

US EPA ARCHIVE DOCUMENT

GREEN STREETS as a Community Revitalization Strategy

US EPA Region 5 and FHWA
Webinar
Tuesday, March 1
12:00-1:30 PM Central



Lansing, MI



Toledo, OH



Chicago, IL

GREEN STREETS Webinar

Webinar Notes

- If you are unable to listen in via your computer speakers or headset, call the number located on your registration email to listen in.
- The speaker presentations will be collected and posted online in the next week. An email will be sent out to all meeting attendees that includes the web link.
- Please note that we are taking typed questions via the webinar service only. There will be one or two questions between each speaker, with time for lengthier Q&A at the end.
- Send your questions via the "Question" box in the GoToWebinar dock at the right of your screen.

GREEN STREETS Webinar

Green Streets: Case Studies



Lansing, MI

- Chad Gamble, City of Lansing
- Dan Christian, Tetra Tech



Toledo, OH

- Patekka Bannister, City of Toledo
- Dan Christian, Tetra Tech



Chicago, IL

- Janet Attarian, City of Chicago
- David Leopold, City of Chicago





GREEN STREETS Webinar

Funding Options

- Transportation
 - Surface Transportation Program (STP)
 - Congestion, Mitigation, Air Quality (CMAQ)
 - Transportation Enhancement (TE)
 - FTA Livable Communities Initiative
 - TIFIA or New Starts

GREEN STREETS Webinar

Funding Options

- Brownfields
 - Assessment Grants 
 - Area Wide Planning Grants 
- Water
 - Combined Sewer Overflow (CSO) Control Plans
 - Section 319 Grants
 - Clean Water State Revolving Loan Fund

GREEN STREETS Webinar

Region 5 Contacts

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GREEN STREETS Webinar

Questions and Answers

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GREEN STREETS Webinar





Virg Bernero, Mayor

Lansing's Green Streets!

A bold way to blend economic development, corridor improvements, and environmental projects



Chad A. Gamble, P.E. City of Lansing, MI Dan Christian, P.E., D.WRE Tetra Tech

Planning and Designing the Approach to the State Capital

Planning via Engagement →

Michigan Ave. Streetscape Sub-Committee Meeting
2020 Downtown Task Force
Final Recommendations Meeting
July 13, 2004
7:30 a.m.
Lansing Center

- Business Owners
- Property Owners
- Planning Department
- Public Relations
- Public Service
- Residents
- City Council



Recommendations of the Michigan Ave. Sub-Committee

- Highlight the Riverwalk/Museum Drive entrances off from Michigan Avenue
- Place kiosks and benches where appropriate along Michigan Ave.
- Create gathering places where possible
- Highlight pedestrian crosswalks.
- Green Up / soften the Corridor
- Connect Hospital to Downtown Commerce

The Rocky Road to Construction

- First Public Meeting – Unanimous Support ???
- Formation of “The Green Team”
 - Engineers, Architects, Landscapers, Botanists, Horticulturalists, Contractors
- Partnering with Grant Division Staff

Selling the Project with Pretty Pictures!!!



- Accurate
- Understandable
- Functional



Convincing City Council to apply for Grants!?

- What are we planting on Michigan Ave.??
 - Additions to the Green Team - Drain Commissioners, Local “grass roots” Environmental Groups
- Educate early and with no assumptions

Putting on our Economic Development Hat

- Setting the bar for the Jones'
- Business Retention
- Incorporate Project as educational extension of children's museum
- Tourism!!??
- Adopt-a-Spot



Public Relations

- Website
- Newsletter
- Handouts
- Interpretive signage
- Neighborhood meetings
- Press releases
- Public opinion survey



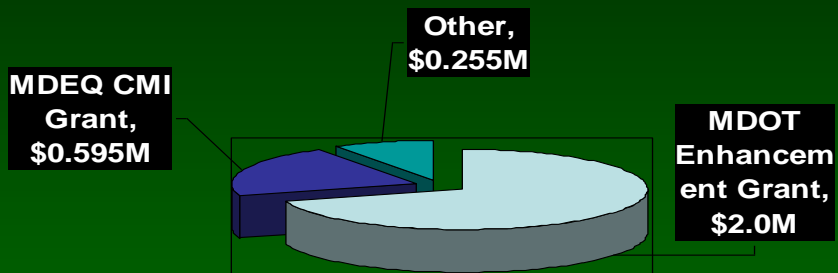
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Designing an ADA compliant project with the flexibility to change with the businesses

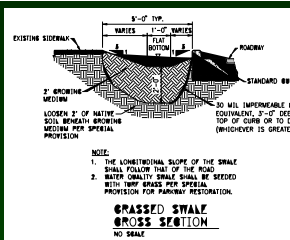




Oh yeah. . . Who paid for it?



