

# Green River Pattern Book

An Illustrated Guide to Sustainable Urban Planning and Design Principles  
and Environmental Design / Energy Conservation Best Practices

Created and published by South Suburban Mayors & Managers Association and  
Chicago Southland Economic Development Corporation



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### **On the Cover**

Wisconsin vs. Milwaukee rowing competition on the Calumet Sag Channel by Blue Island. *Courtesy of the City of Blue Island.*

## Introduction

### About the Green River Pattern Book

The demand for more sustainable and energy-efficient design and development has blossomed over the past decade. Driven by high energy costs, concerns about global warming, and the desire to create healthier places to live and work, new benchmarks for sustainable practices are being established with each passing day.

The Green River Pattern Book has been created to provide a reader-friendly guide to the sustainable practices and techniques that are applicable to sites and conditions within the Calumet River Corridor. The Pattern Book is intended to help residents, stakeholders, and decision makers promote redevelopment that improves the quality of life for residents and makes the Calumet River Corridor more attractive to visitors and investors. Municipalities are encouraged to use the Pattern Book as a reference as they review, revise, and implement new zoning and development ordinances that support sustainable development in their communities.

The book is organized into three sections: *Sustainable Design and Development Techniques*, *Sustainable Development Strategies*, and *Resources*. The first section describes and illustrates a number of environmentally-friendly design and development practices that can be utilized in residential, commercial, and industrial projects. In the second section, six locations have been selected to demonstrate how the sustainable techniques can be applied to sites typically found within the Corridor. Finally, the *Resources* section describes how the development process works and provides additional sources of information.

Because sustainable development standards and benchmarks continuously evolve and improve, the Pattern Book is, in many respects, a work in progress. We encourage readers to actively seek out other innovative practices that will improve the quality of life and help to make the Calumet River Corridor one of our country's most attractive and compelling urban environments.

## About the Calumet River Corridor

The Calumet River Corridor is undoubtedly one of the most distinctive and diverse regions in the Chicago metropolitan area. Located on the city's southside, adjacent to the Illinois-Indiana border, and accessible by all major modes of transportation, the Corridor serves as a southern gateway for Chicago.

Historically, the Calumet Region has been closely linked with heavy industry. The establishment of steel mills, oil refineries, packinghouses, and other industries provided a wealth of opportunities for communities like Blue Island, Pullman, and Chicago. During the 20th century, population shifts in the Chicagoland area contributed to the growth of Riverdale, Dolton, Calumet City, and other suburbs.

The transformation of the Calumet Region into an industrial district has had profound impacts on the landscape. In the past two hundred years, the Corridor has evolved from a configuration of slow-moving marshes to a system of navigable waterways that connects Lake Michigan to the Mississippi River.

With the decline of much of the area's heavy industry, the Calumet River Corridor is now home to a complex network of communities that provide different employment opportunities, a variety of housing options, and attractive shopping. Significant amounts of vacant land, brownfield sites, and open spaces provide additional opportunities for redevelopment that would benefit from the Corridor's strategic regional location and physical assets.



### Calumet River Corridor's Unique Resources

Prime location is one of the Calumet River Corridor's most important assets. Proximity to Interstates 57, 80, 90, 94, and 294 provide easy access to Chicagoland and provide linkages throughout the Midwest. The Corridor is also closely tied with Chicago's transit infrastructure with three Metra commuter rail lines. Chicago Midway International Airport and Gary-Chicago International Airport are both easily accessed from the Corridor. The Indiana Harbor Belt and CSX railroads, originally used to support local industry, are still moving goods through the region. Additionally, the Little Calumet River and Calumet Sag Channel are two crucial links in the chain of waterways connecting Lake Michigan and the Mississippi River. Recent investments in transportation infrastructure, research and development facilities, and traditional industries have strengthened businesses throughout the entire region.

The Calumet River Corridor is also home to a variety of compelling natural features. Corridor waterways traverse forest preserves and parks, open space, and cultural and recreational facilities. Approximately 4,000 acres identified in the Calumet Area Land Use Plan are slated to become part of the Calumet Open Space Reserve, which will provide habitat for wildlife and preserve remnants of the pre-settlement dune and swale ecosystem. Recreational amenities, such as Wolf Lake, Hegewisch Marsh, Whistler Woods, Beaubien Woods, Calumet Woods, and Joe Louis Golf Course are all within or adjacent to the corridor. A system of existing and proposed trails will link these diverse opportunities together, improving the quality of life for residents of the Calumet River Corridor.

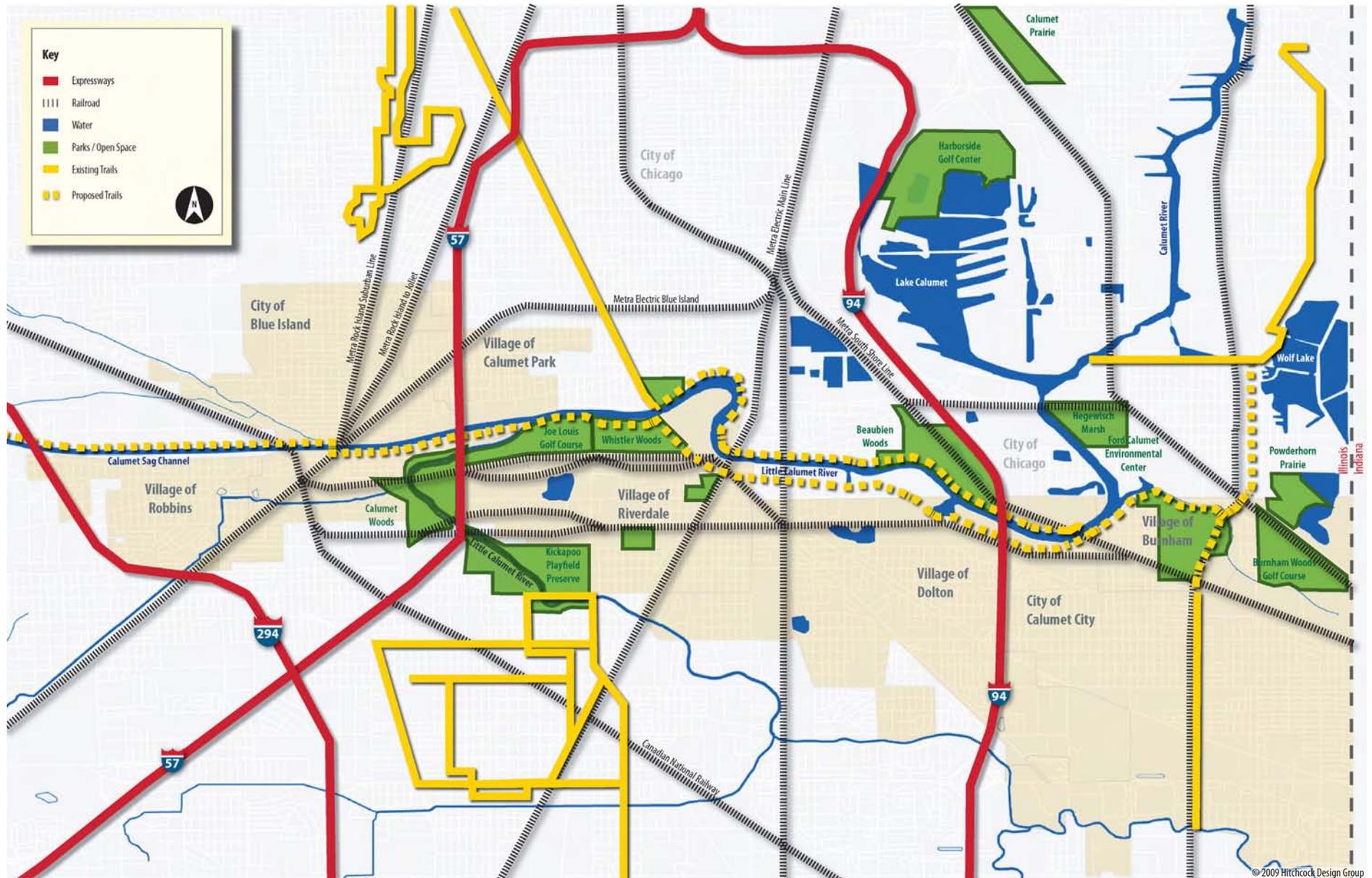


*New Residential Development in Blue Island along the Calumet Sag Channel*



*Calumet Sag Channel*

## Calumet River Corridor's Unique Resources



## Calumet River Corridor Vision Statement

As the northern gateway to the Chicago Southland, the Calumet River Corridor plays a central role in the metropolitan region's economy. It offers a unique blend of opportunities for industrial development, commerce, housing, and recreation. These resources form the Corridor's economic base, offer individual employment and career opportunities, and create a high quality of life.

## Principles

Development within the Corridor should take advantage of:

- The natural, cultural, and historical features of the Calumet River Corridor
- The Corridor's special economic, geography, and transportation linkages that position it to be an important role within the global supply chain
- The region's research and development capacity
- Redevelopment potential on brownfield sites
- Sustainable development that produced clean water, recharged groundwater, saves energy, improves air quality, improves appearance, and saves money
- Improving communities by promoting sound development
- Creating business incentives for development

Emphasis will be on fostering development that creates or adds value, provides sustainable wage jobs with career advancement potential, contributes to environmental sustainability, and expands access to the riverfront.

A decorative background featuring a repeating pattern of stylized, overlapping leaves in various shades of blue, set against a solid dark blue background. The leaves are arranged in a circular, fan-like pattern.

# Sustainable Design and Development Techniques

Sustainable design and development techniques have developed in response to the growing public demand to preserve our natural resources and protect the environment for future generations. They have been at the center of recent political trends and will play an increasingly important role in evolving government policy and practice. Sustainable design can be defined as:

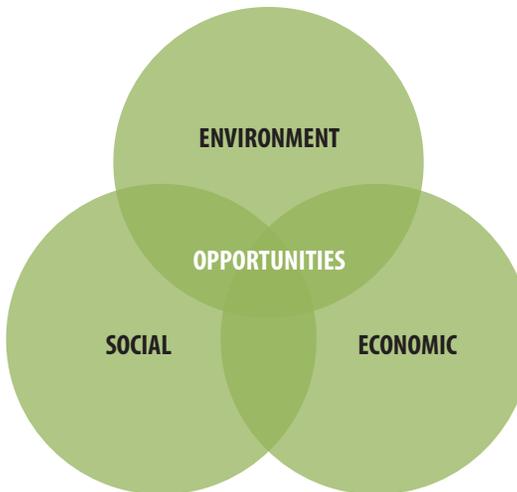
*“The ability of a community to meet the needs of the present without compromising the ability of future generations to meet their own needs.”*

UN World Summit on sustainable design

Three basic elements of sustainable design have been established to ensure balanced development. All planning and development decisions should be based on all three elements, as each element interacts and is inter-dependent upon the others.

The elements include:

- Environmental Sustainability
- Social Equity
- Economic Development and Growth



The focus of the Green River Pattern Book is on environmental sustainability, but all three elements should be recognized as integral and be considered in any planning or development project.

### Environmental Sustainability

Environmental Sustainability highlights techniques that can be implemented by both the private and public sectors and will positively affect social, environmental, and economic factors. The Green River Pattern Book has organized these techniques, ranging from material usage to design implementation, into the following categories:

- Environmental Design
- Energy
- Brownfield Prevention
- Green Urban Design

The techniques included in this document are intended to be evolving elements and development should not be limited to the items included in this book. Users are encouraged to explore and utilize the many sustainable tools that are available now and in the future.

Strategies on how to implement the following techniques are found in the *Sustainable Development Strategy* section of this document.

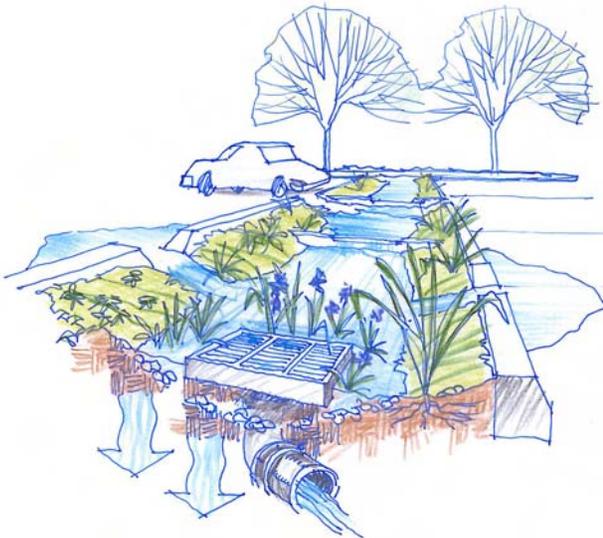
# Environmental Design Techniques

## Bioswale / Vegetative Swale

Benefit				
<input type="checkbox"/> Air	<input checked="" type="checkbox"/> Water	<input checked="" type="checkbox"/> Land	<input type="checkbox"/> Recycling	<input type="checkbox"/> Energy
Cost				
\$8 - \$30 per linear foot				

**Description**  
A bioswale, or a vegetated swale, is a shallow trench or shoulder area planted with native plants that is used to slow the speed of surface stormwater runoff and allow water to infiltrate back into the ground instead of flowing directly into storm sewers.

- Potential Benefits**
- Filters silt, pollutants, and debris
  - Reduces rate and quantity of stormwater entering sewer systems
  - Recharges ground water
  - Reduces storm sewer piping and structures
  - Can reduce detention requirements
  - Provides locations for wildlife habitat



## Composting

Benefit				
<input checked="" type="checkbox"/> Air	<input type="checkbox"/> Water	<input checked="" type="checkbox"/> Land	<input checked="" type="checkbox"/> Recycling	<input type="checkbox"/> Energy
Cost				
\$0 + There can be a cost savings by using compost as soil amendment instead of fertilizer				

**Description**  
Yard waste, organic waste, and even some paper products can be placed in an inexpensive composting bin to decompose. With very little maintenance, the waste will break down into a rich, organic material that can be mixed directly into garden soil or used as fertilizer.

- Potential Benefits**
- Reduces waste hauled to landfills
  - Reduces need to extract natural resources
  - Requires little or no cost to the property owner
  - Improves soil structure and provides natural fertilizer to plants

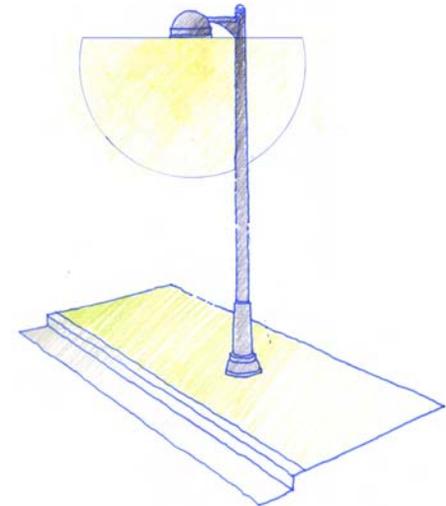


## Dark Sky Lighting

Benefit				
<input type="checkbox"/> Air	<input type="checkbox"/> Water	<input type="checkbox"/> Land	<input type="checkbox"/> Recycling	<input checked="" type="checkbox"/> Energy
Cost				
No additional cost				

**Description**  
Energy-efficient, dark sky light fixtures are designed to direct lamp light downward and outward where it is useful rather than upward where it wastes energy and contributes to glare and light pollution. These fixtures can also incorporate the latest technologies in energy-efficiency and still provide adequate light.

- Potential Benefits**
- Reduces energy costs
  - Reduces light pollution from site
  - Reduces glare and provides better light uniformity



## Downspout Disconnection

### Benefit

Air  Water  Land  Recycling  Energy

### Cost

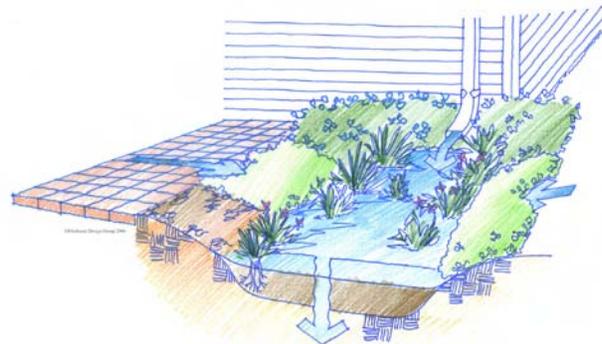
No additional cost

#### Description

Downspout disconnection eliminates rooftop runoff which would be otherwise directed into the stormwater system. By redirecting the stormwater into pervious areas such as a rain garden, this technique can have a significant effect on diminishing the size of stormwater facilities. Downspout disconnection also creates an opportunity for the development of a rain garden.

#### Potential Benefits

- Reduces rate and quantity of stormwater runoff
- Recharges ground water
- Filters silt, pollutants, and debris
- Water infiltrates into soil at a slower rate



## Dry Well

### Benefit

Air  Water  Land  Recycling  Energy

### Cost

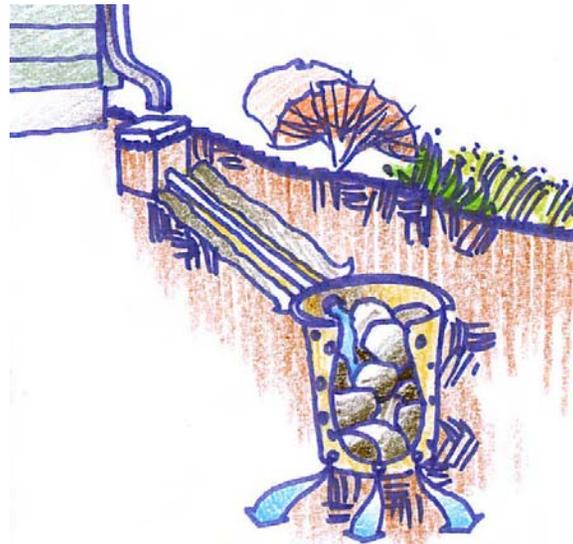
\$500 - \$2,000 per dry well

#### Description

Stormwater runoff is directed through pervious pipes into an underground rock filled container. The water is temporarily detained in the container and slowly infiltrates back into the soil through small holes in the container.

