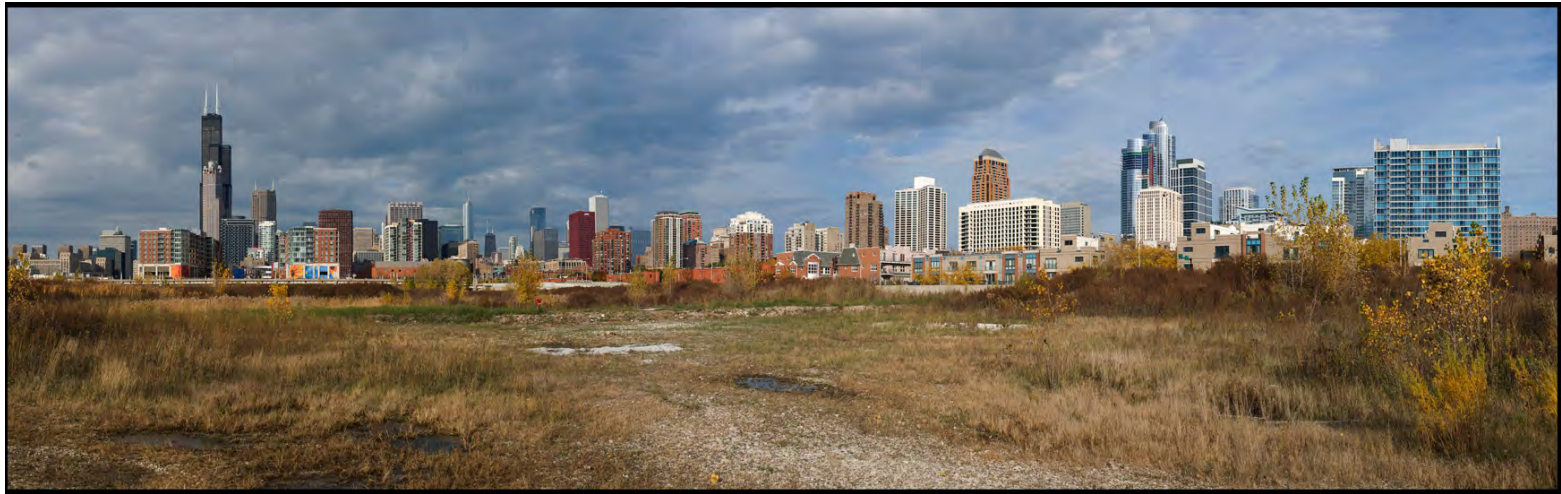


# Sustainability at Roosevelt University

**Facilities / Academics / Research / Partnerships**



**Research & Education toward Sustainability**

Institute for Environmental Sustainability at Loyola University

Chicago IL :: 4 June 2014

**Mike Bryson**

Sustainability Studies Program  
College of Professional Studies  
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Biological & Chemical Sciences Dept  
College of Arts & Sciences  
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# Roosevelt University: a Snapshot

## Founded 1945



Photo: AIA

- Campuses: downtown Chicago, suburban Schaumburg, online
- 6 colleges
  - Arts & Sciences
  - Business
  - Education
  - Performing Arts (Music / Theater)
  - Pharmacy
  - Professional Studies
- Level II comprehensive institution
- 6,145 students (3,650 undergrad)
- Racially and geographically diverse
- Social justice-centered mission

# **Sustainability at Roosevelt**

## **Off to a Running Start Since 2010**

### **Sustainable Buildings & Operations**

Wabash Building

Goodman Center

Schaumburg Campus Redevelopment

### **Academic Innovation**

Sustainability Studies undergrad program  
launched Fall 2010 (1<sup>st</sup> in Chicago)

