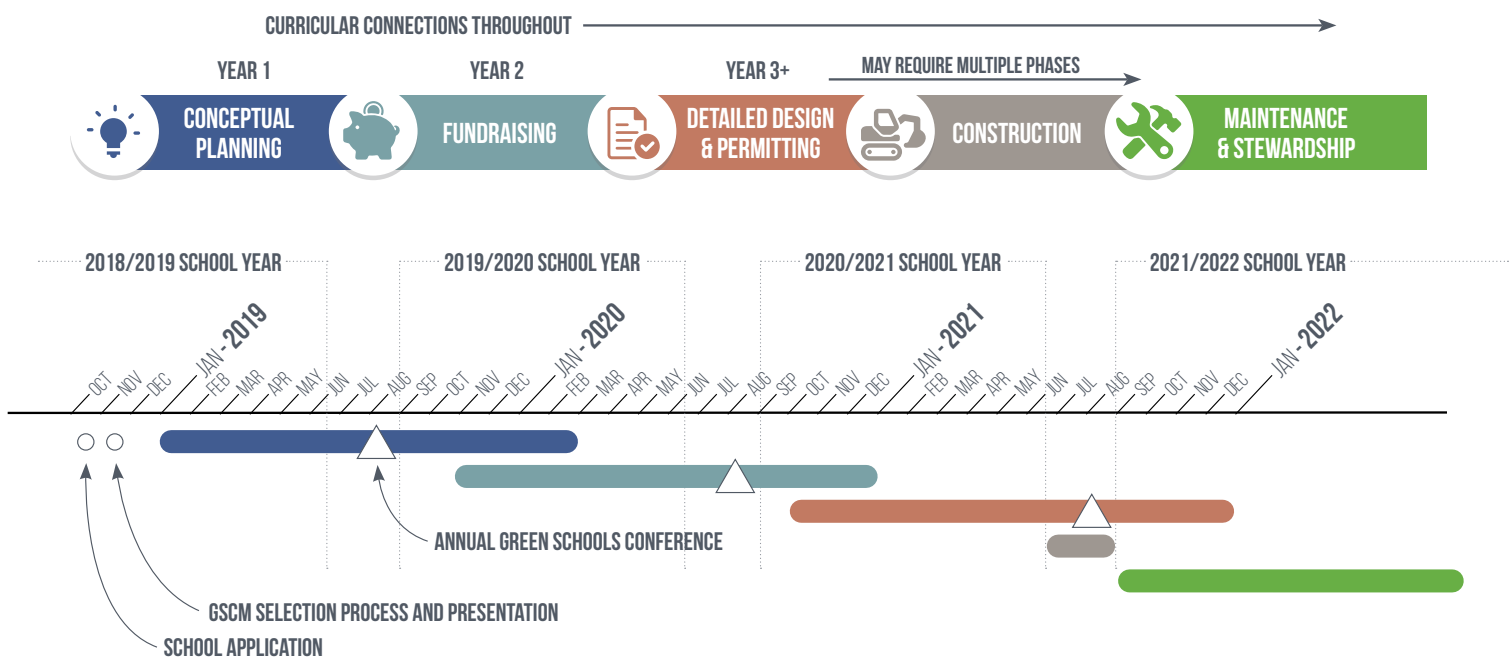
Vel Rodgers Phillips



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 GSCM. 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.



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.

North Division High 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.

The GSCM is a local network of practitioners, agencies, and funders that are committed to supporting greener, healthier schools and eco-literacy in the Milwaukee-area. The GSCM gathers on a bi-monthly and annual basis to share resources and lessons learned. The 4th Annual Green Schools Conference hosted 300 participants, 45 exhibitors, and 30 workshops/presentations. 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.



North Division High School is committed to providing academic excellence, while instilling morals and values that will create individuality by fostering a passion for learning within our students. North Division will enrich each student's mind, body, and character, as we encourage our students to have respect and compassion for others.



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 help infiltrate stormwater into the ground and prevent it from running off into the sewer system. These changes promote better stormwater management, reduce heat island effect, improve social-emotional outlook, and significantly improve habitats, promoting biodiversity.



Bioswales

Bioswales typically capture stormwater from roads and parking lots, often with lower water quality, infiltrating runoff 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 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.

North Division High School’s conceptual redevelopment plan calls for removal of approximately **1,520 sq.ft.** of asphalt and replacing it with new green space and mixed-use recreation and educational areas. The design includes porous pavement and bioswales to slow the infiltration of water into the ground. The addition of native plantings and stormwater trees allow for unique spaces on the school grounds that can represent native Wisconsin ecosystems. Pending a more detailed survey, a large-scale underground cistern could also be built beneath the athletic field to further manage stormwater. The plan manages approximately **51,124 gallons** of stormwater per rain event.

The Milwaukee Urban League has been a partner for many years pushing forward career and college readiness programs through our nationally certified Project Ready Curriculum. As we continue to expand our presence in North Division High School through career training and employment access, the schoolyard redevelopment project will be an added benefit to the students of North Division, their families, and the surrounding community.

– MILWAUKEE URBAN LEAGUE



Native Grasses

Vegetation native to Wisconsin is more adapt to the region’s climate and typically have deeper root systems that help to withstand droughts and heavier rains that also allow for greater stormwater infiltration. These grasses can also serve as sensory gardens and promote biodiversity by providing habitat for pollinator species.



Large-Scale Cisterns

Larger cisterns are typically built underground. The pictured project captures stormwater from a nearby schoolyard, treats it through a bioswale, and stores it in a 20,000-gallon cistern (built by 150 volunteers) where a solar-powered pump and treatment system allows the water to be reused for irrigation.



School Gardens

School gardens range in scale from the typical 4 foot 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.

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 offer the opportunity to provide low-cost, **healthy food** options to students, their families, and the community. 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.

North Division's conceptual plan defines **two outdoor classrooms** including a performance area with tiered seating and materials to support outdoor learning. Nearby green infrastructure including stormwater trees, bioswales, and native grasses will serve as unique learning environments. Educational and artistic **signage** throughout the school grounds will support student-curated tours and encourage learning through self-guided exploration. Proposed **greenhouse improvements** and potential community garden plots will further promote healthy food access for the surrounding neighborhood.



