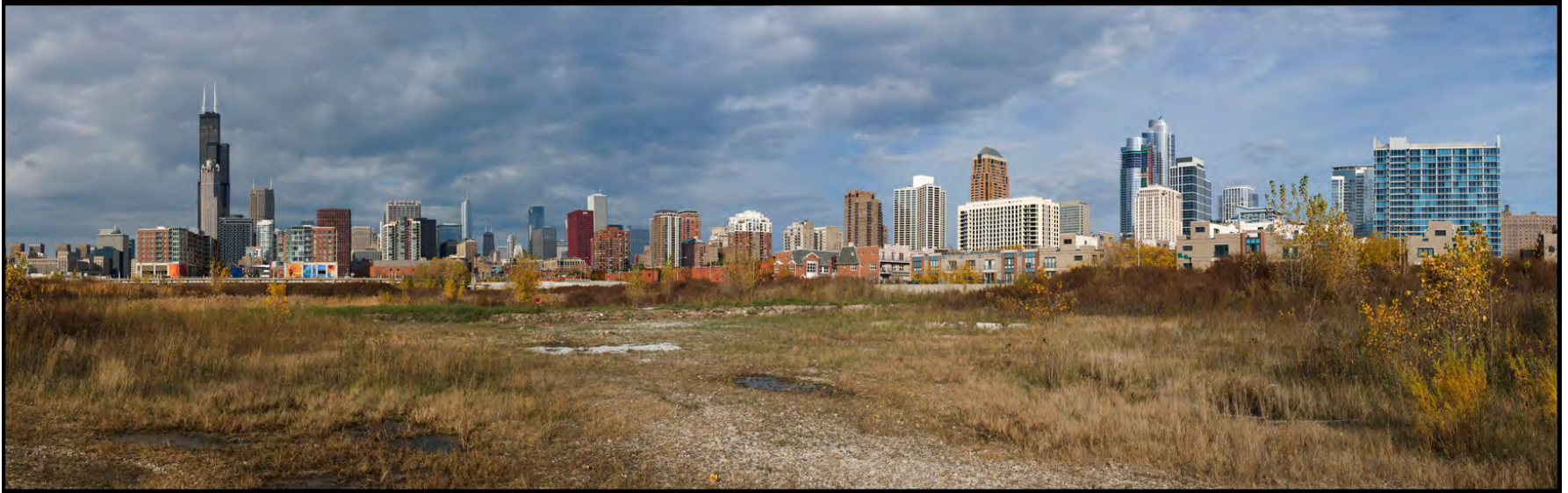


Sustainability & the Future of Cities

Connecting Curriculum to Community



Mike Bryson

Associate Professor of Humanities &
Director of Sustainability Studies
Roosevelt University

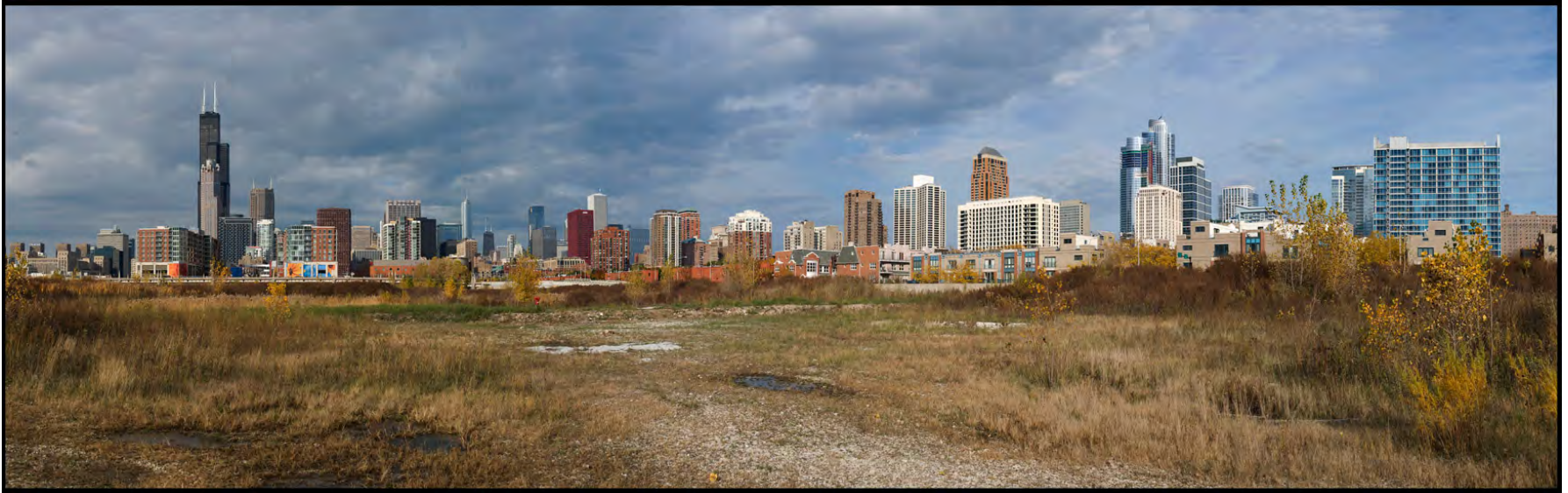


Joliet Junior College

Faculty Sustainability Retreat
Joliet IL
1 June 2014

Sustainability & the Future of Cities

Connecting Curriculum to Community



Address real-world problems & challenges

Empower students through research, field experiences, & service learning

Advance sustainable development & social justice in communities

Integrate, enhance, & develop academic programs & partnerships

Sustainability

The 21st Century's Greatest Imperative



Mr. Will Allen -- Urban Farmer,
Founder of Growing Power, &
Sustainability Entrepreneur