#### Potential Benefits

- Reduces rate and quantity of stormwater runoff
- Recharges ground water
- Filters silt, pollutants, and debris
- Water infiltrates into soil at a slower rate



## Efficient Irrigation

### Benefit

Air  Water  Land  Recycling  Energy

### Cost

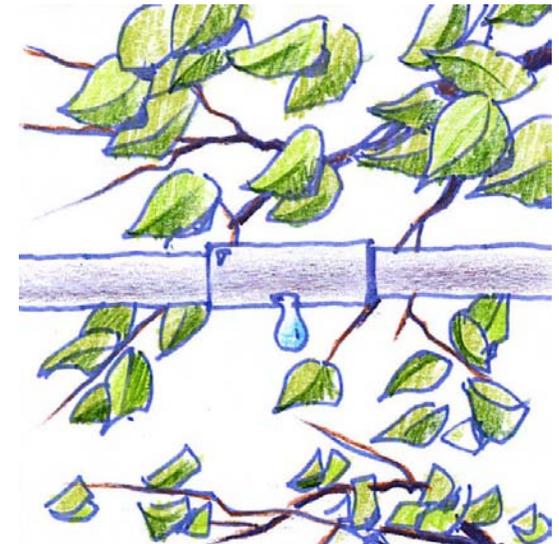
No additional cost

#### Description

Efficient irrigation eliminates excessive irrigation water. Methods to reduce excessive irrigation runoff include the use of rain-triggered shut-off devices, efficient design to concentrate on landscape's specific water requirements, flow reducers or shut-off valves, and drip irrigation.

#### Potential Benefits

- Reduces costs by limiting water usage
- Reduces erosion caused by over-watering
- Prevents excessive runoff into the stormwater drainage system



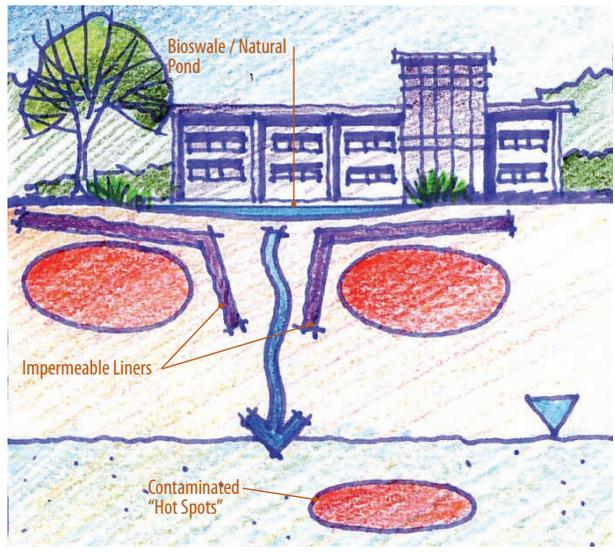
# Environmental Design Techniques, *continued*

## "Green" Brownfield Reuse

Benefit				
<input type="checkbox"/> Air	<input checked="" type="checkbox"/> Water	<input checked="" type="checkbox"/> Land	<input type="checkbox"/> Recycling	<input type="checkbox"/> Energy
Cost				
Costs will vary depending on project scope				

**Description**  
 A "green" brownfield reuse is a technique in which properties that are contaminated are selectively remediated. The areas of contaminants are located and an impermeable material is placed over the contaminant, acting as a barrier to prevent contaminants from leaching into the stormwater. Sustainable elements and new developments can then be located around the contaminated areas.

- Potential Benefits**
- Allows brownfield properties to incorporate sustainable stormwater techniques

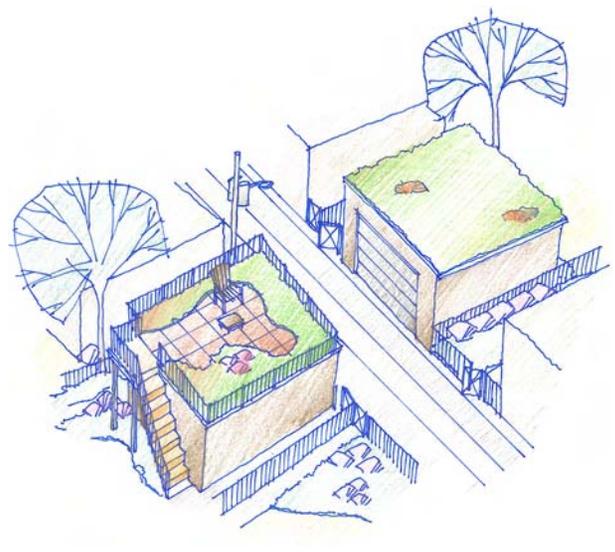


## Green Roof

Benefit				
<input checked="" type="checkbox"/> Air	<input checked="" type="checkbox"/> Water	<input type="checkbox"/> Land	<input type="checkbox"/> Recycling	<input checked="" type="checkbox"/> Energy
Cost				
\$8 - \$30 per square foot				

**Description**  
 A green roof is a roof that is partially or completely covered with plants. A green roof system includes waterproofing, a drainage system, soil, and plants. Green roofs can be installed on most flat roofs provided that they are constructed to accommodate the structural load.

- Potential Benefits**
- Reduces rate and quantity of stormwater runoff
  - Filters stormwater, improves water quality, and reduces the urban heat island effect
  - Reduces energy costs for heating and cooling
  - Increases longevity of roofing materials
  - Provides habitat for birds and wildlife
  - Provides opportunity for accessible garden space
  - Can help increase rent or property value of units with views or access

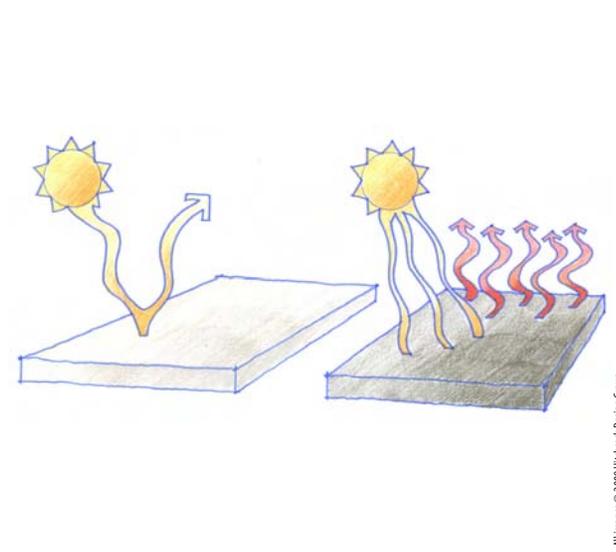


## High Albedo Paving

Benefit				
<input type="checkbox"/> Air	<input type="checkbox"/> Water	<input checked="" type="checkbox"/> Land	<input type="checkbox"/> Recycling	<input checked="" type="checkbox"/> Energy
Cost				
No additional cost				

**Description**  
 High albedo pavement material is light colored and reflects sunlight away from the surface. As less sunlight is absorbed by the pavement, less heat is radiated.

- Potential Benefits**
- Reduces urban heat island effect
  - Helps urban vegetation survive
  - Can be used under a wide variety of site conditions
  - Conserves energy by reducing cooling costs



## Level Spreaders

### Benefit

Air  Water  Land  Recycling  Energy

### Cost

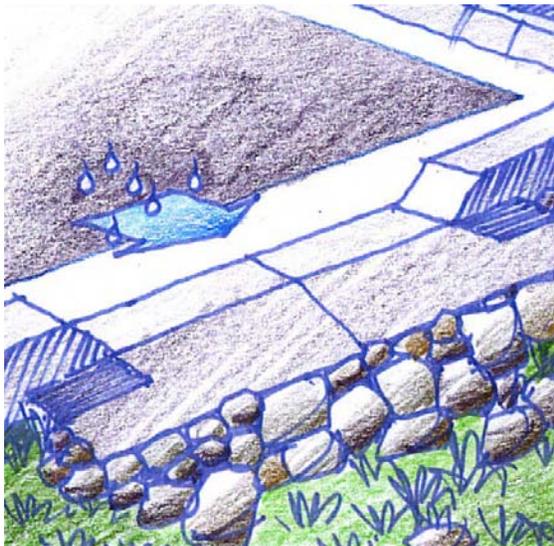
Costs will vary depending on project scope

#### Description

Level spreaders help collect and then uniformly disperse concentrated stormwater runoff over surrounding vegetation areas.

#### Potential Benefits

- Easy and inexpensive to install
- Improves water quality by reducing stormwater peak flow
- Reduces runoff volume through infiltration
- Removes nutrients and sediment through physical and biological processes



## Minimal Site Disturbance

### Benefit

Air  Water  Land  Recycling  Energy

### Cost

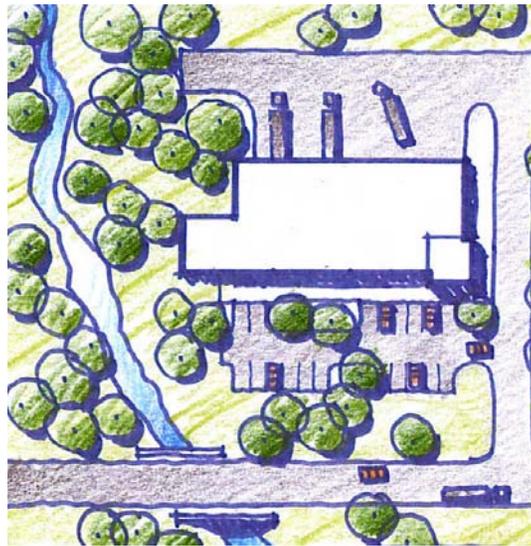
Costs will vary depending on project scope

#### Description

A proposed plan that minimizes site disturbances, helps conserve existing natural areas, preserves and provides habitat, and helps prevent erosion. As a primary strategy to control erosion, minimizing site disturbance reduces the extent of grading and thus supports retention of vegetation cover, which is the most effective method for erosion control.

#### Potential Benefits

- Reduces area of grading and cost of development
- Retains natural topography features that slow and store stormwater
- Preserves and provides habitat
- Addresses erosion control



## Native Landscape

### Benefit

Air  Water  Land  Recycling  Energy

### Cost

\$0.10 - \$5 per square foot

#### Description

Plants and trees native to northern Illinois are uniquely adapted to the local weather, water, and soil conditions. Native species can conserve water and reduce or eliminate the need for fertilization and maintenance.

#### Potential Benefits

- Reduces urban heat island effect
- Reduces energy costs for heating and cooling if placed appropriately
- Provides habitat for birds and wildlife
- Requires little or no irrigation once established
- Requires little or no fertilizer, pesticides, or herbicides
- Requires low maintenance once established



# Environmental Design Techniques, *continued*

## Naturalized Detention

### Benefit

Air  Water  Land  Recycling  Energy

### Cost

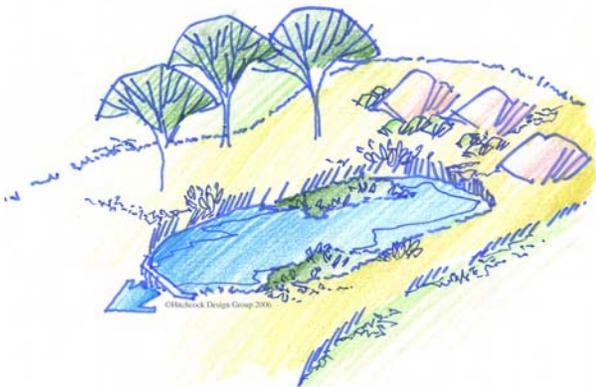
\$0.10 - \$0.25 per square foot

### Description

Naturalized detention is an area used to temporarily store stormwater on site and slowly release it at a controlled rate. These areas are intended to look and function as native wetlands and include native plants that grow both above and below the normal water level.

### Potential Benefits

- Reduces rate and quantity of stormwater runoff
- Filters silt, pollutants, and debris
- Reduces erosion of pond edges
- Enhances appearances of detention ponds
- Provides habitat for birds and wildlife



## Permeable Paving

### Benefit

Air  Water  Land  Recycling  Energy

### Cost

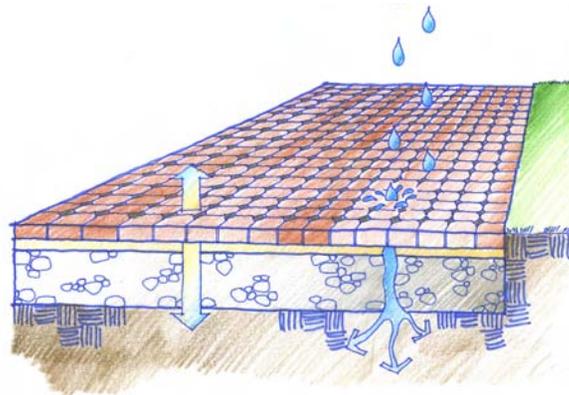
\$3 - \$15 per square foot

### Description

Permeable paving allows stormwater to penetrate through surface and stone base materials and infiltrate into the soil below. There are many different kinds of permeable paving materials of various strength, cost and longevity including: reinforced gravel and grass paving, permeable concrete, permeable asphalt, and modular concrete unit pavers. The permeable paving material should be selected based on the site specific environmental and physical conditions.

### Potential Benefits

- Reduces rate and quantity of stormwater runoff
- Recharges ground water
- Filters silt, pollutants, and debris
- Reduces urban heat island effect
- Provides paving options for site specific applications and incorporates recycled paving and base materials



## Pervious Pipe System

### Benefit

Air  Water  Land  Recycling  Energy

### Cost

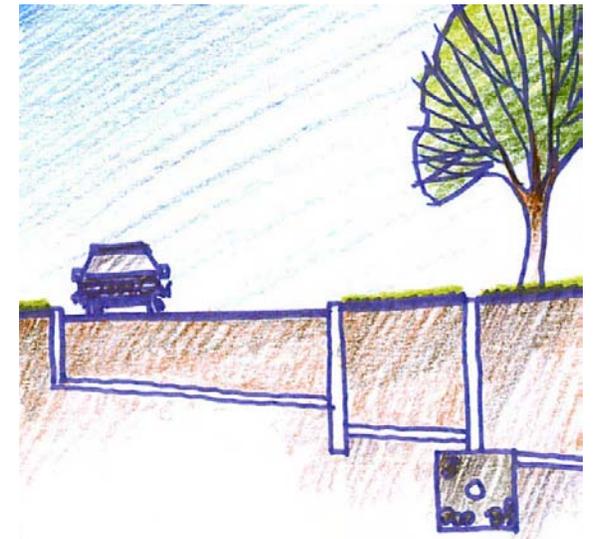
\$10 - \$50 per linear foot

### Description

Pervious pipe system allows stormwater to penetrate through the surface and infiltrate into the soil below. Pervious pipe systems are located underground and allow for water to infiltrate through the pipe walls as the water is conveyed to a storage area.

### Potential Benefits

- Reduces rate and quantity of stormwater runoff
- Recharges ground water
- Filters silt, pollutants, and debris



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## Rain Barrel / Cistern / Grey Water

### Benefit

Air  Water  Land  Recycling  Energy

### Cost

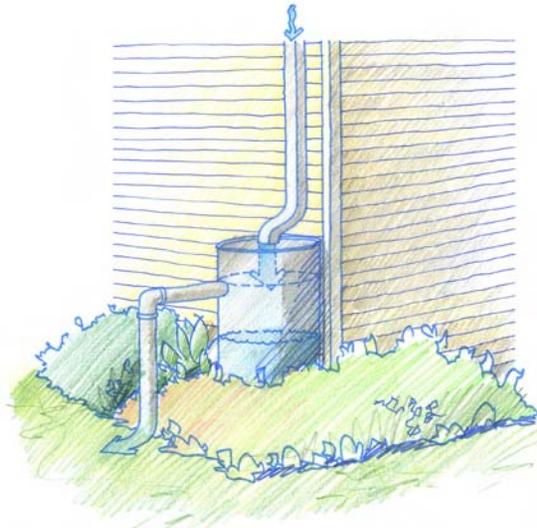
\$50 - \$15,000 per barrel / cistern

#### Description

A rain barrel or cistern is a container used to collect and store rain water from impervious surfaces such as building roofs and parking areas for reuse in building plumbing and mechanical systems, or for irrigating plants.

#### Potential Benefits

- Recycles rain water
- Improves water quality by capturing sediment and particulate matter
- Reduces the quantity of rain water runoff entering detention or sewer facilities
- Rain water can be reused for irrigation or for building plumbing and mechanical fixtures



## Rain Garden

### Benefit

Air  Water  Land  Recycling  Energy

### Cost

\$5 - \$8 per square foot

#### Description

A rain garden is a landscape area planted with native perennial plants that slows stormwater runoff from impervious surfaces such as roofs, sidewalks, and parking lots, and allows it to infiltrate back into the soil.

#### Potential Benefits

- Provides attractive garden area to receive discharge from down spouts
- Filters silt, pollutants, and debris
- Reduces rate and quantity of stormwater entering the sewer system
- Recharges ground water
- Provides habitat for birds and wildlife
- Help reduce localized flooding



## Recycled Construction Material

### Benefit

Air  Water  Land  Recycling  Energy

### Cost

Requires little or no additional cost to meet minimum levels of recycling

#### Description

Materials with both pre-consumer and post-consumer recycled content can be incorporated into new construction in a variety of ways. These include building materials such as structural elements and finishes, and site amenities such as furnishings and pavement.