The North Division Alumni Association is honored to be a partner on this project. Assisting in bringing this project to North has been a great accomplishment that will benefit the greater North Division community. Green schools help to protect the environment and create healthy schools for students and staff. One of our overarching goals is to promote environmental literacy and prepare North Division students to engage as the next generation of environmental leaders through hands-on, participatory activities that result in pathways to environmental careers, while "Greening Up" North.

– NORTH DIVISION HIGH SCHOOL ALUMNI ASSOCIATION



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 Educational 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. Educational signage can serve as an opportunity to engage local artists and support learning not only by students, but also the surrounding community.



Professional local artist, Reynaldo Hernandez, with students from Parkside School from the Arts during an unveiling of the new outdoor murals, created by the students and artist, at the school.

Photo provided by:



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 provide a sense of ownership and accomplishment to celebrate with the students and their families. With the visual arts, the invisible become visible!

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, analyze perceptions, and enhance personal connections to the environment.

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.

Trust yourself. Create the kind of self that you will be happy to live with all your life. Make the most of yourself by fanning the tiny, inner sparks of possibility into flames of achievement.

– GOLDA MEIR



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 by CDS of North Division High School's conceptual schoolyard redevelopment



Solar Panels

Installation of renewable energy features at schools have many benefits for students and the environment. Solar panels provide a reliable energy source that will lower costs for the school and offer learning opportunities for students studying finance, information technology, and engineering. Students can also explore careers in the growing field of renewable energy.



Traffic Calming Features

Physical design features including narrow lanes, sidewalk extensions, and speed humps can help improve safety for motorists, pedestrians, and bicyclists. Traffic calming features have been shown to reduce speeding, vehicle crashes, and injuries while improving the flow of traffic. They also help decrease speeding and other unsafe driving behaviors and encourage safer more responsible driving habits.

RECREATION AND OTHER SITE IMPROVEMENTS



Naturalized spaces provide opportunity for cooperative learning and help youth **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 obesity, and promote other **positive** health outcomes.

North Division's conceptual plan includes a resurfaced **running track**, stadium seating to support sporting events and drumline performances, and **traffic calming** features to improve pedestrian safety along nearby streets. The plan also calls for the installation of one acre of **solar panels** on the school's rooftop to promote renewable energy use, reduce expenses, and align with North Division's information technology coursework. **Artistically designed** benches are intended to help beautify the space and provide areas for rest, while promoting overall site accessibility. Significant thought was put into the desired use of the improved facilities by the school and greater community.

“*Legacy Strong, Future Ready*”

- NAOMI ELIM, FRESHMAN STUDENT



Outdoor Recreation

Green and healthy school grounds support a wide range of recreation activities that promote overall fitness while reducing the incidence of other health disparities. Varied recreation components allow youth to build cooperation and negotiation skills and strengthen the connection between play and learning.

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 to support restorative practices, sensory exploration, and reflection help students build self-awareness and emotional regulation by connecting with the natural world.



PLANNED CURRICULAR CONNECTIONS

It is important that the schoolyard redevelopment include plans for actually 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 into the curriculum.

North Division High School is committed to providing academic excellence, while instilling morals and values that will create individuality by fostering a passion for learning within our students. Meaningful curricular connections will enrich each student's mind, body, and character, as we encourage our students to have respect and compassion for others. As a part of the National Academy Foundation (NAF), North Division is working alongside a network of education, business, and community leaders to ensure high school students are college, career, and future ready.

NAF academies provide small, structured, and focused learning communities that work to maximize every student's chance of future success. Academies encourage teacher collaboration, cross-curricular connections, and foster personalization to meet student, school, district, and state needs and goals. North Division is adopting four NAF academies including: Health Sciences, Information Technology, Finance & Entrepreneurship, and Engineering. These academies will support students as they explore career pathways through STEM-focused curricula and work-based learning experiences including internships with local companies and industry professionals.

HEALTH SCIENCES



The Academy of Health Sciences curriculum includes courses on biotechnology, anatomy, physiology, and global health. Academies may use Biomedical curriculum from Project Lead the Way Inc. (PLTW) or the Health Sciences Careers curriculum from Paxton-Patterson. HOSA—Future Health Professionals also provides opportunities for students to build college and career-readiness skills.

Greenhouse

Improved greenhouse facilities will provide the ability to produce healthy food throughout every season of the year. Students can perform experiments to compare growing conditions, crop yields, and the successes and challenges of growing in outdoor garden beds vs. greenhouse conditions. We will incorporate the use of digital observation technology skills (DOTS) to monitor water quality and soil conditions to understand the preferences of a variety of plant species. The addition of an aquaponics system will allow our students to explore the symbiotic relationships between plants, animals, and bacteria while providing additional healthy food choices for our community.

Running Track and Other Recreational Improvements

The proposed recreational improvements and resurfaced running track will promote overall health and wellness in our community. Students and community members will be encouraged to use the track to improve cardiovascular health and overall fitness while reducing the incidence of other health disparities.

