

Sustainability and Urban Nature

An Introduction to Roosevelt University and Exploration of the Chicago River



Mike Bryson

Sustainability Studies Program at RU
CIMBY Student Visit / Campus Tour
12 July 2013



Snapshot of RU

- Campuses: downtown Chicago, suburban Schaumburg, Online
- 6 colleges
 - Professional Studies
 - Arts & Sciences
 - Performing Arts (Music / Theater)
 - Business
 - Education
 - Pharmacy
- Established 1945 in an act of radical protest
- 7,300 students (4,200 undergrad)
- Racial and geographic diversity
- Social justice-centered educational / research mission



RU's Wabash Building, which is Chicago's first LEED-certified skyscraper (opened Fall 2012)

Sustainability Studies



- **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.

SUST Courses



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 Program Features



Crosscutting Themes

Science and Environmental Literacy
Environmental and Social Justice
Urban and Suburban Systems

Pedagogical Highlights

Interdisciplinary Learning
Field Trip Experiences
Service Learning Opportunities
F2F, Online, and Hybrid Classes

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

What Would a Sustainable Future Look Like?



Hiking Northerly Island, 2011
(photo by L. Bryson)

Environmental resources are conserved for both future human generations as well as non-human biota.

Economic development occurs not at the expense of the natural environment, but in a way to mitigate ecological costs and impacts.

Equity – social, economic, and environmental justice – governs the process of sustainable development.

Sustainability at Roosevelt

Off to a Running Start Since 2010

Sustainable Buildings & Operations

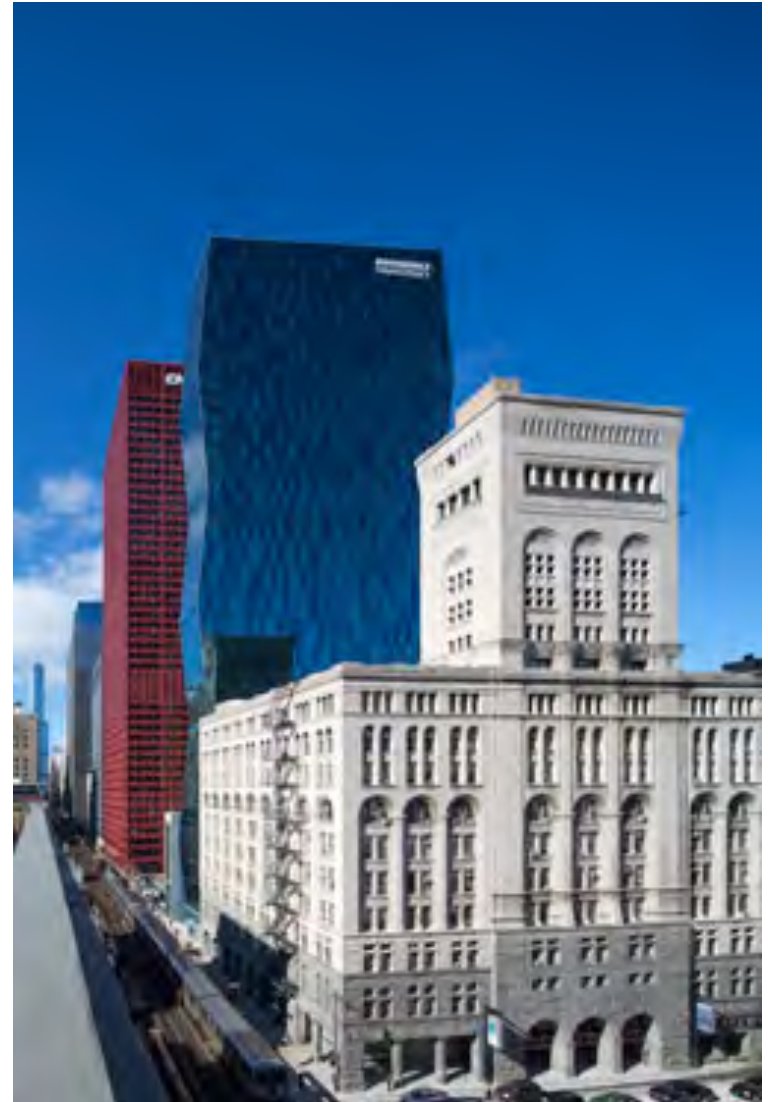
Wabash Building
Goodman Center
Schaumburg Campus Redevelopment