#### Potential Benefits

- Reduces waste hauled to landfills
- Reduces the need to extract virgin natural resources
- Develops new technologies and saves money



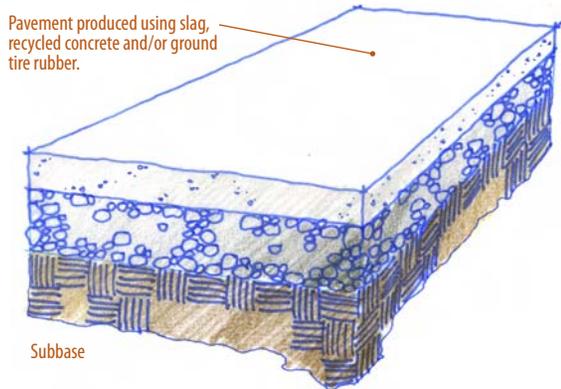
# Environmental Design Techniques, *continued*

## Recycled Site and Paving Materials

Benefit				
<input type="checkbox"/> Air	<input type="checkbox"/> Water	<input checked="" type="checkbox"/> Land	<input checked="" type="checkbox"/> Recycling	<input checked="" type="checkbox"/> Energy
Cost				
Requires little or no additional cost to meet minimum levels of recycling				

**Description**  
 Recycled site and paving materials can be incorporated into new construction in a variety of ways. Recycled concrete aggregate can be used in the concrete mix and as a base beneath surface paving. Also, slag, a by-product of steel production, can be used as a component of the concrete mix. Furthermore, ground tire rubber can be used in porous asphalt, and reclaimed asphalt pavement can be used in non-porous asphalt.

- Potential Benefits**
- Reduces waste hauled to landfills
  - Reduces the need to extract virgin natural resources
  - Develops new technologies and saves money



## Restored River Banks

Benefit				
<input type="checkbox"/> Air	<input checked="" type="checkbox"/> Water	<input checked="" type="checkbox"/> Land	<input type="checkbox"/> Recycling	<input type="checkbox"/> Energy
Cost				
Costs will vary depending on project scope				

**Description**  
 River bank restoration reverses disturbance through bank stabilization, channel reconfiguration, dam removal, enhanced fish passage, floodplain reconnection, flow enhancement, in-stream habitat and species improvement, riparian management, stormwater management, and water quality management.

- Potential Benefits**
- Helps return waterways to pre-development condition
  - Improves river quality
  - Encourages passive recreational uses
  - Enhances water / habitat quality
  - Reduces erosion from stormwater runoff



## River Edge Buffers

Benefit				
<input type="checkbox"/> Air	<input checked="" type="checkbox"/> Water	<input checked="" type="checkbox"/> Land	<input type="checkbox"/> Recycling	<input type="checkbox"/> Energy
Cost				
Costs will vary depending on project scope				

**Description**  
 A river buffer consists of grass, trees, shrubs, native vegetation, and rocks along the banks of streams and rivers. The plants filter sediment and absorb contaminants in runoff before they enter the waterway. A minimum width of 50 feet from the top of the bank to the river edge is encouraged, but buffers greater than 50 feet may be necessary for larger developments. Wider buffers encourage a healthier waterway.

- Potential Benefits**
- Reduces erosion from water runoff
  - Filters sediment and contaminants from surface stormwater runoff
  - Provides larger green spaces that are attractive for adjacent properties
  - Provides shade to maintain even water temperature for aquatic life



## Floodplain and Floodway Setbacks

### Benefit

Air  Water  Land  Recycling  Energy

### Cost

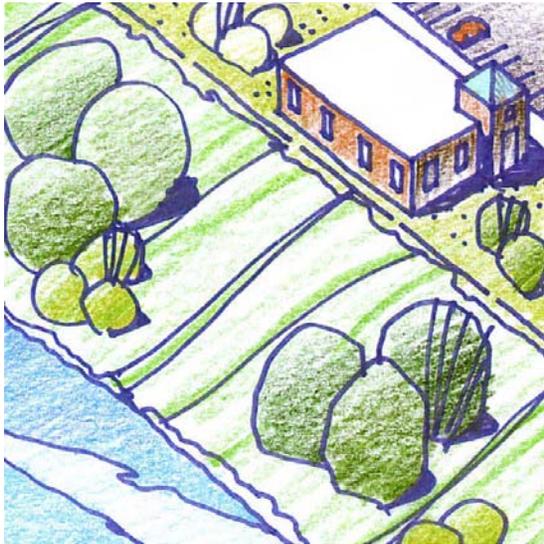
Costs will vary depending on project scope

#### Description

Floodplain and floodway setbacks protect developed sites from being damaged by natural disasters and provides other environmental benefits. Structures and impervious surfaces should be placed outside of a river's floodplain and floodway. A minimum 100 foot setback is encouraged.

#### Potential Benefits

- Reduces flooding as streams overflow into their natural floodplains
- Provides location for vegetation that filters and traps pollutants
- Slows runoff and stabilizes river banks to reduce erosion
- Protects water habitat cover that shades and cools the water
- Increases and provides economic benefits through reduced flooding
- Reduced river bank erosion and reduced property damage due to flooding
- Enhanced natural features can improve appearances and help increase adjacent property values



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## Tree Planting

### Benefit

Air  Water  Land  Recycling  Energy

### Cost

\$500 - \$1,000 per tree

#### Description

Shade trees can significantly reduce the urban heat island effect and improve air quality. Trees planted near or adjacent to large pavement areas reduce the amount of thermal energy emitted by shading the pavement.

#### Potential Benefits

- Reduces urban heat island effect
- Provides habitat for birds and wildlife
- Reduces energy costs for heating and cooling
- Improves air quality



# Energy Techniques

**Biofuel**

**Benefit**

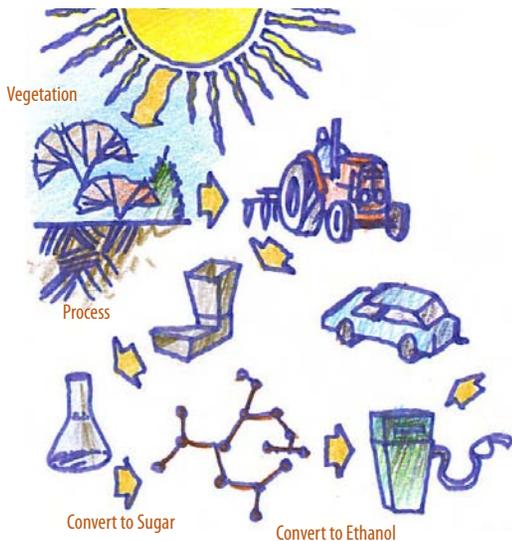
Air    Water    Land    Recycling    Energy

**Cost**

\$0.50 - \$2.00 per gallon

**Description**  
 The most common forms of biofuels are ethanol and biodiesel derived from plant material such as soybeans and corn. They can be used to power mechanical equipment, automobiles, or industrial elements.

- Potential Benefits**
- Renewable resource that helps conserve natural resources
  - Reduces greenhouse gas emissions and pollution caused by conventional fuel consumption



**Geothermal**

**Benefit**

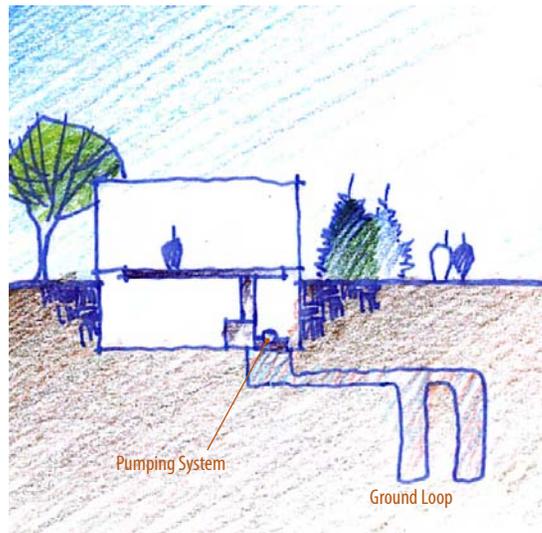
Air    Water    Land    Recycling    Energy

**Cost**

Costs will vary depending on the type of geothermal system installed

**Description**  
 Geothermal energy is generated by heat stored in the earth's core or the collection of the absorbed heat in the atmosphere and oceans. Geothermal heat pumps take advantage of the natural constant temperature of the earth. Geothermal energy can be easily utilized by any type of building by using geothermal heat pumps for both heating and cooling needs.

- Potential Benefits**
- Provides renewable resource that encourages conservation of natural resources
  - Provides hot water that can be reused with no environmental impacts
  - Provides cost savings for heating and cooling over conventional systems



**Green Power**

**Benefit**

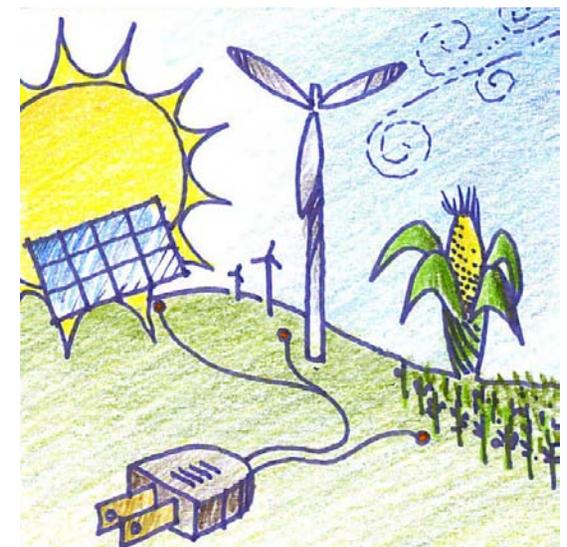
Air    Water    Land    Recycling    Energy

**Cost**

Costs will vary depending on the type of green power used

**Description**  
 Green power is grid-source energy derived from renewable resources that include solar, wind, geothermal, biomass, or low-impact hydropower sources. Power products are purchased by the property owner from renewable energy provider.

- Potential Benefits**
- Reduces greenhouse gas emissions and pollution caused by conventional power production
  - Can be used under a wide variety of conditions
  - Encourages renewable energy science and technologies



## Reflective Roofing

### Benefit

Air  Water  Land  Recycling  Energy

### Cost

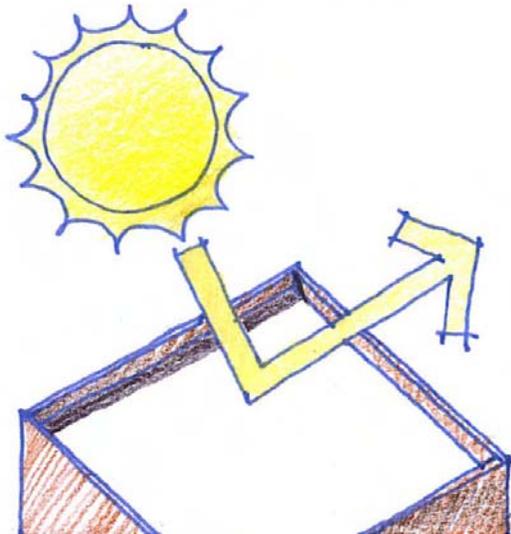
\$0.75 - \$3 per square foot

### Description

Light colored roofing materials reflect sunlight away from the surface, absorb less heat and thus reduce the amount of heat radiated by the roof.

### Potential Benefits

- Reduces urban heat island effect
- Can be used under a wide variety of conditions
- Conserves energy by reducing cooling costs
- Improves air quality because lower electrical power requirements reduce air pollution and greenhouse gas emissions
- Extends the life expectancy of roof materials which reduces amount of roof waste going to landfills



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## Solar Energy

### Benefit

Air  Water  Land  Recycling  Energy

### Cost

\$8 - \$10 per Watt generated

### Description

Solar energy converts the sun's radiant heat and light into electrical energy. Solar panels can be placed in numerous locations including roofs and poles.

### Potential Benefits

- Saves electrical costs
- Does not pollute the environment
- Eliminates need for mining or drilling for fuel
- Requires a minimal footprint
- Can be placed on almost any roof structure



## Wind Energy

### Benefit

Air  Water  Land  Recycling  Energy

### Cost

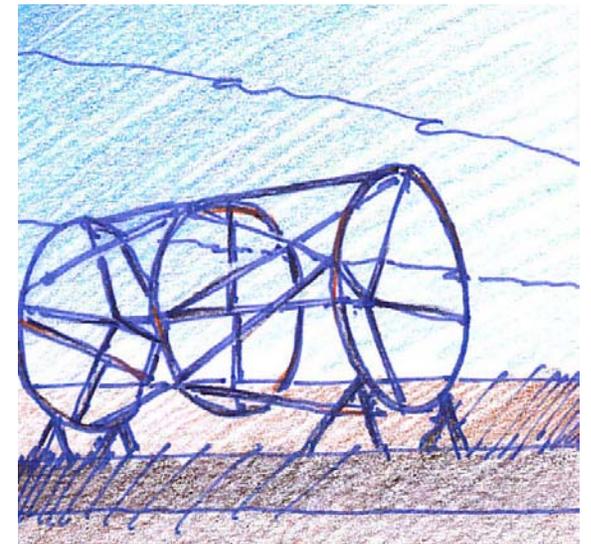
Costs will vary depending on type of wind system installed

### Description

Wind turbines are the preferred way to generate wind energy in this area. Wind turbines are typically placed on top of tall poles, buildings or towers.

### Potential Benefits

- Saves electrical costs
- Does not pollute the environment
- Eliminates need for mining or drilling for fuel
- Requires a minimal footprint



# Brownfield Prevention Techniques

## Site Development

### Control Point and Non-point Stormwater Pollution

**Benefit**

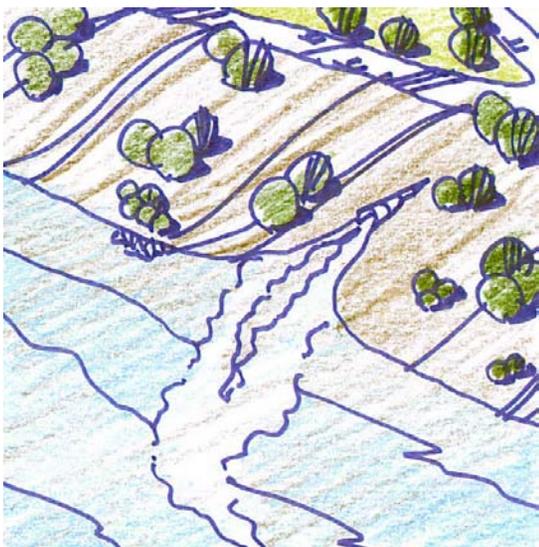
Air     Water     Land     Recycling     Energy

**Cost**

Costs will vary depending on project scope

**Description**  
Oil and grease from parking lots and roads, leaking petroleum storage tanks, pesticides, cleaning solvents, and other toxic chemicals all contribute to point and non-point stormwater pollution. Stormwater pollution from point and non-point sources are reduced and/or eliminated through minimizing impervious surfaces, maximizing natural areas and incorporating prevention strategies.

- Potential Benefits**
- Saves costs through reduction of stormwater infrastructure requirements
  - Eliminates sediment and contaminants entering water system and Calumet River
  - Applies to new and existing development able to sustain necessary infiltration and retention, provides stormwater control of and disbursement over entire site, and eliminates costs of unnecessary chemicals and pesticides



### Erosion and Dust Control

**Benefit**

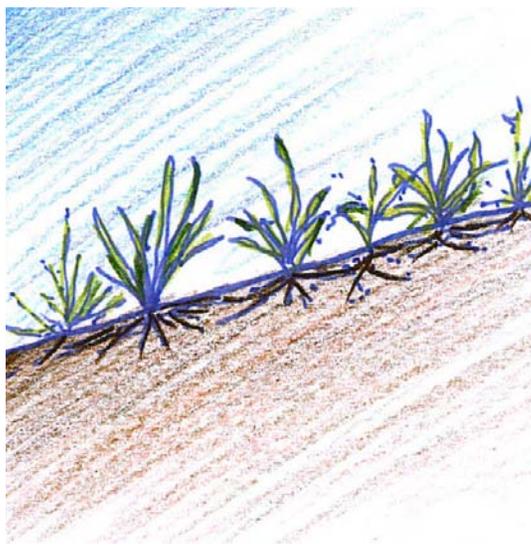
Air     Water     Land     Recycling     Energy

**Cost**

Costs will vary depending on project scope

**Description**  
Many construction activities create dust and erosion problems that can cause health hazards and have other negative impacts on the environment. Use vegetative covers and/or barriers, water sprays, and street sweepers to control dust and erosion.

- Potential Benefits**
- Reduces surface and air transport of dust and minimizes pollutants entering stormwater
  - Inexpensive, non-intrusive, easy to install, and easy to maintain
  - Promotes the use of natural vegetation



### Minimal Pavement

**Benefit**

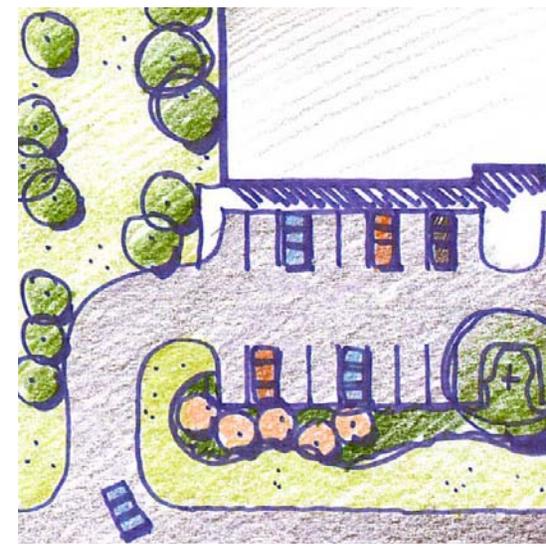
Air     Water     Land     Recycling     Energy

**Cost**

Using the minimum amount of paving will achieve a cost savings

**Description**  
Efficient site plans can reduce the amount of land used for paved roads and parking facilities. Compact, mixed-use development that provides shared parking facilities and is located in close proximity to alternative modes of transportation is strongly recommended. Use of structural or underground parking facilities to help reduce the overall footprint of impervious paved surfaces is also encouraged.