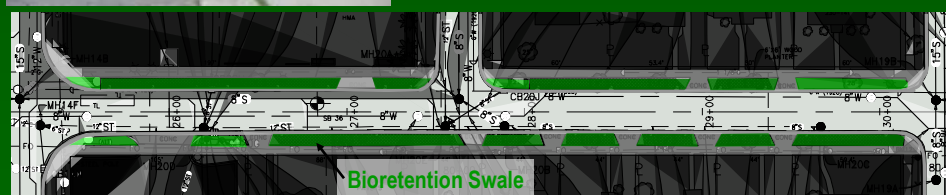
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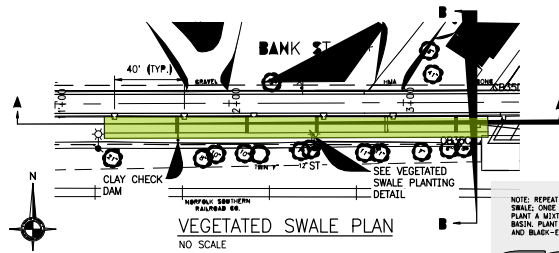


Bioretention
Swale
Riley St



- Moderate traffic volume residential road
- Swale cells (driveway obstructions)
- Avoid mature healthy street trees
- 35,000 gal storage (0.6-in runoff depth from impervious areas)
- Grass plantings
- Overflow back up into street





Bioretention Cells Bank St

- Cascading cell system
- Significantly narrow low volume residential road
- Native plantings
- Significant capacity
- 51,000 gal (3.45-in runoff depth from impervious area)

NOTE: REPEAT PATTERN 5 TIMES ALONG LENGTH OF SWALE; ONCE BETWEEN EACH CLAY CHECK DAM. PLANT A MIXTURE OF THE SPECIES AMONG EACH BASIN. PLANT BERM IN CLOUPS OF SWITCH GRASS AND BLACK-EYED SUSAN.

VEGETATED SWALE PLANTING DETAIL

NO SCALE. ALL PLANTS, QUANTITIES ARE FOR ENTIRE SWALE. OR BERM. PLANT PLUGS ONE FOOT ON CENTER.

	SWALE
1. SWITCH GRASS (PANDIUM VIRGATUM)	209 SF
2. SILVER ROD (VERONICA VIRGINICA)	139 SF
3. BLACK-EYED SUSAN (RUDBECKIA HIRTAE)	219 SF
4. LITTLE BLUESTEM (SCHIZACHYRIUM SCOPARIUM)	158 SF
5. BLAZING STAR (LIATRIS SPICATA)	370 SF
6. PURPLE CONEFLOWER (ECHINACEA PURPUREA)	202 SF
7. MISSOURI IRONWEED (VERNONIA MISSOURICA)	171 SF
8. BLUE FLAG IRIS (IRIS VERSICOLOR)	294 SF



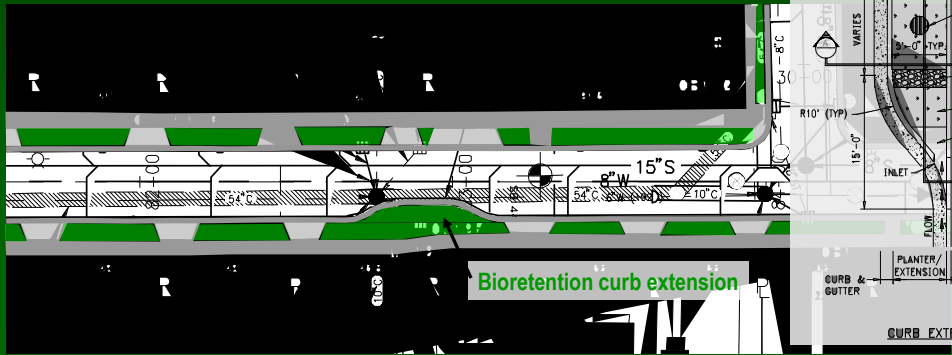
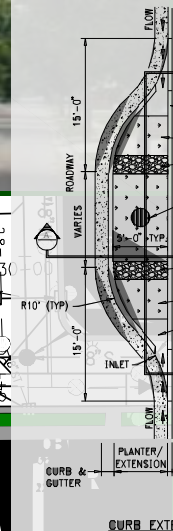
Bioretention Curb Extensions Residential Barnes Ave