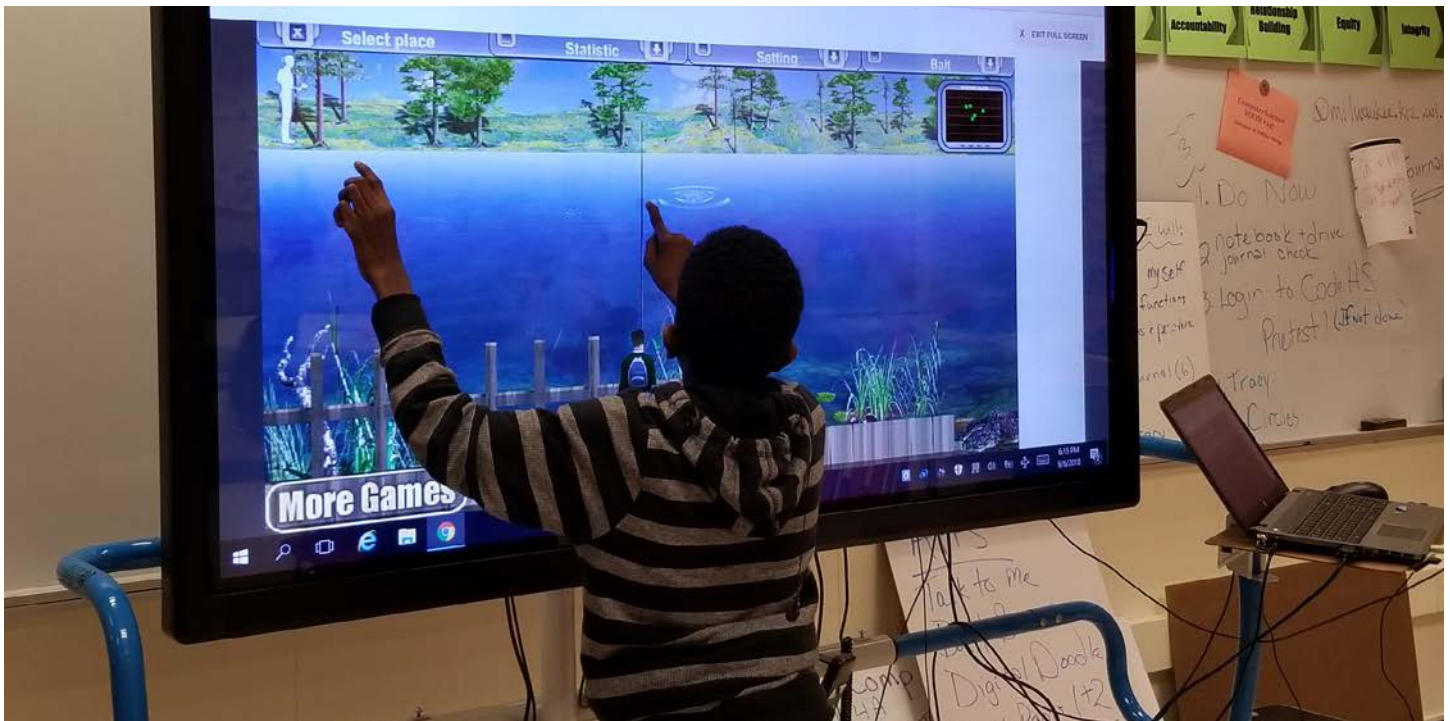
Community Gardens

Students will gain experience planting, growing, and harvesting vegetables in our community gardens. Working alongside community members, students will compare and contrast organic produce versus non-organic foods and research the impacts of GMOs, pesticides, and chemical treatments used in agriculture. Students will investigate the effects of a variety of garden management techniques and promote the benefits of clean eating while providing access to healthy food for the school and surrounding community.

Potential Career Pathways

- Biomedical Sciences
- Biotechnology
- Community Organization
- Data Analysis
- Food Science
- GIS (geographic information systems)
- Health Care
- Landscape Architecture & Design
- Nutrition
- Public Health
- Research
- Urban Farming/Agriculture

INFORMATION TECHNOLOGY



The Academy of Information Technology curriculum covers computer networking, systems, database design, digital video production, graphic design, web design, and programming. In addition, Juniper Networks has agreed upon a program of study, linked to NAF assessments, that will qualify students for its professional training program and earn a Juniper certificate. Academies may also use computer science curriculum from Project Lead the Way, Inc. (PLTW) and select courses from Cisco.

Solar Panel System

Before installation, students will conduct a baseline energy assessment of the school to better understand energy use patterns and identify areas for improvement. They will compare these patterns to the potential energy and financial savings possible by installing solar panels on site and help inform the design and location of the solar panel system while working with industry professionals to investigate careers in renewable energy. Students will analyze data displayed via an in-school kiosk used to monitor energy production and use, calculate cost-savings, and quantify environmental impacts of using renewable energy.

Green Roof

Students will calculate the amount of stormwater that falls versus amount captured and managed by the green roof material to communicate the environmental impact of the installation. They will investigate the urban heat island effect and analyze how the green roof can help moderate temperatures and improve energy efficiency throughout the seasons.

Native Plantings and Bioswales

Using the DOTS (Digital Observation Technology Skills) kits, students will gather water quality and soil testing data to compare and contrast native planting areas, bioswales, and other green spaces on campus. Data can be shared on an electronic bulletin board to update the school and communicate the findings.

Potential Career Pathways

- Biomedical Sciences
- Biotechnology
- Communications
- Computer Programming / Green Programming
- Data Analysis
- Engineering
- Graphic Design
- GIS Systems
- Landscape Architecture & Design
- Robotics
- System Maintenance
- Web Design

FINANCE AND ENTREPRENEURSHIP



The Academy of Finance curriculum covers banking and credit, financial planning, global finance, securities, insurance, accounting, and economics. The Academy of Finance curriculum and certification is validated by the Council for Economic Education.

Greenhouse and Community Gardens

These spaces will help students learn to create budgets, assess the value of products, and explore the skills needed to organize and run a community garden. Produce grown in the greenhouse and community gardens will not only provide healthy food options for students and the community, but may also support partnerships with local businesses. We would like to explore a student-run farmers market and the possibility of providing sustainable, organic produce to local restaurants for profit to assist in the maintenance of our urban agriculture program.

Solar Panels

Students will collect energy usage and cost data to calculate the potential return on investment possible by transitioning to renewable solar energy. They will compare long-term and short-term cost savings, identify opportunity costs, and investigate a possible solar panel design influenced by the natural world.

Green Infrastructure

The green infrastructure features will improve the quality of water captured on North Division's campus. Students will be able to analyze water quality conditions using the DOTS (Digital Observation Technology Skills) kits and calculate long-term and short-term savings based on water usage and stormwater fees at the school.

Potential Career Pathways

- Accounting
- Business Development
- Financial Advisor
- Financial Analyst
- Financial Systems Management
- Chief Executive Officer (CEO)
- Chief Financial Officer (CFO)
- Marketing/Advertising

ENGINEERING



The Academy of Engineering curriculum explores principles of engineering, and provides content in the fields of electronics, biotech, aerospace, civil engineering, and architecture. Academies use curriculum from Project Lead The Way, Inc. (PLTW), The STEM Academy, or Paxton/Patterson. They also benefit from support provided by National Action Council for Minorities in Engineering (NACME).

