Milwaukee's Green Makeover

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Milwaukee's Green Renaissance

- Stormwater Reduction
- Waste Reduction
- Energy Efficiency
- Milwaukee Green Team
- Green Redevelopment

Stormwater Reduction

- City efforts to reduce amount of stormwater that enters the combined sewer system
- Reduce the occurrence of CSOs & SSOs
- Milwaukee's Urban Forest
- Greening Milwaukee Schools
- Disconnect and Redirect Program

Stormwater Parking Lots

- Use of bioretention features to direct stormwater into areas with trees and planted materials
  - Bioswales
  - Rain Gardens
- Porous Pavement allows stormwater to infiltrate into the ground

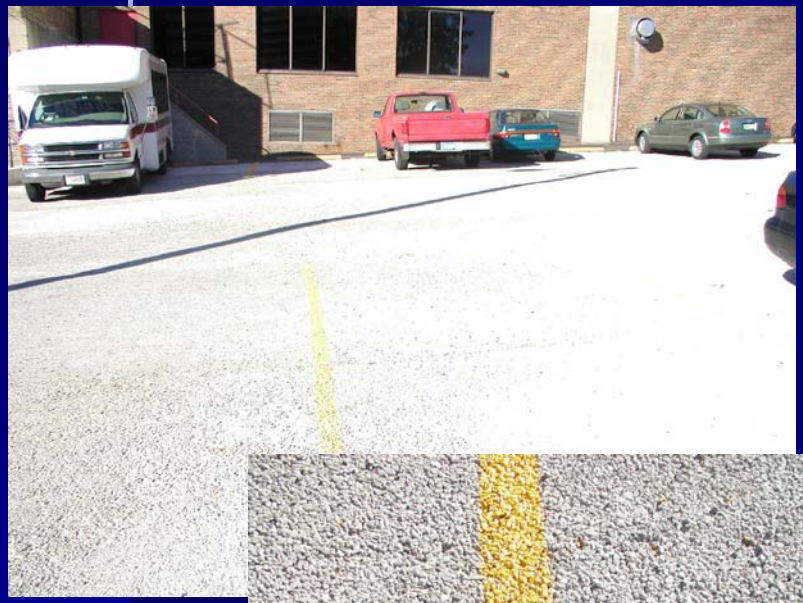
Urban Storm Trees & Green BMPs

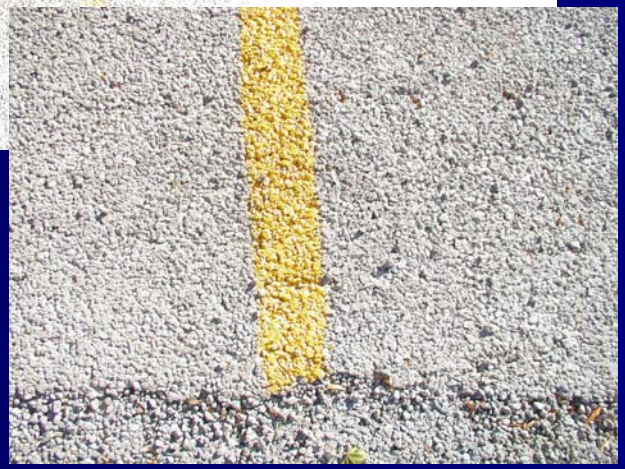
Retrofit existing lot with a rain garden on east end of lot

Replace 2 concrete islands with bioswales

Miller Brewing Company Bioswale

Milwaukee School of Engineering
Porous Pavement





Porous Concrete

Porous Asphalt

Urban Ecological Analysis

- 1996 UEA of Milwaukee's tree canopy
- Milwaukee's tree canopy cover measured at 16%
- Tree canopy ranges from 1% - 42%
- Recommendation to increase trees planted on private property and in public right-of-way/open spaces

Sitea8
Data Sheet

Image
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Study Site
Total Area: 13.37 ac
Grass Area: 8.59 ac (64%)
Imperv Area: 3.35 ac (25%)
Building Area: 1.34 ac (10%)
Number of Homes: 39
Hydrologic Soil: C
Percent Slope: 1.0
Pond Percent: 0
Rainfall Type: II
Precipitation: 6.80 in
Runoff Volume: 5.13 in

Tree Statistics
Tree Count: 69
Canopy Area: 0.09 ac (1%)
Avg dbh: 2.5in
Avg dbh Class: 1.0
Avg Ht Class: 1.1
Avg Health Class: 3.6
Number of Species: 13
Dominant Species: ASH (36%)
Ownership (V|B|Unk): 51%|49%|0%