- Moderate volume residential road
- Traffic calming
- Existing bump-outs will be converted to bioretention
- 1,000 gal (0.58-in runoff depth from impervious area)



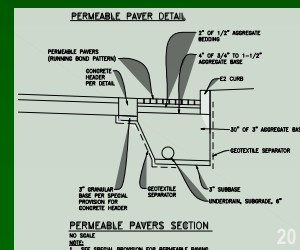
- Low volume residential street
- In-line with parallel parking
- One-side
- CB overflow
- Sediment forebay
- Natural low point in road
- 800-gal (0.14-in runoff depth from impervious area)
- Native plantings

Bioretention Curb Extensions Residential Ray St



Permeable Pavers Parking Lane Barnes Ave

- Moderate volume residential road
- Permeable paver strip in parking lane
- 153,000 gal (2.64-in runoff depth from impervious area)
- Residents excited





Bioretention Curb Extensions CBD

Washington Square

- Central business district
- Intersections and mid-block
- Shortened pedestrian x-ing
- 90 deg parking
- 2 sided fence and retaining wall
- Deep surface storage
- Significant storage capacity



City of Lansing
design by DC Engineering 21



Bioretention Curb Extensions CBD

Washington Square



Summary and Lesson's Learned

- Lots of opportunities exist
- Only limited by imagination and ingenuity
- Field walk through with other competing interests
- Careful construction observations – opportunity to educate the contractors and the construction observer
- Try lots of ideas and see what works best
- Communicate . . . communicate . . . communicate

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Maywood Ave, Toledo Green Streets Revitalization



Green Streets Webinar

March 1, 2011

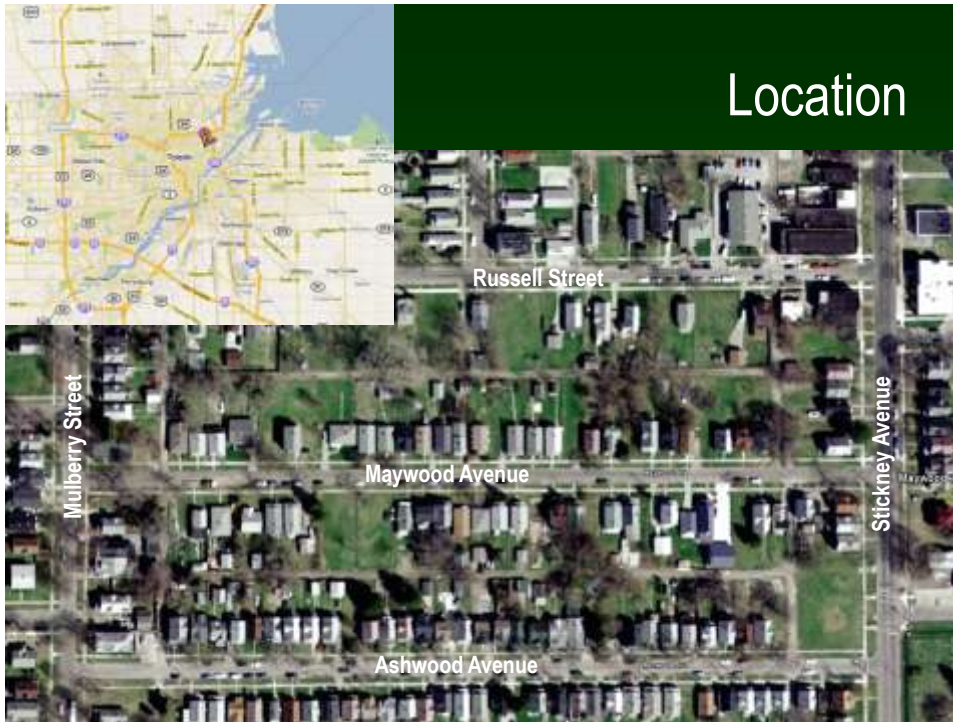
Patekka Bannister, City of Toledo

Dan Christian, PE, Tetra Tech



Project Goals

- Revitalize the neighborhood
- Community involvement
- Reduce stormwater runoff entering the CSO
- Improve water quality using green infrastructure



