

**Chicago Department of Transportation
Sustainable Development Initiatives**

**Streetscape and Urban Design Program
CDOT Division of Project Development**



ENVIRONMENTAL

ACTION AGENDA



BUILDING THE SUSTAINABLE CITY



2006

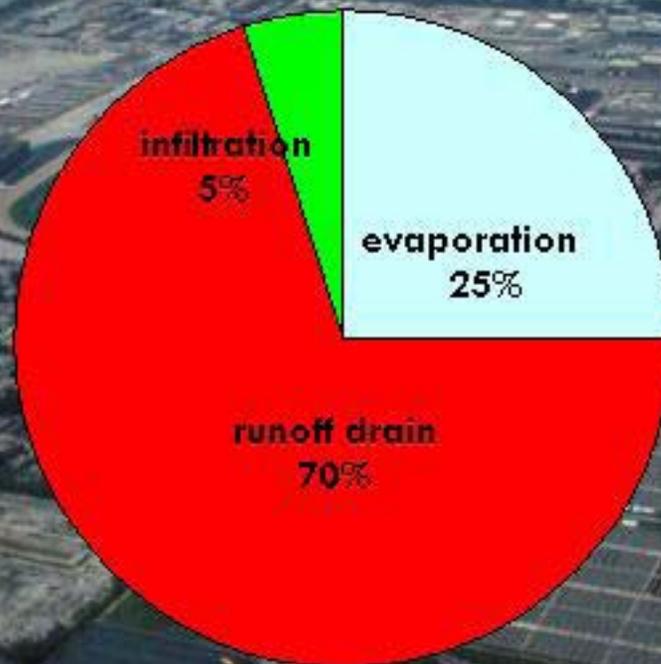


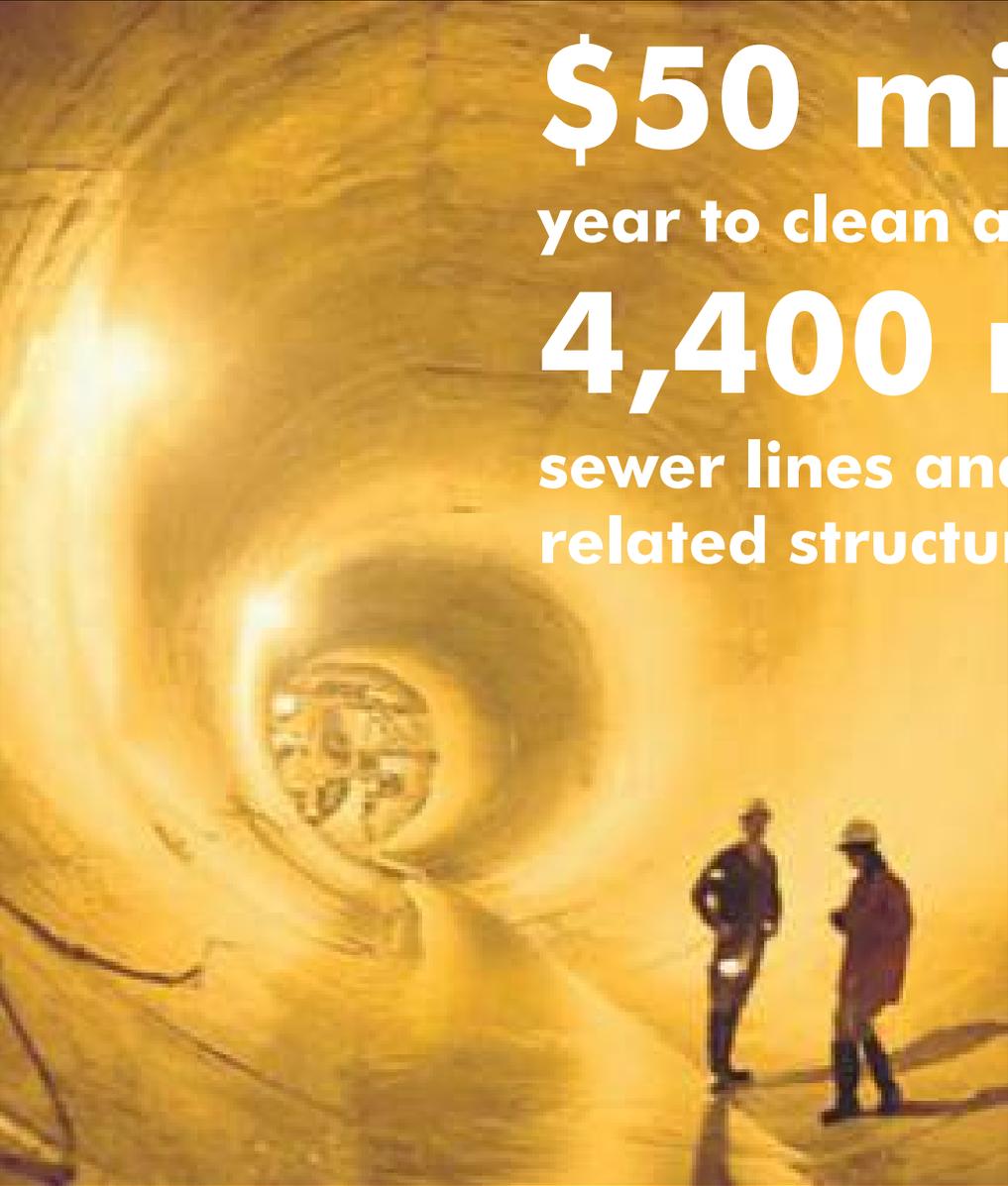
CITY OF CHICAGO
RICHARD M. DALEY, MAYOR



- **Green Alleys**
- **Sustainable Streets**
- **Major Infrastructure**