Environmental Science Minor revamped  
Fall 2012

SENCER pedagogy in Biology & Chem  
Service Learning & Internships

### **Student Organizations & Activism**

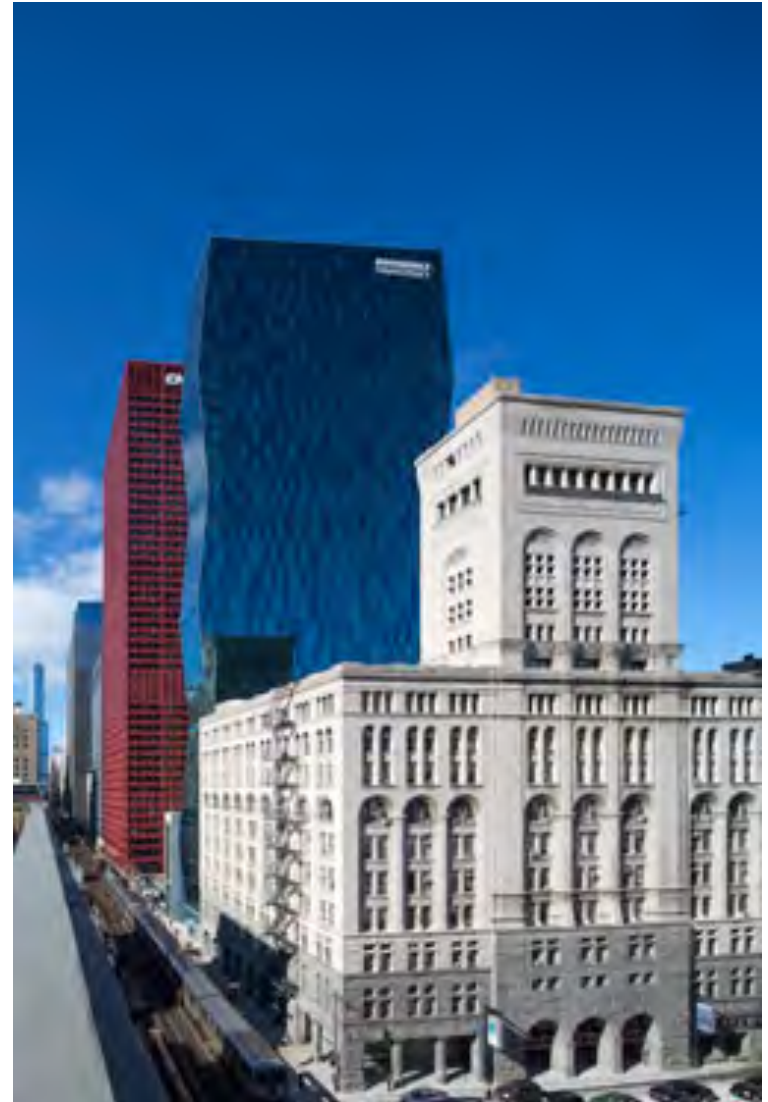
Env Sust Internships on campus

RU Green (campus events)

Net Impact (business and sustainability)

RU Reforesting (conservation)

RUrbanPioneers (Schaumburg garden)



# **Sustainability at Roosevelt**

## **Selected Awards & Recognition in 2012-14**



### **Campus Operations / Facilities**

LEED Gold: Wabash Building

LEED Silver: Goodman Athletic Center

Tree Campus USA for RU Schaumburg

Green Innovation / Green School award from USGBC

Green College selection by Princeton Review  
2013 & 2014

IL Governor's Sustainability Award 2013

### **Academics**

Business: Real Estate grad students win 2013 & 2014 Eisenberg competition

Biology: Conservation Biology students travels to Tanzania to do environmental conservation

Sustainability Studies: students win prestigious NSF research fellowship, garner local internships, lead campus sustainability planning, write for [SUST blog](#)



# Integrating & Enhancing RU's Academic Programs through Sustainability



Sustainability Studies



Biology & Chemistry



Bennett Institute  
of Real Estate



Hospitality & Tourism  
Management



Environmental Science



Mansfield Institute for  
Social Justice

# Sustainability Studies Program (Founded 2010)



- **Fosters environmental literacy** through interdisciplinary work in the natural sciences, social sciences, and humanities;
- **Engages public policy** concerns surrounding consumption, energy usage, and viable economic growth;
- **Explores social justice** issues on a range of fronts, including environmental justice, resource allocation, urban development, and social equity;
- **Educates students to be leaders** on issues of sustainability, one of the critical issues of the 21st century.

# Sustainability Studies Major



## Core Courses

SUST 210	Sustainable Future
SUST 220	Water
SUST 230	Food
SUST 240	Waste

## Advanced Courses

SUST 310	Energy & Climate Change
SUST 320	Sprawl, Transportation, & Planning
SUST 330	Biodiversity
SUST 340	Policy, Law, & Ethics