Demographics

- Single family residential
- Median home income \$25,384
(average income in Toledo \$32,546)
- 1/12 acre lots (30 by 120-ft)
- 66 lots (46 with houses)
- 25% Homeowners*

*Based on Lucas County Auditor AREIS Information





Green Streets

- Identify criteria for location of projects
- Review codes and make changes if necessary
- Empower the residents
- Removal of vacant properties
- Coordinate with other neighborhood services

Tree trimming in the alley



Vacant and abandoned property



Postal worker attempting to deliver mail



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Community Involvement

- Goal
 - full cooperation from the property owners
 - Connect people in urban areas to their water resources
 - Teach residents to be better stewards
 - Promote environmental education and awareness
- Methodology
 - City official presentations
 - Project factsheets and other literature
 - Website
www.raingardeninitiative.org
 - Public Meetings
 - Coordinate with "Toledo Grows" Green Jobs Corps



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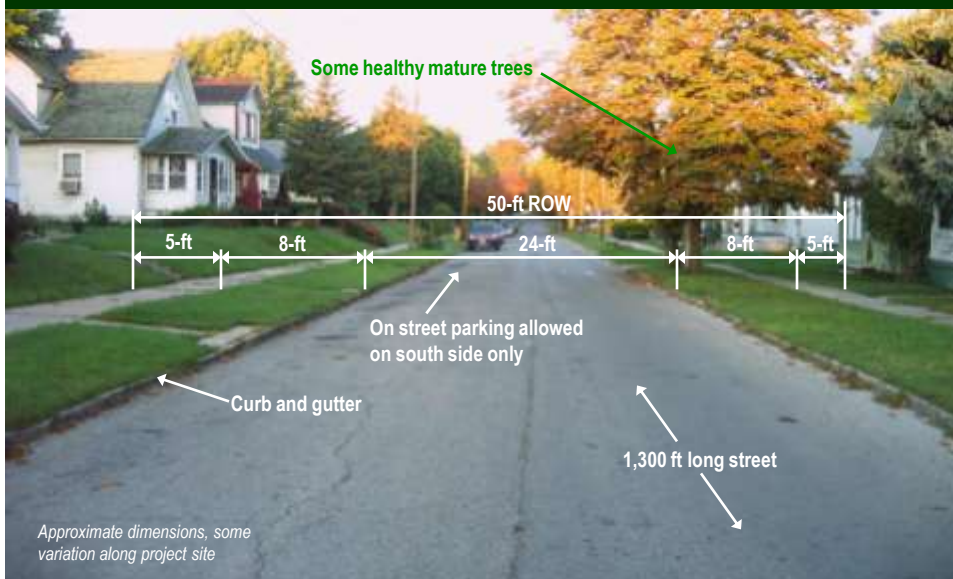


Funding Source

- Approached various government agencies
- Received 100% principle forgiveness subsidy
Water Pollution Control Loan Fund (WPCLF) Green Reserve
(20% Set Aside) American Recovery and Reinvestment Act
(ARRA) Stimulus Funds
- Green Jobs Corps Youth Program-U.S. Dept. of Agriculture,
NRCS and Lucas County funds

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Site Characteristics





Design

Bioswale Cell Section (Typ.)
Scale: 1" = 2'

Notes:
1. BIOSWALE IS PERMANENTLY ESTABLISHED AND FULLY FUNCTIONAL BEFORE THE COST OF MAINTENANCE CAN BE CONSIDERED. THE BIOSWALE SHALL BE CAPABLE OF HANDLING THE HIGHEST CAPTURED RUNOFF FROM THE ADJACENT CATCH BASIN. THE BIOSWALE SHALL BE DESIGNED BY THE ENGINEER.