- **Sustainable CDOT**

Water in Urban Regions





\$50 million per
year to clean and upgrade
4,400 miles of
sewer lines and **340,000**
related structures



Green Alley Program

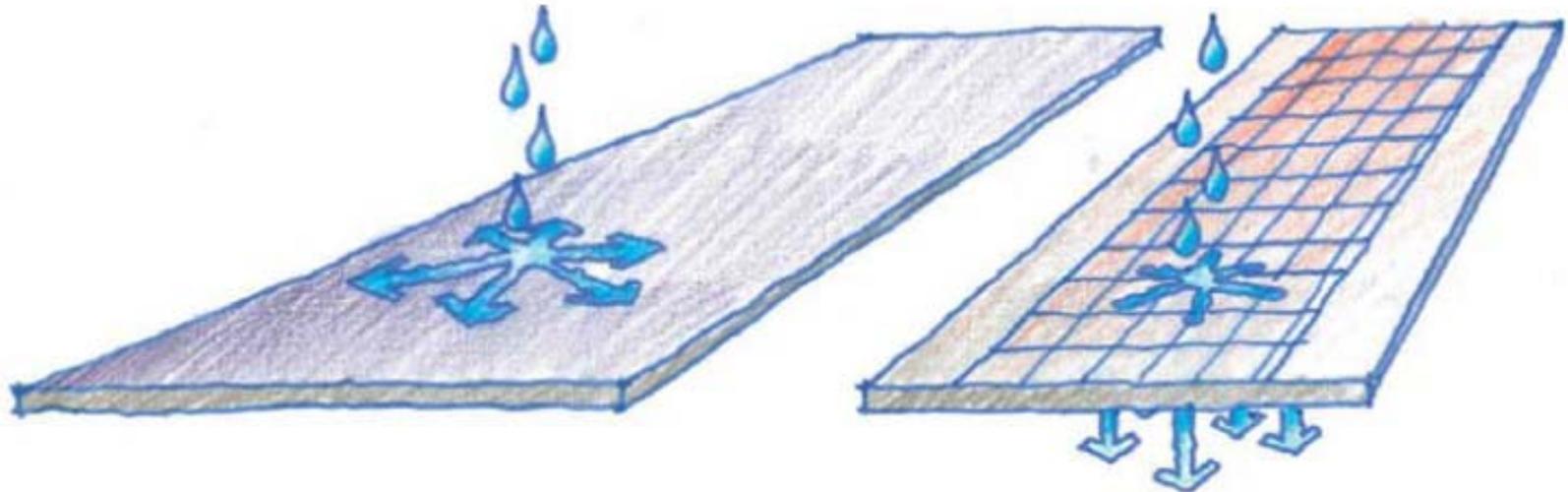
- **1,900** miles of public alleyways in Chicago, the largest of any city in the world.
- Total of **3,500** acres of impermeable surface, the equivalent area of over 5 Midway Airports.