Green Infrastructure

Students will calculate the total gallons of stormwater that runs off the school and is captured by green infrastructure features included bioswales, native plantings, and porous pavement installed at North Division High School. They may create dioramas to demonstrate how different types of green infrastructure work to manage stormwater and help improve the environmental quality of the site.

Solar Panels

Students will have the opportunity to work alongside engineers and renewable energy professionals to help design and determine the location of solar panels installed on the school's roof. We hope to have students shadow solar panel installers to encourage potential careers in renewable energy and analyze solar energy outputs and usage. Energy production and use data will be displayed on a school kiosk to help communicate the financial and environmental benefits of using renewable energy.

Potential Career Pathways

- Biomedical Sciences
- Biotechnology
- Construction
- Engineering
- GIS/Land Surveying
- Landscape Architecture & Design
- Project Management
- Research
- Sales
- Systems Management
- Technical Support



In the art room, we promote and reinforce self-expression, self-esteem, higher order thinking skills, and creativity through the development of engaging multicultural art education, technology, and culturally responsive lesson plans and projects. Students are engaged in the community through art shows and art activism. Students can take an array of art courses: AP Art, Art Foundation, Sculpture, Drawing and Painting, Folk Art, and much more.

Murals

Working with partners, alumni, and the community, students will create a variety of murals that depict the culture of North Division. We will design mosaic medallions highlighting the four NAF Academies to promote our academic aspirations and emphasize career opportunities for students. Students will design a living mural made of native plantings that will bloom and change throughout the seasons.

Drumline and Performing Arts

North Division High School's Drumline and Majorettes will use the new performance spaces to celebrate the launch of new academies and other school milestones. Students from all disciplines will be able to share their learning and experience new art concepts as they are demonstrated in action in the outdoor classrooms and performance areas.

Outdoor Classrooms

The outdoor classroom spaces will provide authentic opportunities for students to practice the fine arts including drawing from life, photography, painting and other modes of hands-on art exploration. This venue may serve as an outdoor theatre where the community will gather to view movies and purchase healthy concessions provided by the greenhouse and gardens at North Division High School.

Potential Career Pathways

- Advertising
- Art Education
- Graphic Design
- Marketing
- Music Education
- Performance Arts
- Web Design

SERVICE LEARNING & STUDENT LEADERSHIP



Community Gardens

The community gardens will allow the school and community to come together in an effort to beautify the neighborhood by replacing vacant properties with vibrant raised-bed gardens that will provide access to healthy food options. Students will learn to care for the gardens and may help to educate community members and other students about sustainable gardening and harvesting techniques. They may also harvest produce to support a food pantry providing fresh, healthy food choices for the community.

Green Infrastructure

Members of North Division's Student Blue/Green Team will participate in the design and planting of bioswales and native planting areas on campus. They will learn to help care for and maintain these areas and explore potential careers while shadowing professionals from Walnut Way and Blue Skies Landscaping who support many landscaping and green infrastructure projects in the Lindsay Heights neighborhood.

Student Blue/Green Team

Student Blue/Green Team members will serve as ambassadors to share the schoolyard redevelopment story and highlight the benefits of providing green infrastructure, improved recreational facilities, and increased healthy food access that will be possible because of this redevelopment. Active students will assist with the maintenance and upkeep of planting areas, help monitor water and soil quality conditions using scientific tools, and promote positive change within our school and greater community.

Potential Career Pathways

- Agriculture
- Architecture
- Community Engagement
- Environmental Educator
- Environmental Engineer
- Human Services
- Landscape Design
- Public Works
- Sales
- Social Work

Youth Rising Up - Student Union



North Division has an active chapter of Youth Rising Up (YRU), a leadership development group for youth ages 13-19. In this collective, members come together to create a powerful platform to inform and educate communities and incite people to take action. Students acquire self-awareness, self-efficacy, and the ability to teach and inspire others. YRU encourages students to talk about trending topics, current affairs, and the news that did not make the mainstream news-even at the school level. This makes students more invested and feel that they *NEED* to care about important issues. Youth also learn that they can empower each other to affect real change in our society.

North Division's Youth Rising Up Student Engagements Include:

- Organizing students to cultivate pride at North Division by improving the quality of life and learning at school and in the surrounding community.
- Giving youth the appropriate tools to make change in a positive manner.
- Collaborating with other youth groups and activists in the city of Milwaukee.
- Working to make positive change in our community addressing social justice issues our students, their families, and people of color in general face in our city.
- Collaborating with Green and Community Schools to raise awareness about environmental issues.
- Participating in Youth Climate Summits & Strikes, Get the Lead Out, Food Justice, and much more.