- Bioswales
 - Curb cuts
 - Underdrain
- Pervious Concrete Pavement
 - Sidewalks
 - Driveway apron
 - Alley apron

Plan View Labels:

- Bioswale cells typ.
- Porous pavement sidewalks
- Reclaimed limestone sidewalk pavers
- Chip and seal dirt alleys
- New curb and gutter with curb cuts at bioswales

Plants and Soil



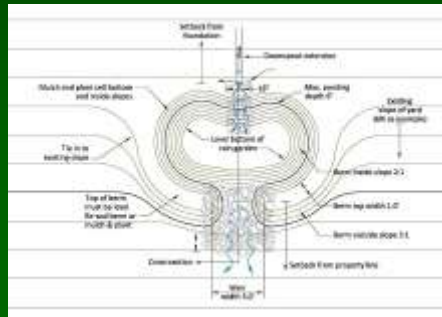
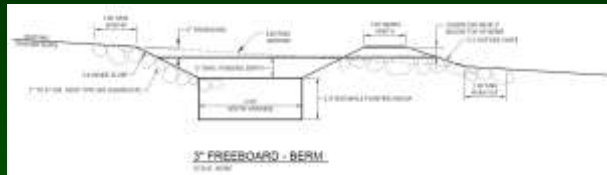
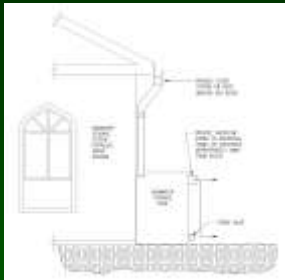
- City Forester tree assessment
- Trees (2.5" caliper, 30-ft spacing)
 - Honeylocust
 - Black Cherry
 - Shingle Oak
- Ground Cover
 - Buffalo Grass



Planting Soil Mixture

- 50% sand
- 30% topsoil (<5% clay)
- 20% leaf compost

Residential rain gardens and rain barrels







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Cost

- Total Cost
 - ~\$500k total project (swales, sidewalks, driveway approaches, curb and gutter, plantings, etc.)
 - ~\$278k green infrastructure
- Highlights
 - Bioswales ~ \$150/lf
 - Pervious concrete sidewalk 6-inch ~ \$5/sf

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Summary

- Early neighborhood involvement
- Coordinate with other agencies and departments
- Low Maintenance (mostly mowing grass)
- 0.58-in storage (of runoff, not rainfall)

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Contact

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For More Information:
www.raingardeninitiative.org



Questions



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Implementation



Road Diet and Bioswale Planters



Permeable Parking Lot/Swale



Green Alleys



Permeable Parking Lanes

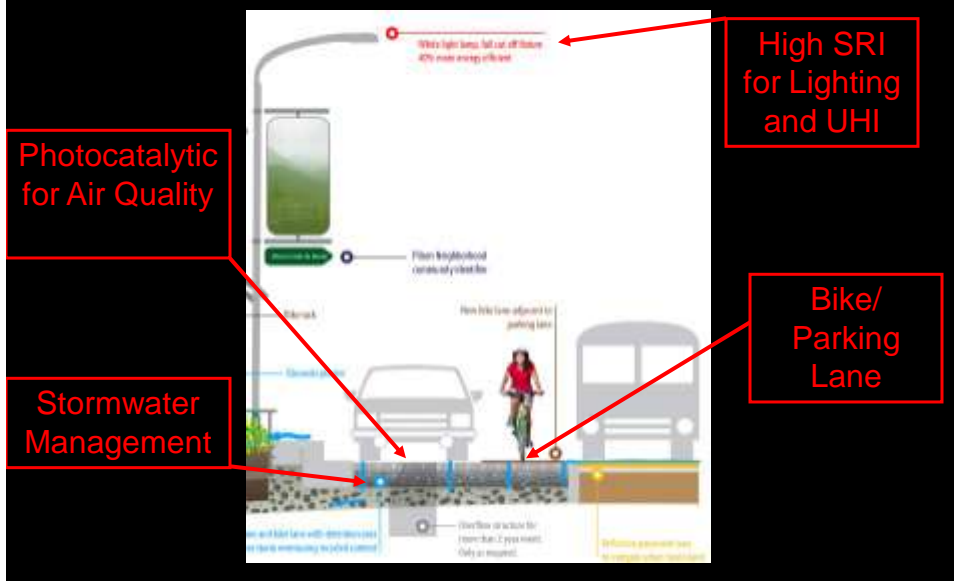
Cermak / Blue Island Sustainable Streetscape



