TRANSFORMING
CENTRAL HIGH
SCHOOL

SAINT PAUL PUBLIC SCHOOLS
OLDEST HIGH SCHOOL IN MN
“Watershed District: A special purpose unit of MN local government”

• Established by Watershed District Act of 1955
• Boundaries based on drainage patterns
• Regulatory authority
• Funded through tax levy
Capitol Region Watershed District

- St. Paul, Minnesota
- Drainage area: 41 mi²
  - 5 lakes
  - Storm sewer network
  - 13 mi. of Mississippi
- Population: 245,000
- Highly urbanized
  - 47% impervious
All of CRWD Drains to Mississippi River
Transforming Central
students+environment+community
central.spps.org/transformingcentral
Please Donate
Central High School
150th Anniversary - 1866 - 2016
Transforming Central

students • environment • community

A community effort to reshape the urban landscape of St. Paul Central High School in order to improve the students’ daily experience, address the environmental impacts of our campus, and connect with the vibrant community that embraces the school.
Partnerships/Community Support

- Metropolitan Design Center
- St. Paul Public Schools – Facilities, School Board
- Neighbors, Community Councils, City Council Members
- Teachers – outdoor classroom and curriculum opportunities
- Student groups – Roots and Shoots/seNHS
- Parents
- Marshall Street residents
- Local business and churches and organizations, Grand Avenue Business Association, etc.
- Community Councils
Defining the Project

students • environment • community

The student experience is at the forefront of the project, providing:

• improved pathways, additional lighting and seating, and intentional gathering areas

• a sense of belonging and school pride

• educational opportunities inside and outside of the classroom

• daily contact with nature in an urban location
Branding - Promotion
Transforming Central Committee

A team of committed parents with a diversity of strengths and skills.

- Leadership
- Fundraising/Development
- Grant-writing
- Community Organizing
- Financial
- Project Documentation
- Project Management
- Graphic Design
Fundraising Events

Individuals
Family Foundations
Corporate and Business Funders
Alumni

House Parties
Silent Auctions
Give MN
Musical Events
The Central High School Community is grateful to all who contributed to Transforming Central, with special recognition to these major donors:

### Individual Major Donors

- Lisa & Bruce Hannum
- Andrew Huest & L. Charles Hardy
- Kitle Heedstrom
- The Heyman Family
- The Hotzle, Benjamin Family
- The Hudson-Glen Family
- Ruth & John Hus
- Sam & Vivian Kaplen
- Peter Lewis & Huiq Joo Kim
- Dana Simonner & Jon Lathl
- Peter Leppali, ’82
- Judy Marble Lutter, ’57
- Principal Mary Macklub
- The Martin Family
- The Marshall Family
- Deborah Carter & Donald McCoy
- The McCloskey Family
- The McCullough Family
- William & Virginia McDonald
- Donald and Jane Greaves-Farber
- Dennis Knausdich & Roger Mayer
- Peter M. Morales
- Janelle Ohrn & Michael Moukoff
- Jennifer Nieder '91
- The Halasian Family
- Mary Cerinck & David Hargard
- Valerie & Mike DiVesto
- The O'Reilly-Wilmes Family
- Peter ’53, Rodney ’57 & Matthew ’56 Dixon
- Tim & Katie Franke-Reimer
- Arnie & B.J. Pappas
- Dr. Michael & Paula Pergament
- Lawrence ’57 & Linda Peterson Pelman
- James & Stuart Portugal
- The Raskal-Devers Family
- Margaret Jones & Jeff Riberg
- Alan Eukinon, ’51
- T. Danny Sanford, ’58
- Brico Schmuckeher ’56
- Larry & Jim Stahlharm
- Rob McKos
- The Tonneson Family
- The Tuttle Family
- Hons & Kristin Mand
- Susan Lownis-Smi & Jon Weisman
- Scott & Shee Yasso

### Organizations

- Anonymous
- The Ahlquist-Mundt Family
- Patricci Davis & Stuart Alger
- Anjel Gric and Michael Riter
- Nicole Anthony ’90
- Hag Arndt
- Walt ’51 & Ginger Blomholm, ’58 Bailey
- Roger & Nancy Benjamin
- Beth Black
- Mary Ballock
- Marianne Ludwig & Jonathan Blyston
- Annete Boudreau
- Laura & Jack Coleman
- Mary Belemin & Roberta Cordano
- The Donnan Family
- The Davies Family
- The Deila Family
- Sara & Michelle Dem-Mudall
- Lori Bibo & J. R. McNutt
- Chris Faul
- Anisha Garam
- Theresa. Sesse & David Hage
- Kris & Tim Hageman