## Special Options

SUST 350	Service & Sustainability
SUST 390	Special Topics
SUST 395	Internship



# Environmental Science Minor (Revised 2012)

## Philosophy

**Interdisciplinary:** Students take courses in biology and chemistry, as well as an introductory course

**Adaptable:** Students majoring in all disciplines have routes to succeed in this minor

**Independent Thinking:** All students complete a capstone course working with real-world data and independent labs

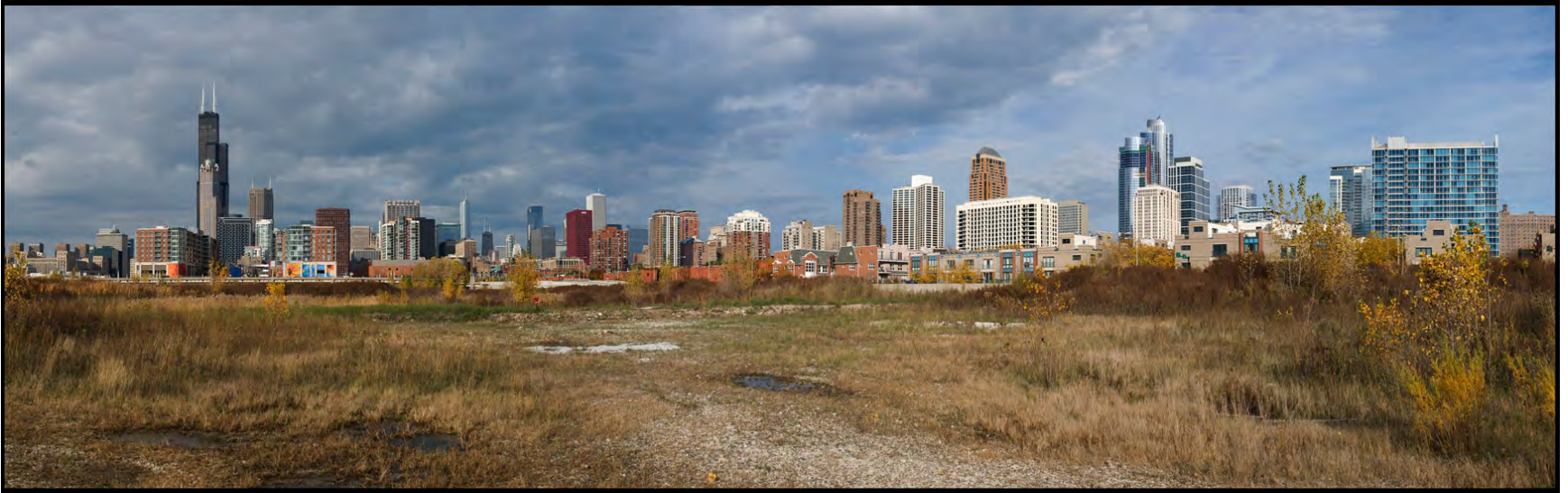
*Capstone students performing a soil plant/organism toxicity testing →*





# **Sustainability beyond the Campus**

## **Connecting Curriculum to Community**



**Address real-world problems & challenges**

**Empower students through research, field experiences, & service learning**

**Advance sustainable development & social justice**

**Integrate, enhance, & develop academic programs & partnerships**

# Field Experiences: The Chicago River



Understanding the river as a modified natural ecosystem (natural sciences)

Developing conservation policies (social and natural sciences)

Representing the river as a cultural resource (arts and humanities)

Restoring the river: water quality, biodiversity, riparian zone integrity, citizen access and recreation (all disciplines)

**Sense of Place | Urban Sustainability**



# Canoeing the Upper North Branch



## River as Wilderness

Paddling the West Fork of the Upper North Branch (October 2012)



# Canoeing the Confluence



## River as Architectural Wonderland

Heading south into the Loop where the N and S branches meet (October 2011)



# Canoeing the South Branch



**River as Industrial Wasteland**

Paddling upstream on Bubbly Creek (Oct 2010)

# Learning from History



A chicken stands upon Bubbly Creek, c.1911 (Chicago Historical Society)



# Reshaping the Present



Hauling trash out of Bubbly Creek on a SUST service field trip (Feb. 2013)

# Assessing Water Quality (Chemistry)

Temperature

pH

Turbidity

Dissolved oxygen (DO)

Nutrients (nitrate, phosphate)

Bacterial indicators (coliform)

Metals and organic contaminants (lead, copper, benzene, PCBs, hexavalent chromium)

Emerging contaminants (pharmaceuticals, synthetic hormones, flame retardants)





# Assessing Water Quality (Biology)



Sampling macro-invertebrate benthos in the North Branch (May 2010)



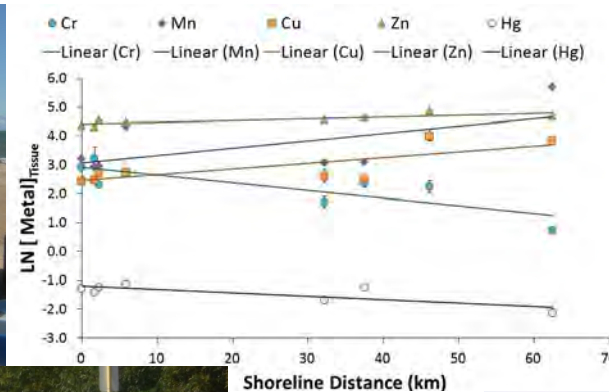
# Engaging the Community



Identifying macro-invertebrates from the North Branch (May 2010)