- Potential Benefits**
- Generates additional opportunities for water infiltration
  - Creates locations for new green spaces
  - Reduces pavement costs



## Site Cleanup

### Benefit

Air  Water  Land  Recycling  Energy

### Cost

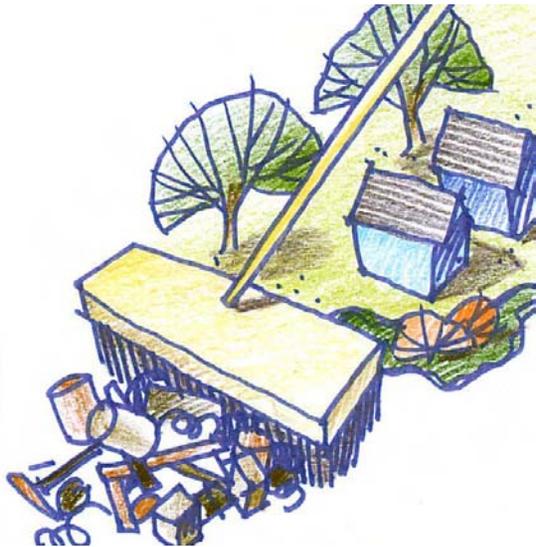
Costs will vary depending on the scope of cleanup

#### Description

Site cleanup is often required for properties contaminated by previous uses before new development can occur. Three approaches to consider are to leave the contamination in place and monitor the site, treat the contamination in place and/or monitor cleanup, or completely remove the contamination.

#### Potential Benefits

- Eliminates health and safety hazards
- Reduces the risk of contaminating adjacent properties
- Increases property values derived from investment in contaminated site cleanup
- Reduces potential for fines by federal, state, or local regulatory agencies



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## Sustainable Site Design

### Benefit

Air  Water  Land  Recycling  Energy

### Cost

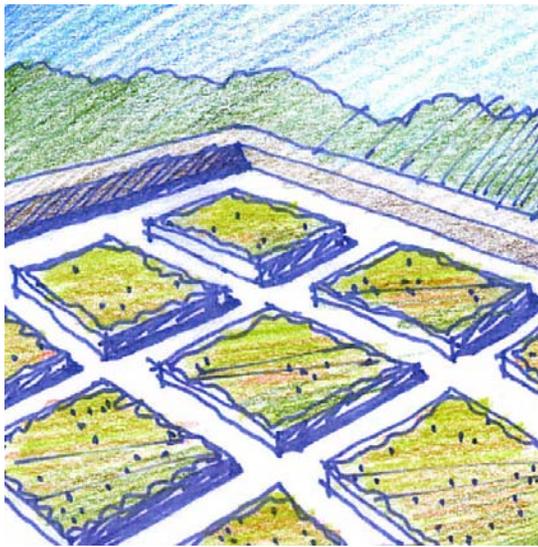
Cost will vary depending on the scope of the project

#### Description

Sustainable site design encourages building development and site design that reduces negative environment impacts. Sustainable design approaches not only consider environmental benefits but also consider factors that enhance worker productivity and wellness. A variety of techniques can be used to reduce the use of power and water, such as: reducing waste, recycling on-site materials, providing healthy indoor environments, and incorporating sustainable and low-toxicity building materials.

#### Potential Benefits

- Minimizes environmental impacts
- Increases worker productivity and/or wellness and provides opportunities for long-term cost savings
- Small businesses may benefit from loan programs or other financial incentives that support sustainable site design



## Wetlands and Green Space

### Benefit

Air  Water  Land  Recycling  Energy

### Cost

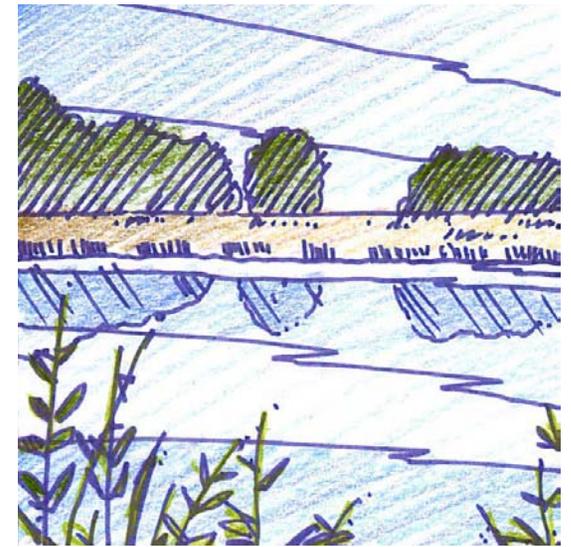
Costs will vary depending on project scope

#### Description

Wetlands provide opportunities to incorporate on-site active ground water treatment strategies that can decrease or even eliminate discharge into water treatment facilities. Including green space in site development improves the property's appearance and also enhances surrounding properties. Resources to support the creation of green spaces are available through a variety of community partners, organizations, and/or local governments.

#### Potential Benefits

- Decreases discharge into water treatment facilities
- Filters water naturally to decrease pollution entering the Calumet River and help recharge underground water reserves
- Creates natural habitat and enhances the quality of life
- Helps control on-site stormwater
- Enhances property values by improving appearances and revitalizing degraded areas



# Brownfield Prevention Techniques, *continued*

## Building Design

### Environmentally-friendly Building Design and Construction

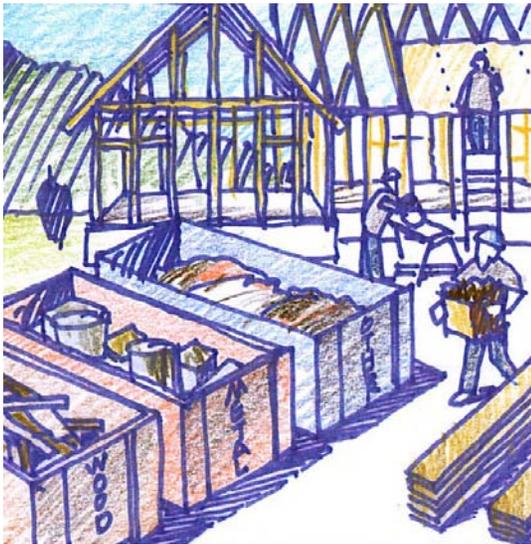
Benefit				
<input checked="" type="checkbox"/> Air	<input checked="" type="checkbox"/> Water	<input checked="" type="checkbox"/> Land	<input checked="" type="checkbox"/> Recycling	<input checked="" type="checkbox"/> Energy
Cost				
Costs will vary depending on project scope				

#### Description

The use of repairable or recycled building materials and/or materials that can be acquired from sources that reduce transport distances is strongly encouraged. Construction practices that reduce construction costs, conserve resources, and generate less construction waste are also encouraged. Utilizing the LEED credit system for building design and construction will ensure an environmentally-friendly building design and construction. Efficient HVAC systems and Energy Star appliances are two examples of sustainable elements included in the LEED process.

#### Potential Benefits

- Lowers operating costs
- Encourages water conservation
- Decreases fuel consumption by employees and businesses
- Small business environmental loan program or other financial incentives are available to support of environmentally-friendly building design and construction practices



### Responsible Manufacturing

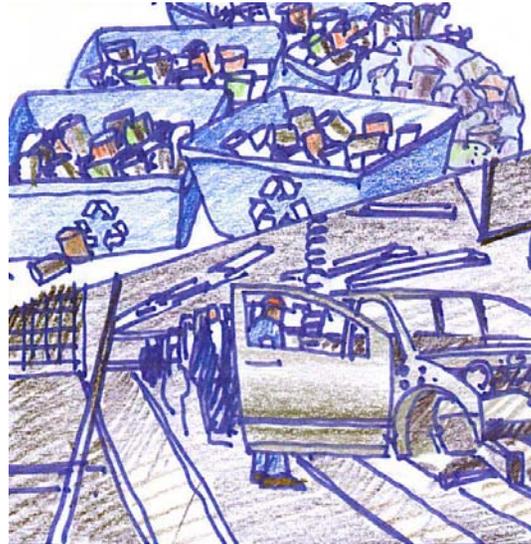
Benefit				
<input type="checkbox"/> Air	<input type="checkbox"/> Water	<input type="checkbox"/> Land	<input checked="" type="checkbox"/> Recycling	<input type="checkbox"/> Energy
Cost				
Costs will vary depending on project scope				

#### Description

Responsible manufacturing processes can decrease harmful environmental impacts and provide cost savings for businesses. As an example of responsible manufacturing, Chicago Waste to Profit Network aids manufacturing businesses in the recycling of their manufacturing waste or by-product.

#### Potential Benefits

- Reduces manufacturing and customer costs
- Improves products and reduces negative regulatory and legal impacts on businesses



### Spill Prevention

Benefit				
<input type="checkbox"/> Air	<input checked="" type="checkbox"/> Water	<input checked="" type="checkbox"/> Land	<input type="checkbox"/> Recycling	<input type="checkbox"/> Energy
Cost				
Costs will vary depending on project scope				

#### Description

Spills can have a cumulative effect that quickly increase the number of pollutants in stormwater systems. Prevent spills and leaks through regular inspection and use of correct clean-up procedures, outdoor materials, and waste handling, storage, and disposal methods.

#### Potential Benefits

- Decreases the probability of chemicals entering the stormwater system
- Decreases company's liability for employee injury from toxic chemicals
- Reduces environmental impacts to natural water resources



# Brownfield Prevention Techniques, *continued*

## Management

### Environmental Management Systems (EMS)

#### Benefit

- Air     Water     Land     Recycling     Energy

#### Cost

Costs will vary depending on project scope

#### Description

Environmental Management Systems (EMS) use a systematic approach to understand the relationship between businesses and the environment and to promote continual improvement in a company's environmental management performance. The basic approach for EMS is to review internal policies, analyze environmental effects and requirements, establish goals and appropriate objectives, and review company business management.

#### Potential Benefits

- Reduces negative environmental impacts
- Qualifies businesses for incentives available through the International Organization for Standardization (ISO)

### Federal and State Programs

#### Benefit

- Air     Water     Land     Recycling     Energy

#### Cost

Costs will vary depending on project scope

#### Description

There are numerous federal and state programs available for Brownfield cleanup and prevention. Many of these program offer grants and financial assistance and are administered through the Environmental Protection Agency (EPA).

#### Potential Benefits

- Financial and schedule incentives
- Reduces development costs

### Operation Manual and Monitoring Plan

#### Benefit

- Air     Water     Land     Recycling     Energy

#### Cost

Costs will vary depending on project scope

#### Description

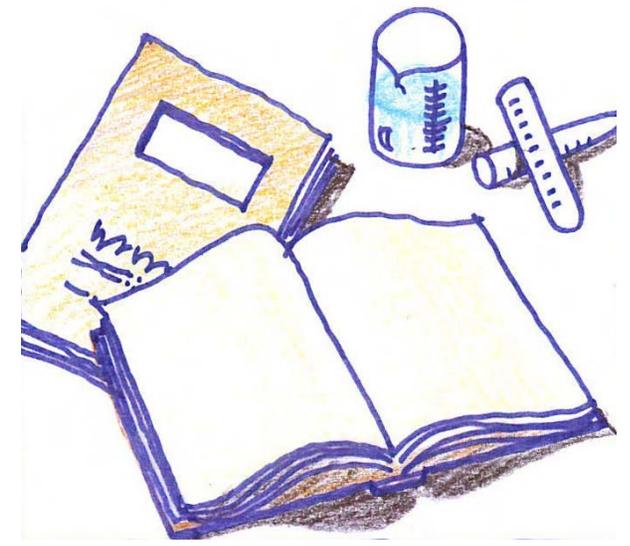
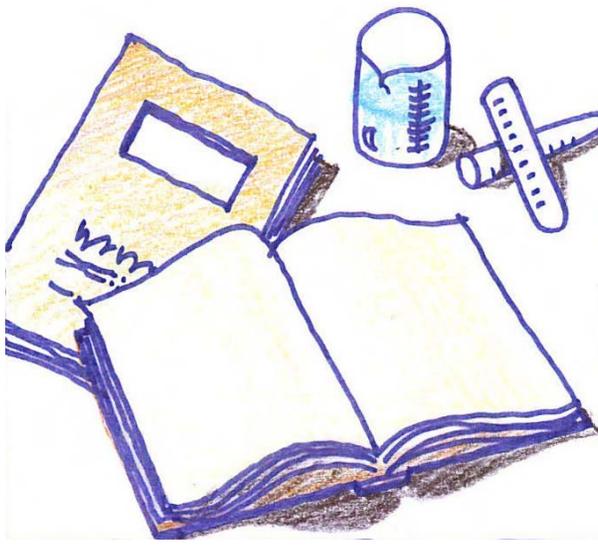
An Operation Manual and Monitoring Plan includes an outline for the environmental management of a brownfield site. The manual outlines smart manufacturing processes that do not adversely contribute to the contamination of the site and various annual monitoring plans including:

#### Stormwater Pollution Prevention Plan (SWPPP)

The SWPPP outlines a step-by-step process for ensuring that pollutants from industrial activities are not contaminating stormwater discharges on a site and requires that Best Management Practices (BMPs) be selected and implemented. BMPs include: schedules of activities, prohibition of practices, maintenance procedures, and other management process to prevent or reduce stormwater pollution.

#### Waste Prevention and Recycling Plan

This annual plan outline strategies to prevent waste and establishes a Recycling Plan.



# Green Urban Design Techniques

## Container Screening and Stacking

### Benefit

Air  Water  Land  Recycling  Energy

### Cost

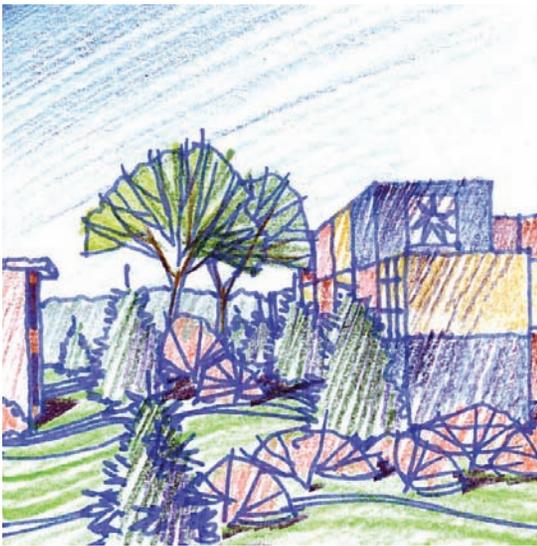
Costs will vary depending on project scope

### Description

Container screening and stacking regulations should be implemented in industrial areas where shipping containers are used and stored. Strategies for visually screening the containers range from a decorative screen wall to specialized landscape setback and screening requirements. For industrial areas adjacent to residential and institutional uses, landscape setbacks and screening should be required. A container limit should also be enforced within industrial properties. A general rule for limiting shipping containers could be 1 stall per 2,500 square feet of building and warehouse space. This allows flexibility for varying uses of any industrial site.

### Potential Benefits

- Enhances amount of plant material adjacent to an industrial area
- Adds additional green and open space to an industrial area



## Dedicated Bike Paths and/or Multi-Modal Pathways

### Benefit

Air  Water  Land  Recycling  Energy

### Cost

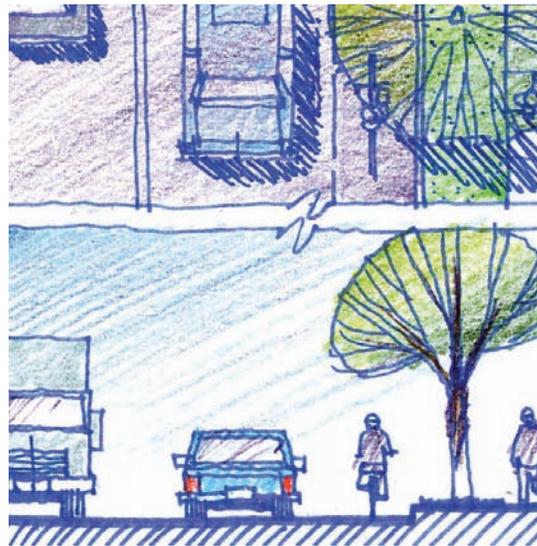
Costs will vary depending on project scope

### Description

Dedicated bike path and multi-modal pathways are located along roadways and are separated by pavement markings or another physical boundary. Placing dedicated bike paths helps to define the road space and increases the level of safety of bicyclists. Designating areas on the roadway encourages people to use the paths as a viable mode of transportation.

### Potential Benefits

- Supports and encourages bicycling as a means of transportation
- Encourages bicyclists to ride in the correct location, with the flow of traffic
- Offers a clear place to ride
- Defines road space for vehicles and bicyclists
- Promotes pedestrian and bicycle safety



## Facilities for Alternative or Shared Transportation Options

### Benefit

Air  Water  Land  Recycling  Energy

### Cost

Costs will vary depending on project scope

### Description

Building and site design encourages alternative or shared transportation making waiting areas safe and convenient. Facilities for alternative transportation include bus shelters located near office complexes and residential areas, dedicated car pool parking spaces adjacent to office or retail buildings, bike racks and changing rooms for bike commuters, and dedicated High Occupancy Vehicle (HOV) lanes to accommodate carpools, vanpools, and buses.