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

Lieberman & Hoody (1998). Closing the achievement gap: Using the environment as an integrating context for learning. Results of a Nationwide Study. *San Diego: SEER*.² Chawla (2015). Benefits of nature contact for children. *J Plan Lit*, 30(4), 433-452.³ Berezowitz et al. (2015). School gardens enhance academic performance and dietary outcomes in children. *J School Health*, 85(8), 508-518.⁴ Williams & Dixon (2012). Impact of garden-based learning on academic outcomes in schools: Synthesis of research between 1990 and 2010. *Rev Educ Res*, 83(2), 211-235.⁵ Wells 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), 2858-2878.⁶ Li & Sullivan (2016). Impact of views to school landscapes on recovery from stress and mental fatigue. *Landscape Urban Plan*, 148, 149-158.⁷ Wu et al. (2014). Linking student performance in Massachusetts elementary schools with the "greenness" of school surroundings using remote sensing. *PLoS ONE* 9(10): e108548.⁸ Matsuoka, R. H. 2010. Student performance and high school landscapes. *Landscape and Urban Planning* 97 (4), 273-282.⁹ Moore & Wong (1997). Natural Learning: Rediscovering Nature's Way of Teaching. Berkeley, CA: MIG Communications.¹⁰ Faber Taylor et al. (2002). Views of nature and self-discipline: Evidence from inner-city children. *J Environ Psy*, 22, 49-63.¹¹ Mårtensson et al. (2009). Outdoor environmental assessment of attention promoting settings for preschool children. *Health Place*, 15(4), 1149-1157.¹² Wells (2000). At home with nature effects of "greenness" on children's cognitive functioning. *Environ Behav*, 32(6), 775-795.¹³ Berto et al. (2015). How does psychological restoration work in children? An exploratory study. *J Child Adolesc Behav* 3(3).¹⁴ Faber Taylor et al. (2001). Coping with ADD: The surprising connection to green play settings. *Environ Behav*, 33(1), 54-77.¹⁵ Amoly et al. (2014). Green and blue spaces and behavioral development in Barcelona schoolchildren: The BREATHE Project. *Environ Health Perspect*, 122:1351-1358.¹⁶ Blair (2009) The child in the garden: An evaluative review of the benefits of school gardening. *J Environ Educ*, 40(2), 15-38.¹⁷ Rios & Brewer (2014). Outdoor education and science achievement. *Appl Environ Educ Commun*, 13(4), 234-240.¹⁸ Bell & Dyment (2008). Grounds for health: The intersection of green school grounds and health-promoting schools. *Environ Educ Res*, 14(1), 77-90.¹⁹ Nedovic & Morrissey (2013). Calm, active and focused: Children's responses to an organic outdoor learning environment. *Learn Environ Res*, 16(2), 281-295.²⁰ Ruiz-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> ²Dyment & 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 Advan 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.

Diversity, Equity & Inclusion Lens In Green & Healthy Schools

As schools across the Milwaukee-area take part in greening their schoolyard 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 their own unique identities and experiences, consciously and unconsciously, informs 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" that people from all other ethnicities and cultures are measured against.



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 UN 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., UN 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.

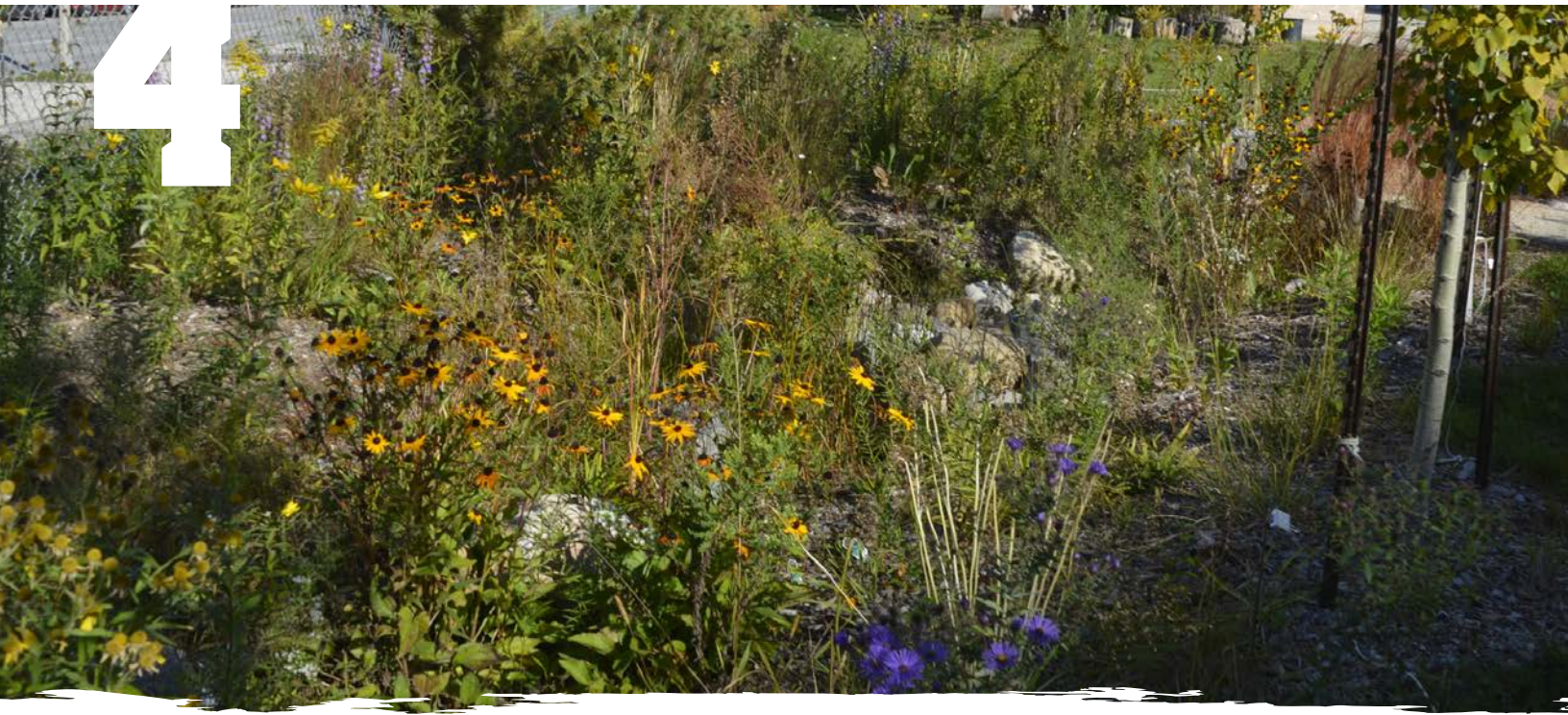


Source: The State of Racial Diversity in the Educator Workforce, July 2016 US Dept. of Education; White Teacher, Black Students by Mack T. Hines III.

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



Asphalt Removal

Ongoing/Monthly Considerations:

Depending on the groundcover replacement such as grass, wood chips, permeable pavement, etc., the replacement may require additional maintenance such as grass cutting, wood chip 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.

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.

To promote the longevity and active use of the redeveloped school grounds, 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. It should be noted that generally, the school's engineer/janitorial staff will be responsible for additional maintenance needs.



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



Community 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.