Cermak/Blue Island Sustainable Streetscape

Project Sustainable Goals	Stormwater Management	Divert 80% of the typical average annual rainfall and at least 2/3 of rainwater falling within catchment area into stormwater best management practices.
	Water Efficiency	Eliminate use of potable water for irrigation, specify native or climate adapted, drought tolerant plants for all landscape material.
	Transportation	Improve bus stops with signage, shelters and lighting where possible, promote cycling with new bike lanes, improve pedestrian mobility with accessible sidewalks.
	Energy Efficiency	Reduce energy use by min. 40% below a typical streetscape baseline, use reflective surfaces on roads/sidewalks, use dark sky-friendly fixtures. Min. 40% of total materials will be extracted, harvested, recovered, and/or manufactured within 500 miles of the project site.
	Recycling	Recycle at least 90% of construction waste based on LEED NC criteria, Post/Pre- Consumer recycled content must be min. 10% of total materials value.
	Urban Heat Island, Air Quality	Reduce ambient summer temperatures on streets and sidewalks through use of high albedo pavements, roadway coatings, landscaping, and permeable pavements. Require ultra low sulfur diesel and anti-idling.
	Education, Beauty & Community	Provide public outreach materials/self-guided tour brochure to highlight innovative, sustainable design features of streetscape. Create places that celebrate community, provide gathering space, allow for interaction and observation of people and the natural world.
	Commissioning	Model Stormwater BMP's in Infoworks to analyze and refine design. Monitor stormwater BMP's to ensure predicted performance and determine maintenance practices.

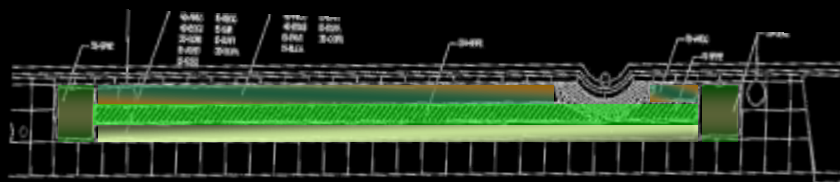
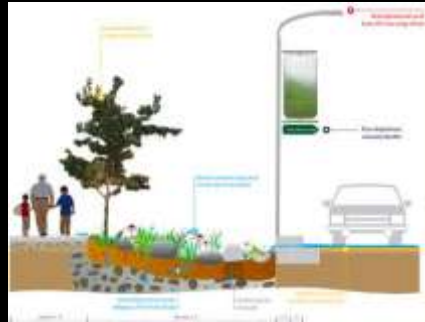
Integrated Infrastructure Design Example: Permeable Pavers





Integrated Infrastructure Design Example: Parkway Bioswale

- Stormwater Management
- Pedestrian Buffer
- Landscaped beautification
- Urban Heat Island Reduction
- Water quality
- Reduction in potable water use



Asclepias tuberosa
butterflyweed



Andropogon scoparius
little bluestem



Echinacea pallida
pale purple coneflower



Spartina pectinata
rice cut grass



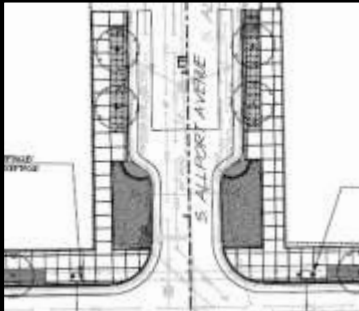
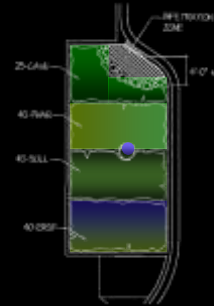
Aster novae-angliae
New England
aster



Solidago rigida
stiff goldenrod

Integrated Infrastructure Design Example: Side Street Bump-Outs

- Reduced Pedestrian Crossing Distances
- Opportunities for Landscaped beautification
- Stormwater Management
- Discourage truck access to residential blocks to the North