# Field Experiences: Lake Michigan

- Introductory: Service learning
  - Alliance for the Great Lakes “Adopt-a-Beach” cleanup
- Advanced: Faculty-led research
  - Toxic metals in zebra mussels





# Engaging through Science: SENCER & Sustainability



## Search Results on SENCER [Resources Website](#):

**Sustainability** (157 matches)

**Environment** (244 matches)

**Urban** (80 matches)

**Service Learning** (227 matches)



# SENCER Midwest 2014 Conference at RU



**Teaching College Science and Math Through Food, Health and Sustainability Themes**  
Roosevelt University, Schaumburg Campus (March 2014)

# Science and Math Spring Symposia



**2013 Theme: Sustainable Science**

Pictured here: 2012 Symposium at RU's Schaumburg Campus



# Sustainability Studies Student Symposia, 2013-14



**SUST students present research and/or projects done for their internships to the RU community and general public**

Oct 2013: agroecology, urban farming, transportation policy (right)

May 2014: campus redevelopment, FMNH collections, marine biodiversity (left)

# Great Lakes Bioneers 2013



Celebrating Community Resilience

**November 1-3, 2013** • **Roosevelt University, Chicago**

**Buy your ticket** online at [bioneerschicago.org](http://bioneerschicago.org) and join the movement of visionaries and innovators working to solve our greatest social and environmental challenges!

**Exploring Solutions Guided by Nature**



GREAT LAKES  
**BIONEERS  
CHICAGO**  
a bioneers network event

2<sup>nd</sup> Great Lakes Bioneers Conference | hosted by RU's Chicago Campus

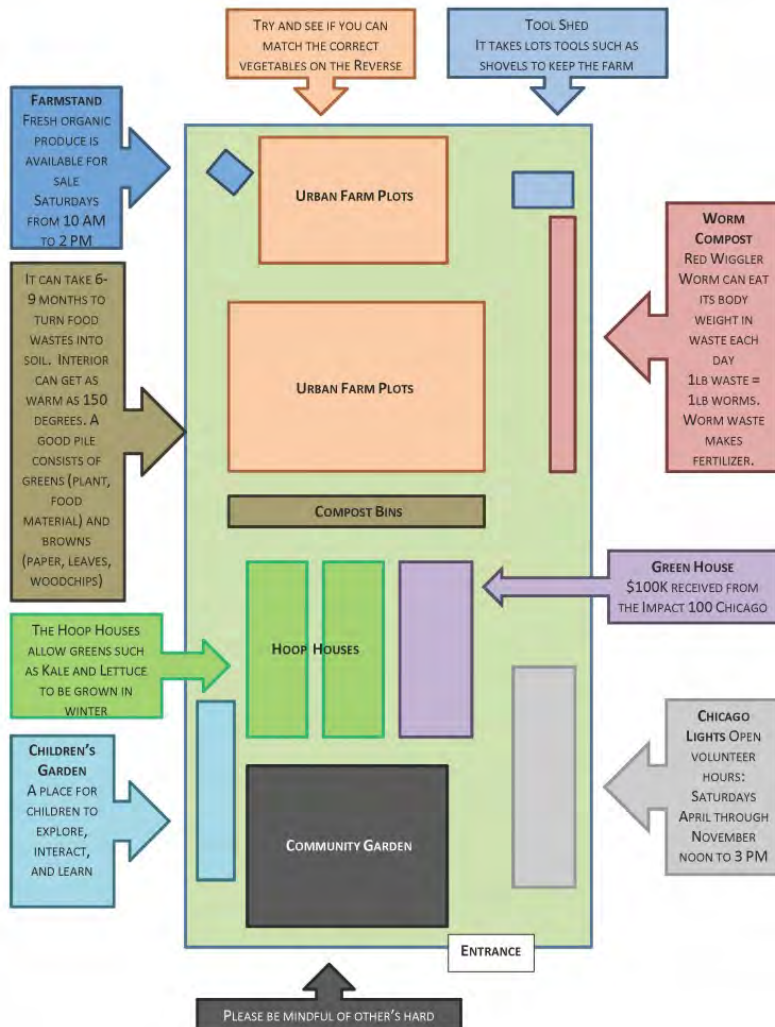


# SUST Action Research Projects



SUST 350 Service & Sustainability / Spring 2013  
[Action Research Projects](#) for the Chicago Lights Urban Farm

# SUST Action Research Projects



Community Empowerment and Youth Enrichment (CEYE) Program

Community Gardeners' Guide

Farm Education Lessons and Activities

Knowing Your Neighborhood:  
Community Assets Brochure and Map

Rainwater Harvesting Plan

Self-Guided Tour and Farm Map (left)

SUST 350 Service & Sustainability / Spring 2013  
[Action Research Projects](#) for the Chicago Lights Urban Farm