### Potential Benefits

- Encourages people to use alternative or shared transportation options by making it just as convenient as driving their own vehicle
- Eases congestion by decreasing the number of automobiles on the roadway
- Improves air quality



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## Grid of 2-Way Streets with Regular Cross Connections

### Benefit

Air  Water  Land  Recycling  Energy

### Cost

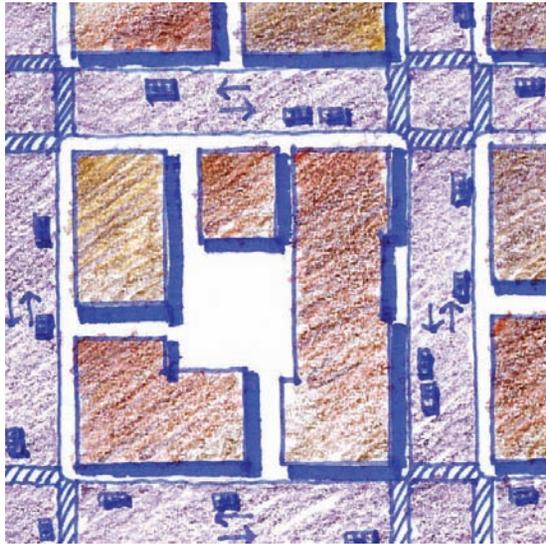
Costs will vary depending on project scope and size

#### Description

By providing a regular grid of 2-way streets with regular cross connections, city blocks become more pedestrian-friendly and provide more street frontages for businesses. A regular street grid also provides more turning opportunities for motorists and additional visibility for businesses.

#### Potential Benefits

- Provide more street frontage for businesses
- Drivers can get directly to their destination
- Provides more turning options for motorists
- Decreases traffic speed



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## Infill Development within Existing Infrastructure

### Benefit

Air  Water  Land  Recycling  Energy

### Cost

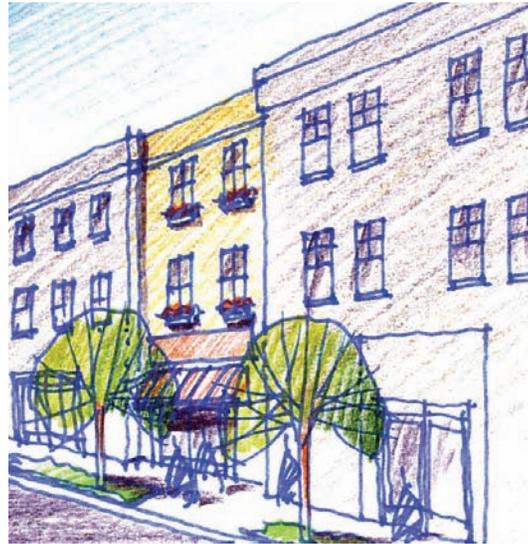
Costs will vary depending on project scope and size

#### Description

Infill development consists of several techniques which include new development on vacant lots within urban areas, redevelopment of buildings and sites, and the rehabilitation of historic building with new uses. Successful infill development creates neighborhoods and districts that support a mix of uses and a complete live, work, and play environment for its residents.

#### Potential Benefits

- Creates neighborhoods and districts that provide for a mix of uses and incomes
- Provides additional opportunities for pedestrians and cyclists
- Benefits environment by utilizing existing infrastructure



## Interconnected System of Parks and Open Spaces

### Benefit

Air  Water  Land  Recycling  Energy

### Cost

Costs will vary depending on project scope and size

#### Description

An interconnected systems of parks and open spaces creates an alternative pedestrian and bicycle circulation system that minimizes the need of the automobile. An inter-connected hierarchical systems of parks, trails, and open spaces not only provide options for alternative transportation routes but also protect the environment by preserving open space.

#### Potential Benefits

- Increases public open space and recreational areas
- Provides alternative routes for pedestrians and bicyclists
- Organizes green space according to community needs and can be centralized around a general development theme
- Facilitates development of active and passive recreation facilities



## Green Urban Design Techniques, *continued*

### Minimal Curb Cuts Along Roadways

#### Benefit

Air  Water  Land  Recycling  Energy

#### Cost

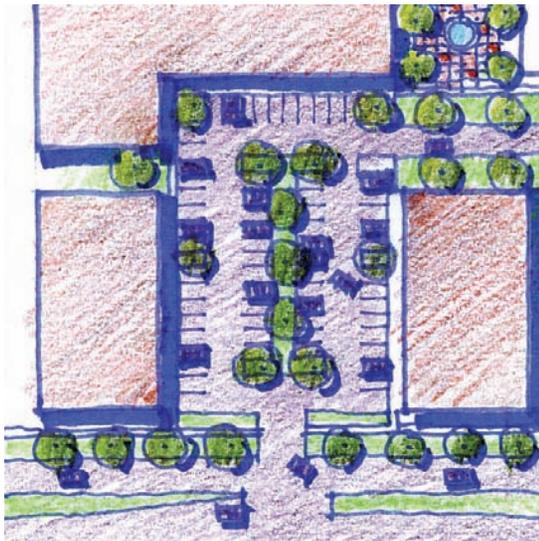
Costs will vary depending on project scope and size

#### Description

Minimizing curb cuts refers to combining or limiting properties' access points along a roadway. Minimizing roadway access points enhances pedestrian comfort and safety. Cross access between parking lots minimizes curb cuts and improves traffic flow between lots.

#### Potential Benefits

- Decreases the levels of congestion
- Lowers accident rates by limiting number of vehicles turning in and out of traffic



### Mixed-Use Development

#### Benefit

Air  Water  Land  Recycling  Energy

#### Cost

Costs will vary depending on project scope and size

#### Description

Mixed-use development is the combination of various types of building and land uses including residential, commercial, industrial, office, and institutional uses. Mixed-use increases intensity and diversity of buildings while providing opportunity to integrate land uses. Common development includes residential with street front commercial and office development. Mixed-use development is a key component of Transit Oriented Development (TOD), Traditional Neighborhood Development (TND), Livable Communities, and Smart Growth principles.

#### Potential Benefits

- Reduces automobile dependency and creates walkable communities
- Creates a local sense of space
- Increases housing options for diverse household types
- Encourages the use of public transportation



### Nodes, Edges, and Landmarks

#### Benefit

Air  Water  Land  Recycling  Energy

#### Cost

Costs will vary depending on project scope and size

#### Description

Successful neighborhoods are often characterized by nodes, edges, and landmarks. Nodes and landmarks are a site-specific reference point for a community and promote an image reflecting the surrounding community. Edges clearly define the boundaries of specific areas and can be comprised of natural or man-made elements.

#### Potential Benefits

- Creates and enforces unique identities for neighborhoods
- Provides opportunities for community gathering spaces



## On-Street Parking

### Benefit

Air  Water  Land  Recycling  Energy

### Cost

Costs will vary depending on project scope and size

#### Description

On-street “teaser” parking located on streets adjacent to retail or commercial uses attracts shoppers to retail shops and can be shared by several retail businesses.

#### Potential Benefits

- Can be utilized as shared parking
- Attracts shoppers
- Uses less land as it does not require access lanes or driveways
- Creates separation between pedestrian and vehicular traffic to increase pedestrian safety

## Shared Parking Facilities

### Benefit

Air  Water  Land  Recycling  Energy

### Cost

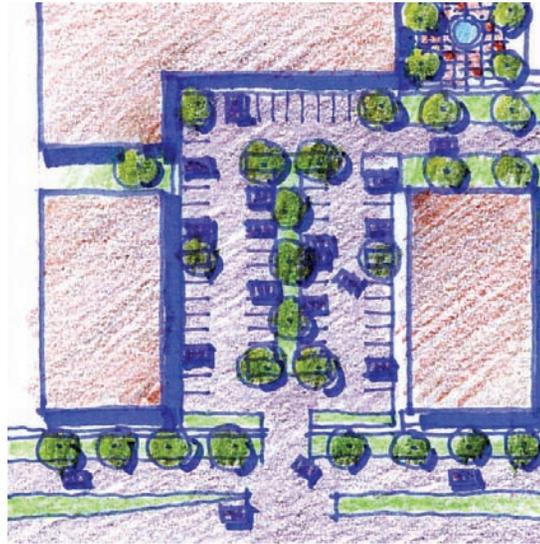
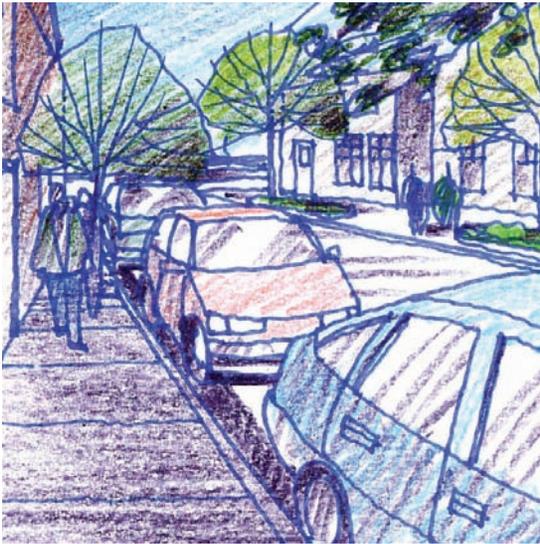
Costs will vary depending on project scope and size

#### Description

Shared parking occurs when adjacent land uses share a common parking lot. Different occupancies have different parking demands. Pairing compatible land uses that can share parking facilities reduces the site area needed for parking. Reduced parking areas can increase the amount of open space and encourage creative site planning opportunities.

#### Potential Benefits

- Reduces required number of parking spaces for mixed-use development or single-use development in mixed-use areas
- Reduces impervious areas for parking
- Increases green space







# Sustainable Development Strategies

In this section, development sites have been identified within the Corridor. Ownership, current zoning requirements, existing conditions, other site specific elements have not been reviewed. These sites have been strictly chosen to illustrate how the Pattern Book techniques can be used within different types of development. An associated map showing the locations of the six development strategies and three possible development strategies are located on the following pages.

Below are basic descriptions of the Sustainable Development Strategies illustrated in the Pattern Book.

### Sustainable Mixed-Use / Recreational Strategies

Sustainable mixed-use and recreational development strategies focus on the development of an area's open space, natural areas, and recreational and cultural amenities to create a high-quality environment in which to live and play. Mixed-use development focuses on opportunities for new development and redevelopment to fit seamlessly into the surrounding community.

### Sustainable Industrial Strategies

The Corridor's current manufacturing strengths serve as a base for firms in both existing and emerging sectors. The manufacturing strengths will serve growing markets in sustainable products and services for Chicago and the Midwest. Sustainable industrial strategies highlighted in the Pattern Book are focused in Calumet City, Dolton, Robbins and Riverdale. Additional assets include the regions universities and research institutes, which can provide both research and technical expertise in the sustainable, environmentally-friendly area of industrial development. Lastly, the region will be known for a variety of transportation options, high-speed telecommunication, and alternate energy sources.

### Sustainable Transit Oriented Strategies

Sustainable transit oriented strategies are centered in existing downtown areas which offer a variety of transportation, commercial, and residential options. The efforts in economic growth by public and private entities encourage

both improvements and redevelopments within the downtown core. As the needs of current residents are met, a vibrant commercial core will attract visitors and consumers from surrounding areas. The river becomes the central feature for a mixture of regional and national investment. Major nodes, such as the river, main streets or transit oriented districts, will be connected by a system of multi-modal transportation.

### Sustainable Residential Strategies

Residential development within all seven communities will utilize sustainable elements outlined in this Pattern Book. Housing will be focused around commercial clusters and attract a mixture of housing types, price points, and economic vitality. Strong connections to the riverfront, commercial clusters, and transportation will be important in sustainable residential development. Finally, enhancing the river as a central feature will reinforce the area's cultural legacy.

## Sustainable Commercial Strategies

Commercial development strategies will encourage the improvement, redevelopment, and construction of a variety of commercial and retail projects to meet the needs of residents. Ideal commercial developments offer a broad range of goods and services and attract visitors and consumers from outside the area. Development will be concentrated in designated areas along the river, main streets, transit oriented districts, and major arterials. These will include a mix of national and regional investment but a strong representation of small businesses and local ownership will be vital to the success of the commercial development. New commercial development will be aligned with public transportation, and pedestrian and bicycle access.

## Calumet River Corridor Council

Public and private sector leaders and organizations involved in the economic development of the Corridor should form and actively participate in a Calumet River Corridor Council, working closely together on key initiatives and promoting and implementing the vision in their communities.

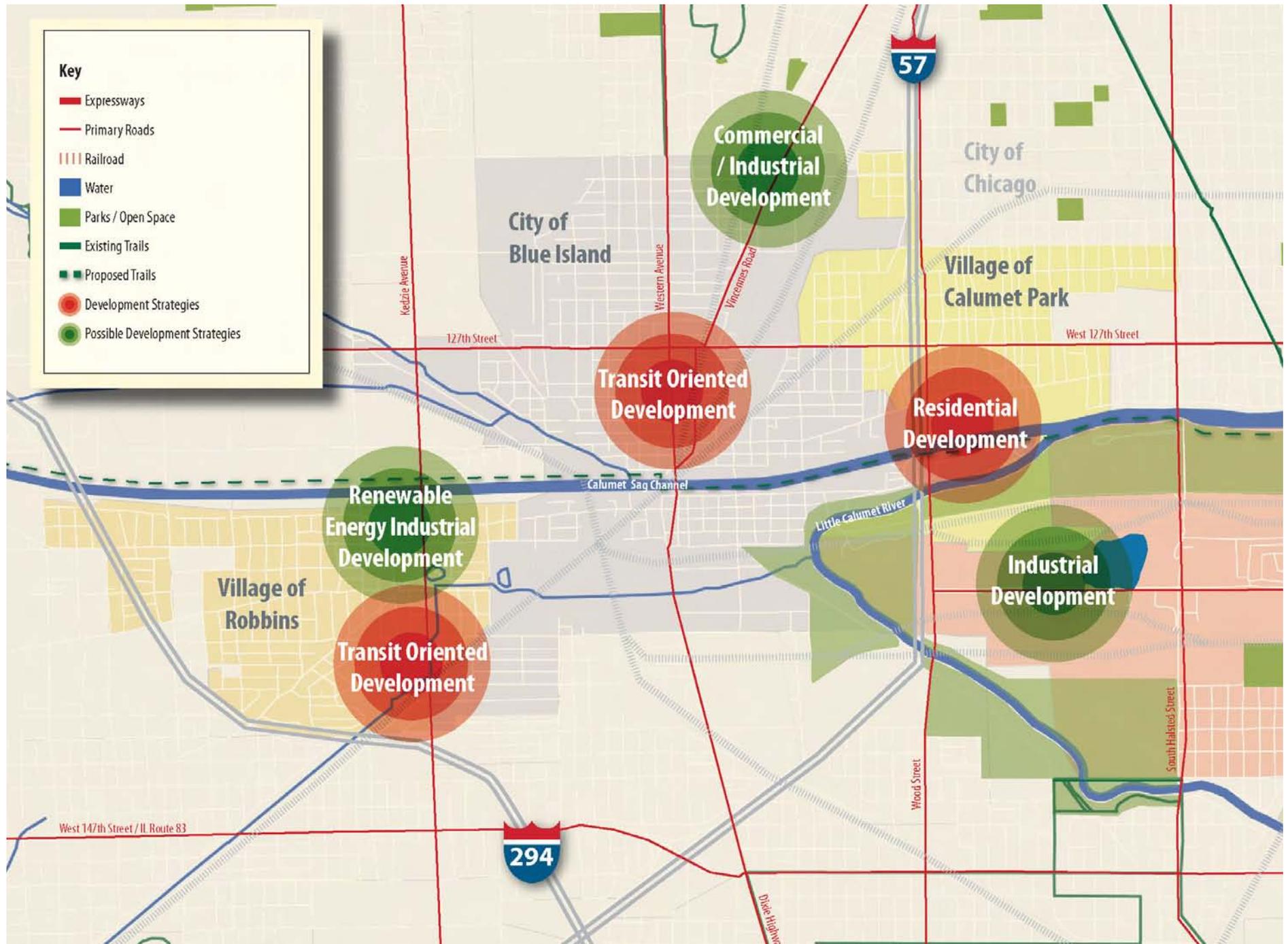
The Council should have full-time staff and clear functions, that:

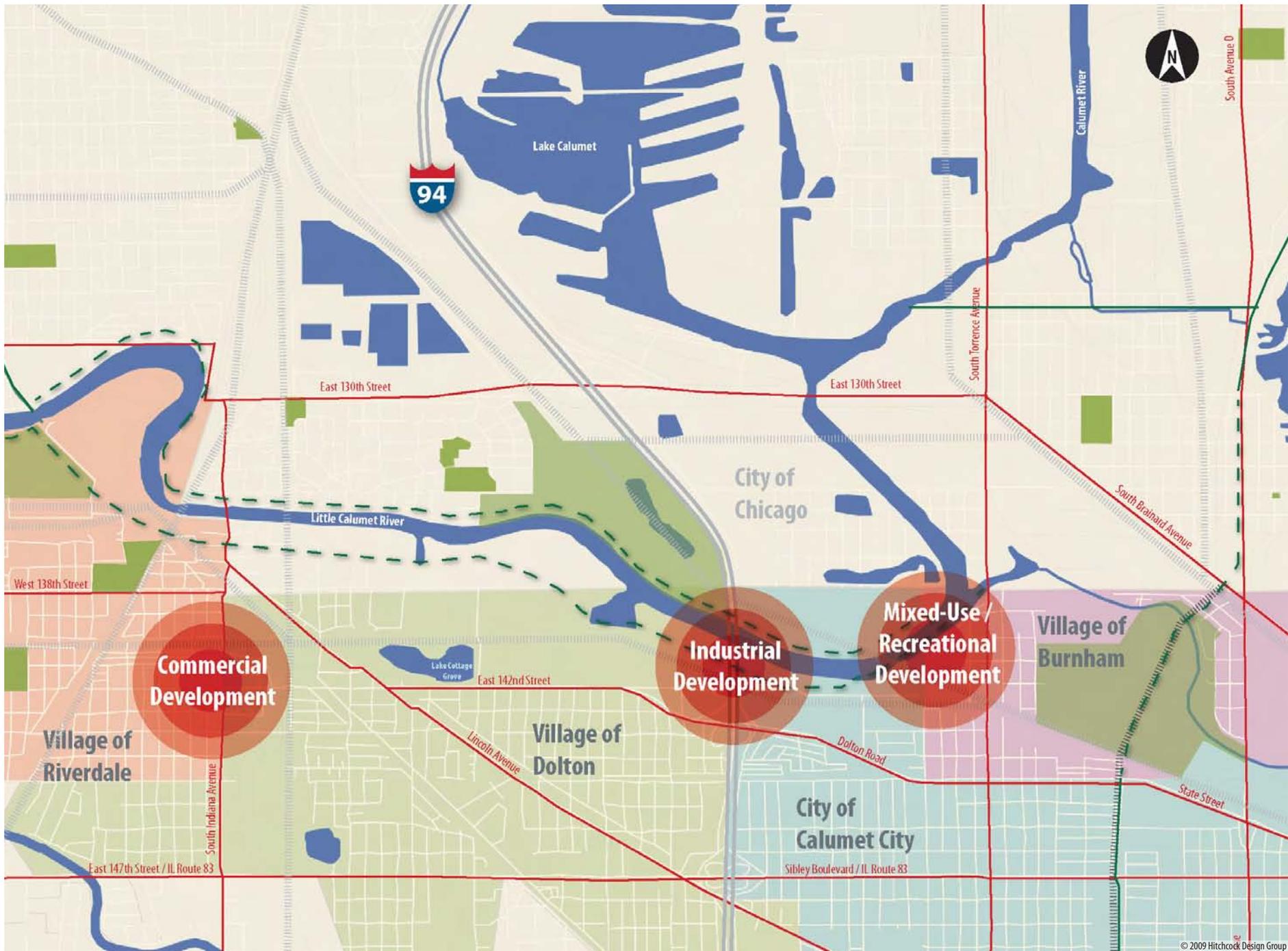
- Plays a leadership role on priority projects by bringing private and public sector players together, organizing the process, and keeping it on track.
- Assures coordination of economic development activities, including those in other key corridors (e.g. I-394, I-57, the southeast commuter rail corridors and multi-use trails) and facilitation of responses to sometimes competing needs (e.g. recreational vs. freight uses) of the river.
- Helps raise public and private funding for detailed planning and implementation of projects, and providing technical assistance in

financial packaging and use of financial tools.

- Establishes proactive and coordinated relationships with external agencies and organizations, (e.g. the Metropolitan Water Reclamation District of Greater Chicago, U.S. Army Corps of Engineers and U.S. Environmental Protection Agency).
- Markets the Corridor's development opportunities.
- Sponsors a Planning and Development Academy to help elected officials, staff, and organizations build the capacity and tools necessary to effectively carry out economic development initiatives.

# Sustainable Development Strategies





## Sustainable Mixed-Use / Recreational Strategies

### Burnham

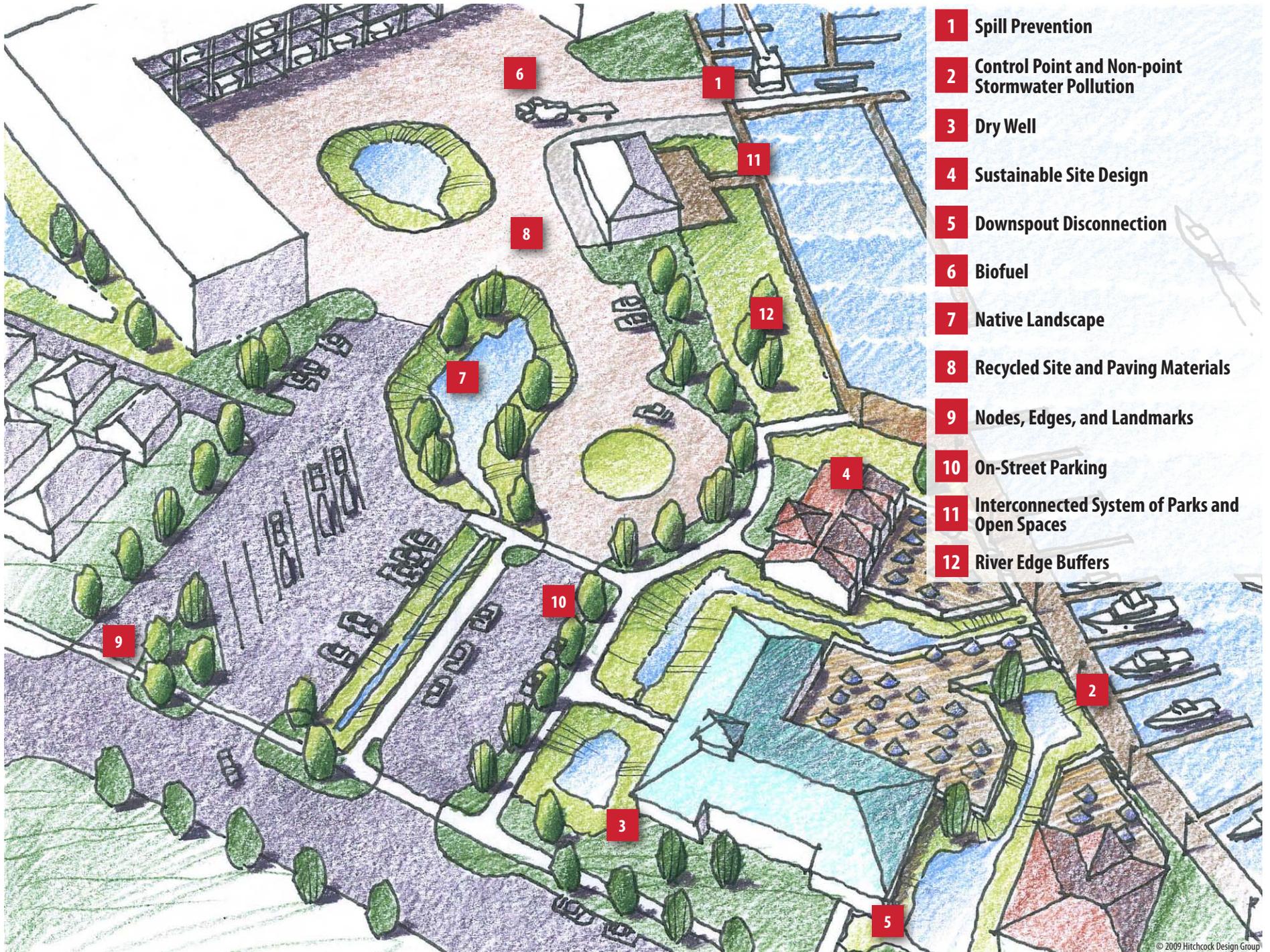
For this example site in Burnham, the existing marina has been redeveloped into a mixed-use and recreational development consisting of a marina, boat storage, restaurants, and retail development. The redevelopment's focus is to provide public access to the river and water-related facilities which are important for the vitality of the area.

Because of its proximity to the water and the desire to both use and preserve the Calumet River, the proposed development focuses on incorporating sustainable tools relating to stormwater management and design.

Each site throughout the Calumet River Corridor is unique and can benefit from many combinations of sustainable techniques. This, along with the other sites chosen, should be considered as representative examples.



*Existing Burnham Marina Site*



- 1** Spill Prevention
- 2** Control Point and Non-point Stormwater Pollution
- 3** Dry Well
- 4** Sustainable Site Design
- 5** Downspout Disconnection
- 6** Biofuel
- 7** Native Landscape
- 8** Recycled Site and Paving Materials
- 9** Nodes, Edges, and Landmarks
- 10** On-Street Parking
- 11** Interconnected System of Parks and Open Spaces
- 12** River Edge Buffers

## Sustainable Industrial Strategies

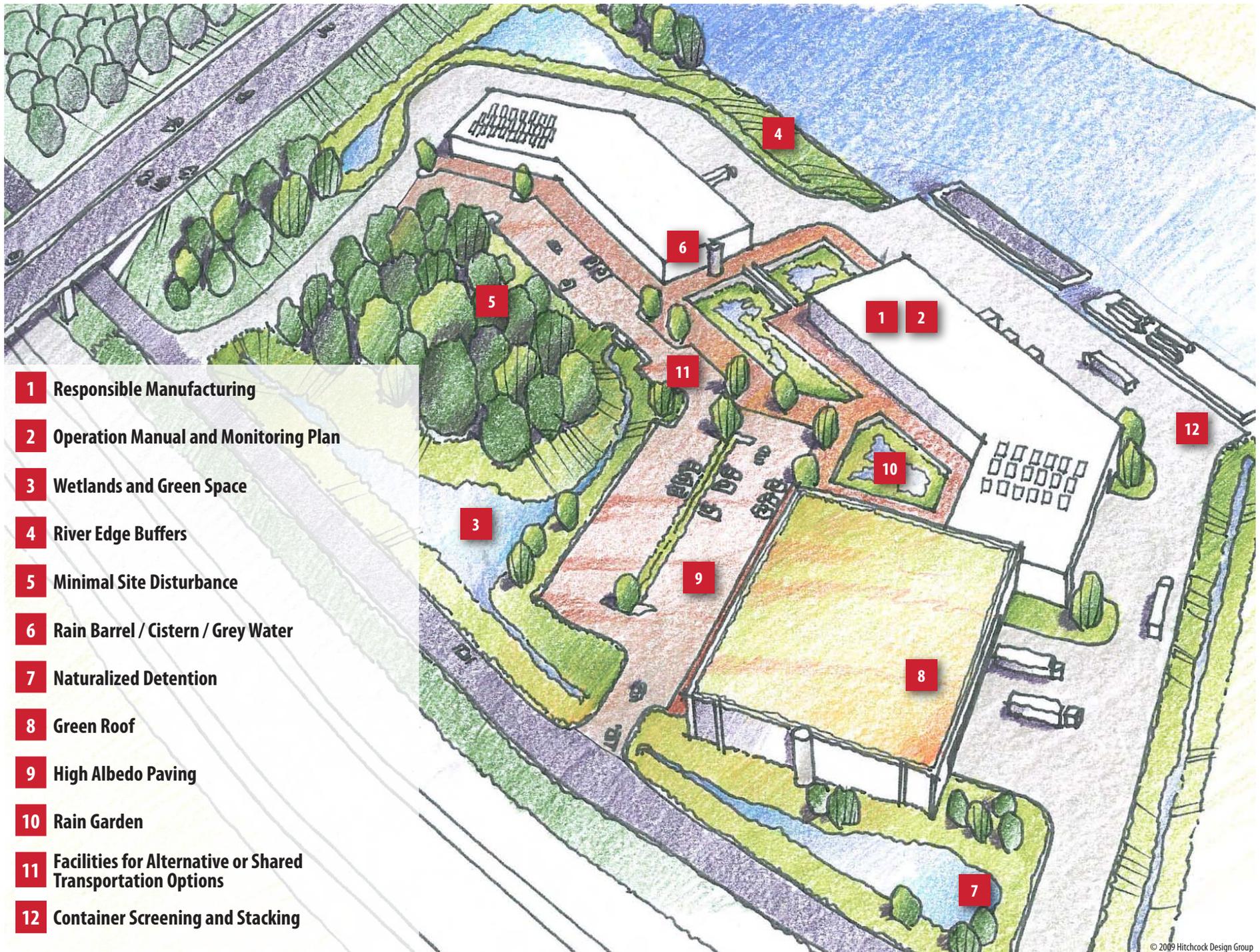
### Calumet City / Dolton

Industrial development can provide many opportunities to incorporate sustainable elements. This example site is located in Calumet City and Dolton, along the banks of the Calumet River. Industrial development is encouraged to be located in areas which are easily accessed by multiple modes of transportation including the river, rail, and roadways.

Components of this sustainable design focus on site design and stormwater management but also incorporate responsible manufacturing.



*Existing Calumet City / Dolton Site*



- 1** Responsible Manufacturing
- 2** Operation Manual and Monitoring Plan
- 3** Wetlands and Green Space
- 4** River Edge Buffers
- 5** Minimal Site Disturbance
- 6** Rain Barrel / Cistern / Grey Water
- 7** Naturalized Detention
- 8** Green Roof
- 9** High Albedo Paving
- 10** Rain Garden
- 11** Facilities for Alternative or Shared Transportation Options
- 12** Container Screening and Stacking

## Sustainable Transit Oriented Strategies

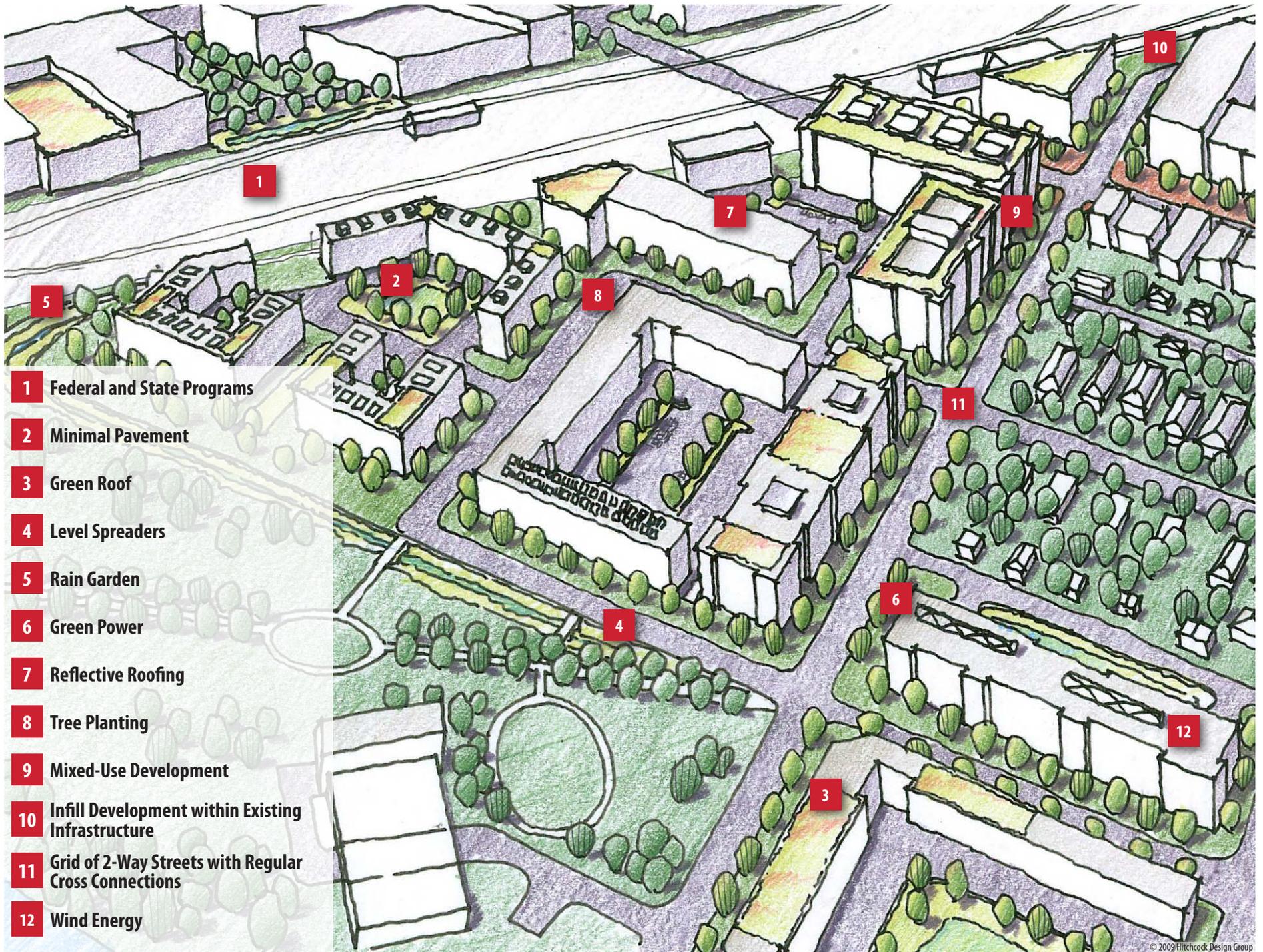
### Blue Island

This transit oriented development is situated in downtown Blue Island, adjacent to the railroad and Calumet Sag Channel. For this development strategy, a corner of downtown has been redeveloped into a mixed-use district which would house both commercial and residential uses. The focus on the interconnected transportation, commercial, and residential properties will become a necessity for future development as travel and housing costs continue to increase. Development will need to be refocused to serve multiple transportation options for residents and visitors.

The strategic location by the community's two major assets, the railroad and the Calumet Sag Channel, play a vital role in the success of this redevelopment strategy.



*Existing Blue Island Site*



- 1** Federal and State Programs
- 2** Minimal Pavement
- 3** Green Roof
- 4** Level Spreaders
- 5** Rain Garden
- 6** Green Power
- 7** Reflective Roofing
- 8** Tree Planting
- 9** Mixed-Use Development
- 10** Infill Development within Existing Infrastructure
- 11** Grid of 2-Way Streets with Regular Cross Connections
- 12** Wind Energy

## Sustainable Transit Oriented Strategies

### Robbins

This transit oriented development is situated in Robbins adjacent to the Metra Rock Island District Line. For this development strategy, increased public open space is provided along Midlothian Creek and interconnected throughout the site to create a pedestrian-friendly environment.