Academic Innovation

Sustainability Studies (BA, BPS) program
launched Fall 2010
Environmental Science Minor retooled in
Fall 2012

Student Organizations & Activism

RU Green (campus events)
Net Impact (business and sustainability)
RU Reforesting (conservation)
RUrbanPioneers (Schaumburg garden)



Sustainability at Roosevelt

Awards & Recognition in 2012-13

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

Academics

Real Estate grad students win 2013
Eisenberg competition
RU Reforesting travels to Tanzania to do
environmental conservation
SUST students win prestigious NSF
research fellowship, garner local
internships, write for [SUST blog](#)

Exploring the Chicago River

Connecting Nature, Science, Art, Ethics, and Sustainability

Context

Urban Nature in Chicago

Science

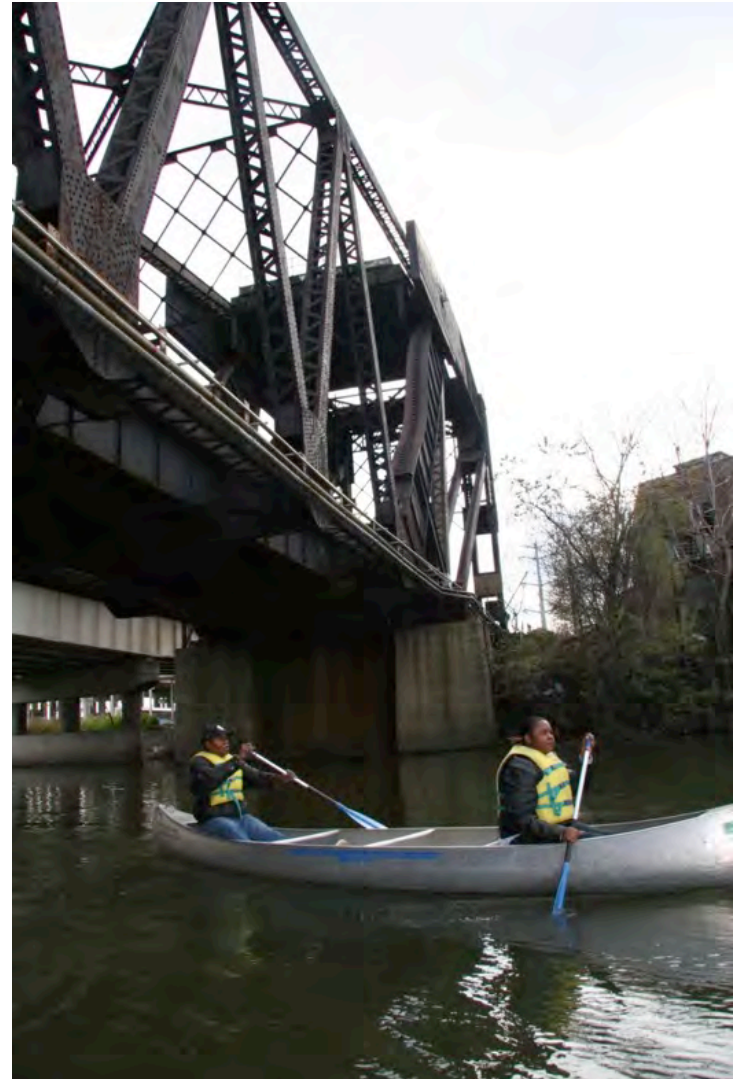
Exploring the Chicago River (and beyond)

Art

Representing the river

Sustainability and Ethics

Thinking like a watershed





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OF PROFESSIONAL STUDIES

Chicago's Urban Nature



Chicago in 1857



Chicago's Urban Nature



Any clue what this is?