# Student Travel & Research: Conservation Biology in Tanzania



BIOL 369 Conservation Biology [travel course to Tanzania](#)  
Spring 2013 (photos by N. Burns)

# Student Research at the Field Museum



SUST 330 Biodiversity / 2012-14  
Field Museum of Natural History, Chicago IL



# Student Research at RU

## Environmental Toxicology Lab

Zebra mussel metal bioaccumulation in Lake Michigan

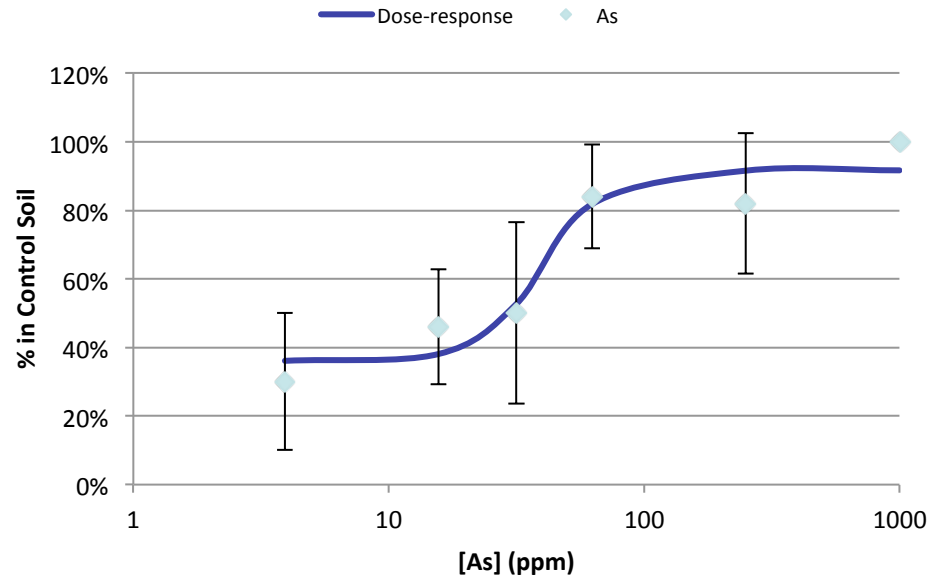
Earthworm avoidance of toxic metals

*The earthworm toxicology lab utilizes compost generated from RU's cafeterias to maintain earthworm culture.*

Metal bioaccumulation in native mussel shells

*Conducted in partnership with the INHS.*

Earthworm avoidance of As



## Other research

Native pollinators and prairie restoration

Invasive and native plant communities in East African savannas

# Sustainability Education & Research: from Campus to Community



***Schaumburg's Sustainable Future***  
a student-authored [website and blog](#)  
focused on documenting & advancing  
sustainability in the suburbs