Climate Change

Biodiversity Loss

Urbanization & Population Growth

Pollution

Clean Energy

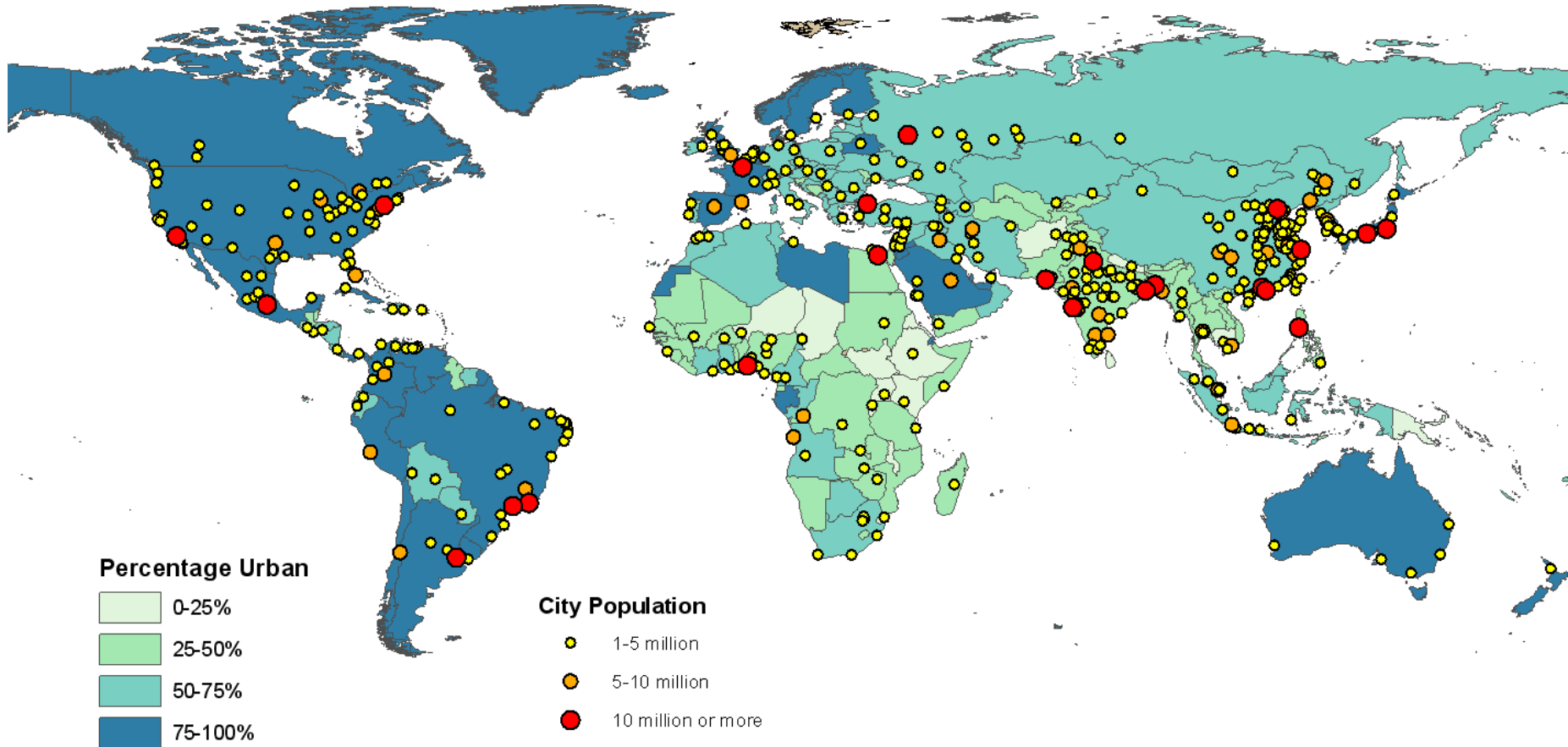
Economic Development

Sustainable Agriculture

Social Justice & Equity

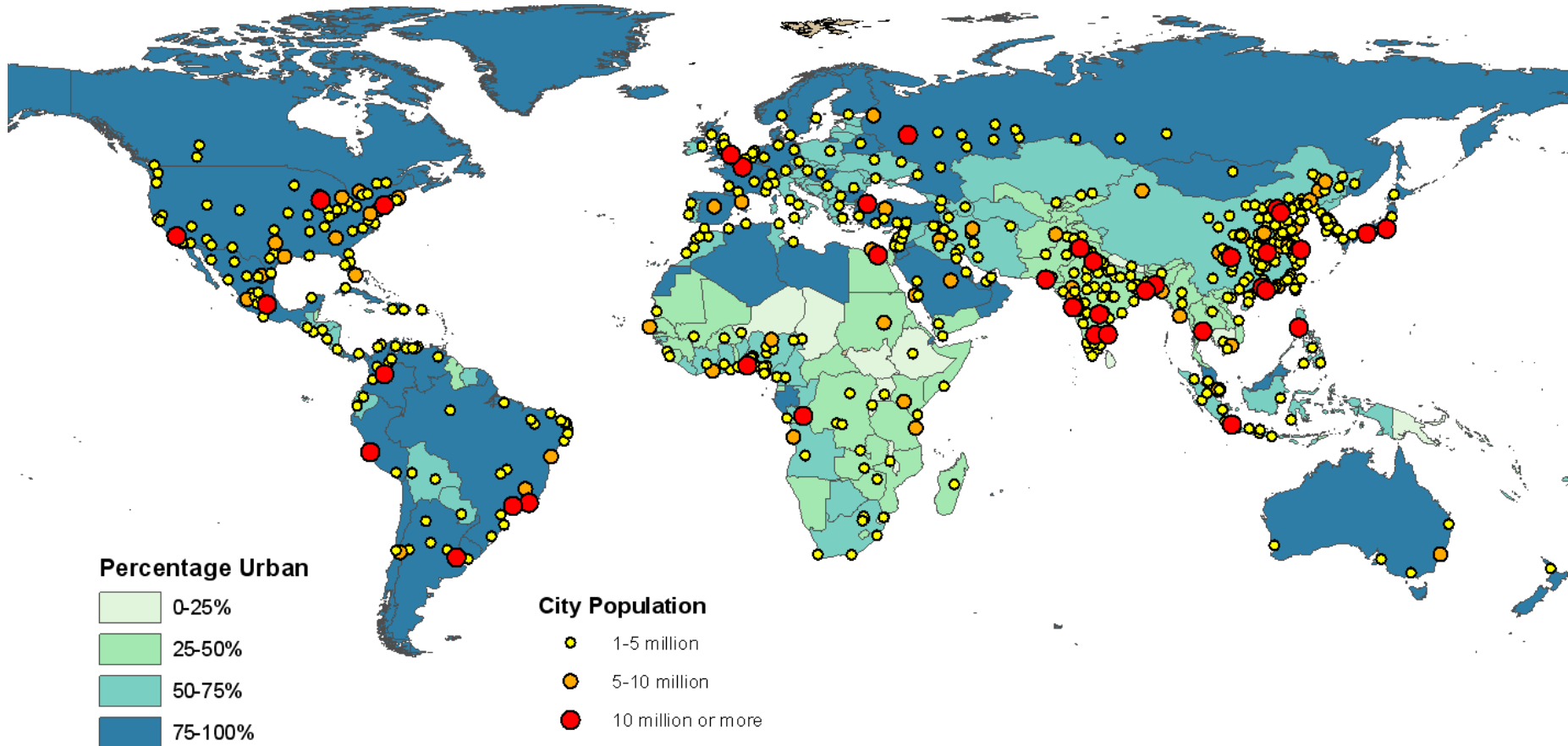
Environmental Stewardship

Global Urbanization in 2011



Source: United Nations, Department of Economic and Social Affairs, Population Division.
[*World Urbanization Prospects, the 2011 Revision*](#). New York, 2012

Global Urbanization: 2025 Projection



Source: United Nations, Department of Economic and Social Affairs, Population Division.
[*World Urbanization Prospects, the 2011 Revision*](#). New York, 2012

Two Persistent Perceptions of Cities



Chicago Loop, seen from "The Brownlands" (Ryan Hodgson-Rigsbee)

City vs. Nature

Fosters the illusion of technology-mediated independence from the natural world as well as a profound yet often unfulfilled longing for contact with wildness within a polluted and biologically-impooverished cityscape.