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Chicago's Urban Nature



North Branch of the Chicago River (Spring 2010)



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Chicago's Urban Nature



WMRD's Racine Avenue Pumping Station, Bubbly Creek, Chicago (May 2009)

Chicago's Urban Nature



The Stickney Wastewater Treatment Plant, SW of Chicago (courtesy MWRD)



The Abuse of Nature



Combined Sewage Outlet, Bubbly Creek, Chicago



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The Abuse of Nature



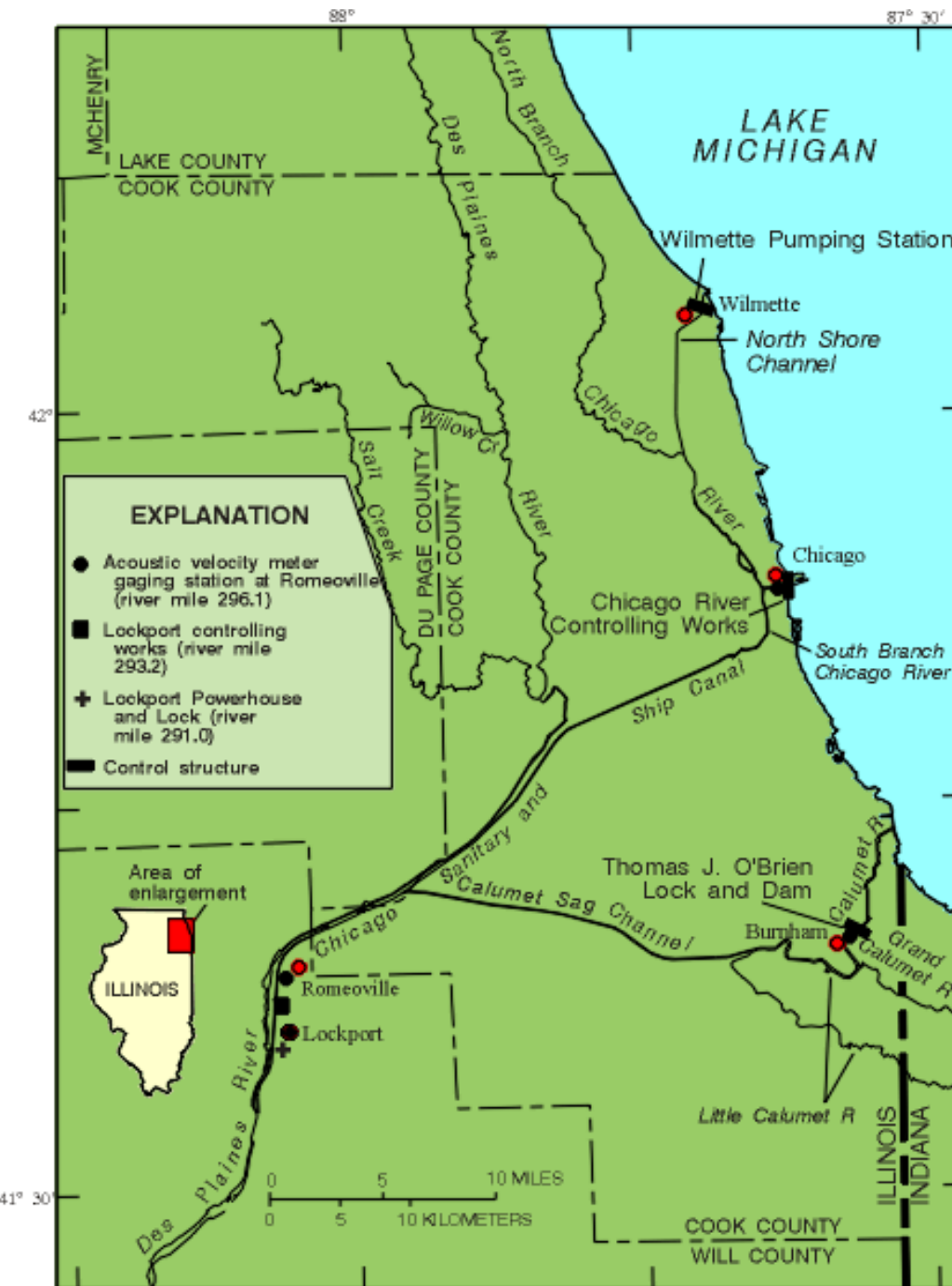
Chicken on Bubbly Creek, Chicago, 1911

Chicago's Urban Nature

Chicago Area Waterway System*: rivers, canals, locks, and controlling structures

Note the relation of the **CAWS** to the Des Plaines River and Salt Creek

** By the way . . . what's in a name?*



Cultivating a Sense of Place

Context

Urban Nature in Chicago

Science

Exploring the Chicago River

Art

Representations of the river

Sustainability and Ethics

Thinking like a watershed





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Canoeing the North Branch



Heading south into the Loop where the branches meet;
Wolf Point in the background (October 2011)



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Canoeing the North Branch



Paddling the West Fork of the Upper North Branch: here we portage around a fallen tree, within the greenway of the Cook County Forest Preserve (October 2012)