### Grants

- Boyer Bay Care
- P. R. Bigelow Foundation
- Cobalt’s Outdoor Fund
- Capitol Region Watershed District
- DuPont Pioneer
- Immanuel Lutheran Church
- John S. and James L. Knight Foundation
- Martin Foundation
- Minnesota Board on Water and Soil Resources
- Minnesota Board on Water and Soil Resources Trust Fund
- Minnesota Historical Society
- Pheasants Forever
- The Saint Paul Foundation
- Saint Paul Public Schools
- Saint Paul Neighborhood STAR Program
- St. Paul Program
- St. Paul Smart City
- Richard M. Schulze Family Foundation
- Jeannie and Gordon Shepard
- Family Foundation
- Delaine Eason ’50 & US Forest Service

### Businesses

- Anhie Samson Caleandia
- Graphic Designer
- Associated Bank
- Bank Cherokee
- Bloom Brothers Landscaping
- Emmons & Olver Resources
- Paul Fournier, 102 and Creative Images Inc.
- Rock Schnell Architecture
- Sally Gogin Design
- Sunrise Banks
- The Veggie
- University of Minnesota Design Center
- Wagger Communications
- Walker West Academy
- Whole Foods

---

F. R. Bigelow Foundation
Board of Water and Soil Resources
Capitol Region Watershed District
Immanuel Lutheran Church
Jeanne and Gordon Shepard Family Foundation
Lex Ham Community Council
Mardag Foundation
Minnesota Historical Society
Minnesota Environment and Natural Resources Trust Fund
Pheasants Forever
Richard M. Schulze Family Foundation
Saint Paul Public Schools
Saint Paul Neighborhood STAR Program
Saint Paul Foundation
University of Minnesota Monarch Lab

Thank You!
Summer 2016 - Installation
Dedication and 150th Celebration

Dedication – Fall 2016

150th Celebration
Spring 2017

Please join the Central community on May 18th from 5-6:30pm for a special 150th Birthday Party Picnic on the new plaza.

Student and Alumni Musicians
Outdoor Photography Exhibit
Central High School

- Oldest high school in Minnesota
- Last renovated in 1980
- “prison”-like exterior and site
- Extensive impervious
Central High School

- 2.5 acre drainage area
- Significant erosion and sediment issues
- Lack of areas for student occupation and engagement within the site
Student & Faculty Engagement
Visual Preference Survey

• Had attendees at after-school meeting rate a variety of different site images to understand the desired character for the site

• Rate from 1 (very positive) to 5 (very negative)
“Funny Money” Exercise

- Prioritizing site elements
- Limited (and sometimes unknown budget)
- Students and staff broke into groups and selected the items they most wanted
### Funny Money Results

- **Outdoor Classroom**
- **Plaza Enhancements**
- **Seatwalls and architectural enhancements**
- **Signage**

### Table

<table>
<thead>
<tr>
<th>Category</th>
<th>Amount</th>
<th>Group 1</th>
<th>Group 2</th>
<th>Group 3</th>
<th>Group 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Additional Art Projects</td>
<td>$20</td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Additional Furnishings</td>
<td>$10</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>$20</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Additional Landscape</td>
<td>$10</td>
<td>✓</td>
<td></td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td></td>
<td>$20</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Additional Lighting</td>
<td>$20</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>$30</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hillside Prairie</td>
<td>$20</td>
<td></td>
<td></td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Large Trellis/Green Screen on Wall</td>
<td>$20</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Main Sign Replacement</td>
<td>$10</td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td>$20</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Outdoor Classroom</td>
<td>$15</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>$30</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Plaza Enhancements</td>
<td>$20</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>$30</td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Seatwall/Architectural Enhancements</td>
<td>$20</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>$30</td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Signage Frame - Lexington Marshall</td>
<td>$5</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Site learning Features</td>
<td>$10</td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Water Harvesting Tank @Tiered Beds</td>
<td>$10</td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
</tr>
</tbody>
</table>
Design and Bidding

- Used school motto: “Many Traditions, One School” as inspiration

- Created multiple concept design iterations, and revised based on feedback from the group

- Bid project with many add alternates because budget was unknown due to fundraising even up until the time of bidding
CENTRAL HIGH SCHOOL CLEAN WATER PARTNERSHIP

With support from Saint Paul Public Schools and Capitol Region Watershed District, 1.4 million gallons of polluted stormwater runoff are filtered on Central’s campus every year.

Permeable pavers have gaps so stormwater runoff and snowmelt can soak into the ground instead of flowing to storm drains in the street.

Two tree trenches in the plaza capture stormwater runoff and use it to water trees and plants. Underground pipes take excess water to the underground rock trench.

A large underground rock trench with perforated pipes can hold 49,400 gallons of stormwater runoff so it can seep into the rock and soil below.

