Green Storm Water Management
A Catalyst for Building Community Resiliency

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The **City of Gary’s Green Urbanism Division** incorporates sustainable development principles in revitalization initiatives using research and best practices that support our achievement for a vibrant environment and socially engaged community with implementation strategies that invest in...

- PEOPLE – Public Health
- PLANET – Natural Environments
- PROFITABILITY – Economic Vitality
About Gary Indiana

- Legacy City
- Population <80k
- >50 Square Miles
- 12 Neighborhoods
- Natural Assets
- Transit Assets
- >50 Parks
- 3 Major Waterbodies
Natural Assets: Lake Michigan - Gary Marquette Beach
Natural Asset: Grand Calumet River
Natural Asset: Little Calumet River – Western Branch
Community Challenges

- Climate Change
- Combine Sewer Overflow
- Urban Run-off
- Degradation of Water bodies
- Toxic Air Pollution
- Divested Neighborhoods
- Dated Land Use Policies/Land Use Plan

Challenges...Drivers for Building Resilient Communities
Climate Change: Extreme Weather Events in the Great Lakes

Northwest Indiana = 1.2 to 1.5 Days
Climate Change: Floods in 2007 & 2008
Combined Sewer System

Dry Weather

Wet Weather

Down spout
Storm drain
Sewage from domestic, commercial, and industrial sources
Dam
Outfall pipe to river
Sewer to POTW

Combined sewage and storm water
Dam
Outfall pipe to river
Sewer to POTW
Urban Runoff: Traditional Development

Natural landscapes replenish essential groundwater resources.
Because of impervious surfaces like pavement and rooftops, a typical city block generates more than 5 times more runoff than a woodland area of the same size.

little as 10 percent impervious cover in a watershed can result in stream degradation.
TeamGary: Turning CHALLENGES into OPPORTUNITIES

Building Resilient Communities
Neighborhood by Neighborhood

- Neighborhood Scale Plans/Watershed planning
- Civic Engagement/Public Involvement
- Job Creation: Urban Conservation Corps
- Green Infrastructure Technical Support
- Blight Elimination: Environmental and Public Health

revitalizeGary
Our Environment... An Invaluable Asset
Goal – Our primary objective is centers on vacant land reuse that incorporates green infrastructure practices into the City’s overall planning and development processes. This greening approach to stormwater management involves collaborative urban green planning and implementation processes that ultimately protects water quality and quantity, development of design guidance, monitoring and evaluating cost-effective approaches to incorporate green infrastructure projects into broader municipal programs.

Strategic Value
• Landscape: Grand Calumet River, Gary Green Link, Lake Michigan
• Key Issues: Urban Runoff; Storm Water Pollution Prevention; and Blight Elimination
• Existing Plans: GNRP Area, Creating Livable Cities, GreenLink Master Plan; Storm-water Management and Green Infrastructure Plan
Integrated Neighborhood Planning & Strategies

- **SC2/GNRP** – Through the Strong Communities, Strong Cities Designation, Gary is implementing Strategic Redevelopment. Gary Northside Redevelopment Project, University Park, Data Driven Gary.

- **Lakefront Development** - Includes themes of Complete Streets on Route 20; and Connections to local and regional bike paths

- **Creating Livable Centers Planning Development** – Focus Areas: Downtown, Emerson and Horace Mann to increase access to public transportation and green spaces

- **Choice Neighborhoods Initiative** - Focus Area is University Park East neighborhood master plan - $500k planning grant from HUD.

- **FHWA Bike and Pedestrian Study** - A Partnerships with Federal Highway Administration, Federal Transit Administration, and Federal Railroad Administration

- **Green Infrastructure Project** – Vacant to Vibrant; Grey to Green; Grand Calumet River Green Stormwater Management; Green Link Master Plan
Green Storm Water Management – What are some benefits?

- Local Flood Protection
- Increased Energy Costs
- Increased Land Values
- Mitigated ‘Heat Island’ Effect
- Increased Livability
- Reduced Energy Costs
- Increased Cost Savings
- Local Flood Protection
Green Infrastructure can make hardscapes...
...work more like landscapes
Green Stormwater Infrastructure Project

**Partners/Project Team** - Green Urbanism & Environmental Affairs; Parks Department; Redevelopment Department; GNRI Planning Team; Cleveland Botanical Garden,

**Cost & Leverage**
- Chi-Cal Rivers Fund $259,263
- Great Lakes Protection Fund/CBG (Vacant to Vibrant-Gary) ($902,000)
- EPA Great Lakes Shoreline Cities ($250,000)
- Gary Storm Water Management District ($250,000)
- Great Lakes Restoration Initiative ($351,000)
- Redevelopment Department ($6.645 million Demolition & End-Uses)
- Green Link – Phase 2 ($1.3 million)
- Urban Conservation Team (Annual Maintenance/Community Engagement)
Green Stormwater Infrastructure Project
Activities

- Green Infrastructure
  Site Selection, Design, Construction & Monitoring
- Civic Engagement and Volunteerism
- Rain Barrel Program
  Community Clean-ups
- Job Creation – Long Term Maintenance
Gary Green Link Master Plan
From Brownfields to Green Space

Former Sheraton Hotel
Grey to Green -- City Centre Plaza

Rain Gardens
Amphitheatre
Memorial Garden
Permeable Pavement
Art
Walking Paths
Market Place
Tree Coverage
Recreation
Energy Efficiency

Native Plants
Rain Storage
Event Space
Permeable pavers
Fitness
Parking Improvements
Seating
Campus or Plaza
Connectivity
Passive

Preliminary Concept
May 7, 2015
Aetna Stormwater Parks

1200 Oklahoma Street – Gary, IN
Green Infrastructure
Street Designs
Rain Gardens
Using Civic Engagement is... Key to Building Resilient Communities

Press Conferences

Green Gary Day

Rain Barrel

Community Cleanups

Community Gardening Workshops

HHW Collection Days
Using Civic Engagement is Key to Building Resilient Communities

- Community Meetings
- Beach Clean Up
- Youth Environmental Days
- Environmental Art
- Native Landscape Workshops
- Municipal Good Housekeeping
Green Stormwater Infrastructure Project

Project Outcomes –
• Install 43,200 square feet of green stormwater infrastructure throughout the city. In addition
• Remove 22,950 square feet of impervious surface,
• Plant 85 native trees, and
• Install 200 rain barrels within the communities of Aetna, Glen Ryan, Downtown/Emerson, and Horace Mann.
• Add 1.4 million gallons of stormwater retention within the Grand Calumet River Area of Concern.
• Neighborhood green spaces,
• Increase public awareness of stormwater management issues, and
• Advance green stormwater infrastructure activities in Gary.
Green Stormwater Infrastructure Project

Site Monitoring & Project Evaluation
• USGS Stormwater Monitoring at City Centre Plaza (Grey-to-Green)
• CBG Stormwater Monitoring Equipment (Vacant-to-Vibrant)
• Project Team – Planning and Evaluation

Lesson Learned
• Each GI installation is unique
• Technical site assessment is vital to decision making and design options
• Culture changes take time…NWI natural ecology
• Leveraging resources for greater impact
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A Catalyst for Building Resilience Communities

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Thank You!