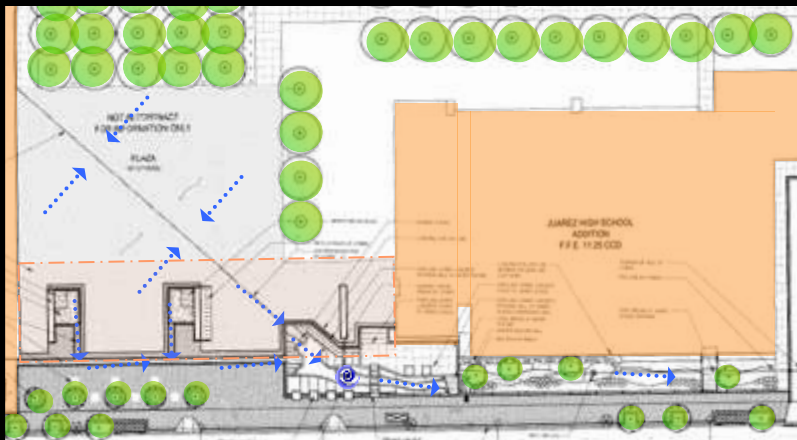


Carex vulpinoidea
fox sedge



Eragrostis spectabilis
Purple love grass

Benito Juarez Community Academy Water Feature



Benito Juarez Community Academy Water Feature



Western Avenue Plaza



Education: Lightpole Banners Corresponding with Sustainability Goals



Education: Informational kiosks with interpretive graphics



Spanish

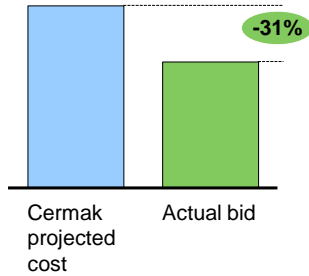
English



Sustainable Streets are Cost Effective

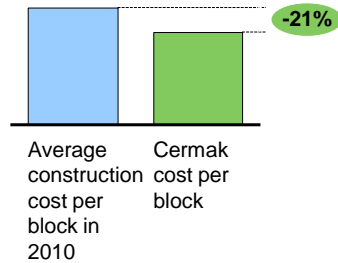
Cost is 30% less than projected...

Cermak total project cost (\$)



... And is 20% less expensive than the average block in 2010

Average per block cost (\$)



Primary Funding: Local/City of Chicago

Additional Funding: FWHa Ecological Grant (Education/Commissioning), 319 Grant (Water Feature), ComEd Grant (Blue Island Pavers)

Stimulating New Jobs with Green Infrastructure

For every 1.25 Billion spent...

New
Infrastructure



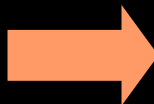
43,200 jobs

Infrastructure
Rehabilitation



47,000 jobs

Green
Infrastructure



51,200 jobs

Source: FHWA Jobs Decoder

National and Local Rating Systems

CATEGORY	Design Strategy	Rating System			
		I-LAST Rating System (IDOT)	Green Roads Rating System	Sustainable Sites Initiative	LEED-ND
Planning	Identify Stakeholders and develop Stakeholders Involvement Plan	2	----	----	----
	Engage Stakeholders to conduct Context Audit and develop project purpose	2	----	----	----
	Involve Stakeholders to develop and evaluate alternatives	2	----	4	2
	Employ Stakeholder involvement techniques to achieve consensus for Preferred Project Alternative	2	----	----	----
	Plan for Context Sensitive Solutions (CSS)	----	5	----	----
TOTAL POINTS EARNED:		130	79	100	32
POINTS POSSIBLE:		228	118	250	100
Percentage % of possible points:		57%	67%	40%	32%
Ranking:		N/A	Evergreen (>60% of total)	One Star (Four Star possible)	(need 8 more Points to become "Certified")

Chicago Sustainable Infrastructure Design Standards

Development and Implementation



- Nationwide Best Practices
- Public/Private Task Force
- Integration of Standards with City Policy Initiatives
- Implementation Strategy

Sustainable Infrastructure Design Manual



- Design Guidelines and Implementation Matrix
- Engineering Details and Specifications
- Project Manager Checklist
- Maintenance Requirements

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Streetscape and Sustainable Design Program | 312-744-5900