

Transition Chicago: Metropolitan Sustainability Efforts

Bioregional Theory and Practice (ENV 5040)
Green Mountain College

by
April Galarza

October 18, 2012

Chicago may not have claimed the official title and responsibility of a Transition Town as described by the Transition Movement but it is certainly a city in transition (Hopkins 2008). Robert Thayer speaks of building up, of high-density walkable mixed-use communities, of

producing and buying locally, and learning to understand the natural systems and their relationship to human activities (Thayer 2003). Under this criteria Chicago is experiencing an Eco-Renaissance. We are slowly taking back our streets from the automobile, holding polluting companies responsible for the health and environmental detriment they have inflicted. We are learning to produce and consume locally. We are reclaiming our natural treasures and remediating the consequences of our shortsighted development over the decades. We are seeking ways to take control over our energy supply and use. There is too much happening in my city to contain in this short paper. I have attempted to highlight some of the most exciting, and controversial initiatives.

From Dirty Power to Community Assets: Remediation and Reuse Plans for the Former Sites of the Fisk and Crawford Coal Plants

Two of the nation's oldest coal-burning power plants have finally been shut down. Chicagoans are now breathing a little easier but the responsibility for remediation and reclamation of the sites remains a contentious issue. Because they were built in late 50s, the Fisk Electric Generating Station and the Crawford Generating Station were grandfathered in under the Federal Clean Air Act. The act permitted pre-1976 coal plants to defer installing modern filtration systems required in newer plants (Environmental Law & Policy Center [ELPC] 2010). Over 300,000 people live within three miles of the plants—the highest population density of all the coal plants in the U.S. (Wilson 2011). Fisk and Crawford were responsible for 60% of the Midwest's CO₂ emissions, and the particulate matter emitted from the plants was linked to health tragedies such as hundreds of hospitalizations and asthma attacks and over 42 premature deaths per a year. The annual health costs amounted to \$127 million (Banks and Schneider 2010).

After a decade-long grassroots campaign and a lawsuit on behalf of the city, Midwest Generation, the company that owns the plants, choose to settle and shut them down. Although a mayoral task force comprised of community leaders, city official and company executives developed “Guiding Principles” for the redevelopment of the sites, residents are questioning whether the city’s plan goes far enough (PERRO 2012). Under the settlement, the company is legally obligated to shut down the plants, decommission the equipment and to secure and maintain the sites. There are no provisions for remediation. The Guiding Principles are vague on the subject of cleaning up the sites, mainly implying the level of remediation would be dependent on who buys the properties and their future use (Fisk and Crawford Reuse Task Force).

Polls conducted by the Pilsen Environmental Rights Reform Organization (PERRO) overwhelming demonstrated a demand for a full analysis of contaminates in the land, the river, and air, and for this information to made available to the public (PERRO 2012). However Midwest Generation has, so far, refused testing. Preliminary analysis to soil in the proximity of the plants has found heavy metals in concentrations above the safe limit set by the EPA, but without access to the sites a full report is impossible (Flannery 2012). The community is adamant that the sites be thoroughly cleaned up so that they no longer pose a health risk (PERRO 2012). Both the company and the city continue to demur. Mayor Emmanuel announced that they had pared down offers for the sits and that they are seeking to replace the plants with a non-polluting green job-creating industry. However, testing and remediation plans are still forthcoming (Haggerty 2012; [Blake](#) 2012).

Achieving New Heights in Urban Food Production: *The Plant*

Located in a former meatpacking facility on the Southside of Chicago, *The Plant* is an off-the grid vertical farm for the future. This revolutionary building will host a complex interrelated system involving an anaerobic digester that will consume 27 tons of food waste daily and produce 400 kW of electricity through a methane generator—enough to completely power the building. Excess heat will be used to regulate the temperature and run a micro craft brewery. Sustainable food production will take place in an aquaponic system using a symbiotic relationship between vegetables and tilapia. Nitrites produced by the fish waste will fertilize the plants. By absorbing the nitrites, the plants will filter the water, which will then be returned to the fish. Both fish and vegetables will be sold to the community.

The Plant will also be home to artisanal food businesses, including a beer brewery, a bakery, a kombucha (fermented tea) brewery, a mushroom farm, and a shared kitchen. The self-sustaining, interconnected system will allow for the waste of one product to be used as food for another. The spent distiller grains from the brewery will be fed to the tilapia, and solid wastes from the fish will aid the mushrooms. The sharing of resources will allow all of the businesses to prosper and create 125 new, green jobs for residents of the economically strained Back of the Yards neighborhood.