Two rain gardens and a native planting capture stormwater runoff from the plaza and grassy hill areas so it can soak into the ground and be filtered by the plants.
Infiltration Gallery Construction
Infiltration Gallery Construction
Tree Trenches & Permeable Pavers
Plaza - Before
Plaza – After Improvements
Lawn & Outdoor Classroom - Before
Lawn & Outdoor Classroom – After
Plaza Rain Garden - After
Why Partner with Schools?
Schools are Great Partners

• Major Land Owners
• Support Clean Water Initiatives
• Need You! Technical and Financial Support
• Cost savings by pairing stormwater improvements with school capital improvements

• **Opportunities to connect with students and community**
Schools are Great Partners

- 38,000 students in SPPS
- 1,800 students at Central HS (~450/grade)
- Spatial distribution
- Diverse populations (77% S.O.C.)

SPPS Student Population

- American Indian: 2%
- Asian: 33%
- White: 21%
- Black: 31%
- Hispanic: 13%
Educational Signage
Educational Signage
Educational Signage

WHAT'S BENEATH YOUR FEET?

Underground rock trenches at Central High School help reduce pollution in the Mississippi River. Here's how —

Polluted stormwater runoff from Central used to flow from rooftops, parking lots and sidewalks to storm drains and then the Mississippi River. The school installed underground pipes with thousands of holes (perforated) and buried them in rock-filled trenches. The rock trench can store 49,400 gallons of stormwater runoff from around campus where it can seep through the holes into the surrounding rock and soil instead of flowing to the river untreated.

Why?

Did you know that when it rains or snow melts, water carries trash, dirt, oil, pet waste, grass and leaves to the Mississippi River? Water that flows over hard surfaces is called runoff. Projects like this one at Central are essential to capture, clean and reduce runoff before it reaches nearby lakes and rivers. Saint Paul Public Schools completed this project in partnership with Capitol Region Watershed District.
LETTING IT ALL SOAK IN

Stormwater tree trenches at Central High School help reduce pollution in the Mississippi River. Here’s how —

Polluted stormwater runoff from Central used to flow from the rooftops, parking lots and sidewalks to storm drains and then the Mississippi River. The school installed tree trenches and permeable pavers to capture runoff and snowmelt from the plaza. Runoff flows through gaps in the pavers where it can be used by the plants and trees in the tree trenches. Excess water soaks into the ground or flows to the underground rock trench instead of flowing to the river untreated.

Why?

Did you know that when it rains or snow melts, water carries trash, dirt, oil, pet waste, grass and leaves to the Mississippi River? Water that flows over hard surfaces is called runoff. Projects like this one at Central are essential to capture, clean and reduce runoff before it reaches nearby lakes and rivers. Saint Paul Public Schools completed this project in partnership with Capitol Region Watershed District.
Curriculum Integration

### BMP characteristics

#### Permeable Pavers

<table>
<thead>
<tr>
<th>Surface Area</th>
<th>DA 3</th>
<th>DA 3B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pavers - Height/Void Space</td>
<td>1,196 ft²</td>
<td>449 ft²</td>
</tr>
<tr>
<td>Pea Gravel - Height/Void Space</td>
<td>4 inches, 15% voids</td>
<td>4 inches, 15% voids</td>
</tr>
<tr>
<td>Quarry Stone (diameter ½ - 1 in) - Height/Void Space</td>
<td>2 inches, 40% voids</td>
<td>2 inches, 40% voids</td>
</tr>
<tr>
<td>Quarry Stone (diameter 1½ - 3 in) - Height/Void Space</td>
<td>4 inches, 40% voids</td>
<td>4 inches, 40% voids</td>
</tr>
<tr>
<td>Infiltration Rate of Subsoils</td>
<td>24 inches, 40% voids</td>
<td>6 inches, 40% voids</td>
</tr>
</tbody>
</table>

#### Infiltration Rate of Subsoils

- 0.3 in/hr

### Tree Trenches

- Can be treated as permeable pavement, installed the same as pavers in drainage area 3, for the sake of hydrologic calculations

<table>
<thead>
<tr>
<th>Tree Trench</th>
<th>Surface Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tree Trench #1</td>
<td>228 ft²</td>
</tr>
<tr>
<td>Tree Trench #2</td>
<td>459 ft²</td>
</tr>
</tbody>
</table>
*diagram not to scale*
Curriculum Integration
Central High School

• 2.5 acres treated

• >90% reduction in Vol, TSS, and TP

• ~$800,000 for design and construction

• >$430,000 covered by grants
Project Achievements

• Students, staff, and community were key stakeholders in planning process

• Campus beautification improves students’ daily experience

• Environmental improvements integrated with school curriculum