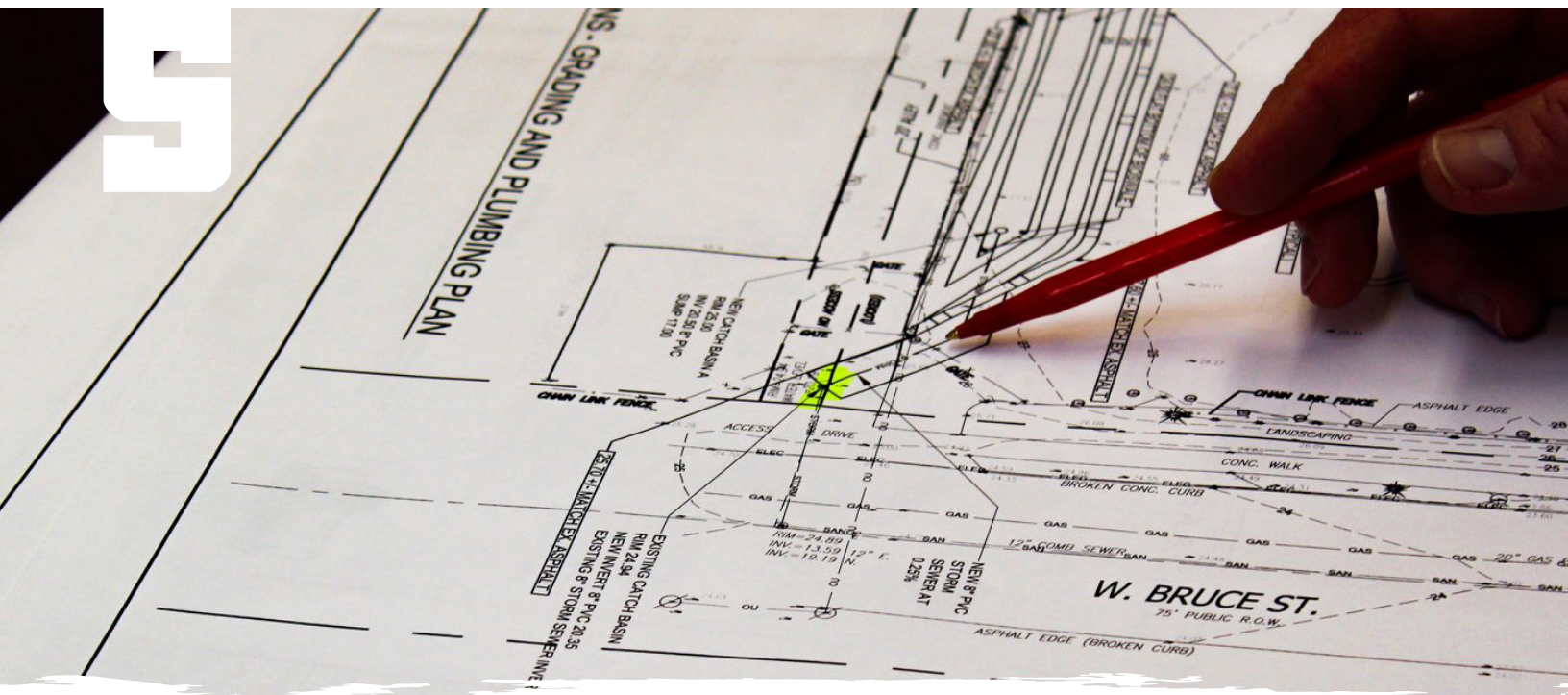
Native Plantings

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. Between 1-3 years of initial weeding are required, but after that period, maintenance is minimal.



FUNDRAISING TARGETS

An important component of the conceptual planning effort was to develop plans that were 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 actually 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 is 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. Inkind Contribution
 Stormwater Green Infrastructure		
Asphalt removal, sawcutting, etc.	\$ 25,000	
Porous pavement	\$ 20,000	
29 Stormwater trees	\$ 15,000	\$ 5,000
Native plantings	\$ 5,000	\$ 2,500
Bioswale soils and plantings	\$ 55,000	\$ 2,500
Street/Building stormwater diversion	\$ 25,000	
Underground Cistern (20,000-gallon)	\$ 50,000	\$ 7,500
Green Roof (Phase 2)		
Survey, Detailed Design and Permitting	\$ 55,000	
Project Management		\$ 20,000
Continued Reflo Support	\$ 7,500	\$ 7,500
Project Signage	\$ 5,000	\$ 2,500
Demonstrations, Workshops, Tours		\$ 2,500
Water Focused Curricular Activities	\$ 10,000	
Vegetation Establishment	\$ 5,000	\$ 5,000
<i>Stormwater Green Infrastructure Subtotal</i>	<i>\$ 277,500</i>	<i>\$ 55,000</i>
 Healthy Food Access		
Greenhouse improvements	\$ 50,000	\$ 5,000
Orchard (across 10th Street)	\$ 10,000	\$ 10,000
Community garden pavilion (across Center Street)	\$ 50,000	\$ 2,500
Aboveground, rainwater harvesting cistern	\$ 7,500	\$ 2,500
Raised bed planters as a part of a community garden	\$ 7,500	\$ 2,500
Maintenance for plantings		\$ 5,000
<i>School Garden and Healthy Food Access Subtotal</i>	<i>\$ 125,000</i>	<i>\$ 27,500</i>
 Recreational Improvements		
Stadium Seating	\$ 80,000	
Resurfaced Running Lanes	\$ 170,000	
<i>Recreational Improvements Subtotal</i>	<i>\$ 250,000</i>	<i>\$ -</i>
  Educational Elements		
School murals	\$ 50,000	\$ 5,000
Outdoor Classroom A	\$ 35,000	
Outdoor Classroom B	\$ 65,000	
<i>Educational Elements Subtotal</i>	<i>\$ 150,000</i>	<i>\$ 5,000</i>
  Other Site Improvements		
Traffic Calming Features	\$ -	\$ -
100kW Solar System	\$ 200,000	\$ 5,000
Alternative energy monitoring kiosk and displays	\$ 15,000	\$ 2,500
<i>Other Site Improvements Subtotal</i>	<i>\$ 215,000</i>	<i>\$ 2,500</i>
Total Estimated Fundraising Targets:	<i>\$ 1,017,500</i>	<i>\$ 90,000</i>