City as Living Ecosystem

Recognizes that cities and suburbs comprise a complex urban ecosystem, a dynamic mosaic in which imperiled nature interacts with humans and their built environment, and where the idea of "natural" can be interrogated.

Urban Nature in Joliet



Looking east over the Cathedral area in Joliet, June 2006 (M. Bryson)

Urban Nature in Joliet



Hickory Creek by Washington Jr. High, March 2011 (M. Bryson)

Urban Nature in Joliet



Will County farmland south of Joliet, June 2006 (M. Bryson)

Urban Nature in Chicago



Stearns Quarry Park (est. 2009), South Side of Chicago (M. Bryson)

Urban Waterways: 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)

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)

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



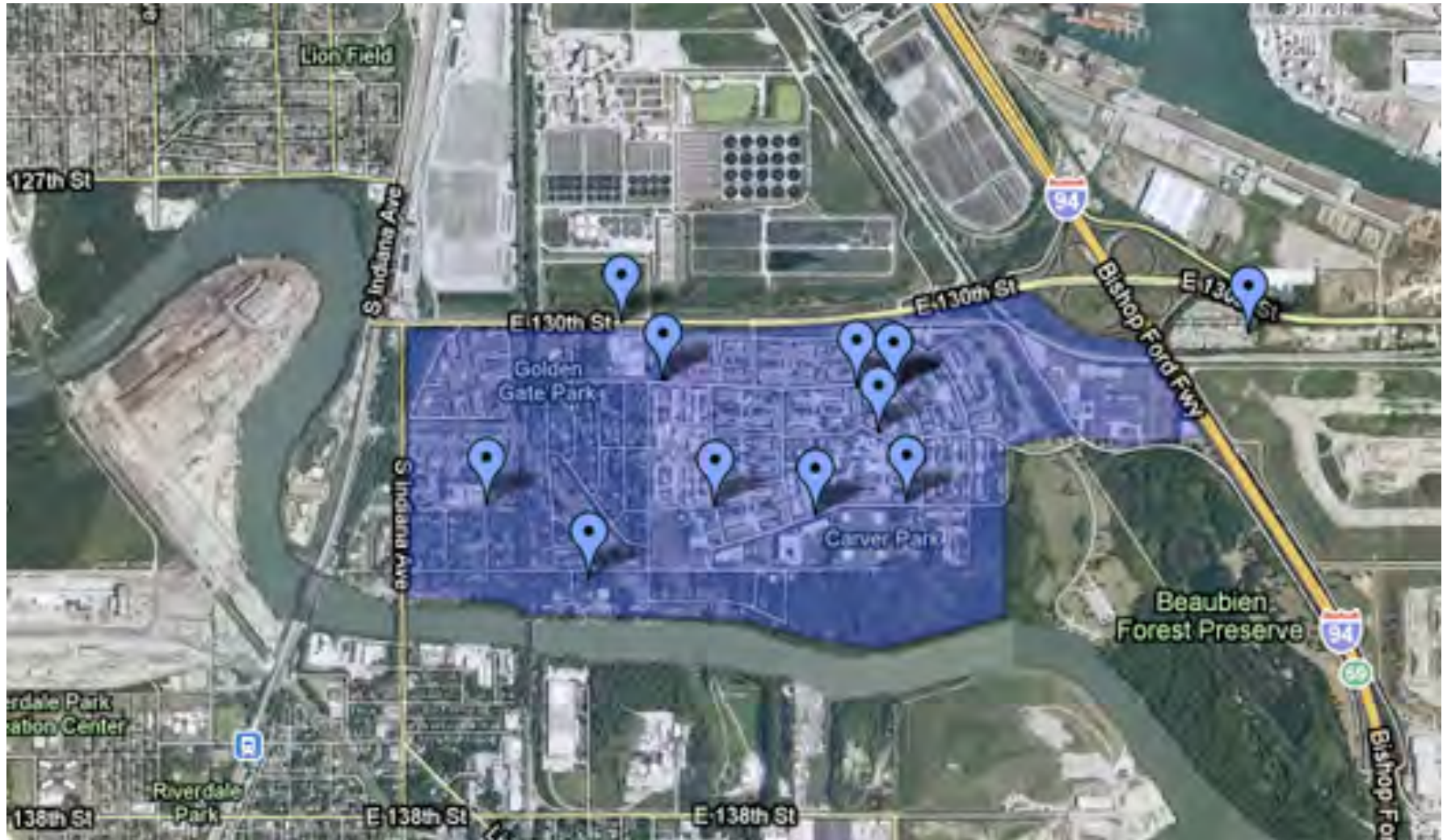
Teaching College Science and Math Through Food, Health and Sustainability Themes
Roosevelt University, Schaumburg Campus (March 2014)