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Canoeing the South Branch



Canoe trip down Bubbly Creek, an industrialized tributary of the South Branch of the Chicago River (May 2009)

Water Quality: Physical & Chemical Indicators

Temperature

pH

Turbidity

Dissolved oxygen (DO)

Nutrients (nitrogen and phosphorus)

Bacterial indicators (coliform)

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

Emerging contaminants (pharmaceuticals, synthetic hormones, flame retardants)



Water Quality: Biological Indicators

Phytoplankton

Zooplankton

Benthic, Emergent,
& Floating Vegetation

Microbes

Macroinvertebrates

Fish

Birds

Mammals





Water Quality: Biological Indicators

Group 1 – These organisms are generally considered to be intolerant to pollution



Alderfly Larva



Dobsonfly Larva



Snipe Fly Larva



Stonefly Larva

Group 2 – These organisms are generally considered to be moderately intolerant to pollution



Freeswimming
Caddisfly Larvae



Case
Maker



Riffle Beetle



Larva



Adult



Clams



Fingemall



Asiatic



Mussels



Zebra Mussel



Water Penny

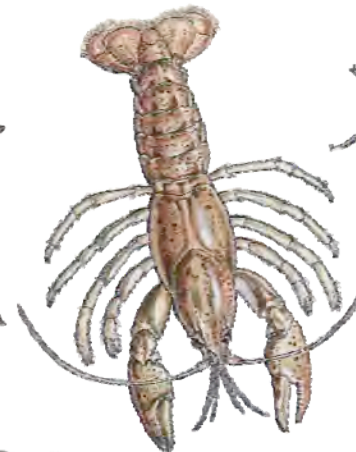
Damselfly Larvae



Broadwinged



Narrowwinged



Crayfish



Cranefly Larva

Dragonfly Larvae



Skimmers



Darter



Mayfly Larvae



Identifying macro-invertebrates from the
Chicago River's North Branch (May 2010)