Alley Summary

Total: 13,000 Alleys

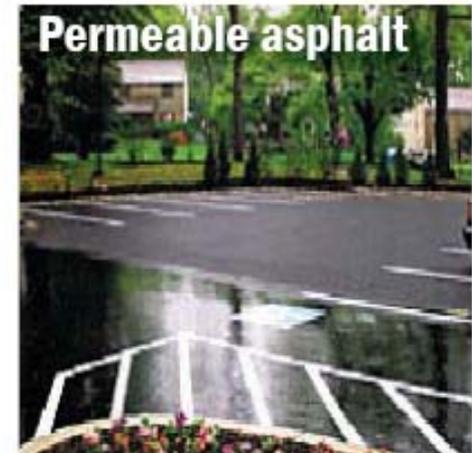
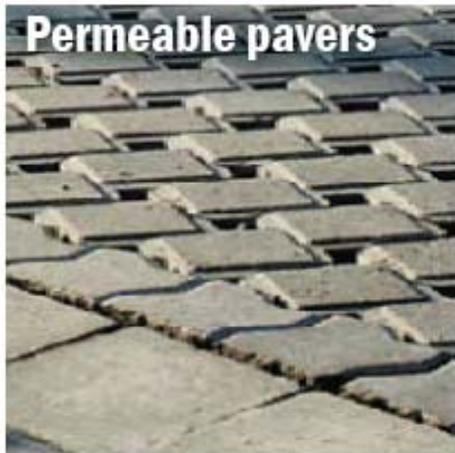
- **20%** Currently Unimproved
- **20%** in Need of Repairs