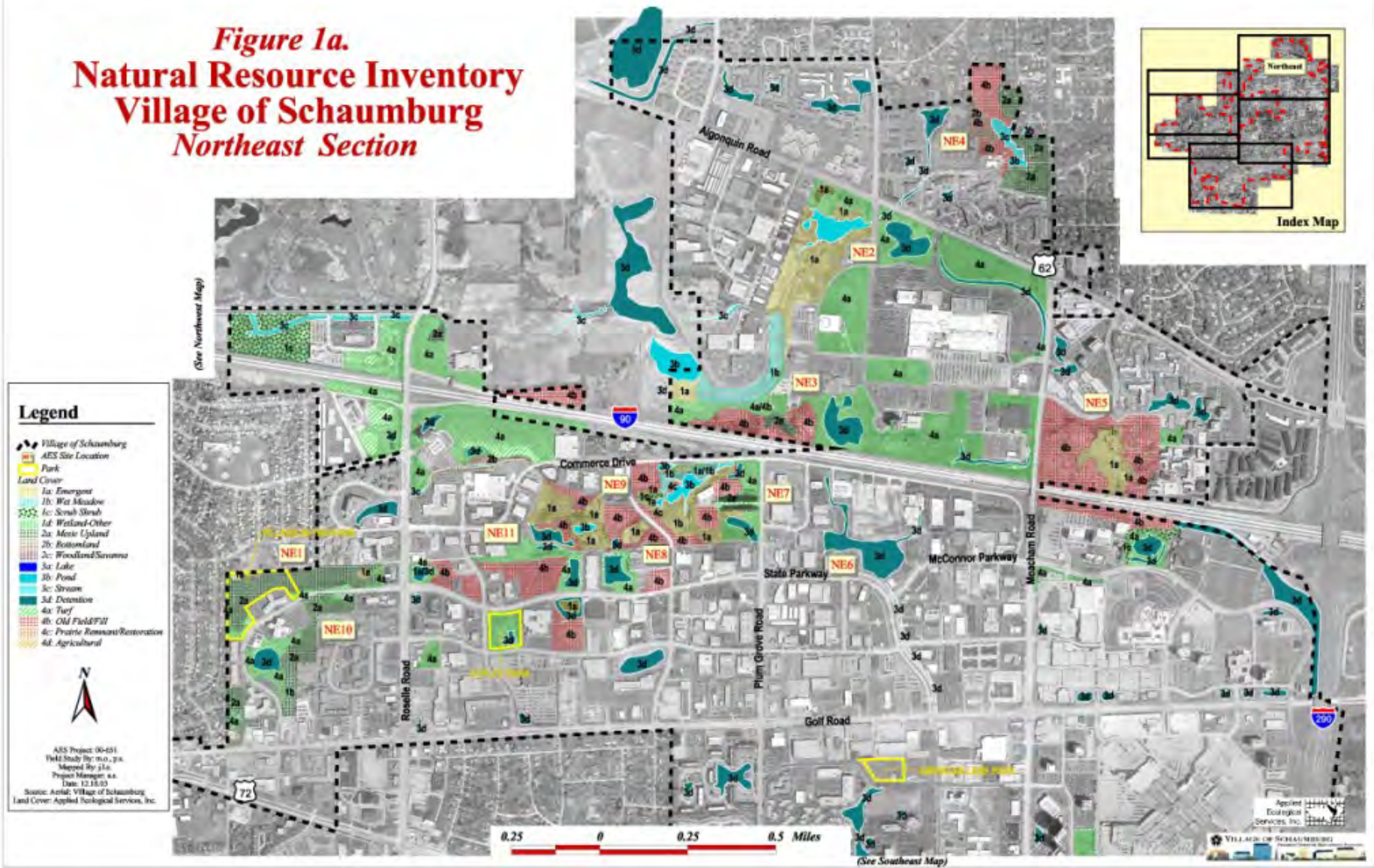


**SUST 240 Waste Audit** / Fall 2013  
RU's Schaumburg Campus



# Schaumburg IL c. early 2000s

**Figure 1a.**  
**Natural Resource Inventory**  
**Village of Schaumburg**  
**Northeast Section**



Map from the Schaumburg Biodiversity Plan (2004)



# Landscape Sustainable Site Transformation



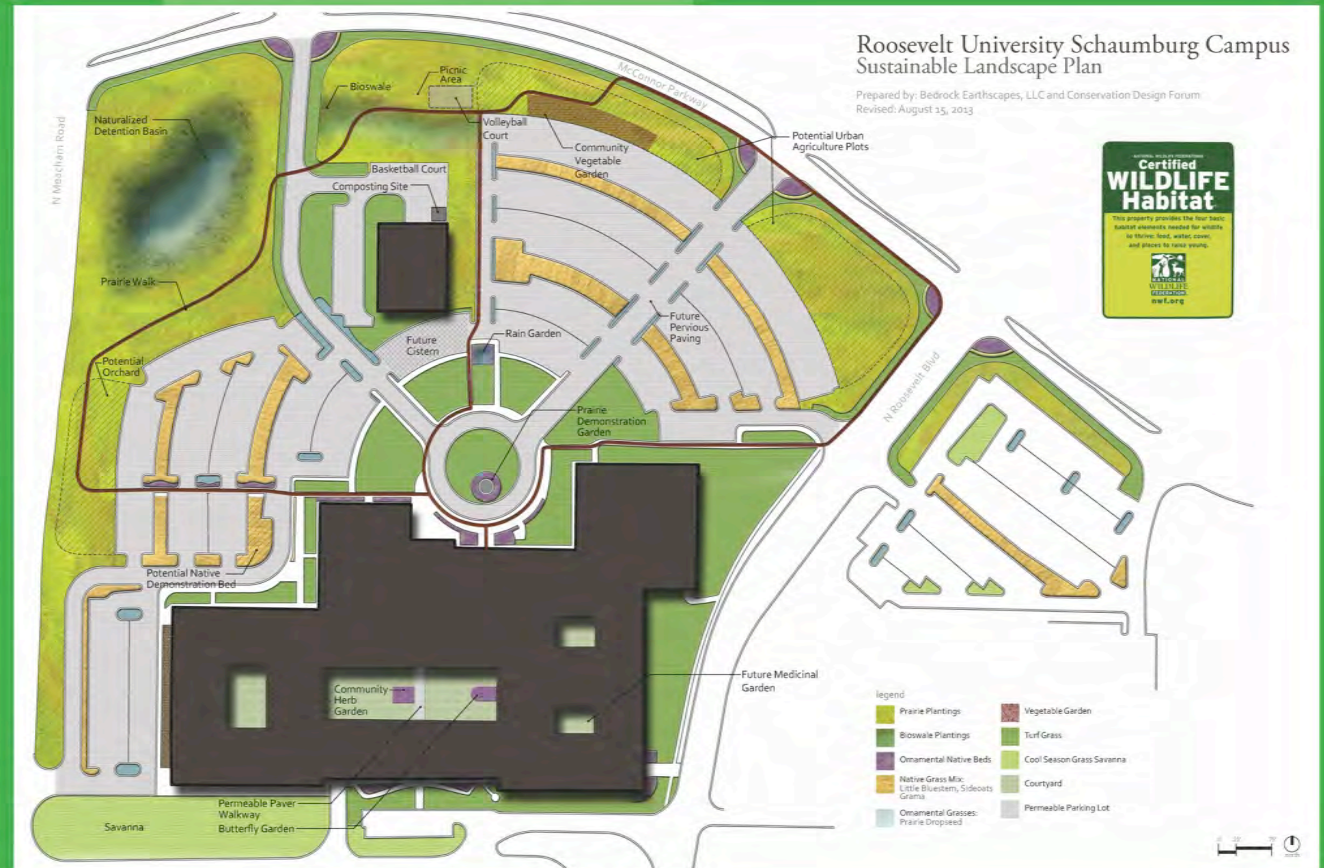
Roosevelt University is committed to transforming the Robin Campus into a truly sustainable site. The landscape plan here is being implemented using native plants and sustainable water conservation methods to transform this campus into an environmentally sustainable, cost-effective earthscape. The result: a beautiful setting which supports biodiversity, uses less water, costs less to maintain and enriches campus lifestyle.