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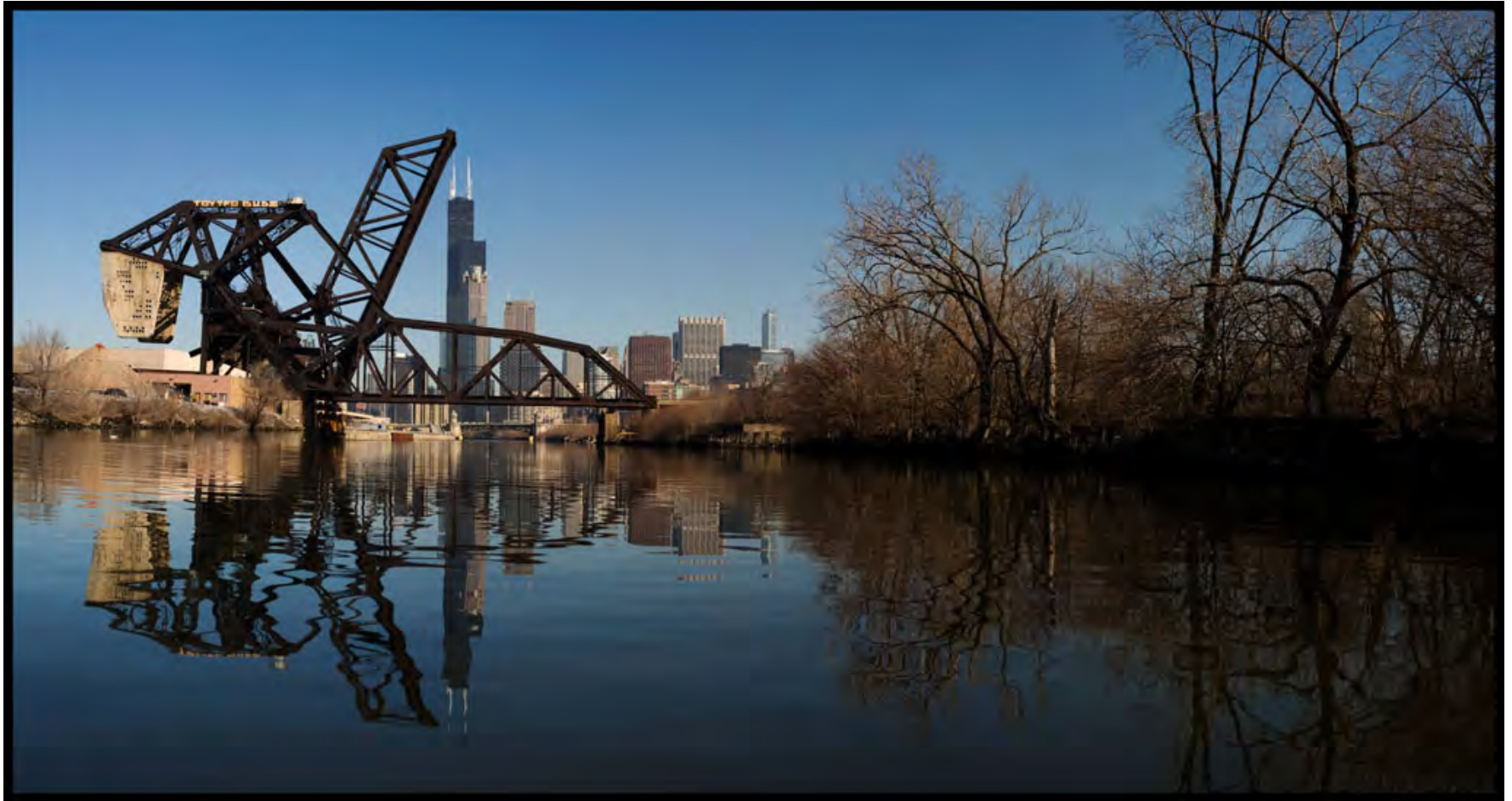


Photo by Ryan Hodgson-Rigsbee



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Ryan Hodgson-Rigsbee





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Ryan Hodgson-Rigsbee



Sustainability & Ethics

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Salt Creek Watershed



Covering roughly 150 square miles, the Salt Creek watershed incorporates more than 30 municipalities that are home to nearly 500,000 people.