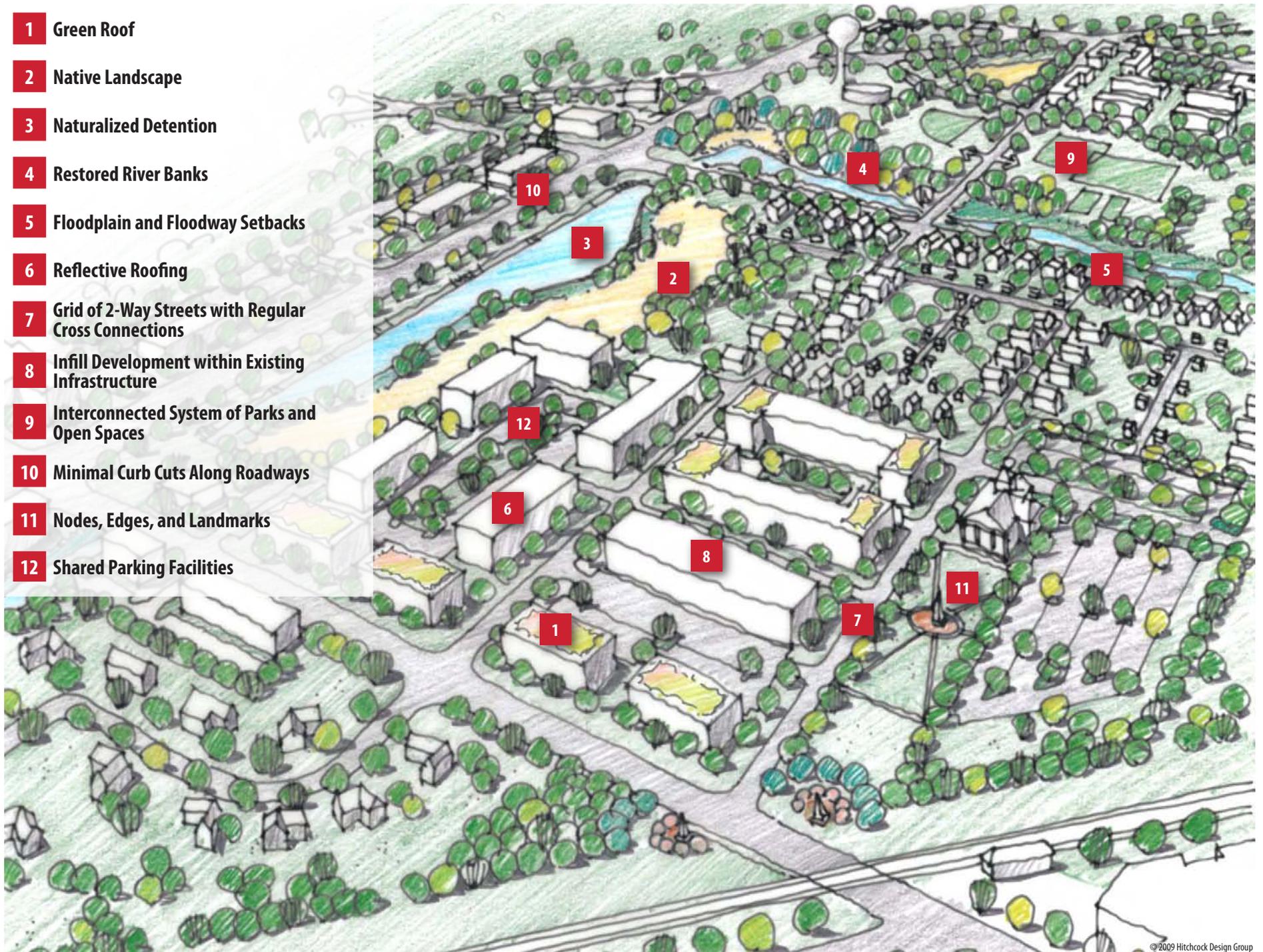
Connections between the Metra station, existing residential and new retail and commercial development are the focus in this transit oriented design using green urban design techniques. Improvements include pedestrian-friendly access between the development and adjacent Metra rail and other shared transportation options. Enhancing these connections creates a draw to residents and business owners. Building frontages are oriented towards the street with shared parking located to the back or side.

Additionally, the strategy addresses flooding conditions in the Village in proposed naturalized detention areas along the creek. Sustainable tools are provided to aesthetically manage stormwater.



*Existing Robbins Site*

- 1** Green Roof
- 2** Native Landscape
- 3** Naturalized Detention
- 4** Restored River Banks
- 5** Floodplain and Floodway Setbacks
- 6** Reflective Roofing
- 7** Grid of 2-Way Streets with Regular Cross Connections
- 8** Infill Development within Existing Infrastructure
- 9** Interconnected System of Parks and Open Spaces
- 10** Minimal Curb Cuts Along Roadways
- 11** Nodes, Edges, and Landmarks
- 12** Shared Parking Facilities



## Sustainable Residential Strategies

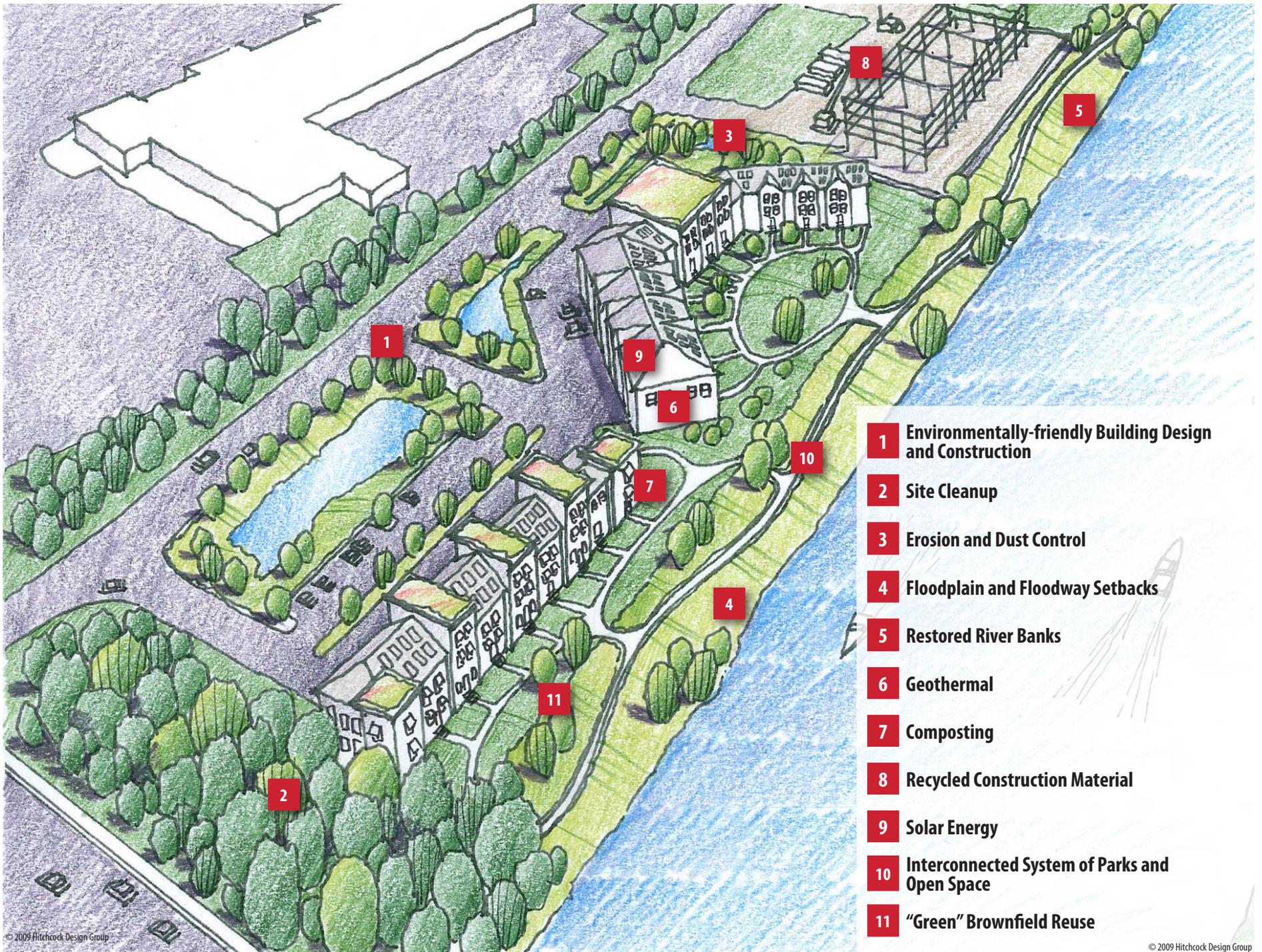
### Calumet Park

For this residential strategy located in Calumet Park, on the Calumet River, connections to the river are strengthened by building placement and emphases on the riverfront. This particular property is a prime example that brownfield sites can be redeveloped into areas which support uses other than industrial applications. In addition to remediating the brownfield, this development strategy uses green site and building design to create a residential sustainable development strategy.

Sustainable elements can be incorporated into the building and the site design. Large floodplain and floodway setbacks, restored river banks, and a continuous river trail help to restore the riverfront to pre-development conditions.



*Existing Calumet Park Site*



- 1** Environmentally-friendly Building Design and Construction
- 2** Site Cleanup
- 3** Erosion and Dust Control
- 4** Floodplain and Floodway Setbacks
- 5** Restored River Banks
- 6** Geothermal
- 7** Composting
- 8** Recycled Construction Material
- 9** Solar Energy
- 10** Interconnected System of Parks and Open Space
- 11** "Green" Brownfield Reuse

## Sustainable Commercial Strategies

### Riverdale

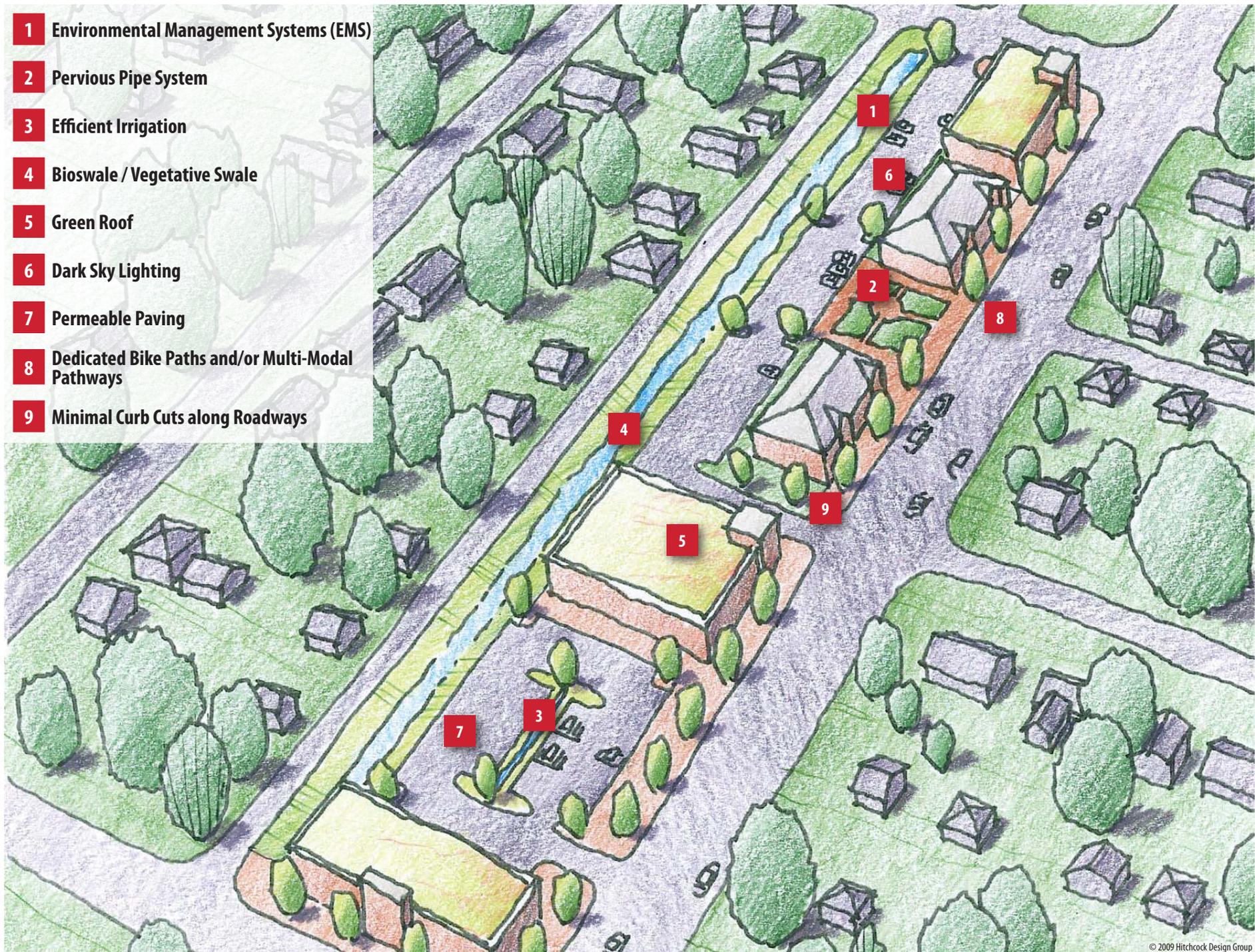
This commercial development in Riverdale is located along a major arterial roadway and is intended to meet the needs of residents, attract visitors and incorporate sustainable elements into the site design.

Desired elements in a sustainable commercial development include providing a multi-transportation commercial center which incorporates a variety of transportation options. Buildings are situated adjacent to the street and vehicle parking is mainly located to the back or side of the commercial center. Building frontages are oriented to the street to provide for a pedestrian-friendly environment. Open spaces between commercial building can provide for opportunities to incorporate sustainable elements and shopping center pocket parks. Incorporating buffers between commercial and residential areas provides an area in which the impacts of the commercial area can be mitigated for the residents.



*Existing Riverdale Site*

- 1** Environmental Management Systems (EMS)
- 2** Pervious Pipe System
- 3** Efficient Irrigation
- 4** Bioswale / Vegetative Swale
- 5** Green Roof
- 6** Dark Sky Lighting
- 7** Permeable Paving
- 8** Dedicated Bike Paths and/or Multi-Modal Pathways
- 9** Minimal Curb Cuts along Roadways



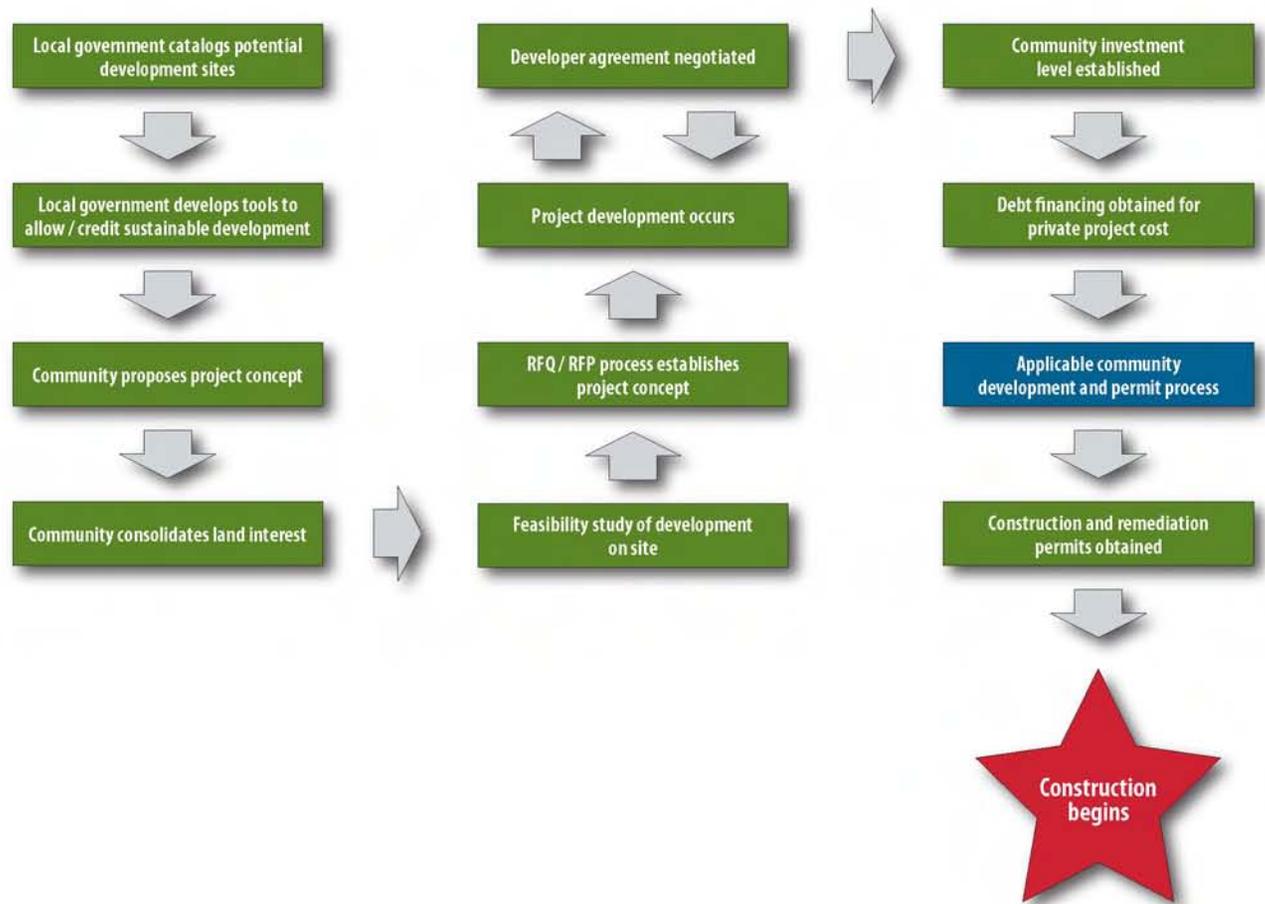
A decorative background featuring a repeating pattern of stylized, overlapping leaves or petals in various shades of blue, set against a solid dark blue background.