## Good Stewardship Makes Good Sense

**Economic:** the conversion to native plants was paid out of savings from funds previously spent on turf maintenance. The University saves 50% annually overall on landscape maintenance, primarily due to the native plantings which save 80% over the cost to maintain turf.

**Environmental:** Native plants require less fertilizer, herbicides, fuel and labor. They beautify and support biodiversity. Natives have deep roots which absorb water, reduce runoff, thus reducing energy and water use while providing effective bio-regulation of this habitat.

**Social:** The Robin Campus uses less resources and generates fewer pollutants, demonstrating corporate social responsibility by planting natives and observing sustainable site practices.



Sustainable Landscape Plan for RU's Schaumburg Campus, August 2013





The RU Community Garden, summer/fall 2013 (photos: M. Radeck)





Prescribed burn of detention pond/wetland (April 2011)

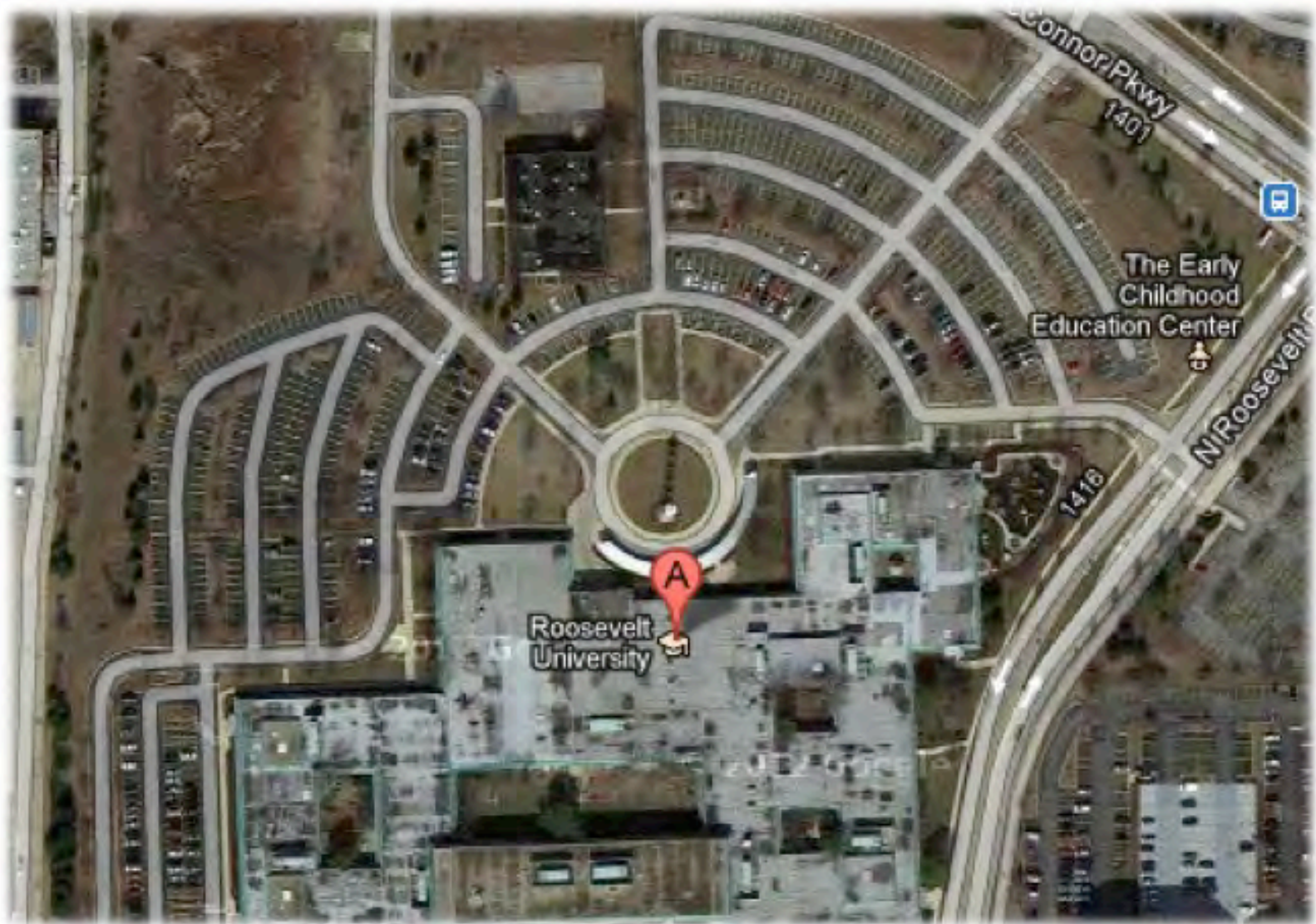




Prairie restoration at detention pond (Fall 2012)



# RU Campus: From concrete slab . . .



Aerial view of RU Schaumburg Campus, pre-redevelopment (Google Maps)



...to living lab\*



Schaumburg Campus prairie restoration, Summer 2013  
(M. Radeck, a SUST major who also coined \*this phrase)

[http://www.public.iastate.edu/~amytoth/Toth\\_lab/Research\\_Areas.html](http://www.public.iastate.edu/~amytoth/Toth_lab/Research_Areas.html)

## Research Initiatives

### Native Pollinators

Comparing native pollinator populations in restored and native prairies.

*Native paper wasps. ↓*



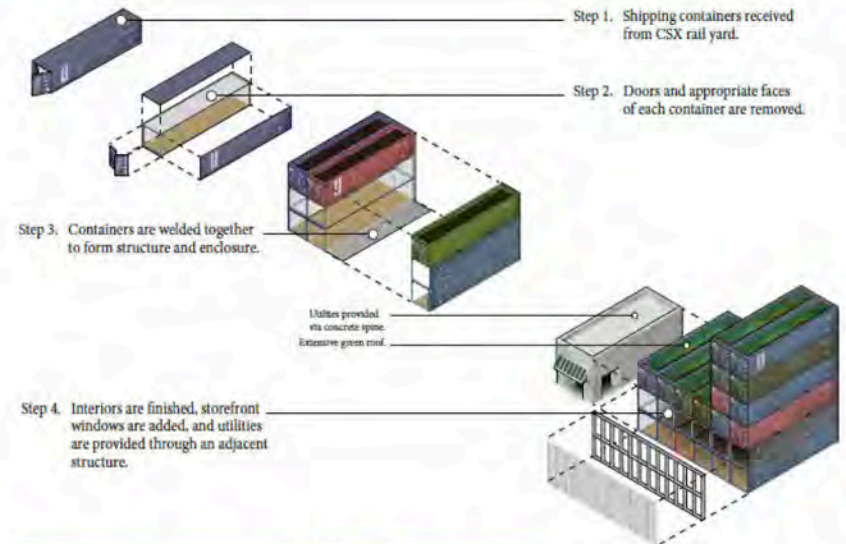
# Sustainable Development & Creative Thinking



Bennett Institute for Real Estate  
student team: Winners of the  
2013 & 2014 Eisenberg Foundation  
Midwest [Real Estate Challenge](#)

## SUSTAINABILITY: UP-CYCLING

### The Marquette Park Promenade



Sustainability Criteria	Development Pts	Max Pts
Sustainable Sites	18	35
Water Efficiency	8	10
Energy & Atmosphere	17	35
Materials & resources	11	14
Indoor Environmental Quality	9	15
Innovation Design process	3	6
Regional Priority credits	1	4
<b>Total</b>	<b>67</b>	<b>119</b>



# Building Community Partnerships in Sustainability



Field Museum of  
Natural History



Friends of  
the Chicago River



Chicago Lights  
Urban Farm



Chicago Architecture  
Foundation



Chicago Wilderness



Center for  
Humans & Nature