Carbon Benefits
Carbon Storage: 4.03 tons
Carbon Sequestration: 0.03 tons/yr

Energy Benefits
Total Savings: $36.30
Savings per Home: $0.93
Total KWH Savings: 302.5
KWH Savings per Home: 7.8

Stormwater Benefits *
Runoff Reduction: 0.3%
Time of Concentration Increase: 0.4%
Peak Flow Reduction: 0.5%
Avoided Storage**: 22543 cubic feet

*Stormwater results are based on existing trees compared with a 0% tree canopy condition.
**Retention basin volume required if existing trees were removed.

08/04/96

Sited1
Data Sheet

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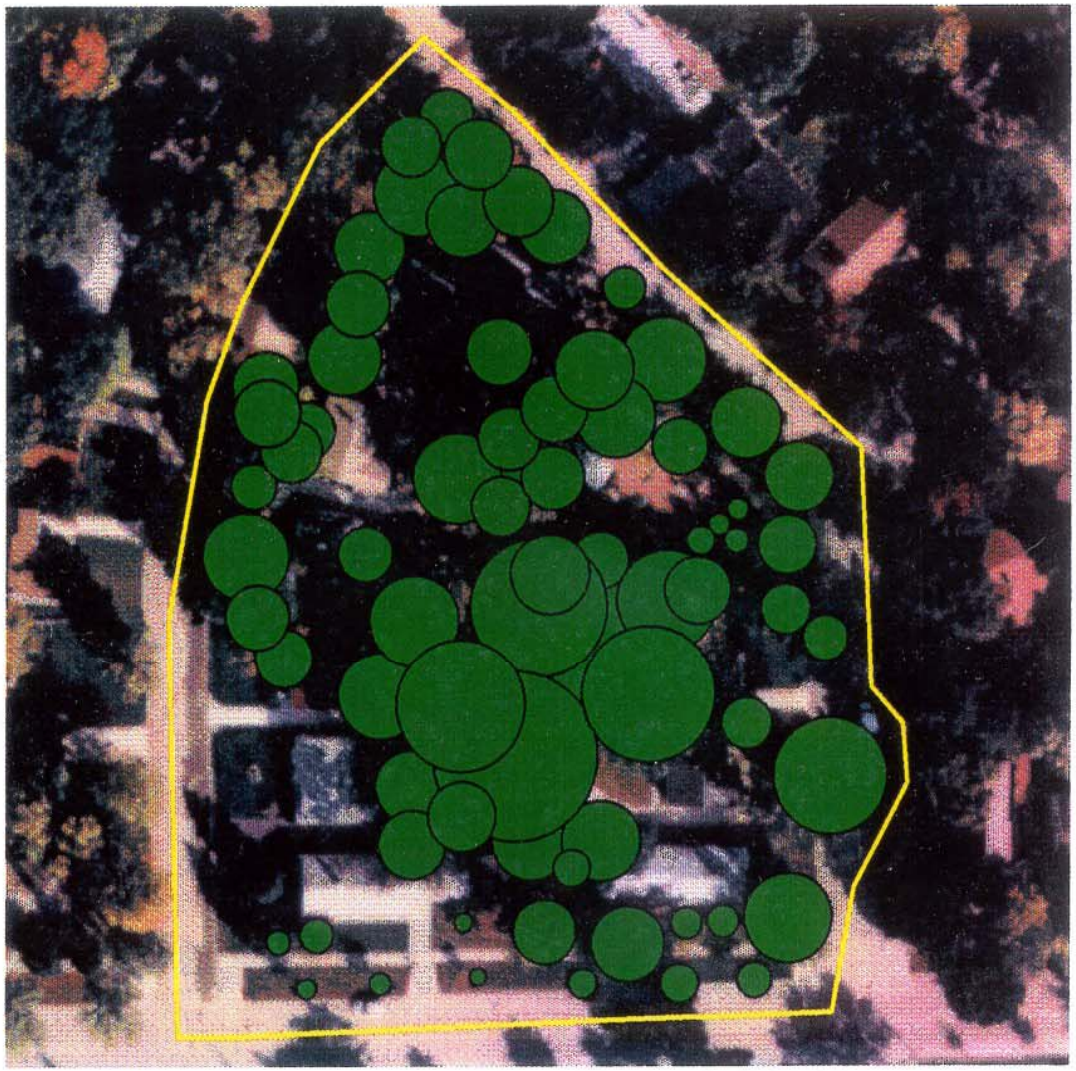
Study Site
Total Area: 2.96 ac
Grass Area: 0.70 ac (24%)
Imperv Area: 0.42 ac (14%)
Building Area: 0.58 ac (20%)
Number of Homes: 10
Hydrologic Soil: C
Percent Slope: 1.0
Pond Percent: 0
Rainfall Type: II
Precipitation: 6.80 in
Runoff Volume: 4.78 in