Seeing Connections: Water / Urban Land Use / Food



Growing Power's Iron Street Farm in Chicago, on the west bank of Bubbly Creek (2012)

Seeing Connections: Toxins / Water / Food Access / Transportation / Environmental Justice



[Map](#) of Altgeld Gardens neighborhood on the far South Side of Chicago

Food: Urban Agriculture & Social Justice



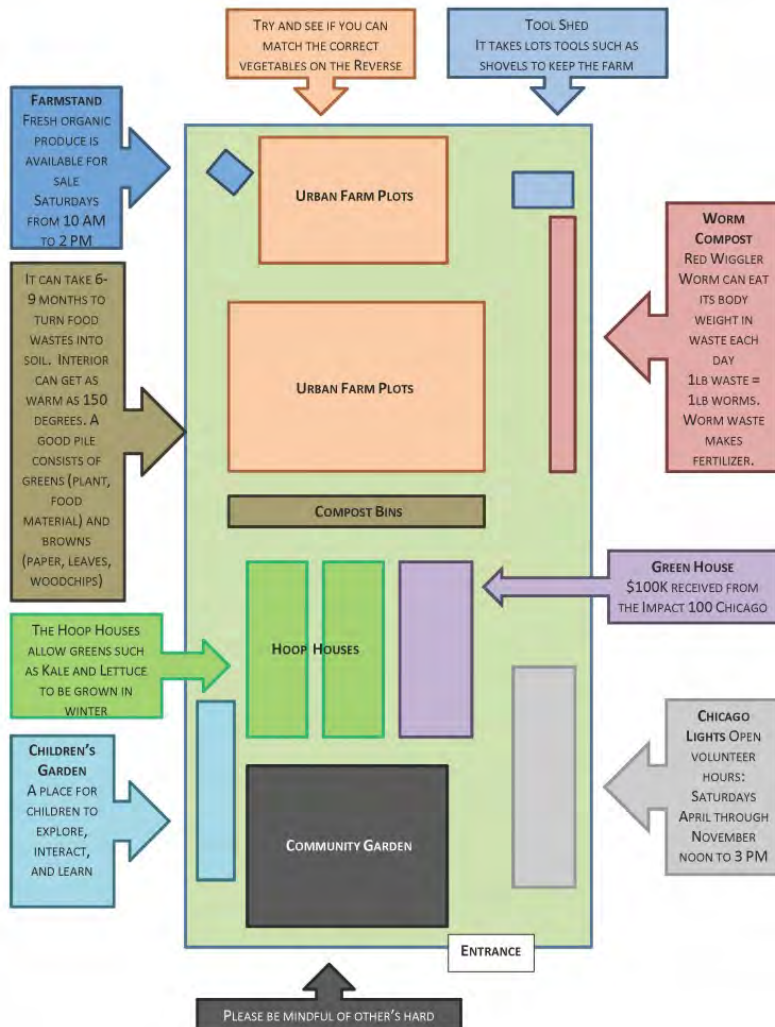
SUST 350 Service & Sustainability / Spring 2013
Chicago Lights Urban Farm

Food: Action Research Projects



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

Food: 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)