Green Alley Design Toolbox: Permeable Pavement

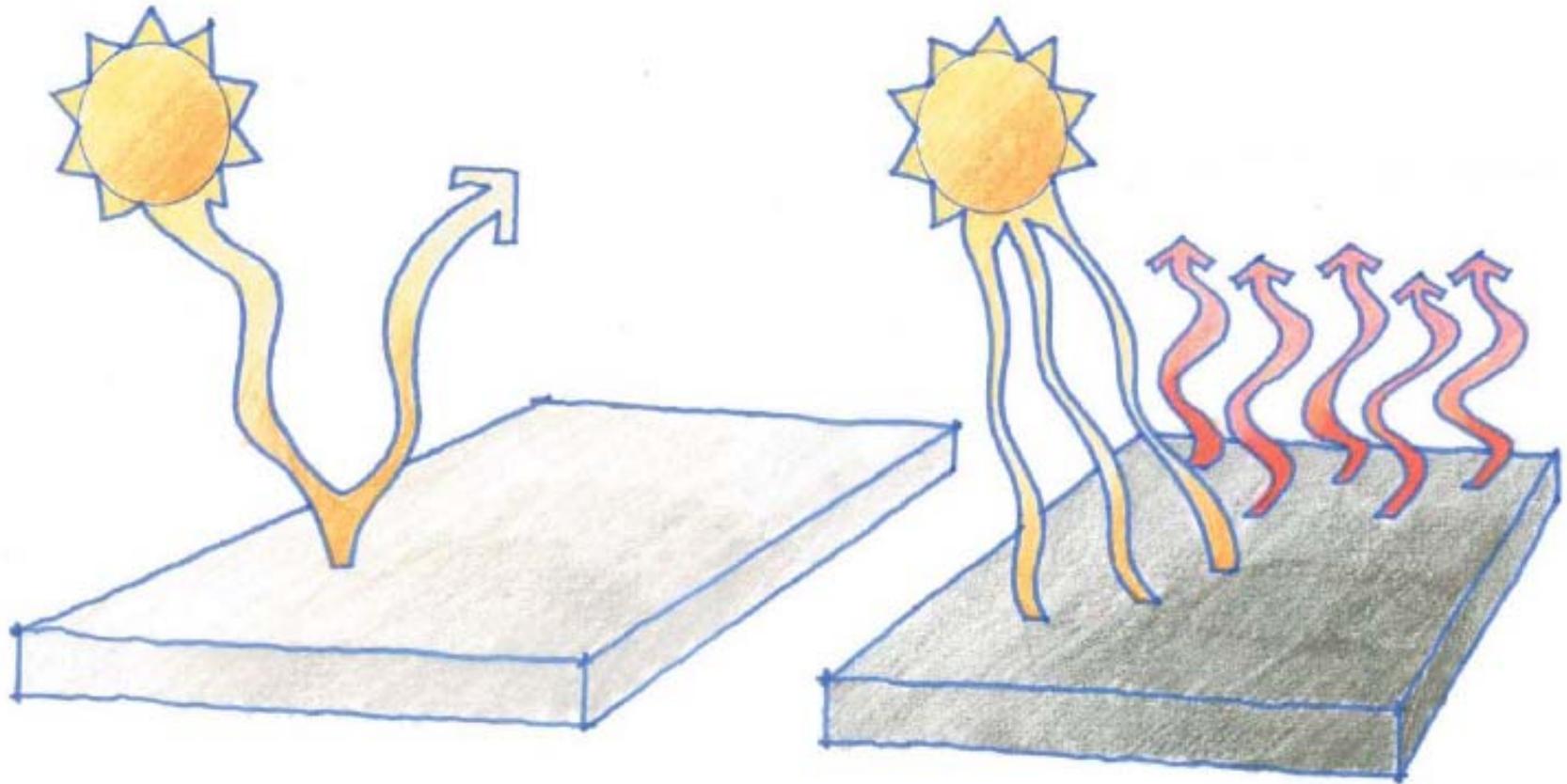


Impermeable pavement

Permeable pavement



Green Alley Design Toolbox: Urban Heat Island