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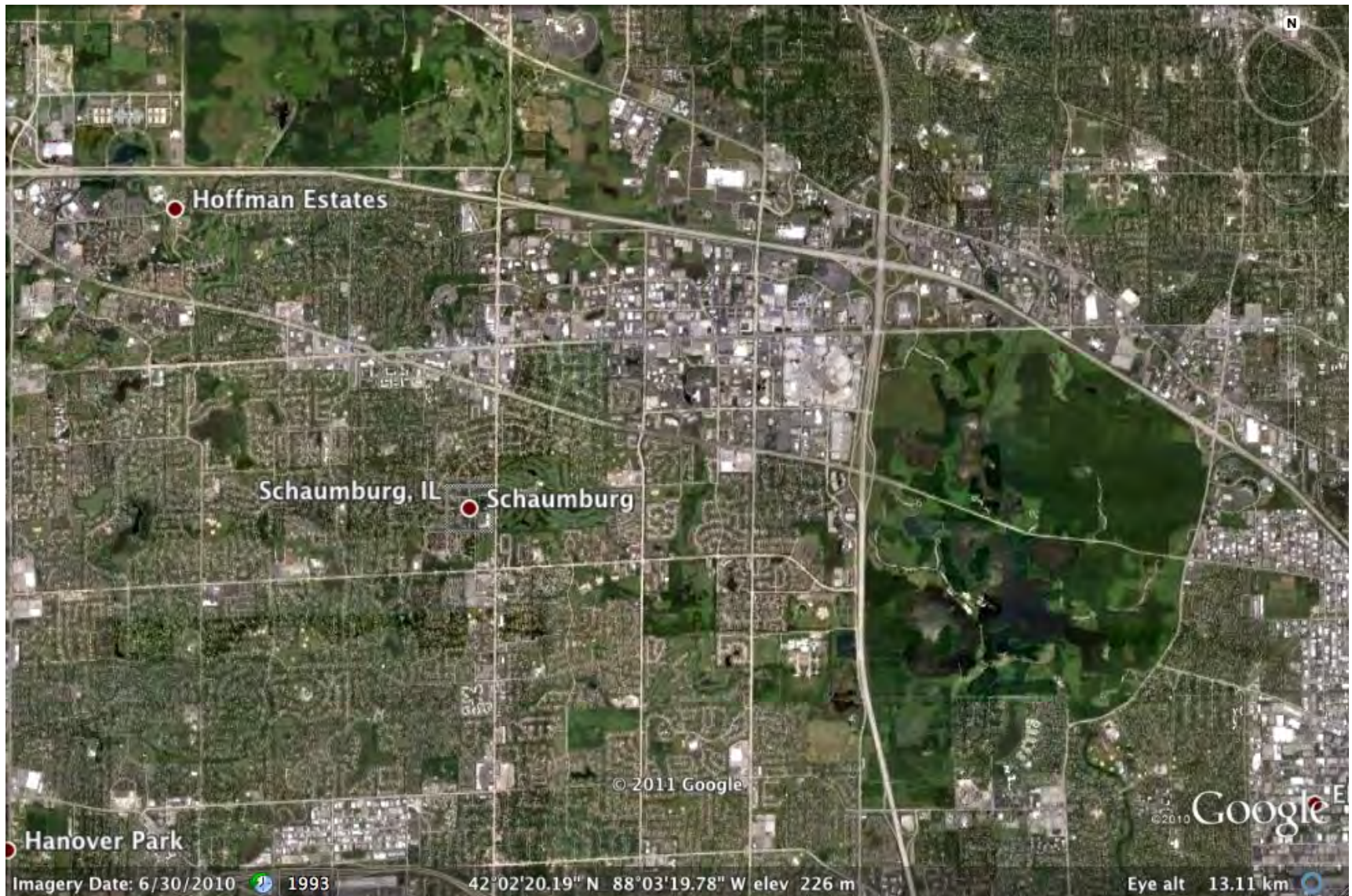
"Development"





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Green Infrastructure





Wastewater Treatment



MWRDGC's **John Egan Wastewater Treatment Plant**, Schaumburg IL / Busse Woods



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The Farm & the River



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

I Get Credit for Doing This? Cool!



Sustainability Studies [Blog](#) and [Website](#) (and, oh yes, [Facebook page](#))
[Schaumburg's Sustainable Future](#) (student research project)
Prof. Mike Bryson's [website/blog](#)