Food: STEM, Urban Agriculture, & Nature-based Education



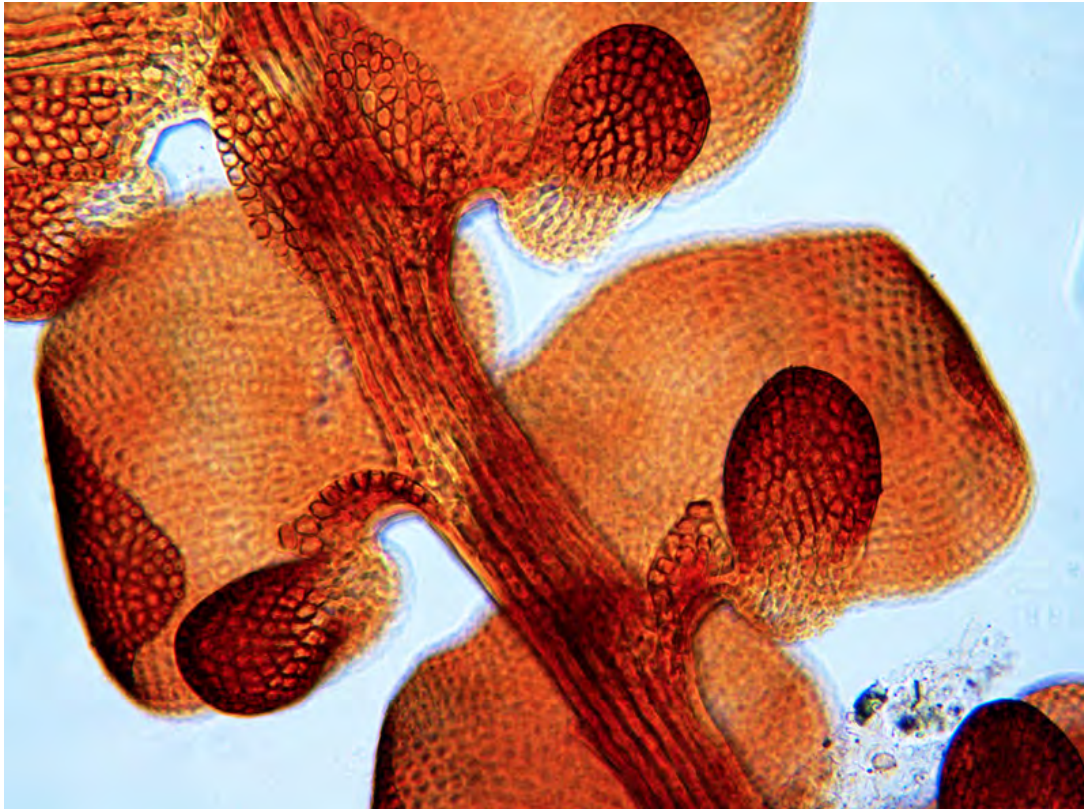
SUST 350 Service & Sustainability / Fall 2014
[Eden Place Nature Center](#), Chicago IL

Biodiversity: Student Research at FMNH



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

Biodiversity: Science, Technology, & Public Engagement



[Microplants](#) interactive website / [Early Land Plants Project](#)
Field Museum of Natural History, Chicago IL

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)

SUST Education & Research: from Campus to Community

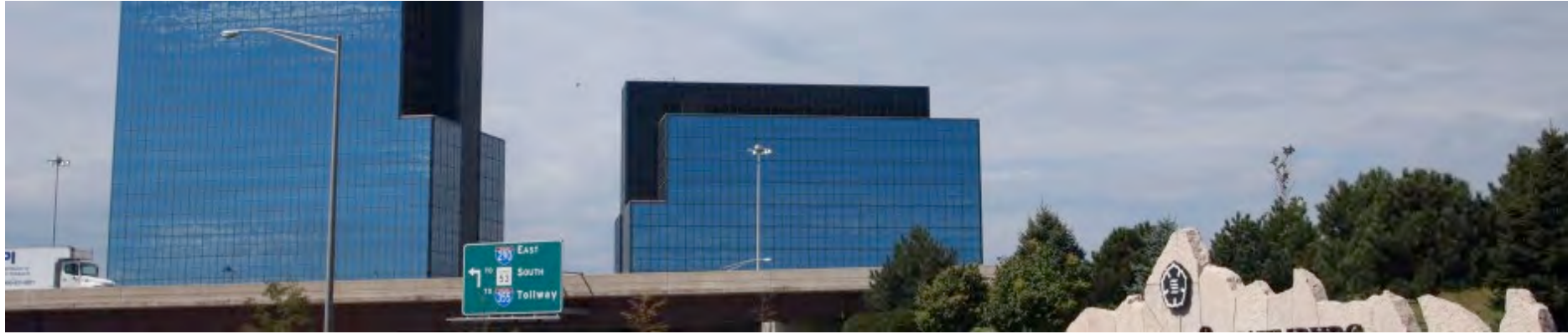


Schaumburg's Sustainable Future
a student-authored [website and blog](#)
focused on documenting & advancing
sustainability in the suburbs



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

Suburban Case-Study: Schaumburg, Illinois



Schaumburg

Pop. 74,227

Area: 19 mi²

Density: 3906

Key Features:

- Biodiversity (2004) and Green Action (2008) Plans
- Sustainability initiatives
- Established bike path / lane system
- Park district / conservation areas
- Economic hub of NW suburbs