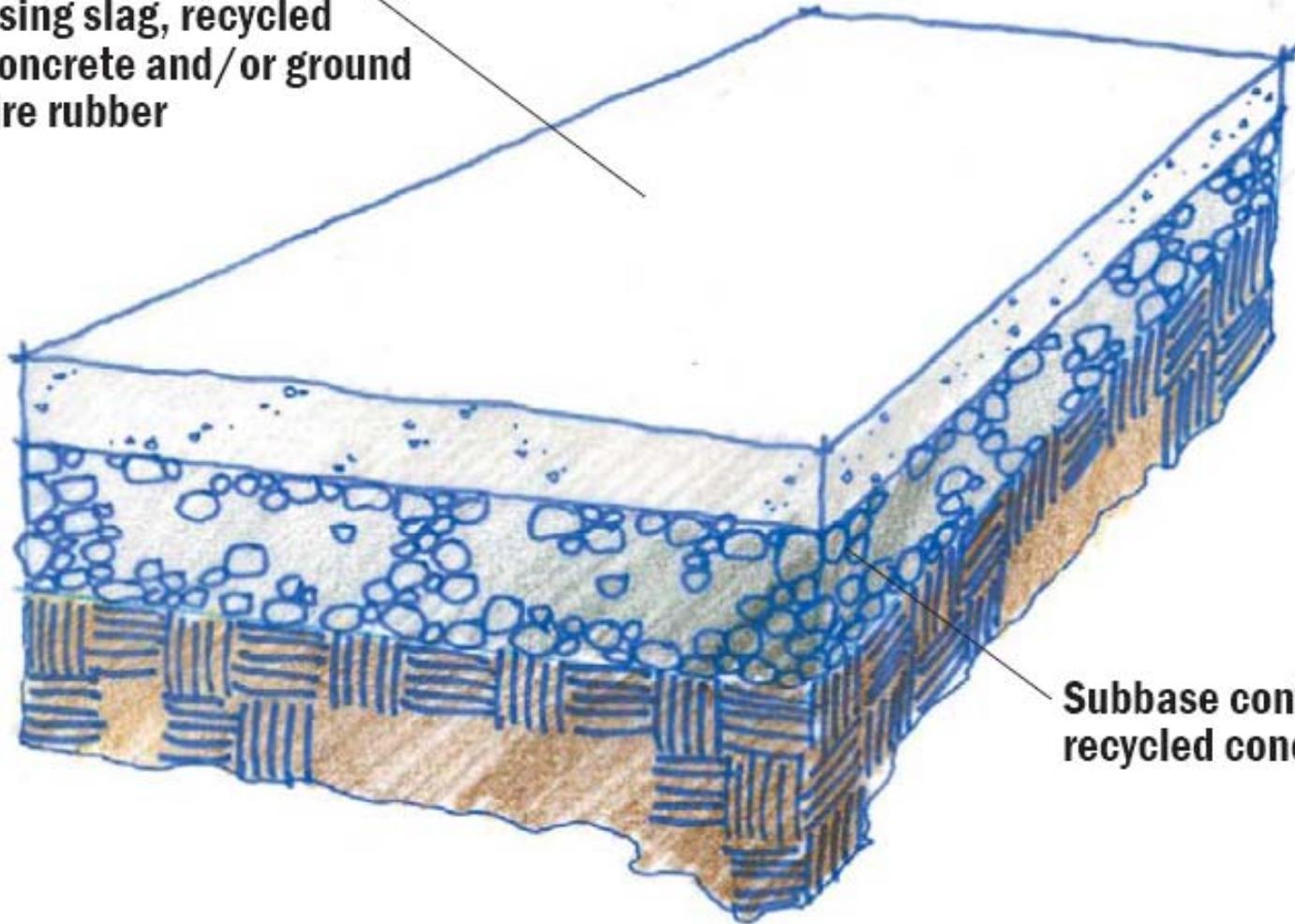


High albedo pavement

Conventional pavement

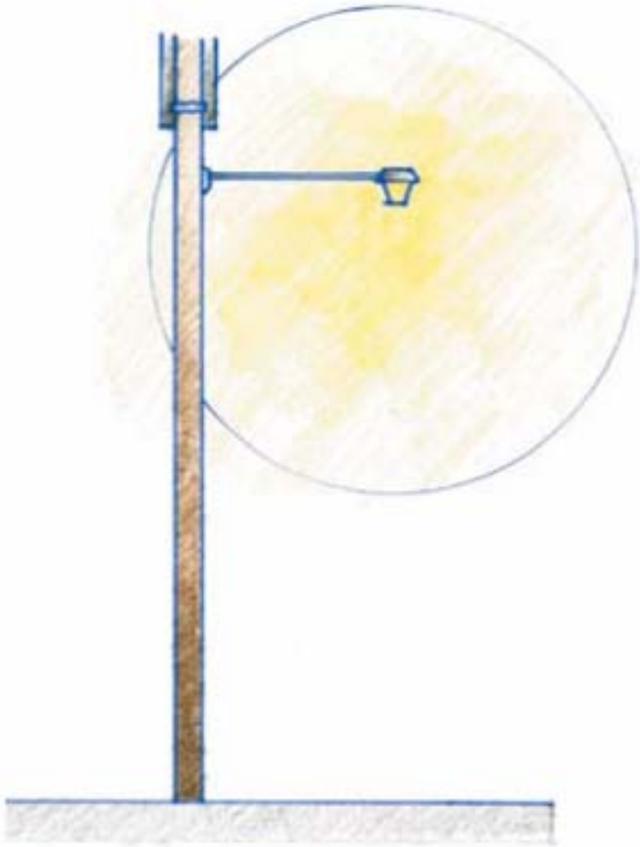
Green Alley Design Toolbox: Recycled Content