Tree Statistics
Tree Count: 69
Canopy Area: 1.26 ac (42%)
Avg dbh: 14.2in
Avg dbh Class: 1.8
Avg Ht Class: 2.7
Avg Health Class: 3.6
Number of Species: 15
Dominant Species: WO (22%)
Ownership (V|B|Unk): 84%|16%|0%

Carbon Benefits
Carbon Storage: 54.10 tons
Carbon Sequestration: 0.42 tons/yr



Energy Benefits
Total Savings: $247.50
Savings per Home: $24.75
Total KWH Savings: 2062.5
KWH Savings per Home: 206.3

Stormwater Benefits *
Runoff Reduction: 14.1%
Time of Concentration Increase: 28.9%
Peak Flow Reduction: 22.2%
Avoided Storage**: 9434 cubic feet

*Stormwater results are based on existing trees compared with a 0% tree canopy condition.
**Retention basin volume required if existing trees were removed.

06/04/96

Milwaukee's Urban Forest

- Trees improve air quality, reduce stormwater flow and conserve energy
- Value of Milwaukee's tree canopy:
  - $1.5m in carbon sequestration value
  - $15.4m in stormwater reduction
  - $650,000 in direct summer energy savings
- Tree cover expansion could increase savings to $4.4m

Greening Milwaukee Schools

- Public/Private partnership to replace asphalt with green, playable surfaces for children
- Reduction of impervious surfaces with trees and turf slows peak stormwater run-off
- Reduces temperature as compared to asphalt playground surface

Congress Street School

Waste Reduction

- Recycling Statistics
  - 2003 – 26,099 Tons
  - 2004 – 25,802 Tons
- Recycling Revenues
  - 2003 – $103,000
  - 2004 – $1,256,500

Energy Efficiency

- LED Traffic Signals
  - Replace existing incandescent traffic and pedestrian lights at 712 signalized intersections with energy-saving LED lights
  - Reduces energy costs by 80%-90%
- Examining energy savings opportunities in city buildings in progress

Milwaukee Green Team

- Established by Mayor Barrett
- Comprised of a Steering Committee and 3 Work Groups
- Developed strategies to:
  - Keep stormwater out of an overburdened system
  - Develop smart energy policy and improve energy efficiency
  - Stimulate job creation and a green economy

Milwaukee Isn’t Green When it Comes to Green…

Sustainable Development

- Preserves water quality
- Saves on natural resources
- Saves energy, saves money
- Promotes smart land use
- Improves indoor environmental quality
- Jobs per square foot focus
- Improves well-being

Menomonee Valley

This plan shows a slight realignment of the parking ring road and Miller Park East parking as a potentially desirable future condition. Neither the realignment of the road, nor the realignment of the parking will affect the constructability of the plan, and no proposed improvements are dependent on these future actions.

- A COMMUNITY GREEN
- B STORMWATER PARK DETAIL
- C MULTI-PURPOSE OUTDOOR EVENT SPACE
- D ECO-INDUSTRIAL PARK
- E STORMWATER PARK
- F HANK AARON STATE TRAIL AND NATURAL AREA
- G BLUFF OVERLOOK
- H RIVER POINTS
- I SOCCER FIELDS

NORTH

200 0 200 400

SCALE IN FEET

Harley-Davidson Museum

- Green Redevelopment Plan
  - Stormwater management & flood control
  - Native plantings, green roof, permeable pavement, other environmental technologies to keep stormwater out of sewer and river
  - Minimum of 3 acres green space required
  - Will use recycled materials

Green Roofs

UWM Great Lakes Water Institute

Highland Gardens
First “Green” Public Housing

Largest residential green roof in the nation

Highland Gardens Common Areas

Made using recycled flooring from other buildings

Alterra on the Lake

Milwaukee Idea House

Johnson Controls
Brengel Technology Center

Park East