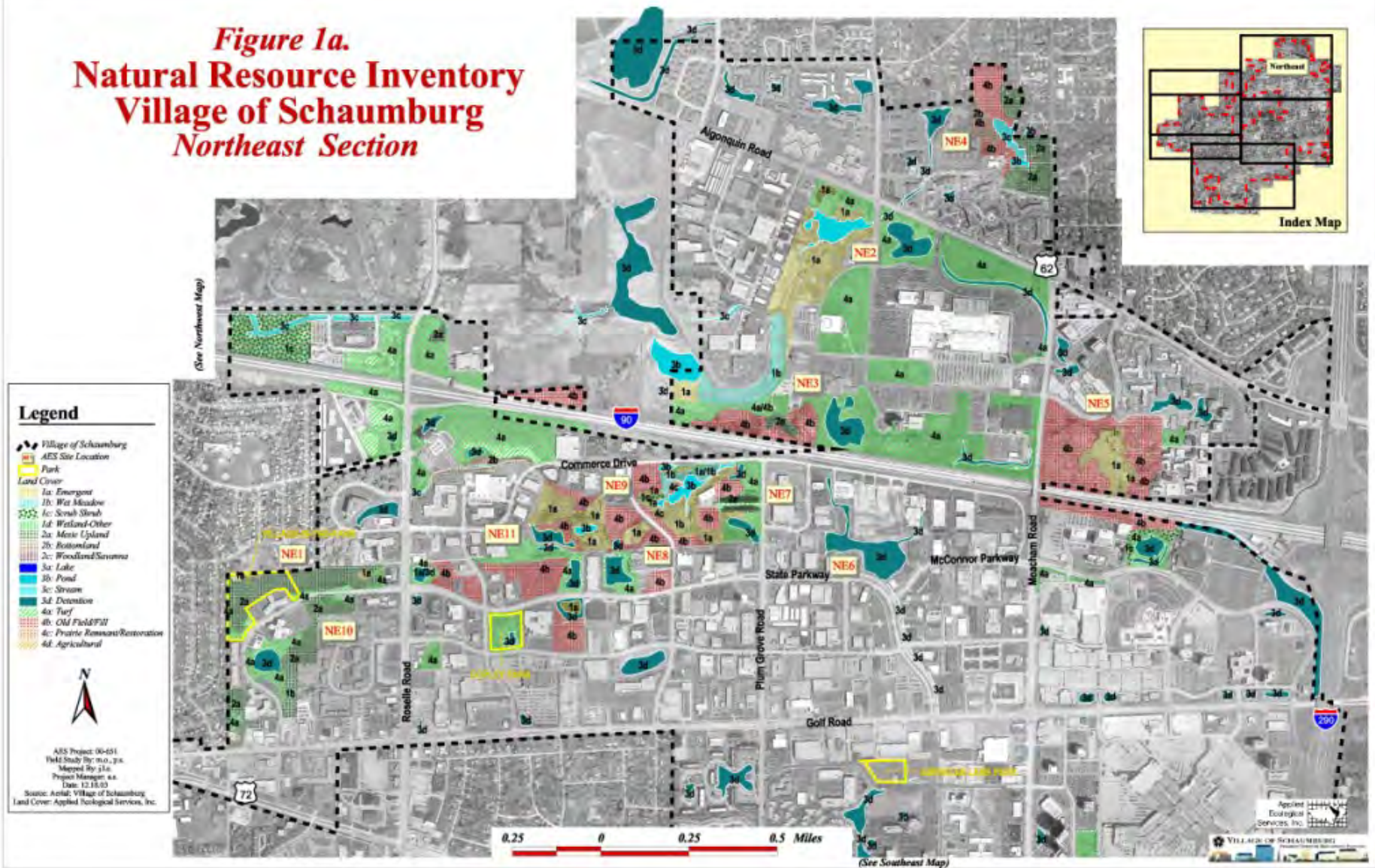
Selected Challenges:

- Sprawling development
- Lack of high-quality open space / native plant communities / green infrastructure
- Car-dependent transportation
- Stormwater runoff



Where is the green?

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



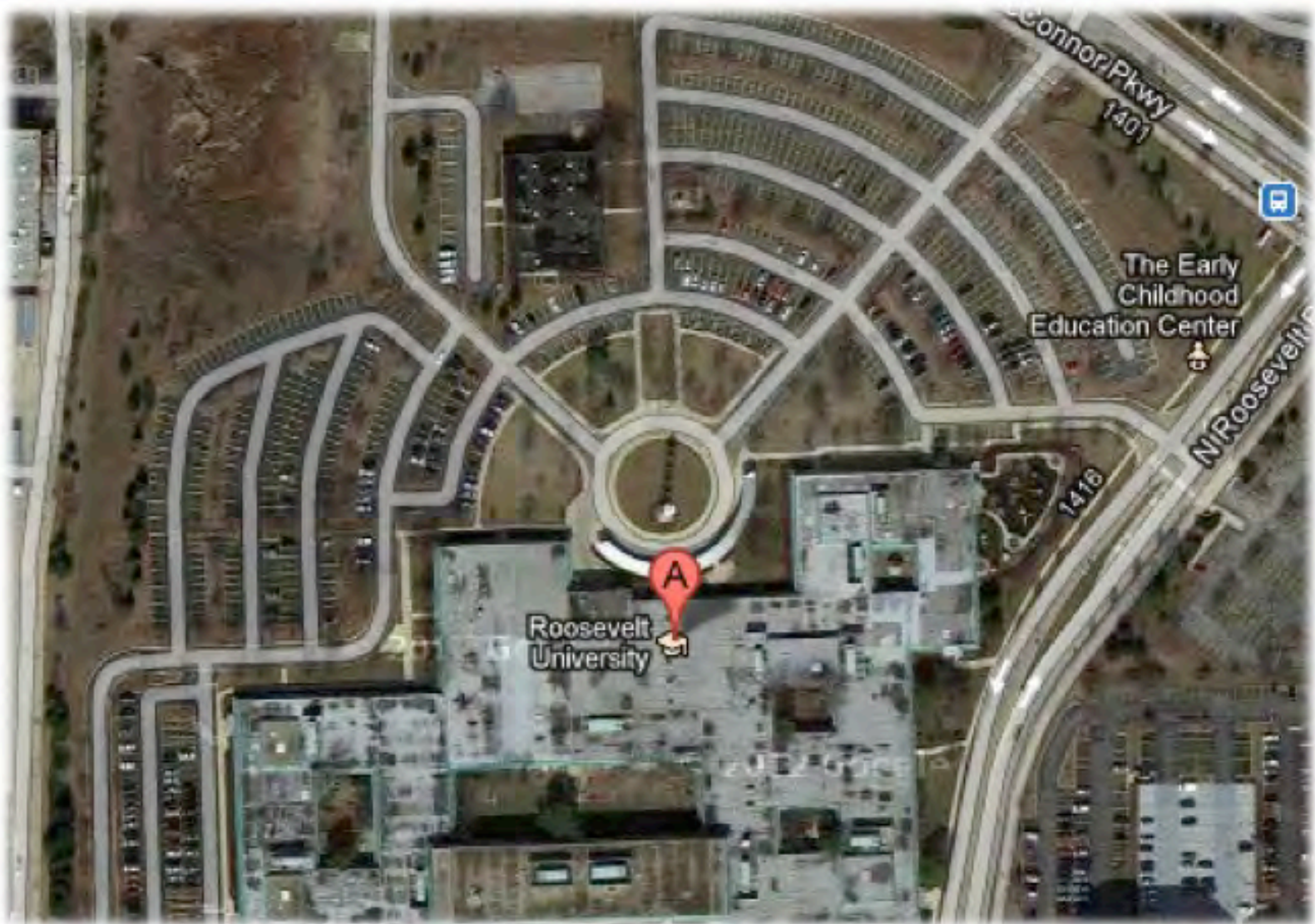
Map from the Schaumburg Biodiversity Plan (2004)