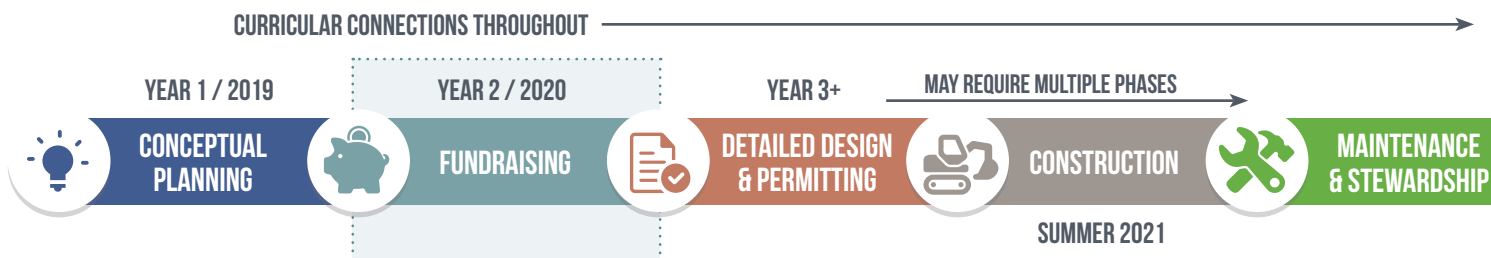
PROJECT TIMELINES AND NEXT STEPS

Although there has already been a significant amount of time and energy invested in the schoolyard redevelopment project by North Division High 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 2020. 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 North Division High School's schoolyard redevelopment:

Please go to Reflo's website: www.RefloH2o.com or send an email to: justin.hegarty@refloh2o.com

SUPPORTING ORGANIZATIONS



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 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.



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 long time partner of the green and healthy schools movement and continuously promotes its expansion.



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 multi-faceted schoolyard redevelopment projects.



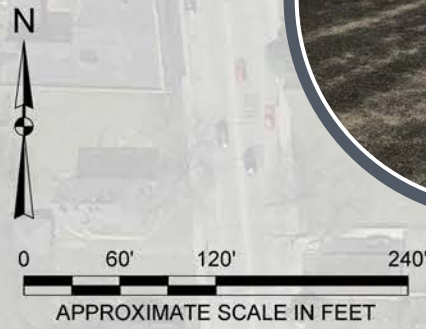
The Green Schools Consortium of Milwaukee (GSCM) is a robust local network of schools and resource providers that are motivated to promote greener, healthier schools. Through bi-monthly meetings and an annual conference, hundreds of local participants have collectively shared ideas, resources, and lessons-learned.



Arts @ Large activates Milwaukee's education communities to build environments that support arts-rich, life-long 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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FRANKLIN SQUARE PLAYFIELD REDEVELOPMENT

As part of the Milwaukee Recreation Department's mission to revitalize 52 play spaces around the city, Franklin Square Playfield is currently under construction. Located just west of the school's campus, this revitalized playfield will further support North Division's redevelopment efforts and promote community engagement with new basketball courts, age-appropriate playground equipment, a splash pad, shade structures, a multi-purpose field, and its own obstacle course.



Image provided by MKE Recreation

FRANKLIN SQUARE PLAYFIELD (MPS MILWAUKEE RECREATION SITE)



RUNNING TRACK AND ATHLETIC FIELD

North Division's current running track and Athletic Field is in disrepair. Crumbling asphalt and poor turf management have resulted in decreased use by the school and surrounding community.

UTILITIES - INCLUDING STORMWATER CATCHBASINS

SITE BOUNDARY

W. CENTER ST.

ATHLETIC FIELD

PARKING LOT

TENNIS COURTS

SECONDARY ENTRANCE

MAIN ENTRANCE

W. CLARKE ST.

N. 10TH ST.

N. TEUTONIA AVE.



EXISTING GREEN SPACE

North Division High School's campus includes several areas of green space that are currently underutilized. These spaces can become engaging outdoor educational areas with additional design considerations.

CITY-OWNED VACANT LOT

OPPORTUNITY FOR VACANT LOT REDEVELOPMENT

Adjacent city-owned vacant lots provide the opportunity to create a community garden and orchard that will support North Division's curriculum and promote healthy food access in the neighborhood.

CITY-OWNED VACANT LOT

EXISTING GREENHOUSE CONDITIONS

Once a thriving greenhouse and educational asset to the school, North Division's greenhouse is currently underutilized and in disrepair. Facility upgrades including plumbing and electrical repairs are needed to make the greenhouse usable for educational programming and to support healthy food access for the school community.



OPPORTUNITY FOR EDUCATION AND COMMUNITY GATHERING

North Division High School is the site of many MPS programs and serves as a gathering place for the surrounding community. Existing green space on the building's south side has potential to become an outdoor classroom and performance space with additional design considerations.



Reflo Sustainable Water Solutions

EXISTING SITE PLAN

Drawing Title:

Project: North Division High School
1011 W. Center St.
Milwaukee, WI 53206

Designed By: Reflo, CDS, and North Division High School's Green Team
Drawn By: Justin Hegarty

Project No: C3.MPS.18

Figure No:

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MULTIPLE ARTS OPPORTUNITIES

There are many opportunities to include artistic elements throughout the school grounds including murals on building walls and educational signage to support the redevelopment project. The outdoor classroom, community gathering spaces, and additional stadium seating will also provide settings for the performing arts.



TRAFFIC CALMING FEATURES

To increase pedestrian safety on nearby streets, North Division plans to work with the City of Milwaukee to install traffic calming features.



IMPROVED HEALTHY FOOD ACCESS

North Division would like to increase its engagement with the community and promote healthy food access through the development of community gardens and an orchard on nearby city-owned vacant property.



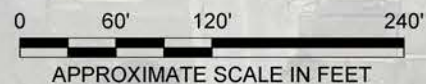
STORMWATER GREEN INFRASTRUCTURE

Green infrastructure will help to better manage stormwater on the school grounds, where it falls, improving the aesthetics, recreational facilities, and the health of local watersheds.