# Resources

## Community-Led Development Process

A community-led development process typically proceeds when the community has the resources to develop or redevelop an area that will serve the good of the community. Upon establishing a project, consolidating land, and proceeding through the public proposal process, the community will work closely with the chosen developer or consultants to proceed through the design and development of the community-led project.

The process proceeds through the typical development and permitting phases, continuing to involve the community in each project process.

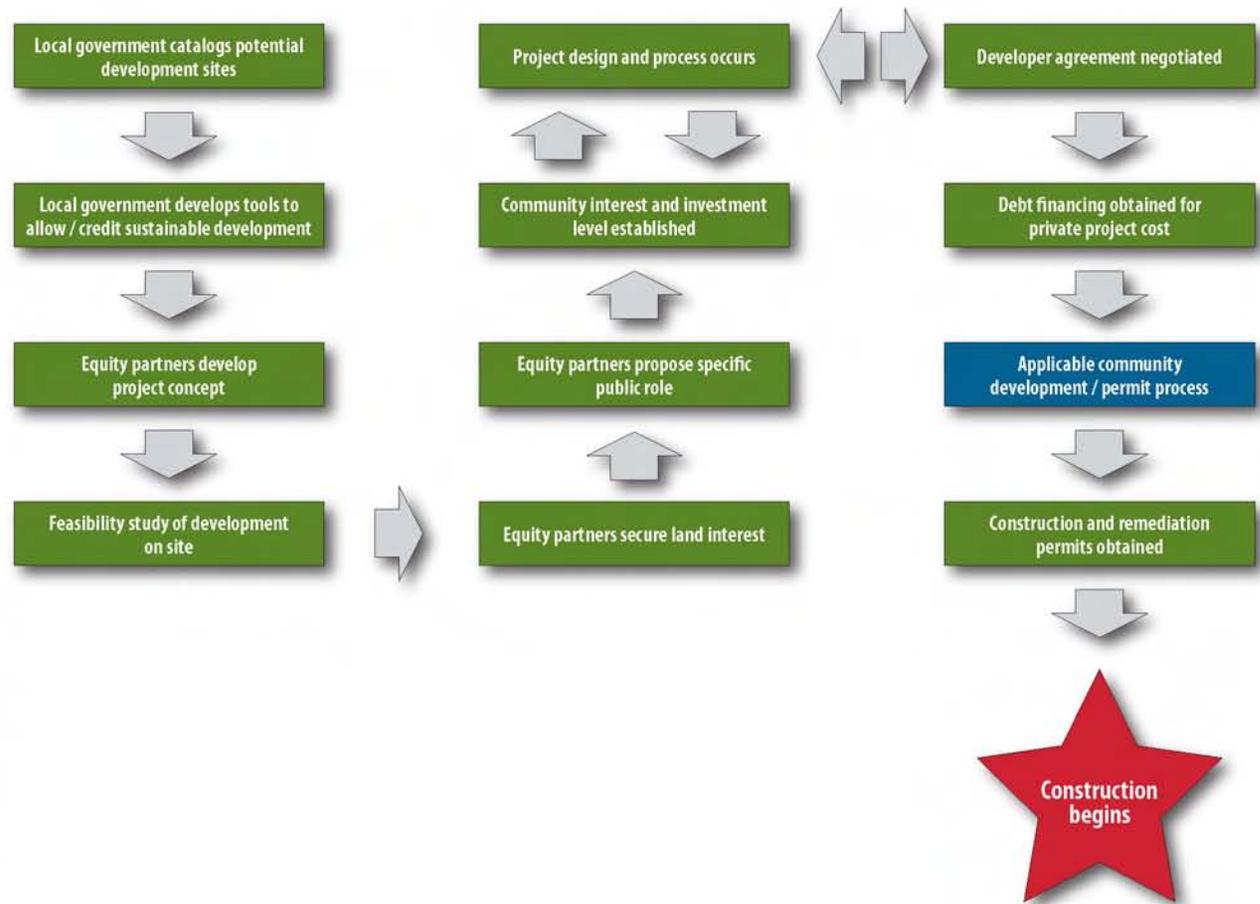


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## Developer-Led Development Process

In a typical, privately driven development process, a developer or equity partnership takes responsibility for the entire development process but may require some limited public investment. The first step, after the initial governmental establishment of applicable programs and process, is for the developer to prepare a feasibility study for the land and understand what can be developed and at what cost.

Next steps include acquiring the land and planning for the property's reuse. It is important to understand the public's interest in the development process as public involvement and education may play a vital role in the ultimate success of the project.



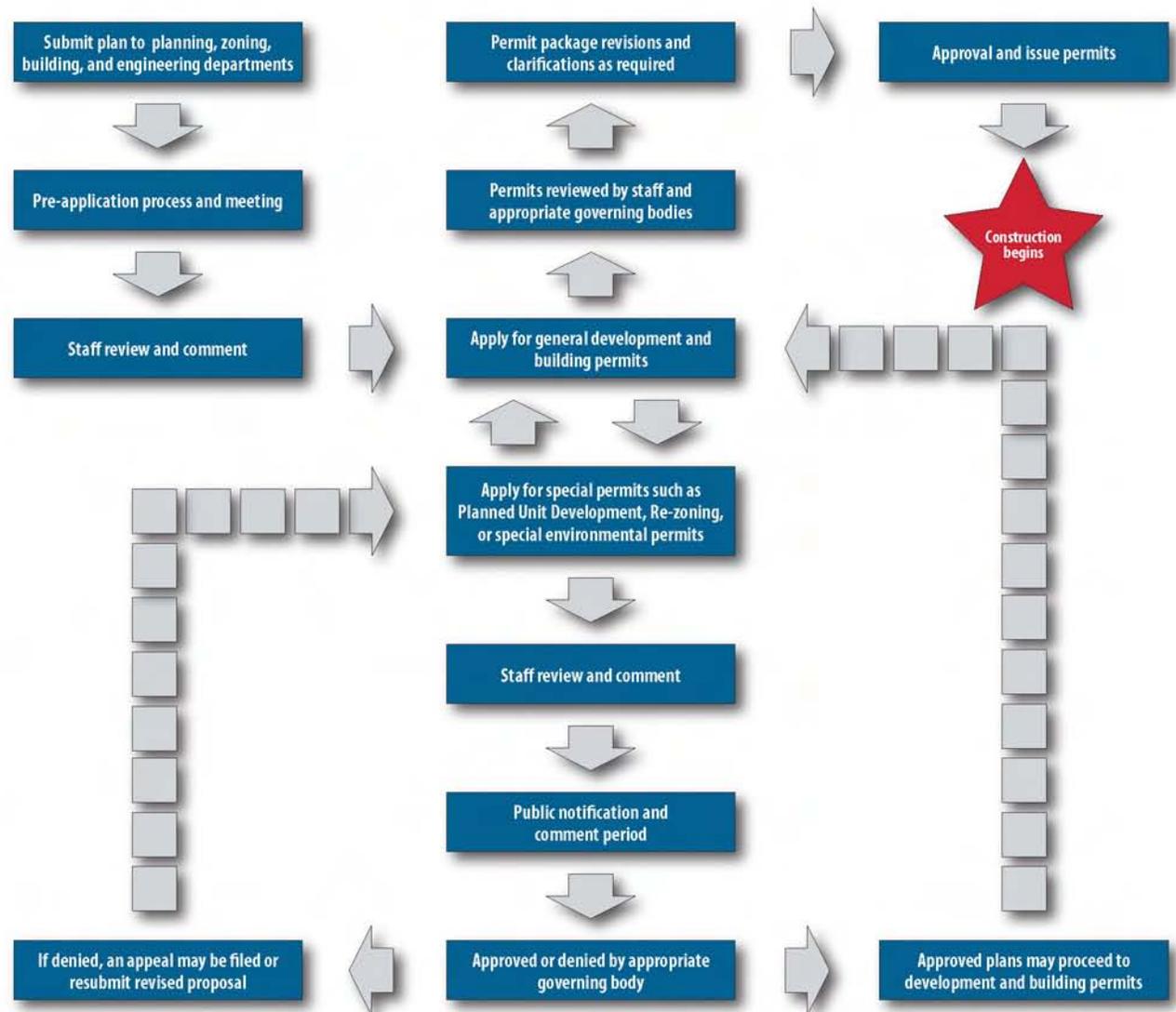
## Development Review Process

The development review process can vary greatly from city to city and the chart to the right is intended to give a general overview of a typical municipal development review process. Please note, that additional permits from State or Federal Government agencies may be required depending on the specific development proposal.

For any development proposal submitted to a city, it is common for the proposal to proceed through a number of land-use processes such as platting, zoning, or special use reviews. The land-use process could range from administrative review and approval to public hearings with various governing bodies.

Upon necessary land-use approval, development proposals generally proceed through the development and building permit process, as required by each municipality. Development proposals are reviewed by staff and the appropriate governing bodies and comments may be given at once or by each reviewer to the owner or project representative.

Once the permits are approved and applicable fees have been paid, permits are issued and construction can commence.



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## Resources, Publications, and Contacts

### Community Agencies

Center for Neighborhood Technology  
(773) 278-4800  
[www.cnt.org](http://www.cnt.org)

Chicago Southland Economic  
Development Corporation  
(708) 206-1155  
[www2.chicagosouthlandedc.org](http://www2.chicagosouthlandedc.org)

Chicago Waste to Profit Network  
[www.wastetoprofit.com](http://www.wastetoprofit.com)

Environmental Law & Policy Center  
(312) 673-6500  
[www.elpc.org/about/contact.php](http://www.elpc.org/about/contact.php)

Friends of the Calumet - Sag Trail  
[www.calsagtrail.com](http://www.calsagtrail.com)

Friends of the Chicago River  
(312) 939-0490  
[www.chicagoriver.org](http://www.chicagoriver.org)

The Conservation Foundation  
[www.theconservationfoundation.org](http://www.theconservationfoundation.org)

Metropolitan Planning Council  
(312) 922-5616  
[www.metroplanning.org](http://www.metroplanning.org)

Openlands  
[www.openlands.org](http://www.openlands.org)

South Suburban Mayors & Manager Association  
(708) 206-1155  
[www.ssmma.org](http://www.ssmma.org)

Urban Land Institute  
(202) 624-7000  
[www.uli.org](http://www.uli.org)

48 Calumet River Corridor

### Design

BuildingGreen.com  
[www.buildinggreen.com](http://www.buildinggreen.com)

City of Chicago Rooftop Garden  
[www.cityofchicago.org/Environment](http://www.cityofchicago.org/Environment)

Design Center for American Urban Landscape  
[www.designcenter.umn.edu](http://www.designcenter.umn.edu)

The Chicago Green Alley Handbook  
[egov.cityofchicago.org/webportal/COCWebPortal/COC\\_EDITORIAL/GreenAlleyHandbook.pdf](http://egov.cityofchicago.org/webportal/COCWebPortal/COC_EDITORIAL/GreenAlleyHandbook.pdf)

Low Impact Development Center  
[www.lid-stormwater.net/index.html](http://www.lid-stormwater.net/index.html)

Northeast Midwest Institute  
[www.nemw.org](http://www.nemw.org)

Portland Bureau of Environmental Services  
[www.portlandonline.com/BES/index.cfm?c=34598](http://www.portlandonline.com/BES/index.cfm?c=34598)

Projects for Public Spaces  
[www.pps.org](http://www.pps.org)

Sustainable Construction  
LEED  
[www.usgbc.org](http://www.usgbc.org)

Water Environment Research Foundation  
[www.werf.org/livablecommunities/index.htm](http://www.werf.org/livablecommunities/index.htm)

### Energy

Dark Sky Lighting  
International Dark Sky Association  
[www.darksky.org](http://www.darksky.org)

Geothermal  
How Geothermal Energy Works  
[www.ucsusa.org/clean\\_energy/renewable\\_energy\\_basics/offmen-how-geothermal-energy-works.html](http://www.ucsusa.org/clean_energy/renewable_energy_basics/offmen-how-geothermal-energy-works.html)

Solar Energy  
American Solar Energy Society  
[www.ases.org](http://www.ases.org)

Wind Energy  
Global Wind Energy Council  
[www.gwec.net](http://www.gwec.net)

## Hydrology

### Bioswales

United States Environmental Protection Agency  
*Grassed Swales*  
cfpub.epa.gov/npdes/stormwater/menuofbmps/  
index?action=browse&Rbutton=detail&bmp=75

### Drip Irrigation

www.irrigationtutorials.com/dripguide.htm

### Native Landscaping

Wild Ones. *Native Plants, Natural Landscapes*  
www.for-wild.org

### Naturalized Detention

United States Environmental Protection Agency  
*Post-Construction Storm Water Management in  
New Development & Redevelopment: Wetponds*  
cfpub.epa.gov/npdes/stormwater/menuofbmps/  
index.cfm?action=browse&Rbutton=detail&bmp  
=68

### Non-point Pollution

What is Non-point Source Pollution?  
www.epa.gov/owow/nps/whatis.html

### Rain Barrels

Rain Barrel Guide. *Harvesting Rainwater with  
Rain Barrels, an Old Idea with a New Following*  
www.rainbarrelguide.com

### Rain Gardens

Rain Gardens of West Michigan  
www.raingardens.org

### Restored River Banks

Guidelines for Streambank Restoration  
gaswcc.georgia.gov/vgn/images/portal/cit\_  
1210/60/20/31110081Guidelines\_Streambank\_  
Restoration.pdf

### River Edge Buffers

Buffer Strips: Common Sense Conservation  
www.nrcs.usda.gov/FEATURE/buffers/

### Stormwater Management - A Guidebook for the South Suburbs

www.ssmma.org/Programs/Storm-Water/  
strategy.aspx

### Wetlands

United States Environmental Protection Agency  
www.epa.gov/wetlands/

### Wetland Permitting Flow Chart

U.S. Army Corp of Engineering  
www2.chicagosouthlandedc.org/wp-content/  
uploads/2008/06/eed-wetland-permitting-flow-  
chart.pdf

## Land

### Brownfield Prevention Program: Model Ordinance, Resources, and Data (2002)

Delta Institute  
delta-institute.org/publications.php

### Brownfields and Land Revitalization

United States Environmental Protection Agency  
www.epa.gov/swerosps/bf/

### Calumet Rivers Development Project

www.ssmma.org/programs/calumet-rivers-  
development-project/

### Composting

Compost Guide. Why Make Compost?  
www.compostguide.com

### Green Roofs

City of Chicago Department of Environment  
*Chicago's Green Rooftops: A Guide to Rooftop  
Gardening*  
www.artic.edu/webspaces/greeninitiatives/  
greenroofs/images/GuidetoRooftopGardening\_  
v2.pdf

### High Albedo Pavement

Lawrence Berkeley National Laboratory. *Cool  
Pavements Lower Temperatures*  
eetd.lbl.gov/HeatIsland/Pavements/LowerTemps/

### How To Compost

www.howtocompost.org

### Permeable Pavers

Paver Search  
www.paversearch.com/permeable-pavers-menu.  
htm

### South Suburban Brownfields Program

www.ssmma.org/programs/brownfields/default.  
aspx

## Regulatory and Public Agencies

### Chicago Green Homes

Department of Environment, City of Chicago  
[egov.cityofchicago.org/city/webportal/portalEntityHomeAction.do?entityName=Environment&entityNameEnumValue=05](http://egov.cityofchicago.org/city/webportal/portalEntityHomeAction.do?entityName=Environment&entityNameEnumValue=05)

### Chicago Metropolitan Agency for Planning (CMAP)

(312) 454-0400  
[www.cmap.illinois.gov](http://www.cmap.illinois.gov)

### City of Blue Island

(708) 597-1221  
[www.blueisland.org](http://www.blueisland.org)

### City of Calumet City

(708) 891-8140  
[www.calumetcity.org](http://www.calumetcity.org)

### Cook County - Department of Building and Zoning

(312) 603-0500  
[www.co.cook.il.us](http://www.co.cook.il.us)

### IL Department of Transportation (IDOT)

(217) 782-7820  
[www.dot.state.il.us](http://www.dot.state.il.us)

### IL Environmental Protection Agency (IL-EPA)

(888) 372-1996  
[www.epa.state.il.us](http://www.epa.state.il.us)

### IL-EPA Promote Pollution Prevention (P2)

[www.epa.state.il.us/p2](http://www.epa.state.il.us/p2)

### Metropolitan Water Reclamation District of Greater Chicago (MWRD)

(312) 751-5600  
[www.mwrddgc.dst.il.us](http://www.mwrddgc.dst.il.us)

### US Army Corp of Engineers - Chicago District

(312) 846-5330  
[www.lrc.usace.army.mil](http://www.lrc.usace.army.mil)

### US Environmental Protection Agency (EPA) Region 5

(312) 535-2000  
[www.epa.gov](http://www.epa.gov)

### US Green Building Council

[www.usgbc.org](http://www.usgbc.org)

### Village of Burnham

(708) 862-9150

### Village of Calumet Park

(708) 389-3895  
[www.calumetparkvillage.org](http://www.calumetparkvillage.org)

### Village of Dolton

(708) 849-4000  
[www.villageofdolton.com](http://www.villageofdolton.com)

### Village of Riverdale

(708) 841-2200  
[www.villageofriverdale.org](http://www.villageofriverdale.org)

### Village of Robbins

(708) 385-8940  
[www.robbins-il.com](http://www.robbins-il.com)





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