It's there, but just barely . . .



Schaumburg Campus parking lots, July 2010 (M. Bryson)

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)

Landscape Sustainable Site Transformation



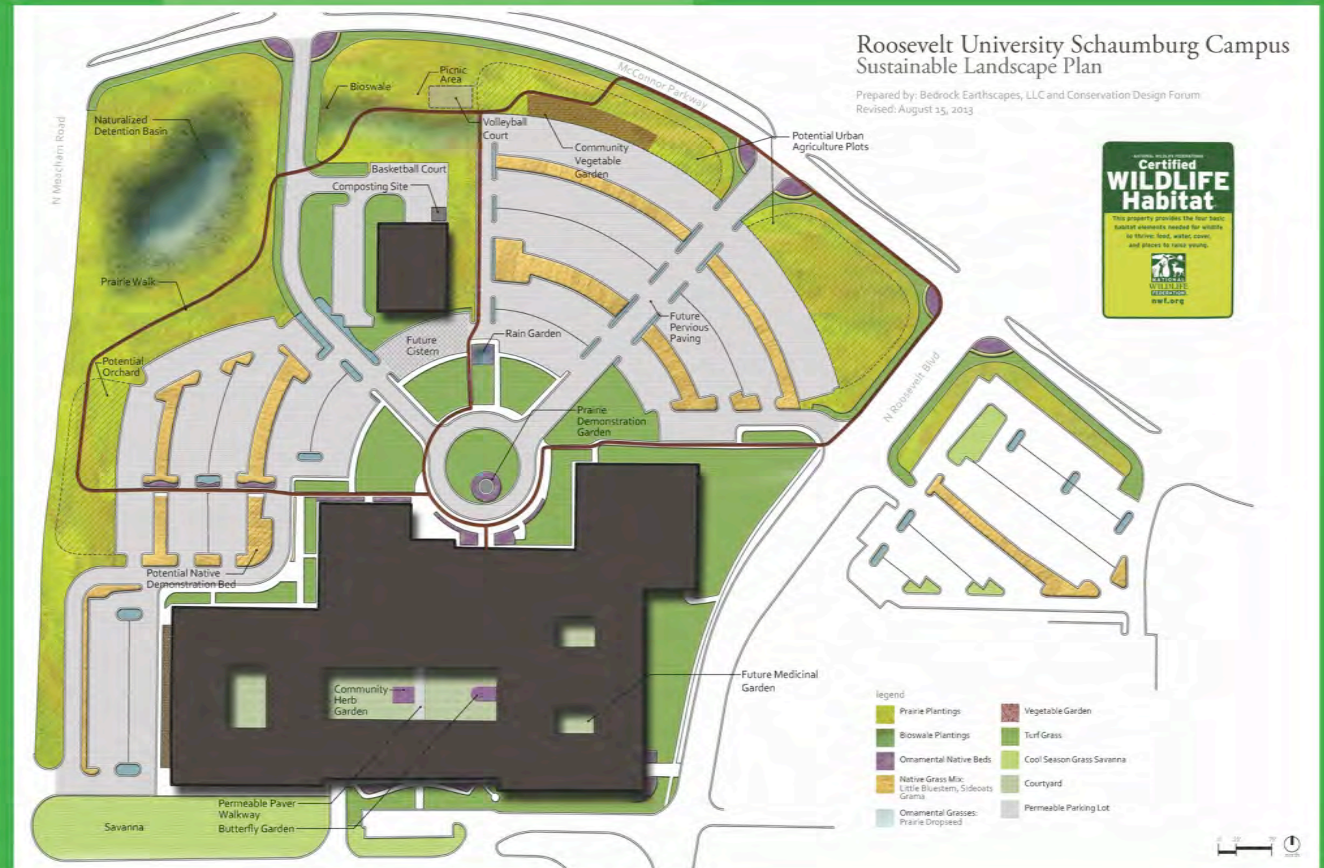
Roosevelt University is committed to transforming the Robin Campus into a truly sustainable site. The landscape plan here is being implemented using native plants and sustainable water conservation methods to transform this campus into an environmentally sustainable, cost-effective earthscape. The result: 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



Soil Service Day at Schaumburg Campus, 20 April 2013 (photos: M Bryson)



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



Prescribed burn of detention pond/wetland (April 2011)



Prairie restoration at detention pond (Fall 2012)