Pavement produced using slag, recycled concrete and/or ground tire rubber

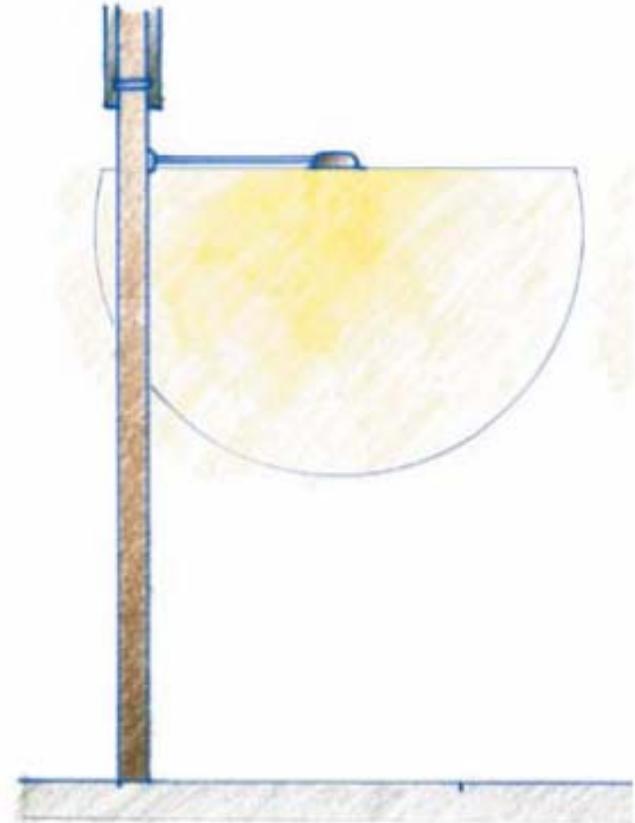


Subbase containing recycled concrete

Green Alley Design Toolbox: Dark Sky Lighting



Conventional alley light fixture



Dark sky compliant alley light fixture

Green Alley New Material Development

1. Asphalt:

- **5.9 Gal/Min/
Sq Ft**
- **Ground Tire Rubber**
- **25% Voids**



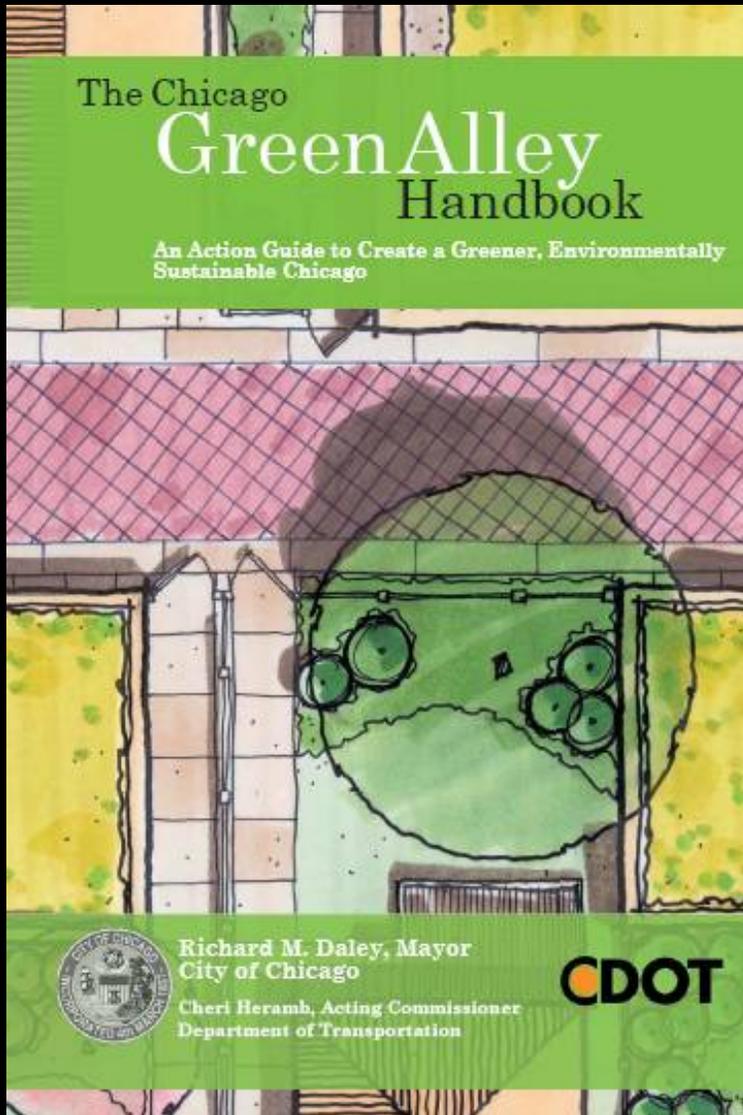
Green Alley New Material Development

1. Concrete:

- **5.0 Gal/Min/
Sq Ft**
- **Slag**
- **Narrow
Conditions**



Education- The Chicago Green Alley Handbook



- **Green Alley program details and design options**
- **Highlights private initiatives for homeowner Stormwater BMPs**
- **Do's and Don'ts for adjacent property owners**