ADDITIONAL GREEN SPACE AND RECREATIONAL FACILITIES

Reducing the amount of asphalt and increasing green space on the school grounds are central components of the redevelopment plan. Along with new green areas, native plantings, and additional trees, North Division would like to resurface the running track lanes and install additional stadium seating near the athletic field.



OUTDOOR CLASSROOMS AND PERFORMANCE AREAS

To help facilitate ecoliteracy and promote sensory exploration that comes with outdoor learning, North Division High School would like to build two outdoor classrooms. These spaces will also provide opportunities for community gatherings and performing arts activities.



COMMUNITY GARDEN & PAVILION



COMMUNITY ORCHARD



GREENHOUSE IMPROVEMENTS

To support healthy food access for the school and community, North Division would like to upgrade the current greenhouse conditions. These improvements will allow students to actively grow fresh, local food and explore curricular connections related to health, science, and entrepreneurship.



ROOFTOP SOLAR PANELS

North Division High School would like to install a 100kW solar system on the school's rooftop. This equates to approximately one acre of solar panels that would be utilized to offset energy consumption and costs at the school while supporting curricular connections to the engineering, finance & entrepreneurship, and information technology academies at North Division.



Reflo
Sustainable Water Solutions

PROPOSED SITE PLAN

Drawing Title:

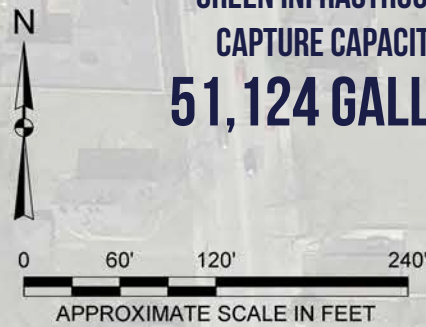
Project:
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1011 W. Center St.
Milwaukee, WI 53206

Project No:
C3.MPS.18

Figure No:

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TOTAL POTENTIAL GREEN INFRASTRUCTURE CAPTURE CAPACITY = 51,124 GALLONS

BIOSWALES

Approximately 1,520 sq. ft. of bioswales will be added to the school grounds to promote biodiversity and further manage stormwater.
Managing approx. 11,400 gallons

RAINWATER HARVESTING

North Division would like to collect rainwater and use it to water raised beds at the proposed community garden site, located north of the school grounds.
Managing approx. 550 gallons

NATIVE LANDSCAPING

A total of 8,300 sq. ft. of native planting areas will be installed throughout the school grounds.
Managing approx. 3,320 gallons

GREEN ROOF (PHASE 2)

In a future phase of development, North Division would like to add a 10,000 sq. ft. green roof to the school building.
Managing approx. 10,000 gallons

UNDERGROUND CISTERN

Stormwater captured near the track and athletic field can be diverted into a 20,000 gallon underground cistern.
Managing approx. 20,000 gallons

W. CENTER ST.

W. CLARKE ST.

N. 10TH ST.

N. TEUTONIA AVE.

ORCHARD (OFF-SITE)

25 stormwater trees are intended to be planted to create an orchard on nearby vacant property.
Managing approx. 625 gallons

DEPAVING

Total asphalt removal is anticipated to be approximately 1,520 sq. ft. and replaced with more porous ground cover including permeable pavement, native plantings, and bioswales.
Managing approx. 304 gallons

STORMWATER TREES (ONSITE)

29 stormwater trees are intended to be planted.
Managing approx. 725 gallons

POROUS PAVEMENT

North Division would like to further manage stormwater by installing 1400 sq. ft. of porous pavement in the parking lot.
Managing approx. 4,200 gallons



STORMWATER GREEN INFRASTRUCTURE PLAN

Drawing Title:

Project: North Division High School
1011 W. Center St.
Milwaukee, WI 53206

Project No: C3.MPS.18

Figure No:

Designed By: Reflo, CDS, and North Division High School's Green Team
Drawn By: Justin Hegarty

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BENCHES

Currently there are limited options for seating throughout the school grounds. Seating is important for students during instructional time, during free time, and for general community use. Benches can also be an opportunity for visual arts and sponsor recognition.



RECREATIONAL IMPROVEMENTS

Improvements to the running track and athletic field areas will promote physical activity, community gatherings, and overall well-being.



COMMUNITY GARDENS AND ORCHARD

To further support healthy food access in the community, the redevelopment will include a community garden and orchard on vacant lots adjacent to North Division's campus.



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:

1. Bioswales and Stormwater Management
2. Community Gardens and Healthy Food Access
3. Outdoor Classroom - Use Schedule
4. Rainwater Harvesting
5. Underground Cistern and Sewers
6. Project Partners and Site History
7. Native Plantings and Pollinator Species
8. Renewable Energy and Solar Power



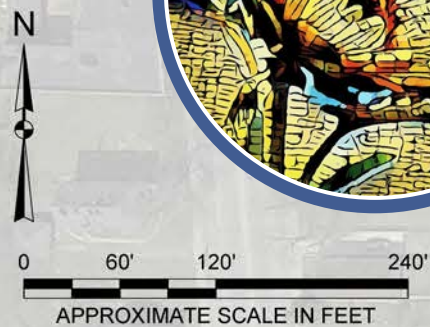
MURALS AND MOSAICS

North Division would like to further activate the school grounds through the visual arts. Several walls are currently barren and unattractive. Adding professionally developed murals and mosaics with themes that reflect the redevelopment project can help to make the space feel more welcoming and connected while also providing an opportunity for local artists.



OUTDOOR CLASSROOM AND PERFORMING ARTS

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



N. TEUTONIA AVE.

W. CENTER ST.

N. 10TH ST.

W. CLARKE ST.



Reflo
Sustainable Water Solutions

ARTS, OUTDOOR EDUCATION, AND COMMUNITY ENGAGEMENT PLAN

Drawing Title:

Project:
North Division High School
1011 W. Center St.
Milwaukee, WI 53206

Project No:
C3.MPS.18

Figure No:

For more information on how to support the
NORTH DIVISION HIGH SCHOOL
schoolyard redevelopment project please contact:

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For additional information please visit
Reflo's website: www.RefloH2o.com