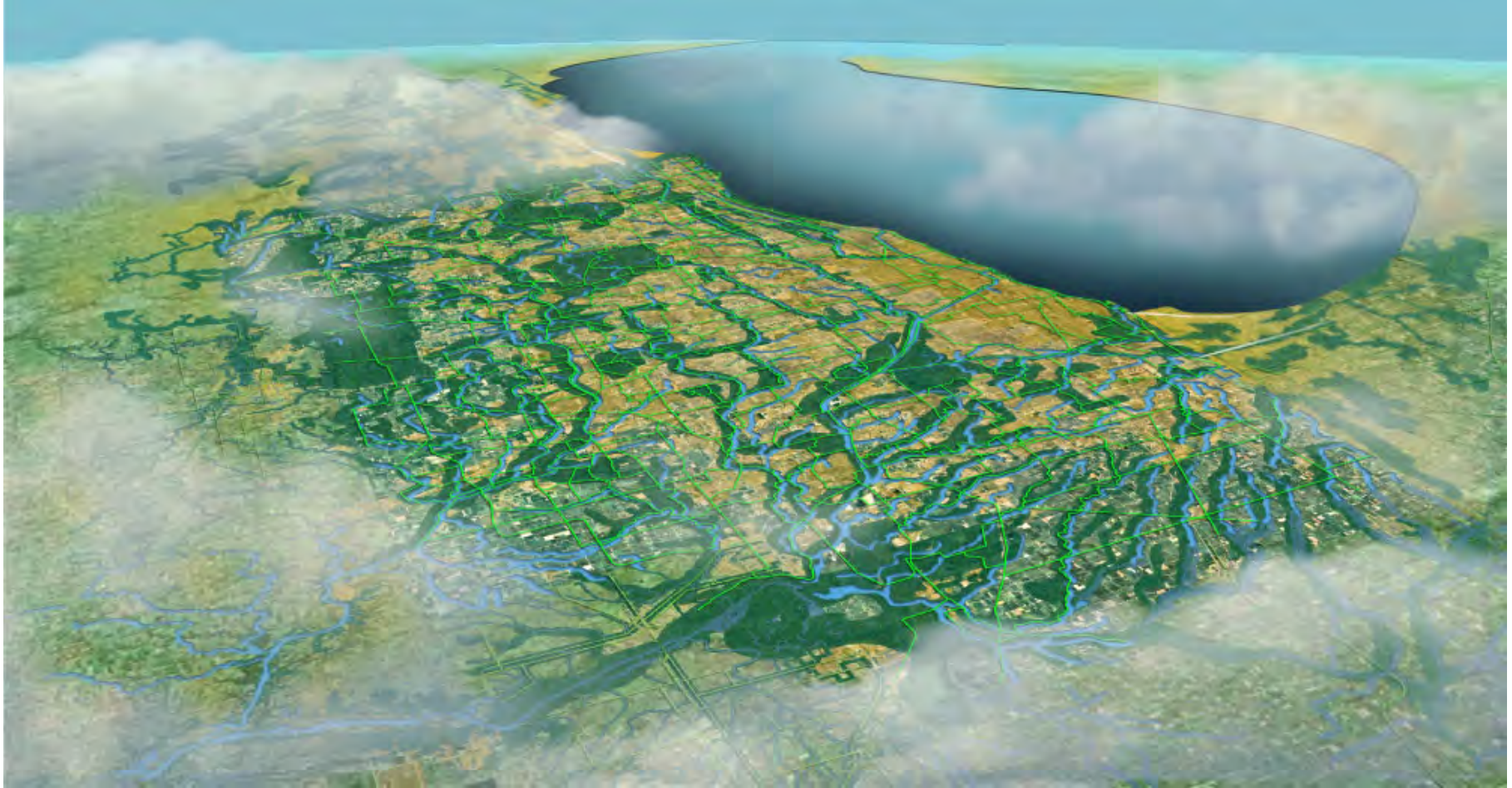


Water quality sampling at RU detention pond (Spring 2013)



Water quality sampling at RU detention pond (Spring 2013)

Conclusion / Discussion: Sustainability, Education, & Community




Proposed green infrastructure network for Chicago Region
(CMAP [Go To 2040](#) Comprehensive Plan)

Sustainability & the Future of Cities

The Sustainable City Year Program



 UNIVERSITY OF OREGON

Sustainable Cities Initiative

Links and Resources

Slide 4-5 Global Urbanization

http://esa.un.org/unup/Maps/maps_urban_2011.htm

Slide 19 SENCER Resources

<http://serc.carleton.edu/sencer/index.html>

Slide 22 Altgeld Gardens, Chicago

<http://goo.gl/maps/51jgR>

Slide 24 Action Research at the Chicago Lights Urban Farm

<http://sites.roosevelt.edu/mbryson/2013/05/30/action-research-at-the-chicago-lights-urban-farm/>

Slide 26 Eden Place Nature Center

<http://www.edenplacenaturecenter.org/>

Slide 28 Early Land Plants Project at the Field Museum

<http://elpt.fieldmuseum.org/>

Links and Resources (cont.)

Slide 30 Schaumburg's Sustainable Future

<http://futureofschaumburg.wordpress.com/>

Slide 30 RU Schaumburg Campus Waste Audit

<http://futureofschaumburg.wordpress.com/2013/12/31/new-years-resolution-for-rus-schaumburg-campus-composting-and-better-recycling/>

Slide 43 GoTo 2040 Plan for Metro Chicago

<http://www.cmap.illinois.gov/about/2040/livable-communities/open-space>

Slide 44 Sustainable City Year Program (Univ of OR)

<http://sci.uoregon.edu/sustainable-city-year-program>