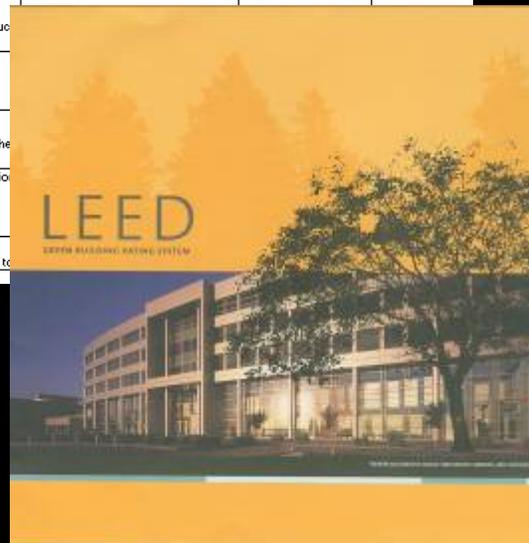
Sustainable Streets

The Cermak / Blue Island Streetscape



Established Goals for Environmental Design

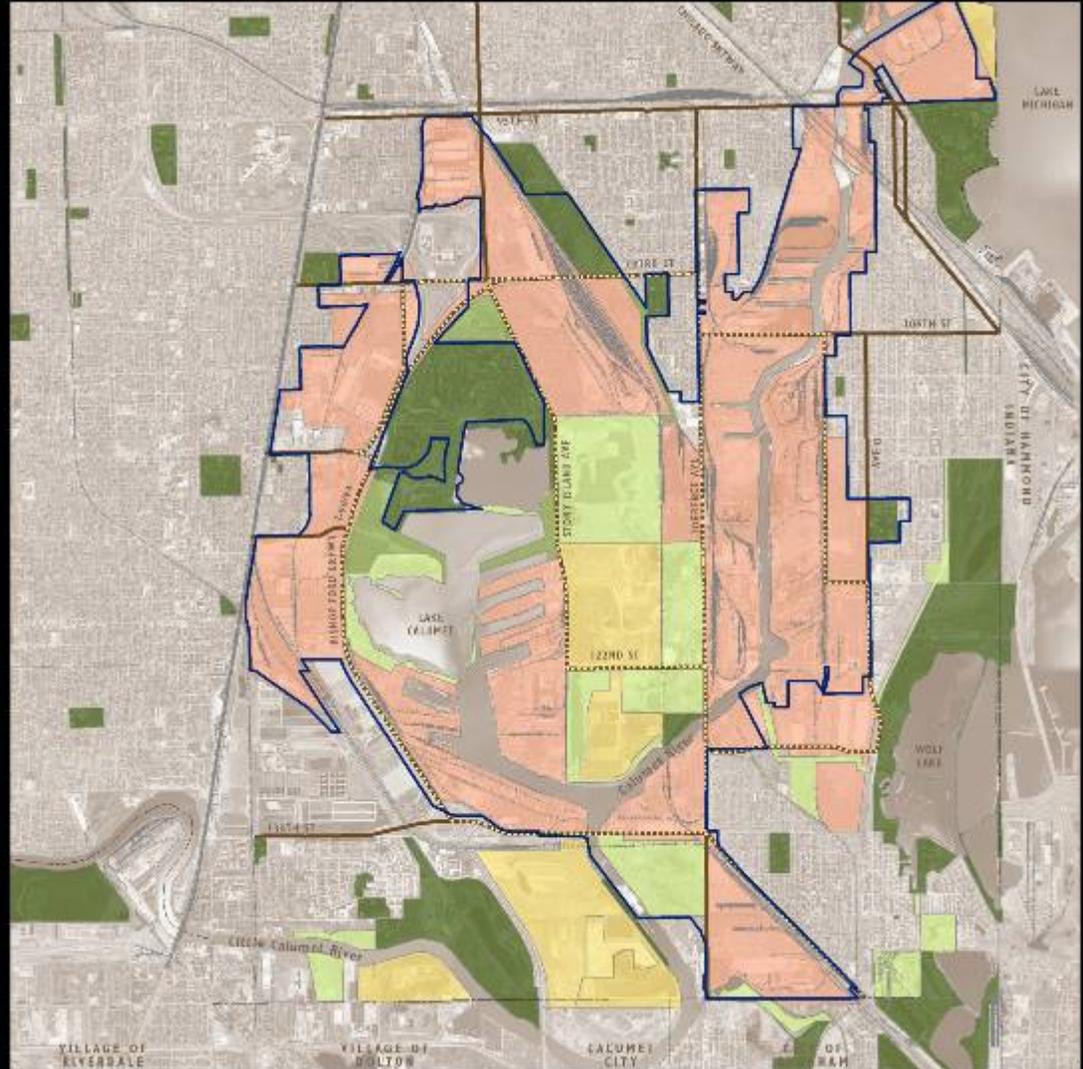
Initiative	Goal	Proposed Methods	Research Required	Measurement/ Analysis	Cost
Stormwater Management	100% diversion from city's combined sewer/stormwater system for a 1 year storm event.	Permeable pavement, concrete, and/or paver blocks utilized in the roadway, parking lane, and/or sidewalk.	What will maintain ADA compliance in the sidewalk? How will various materials wear given their placement? What is the cost/benefit associate with each element in a larger stormwater management plan?		
		Alternative treatments such as open stone or decomposed granite.			
Water Efficiency	Limit or eliminate the use of potable water, or other natural surface or subsurface water resources available on or near the project site, for landscape irrigation	Reductions can be attributed to: plant species factor, irrigation efficiency, use of captured rainwater, and use of recycled wastewater.	Perform a soil/climate analysis to determine appropriate plant material and design the landscape with native or adapted plants to reduce or eliminate irrigation requirements. If irrigation is required, use high efficiency equipment and/or climate-based controllers.		
		Discourage property owner cleansing of the sidewalk using water	Methods to achieve this goal, also, given large amount of food prep and		
Alternative Transportation	Maintain 5% of total parking spaces for Shared Use Vehicles	Reserve car spaces for I-GO automobiles and/or other competitors (Zip Car).	Feasibility, car sharing resources, signage, visibility.		
	Maintain 5% of total parking spaces for Alternative Fuels Vehicles	Other methods to be provided by the consultant	Feasibility in the public way.		
Energy Efficiency	Deliver 0% light pollution above the streetscape to Chicago skies.	Utilize full cut off fixtures that produce white light.			
		Investigate the effects of lighting design and crime to ensure an adequately lit, safe environment.			
Recycling	Recycle a minimum of 25% construction waste.	Other methods to be provided by the consultant			
	Use a minimum of 20% construction and/or	Mandate requirement in construction specifications. Provide documentation in streetscape guidebook.			
		Potentially focus on artwork and streetscape elements as opposed to			



- Stormwater management
- Water efficiency
- Alternative transportation
- Energy efficiency
- Recycling
- Urban heat island reduction
- Education

Major Infrastructure: 130th and Torrence Realignment LAKE CALUMET LAND USE PLAN

- Addresses industrial growth and environmental restoration
- Design guidelines for industrial development that includes sustainable landscape management practices and stormwater management



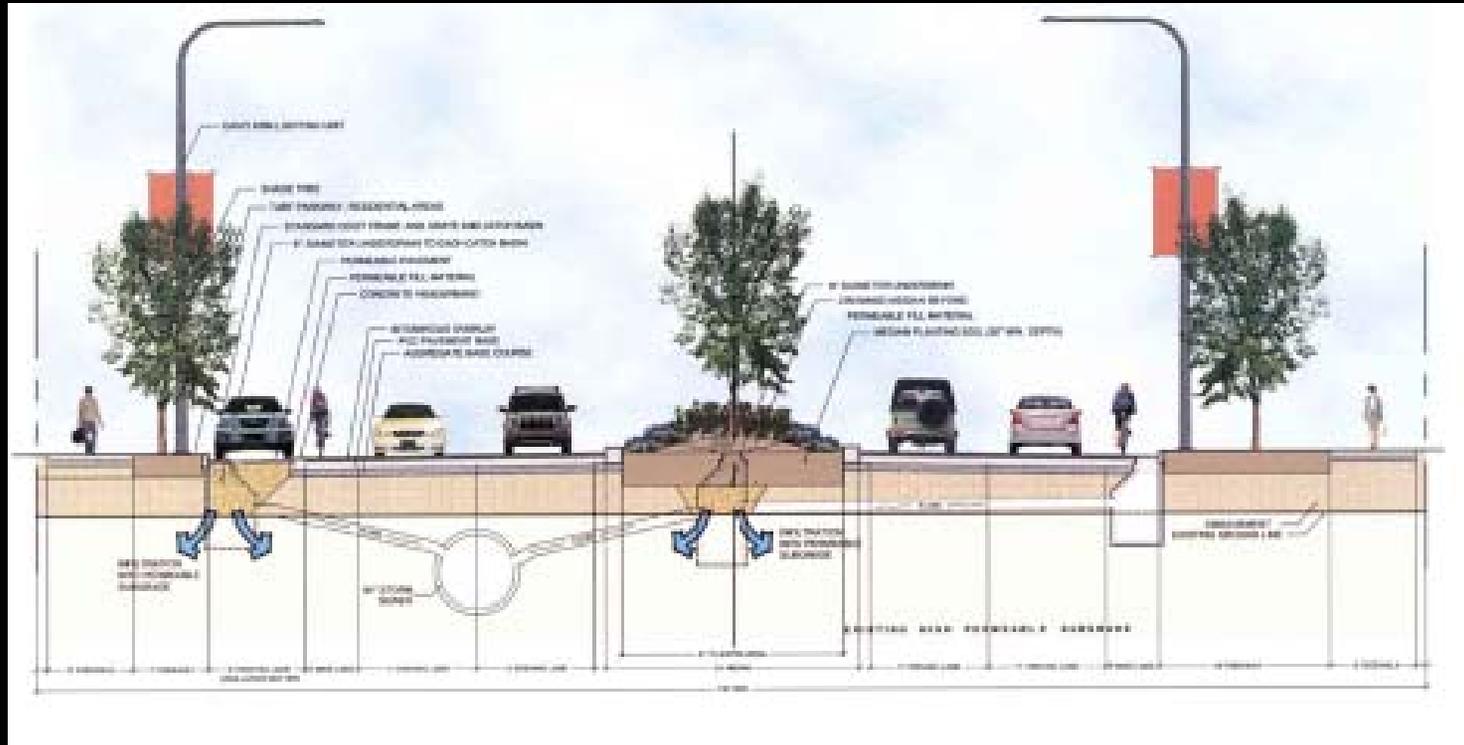
Major Infrastructure: US 41 Relocation



- **Permeable parking lanes for reduced runoff and improved water quality through infiltration**

- **For two blocks, all stormwater directed to permeable subgrade materials**

Major Infrastructure: US 41 Relocation



- **In-line stormwater treatment devices to separate solids, oils, and grease**
- **Maximizing green space: over 20% of Project**
- **The median and parkway to allow stormwater infiltration**

Sustainable CDOT: Residential Streets

- **Stormwater management:**

- Bioswale bumpouts
- Green Alleys

- **Energy conservation and pedestrian safety:**

- LED light fixtures

- **Urban heat-island mitigation:**

- Porous, high-albedo sidewalk, curb, and gutter
- Shade trees



Sustainable CDOT: Recycling

- 1. Pilot 50% Recycled course aggregates in asphalt**
 - **40% RAP**
 - **10-12% Recycled Concrete**
- 2. Pilot 25% Recycled course aggregates in sidewalk concrete**
- 3. Recycled rubber speed humps**
- 4. Reuse plastic plant containers or explore paper alternatives**
- 5. Recycled glass in new**



Sustainable CDOT: WPA Street Reconstruction



- **Maximize existing green features of WPA streets**
- **Permeable concrete or asphalt in the parking lane**

Environmental Innovation in Urban Infrastructure: Toward a New Chicago Standard



CDOT Streetscape and Urban Design Program

Janet L. Attarian, AIA, Project Director

JAttarian@cityofchicago.org

312-744-5900