Funded in part by \$1.5 million in grant money from the Illinois Department of Commerce and Economic Opportunity, *The Plant's* mission is to promote sustainable food production, entrepreneurship, and building reuse through research, education, and development. The building is owned and operated by Bubbly Dynamics, L.L.C., which is in turn owned by John Edel. I believe this is exactly what Thayer had in mind when he envisioned the potential of urban sustainability.

Active Transportation: Transforming Our Streets for All Users

“We have always been a city built around transportation — first water, then rail, then roads. This will continue to be true as our transportation system continues to evolve. Where we once built expressways that divided our communities, we are now reconnecting neighborhoods with new bus lanes and extensive and expanding bicycle facilities that offer safe, green, and fit ways to travel for all ages.” -Mayor Rahm Emanuel (Ricks 2012)

Perhaps one of the most contentious sustainability efforts in Chicago is the rapid transformation of our streets to be more accessible to multiple forms of transportation including walking, buses and trains, and bicycles. Chicago has been known as a bike-friendly city for several years now. The city currently has 170 miles of protected, buffered, and traditional on-street bike lanes. The 18.5-mile bike and pedestrian path that runs along the lake shore is a manifestation of Daniel Burnham’s vision for our city (Chicago Department of Transportation 2012).

Mayor Rahm Emmanuel intends to develop world-class bicycle infrastructure for Chicago. He has pledged to install 100 miles of protected bike lanes within his term (Ricks 2012). Protected bike lanes offer a lane for cyclist separated from traffic by either parked cars or some other barrier such as bollards. So far he has delivered on 7 miles (Active Transportation Alliance [Active Trans] 2012) with 23 miles still in development (Greenfield 2012). His *Streets for Cycling Plan 2020* calls 650 miles of interconnected bikeways that will provide safe routes for all bicyclists from age 8 to 80. (Ricks 2012).

However, not all Chicagoans are ready to see their roads put on “diets.” The plan has faced opposition from motorists. The \$150 million dedicated to the construction, although minimal compared to most city projects, has been questioned. Although city planners have striven to design new lanes on wide streets already conducive to bike infrastructure, sometimes it

is necessary to remove parking spaces, or a motor-vehicle lane (McCarron 2011). Parking has been a point a conflict in recent years due to privatization of metered on-street parking. Also the bike lanes seem to be an impetus for debates on forums such as Everyblock about which road user is less likely to obey traffic laws (Everyblock 2012). As time passes protected bike lanes and other bike infrastructure are becoming more accepted. Business owners are noticing a correlation between bike-friendly streets and an increased patronage. The federal grant sponsored bike-sharing program that is about to be launched will hopefully entice new ridership among non-bike owners, tourists and multi-modal commuters (Greenfield 2012). The old saying, “if you build it, they will come” definitely applies to bike lanes; the number of cyclists on Kinzie Avenue, Chicago’s very first protected bike lane, has increased by 55% since the lane was opened (Active Trans 2012).

Should We Restore the Natural Divide? Combating Invaders in Chicago’s Waterways

Since European settlers first arrived in this region, they longed to have an uninterrupted waterway connecting Lake Michigan and the Mississippi River. Over a hundred years of engineering—building canals, channels, locks and the ultimate reversal of the flow of the Chicago River have culminated in today’s Chicago Waterway System (CAWS). This waterway, however, has proven to be as convenient for invasive species as it is for boats. Asian Carp are the most predominant and infamous of the invaders. They can grow to up to 110 lbs. and eat between 20-40% of their body weight each day; seriously impacting the food supply for native fish. “Asian carp” is actually a generic name for four species of carp including bighead, silver, grass and black. These fish were originally imported to help control algae in the South, but flooding in the 90s allowed them to spread north up the Mississippi River. Now they have

traveled over 1000 miles and are regularly caught in large quantities—25,000 lbs. per a day—in the Illinois and Ohio rivers. It is critical that we keep them out of the inland sea of Lake Michigan, where they will grow to unmanageable levels and seriously impact the ecosystem.

Asian Carp are the most talked-about, but they are not the only foreign fauna threatening our waterways. Chicago spends an average of \$150 million per a year controlling the three species of carp, sea lamprey, zebra mussels and others. Electric barriers that emit a low voltage of electricity and are unpleasant for fish to cross were installed and have seen some success stopping the bigger types of carp. However smaller carp are slipping past the barriers. More than 90 samples of carp DNA have been found in Lake Michigan. Also these electric fields are not a deterrent to other invasive species. Now the Great Lakes Commission, a panel of scientific and technical experts, political leaders and stakeholders from Chicago, Northwest Indiana, and other areas of the Great Lakes region are suggesting a radical solution. They are recommending that permanent barriers be constructed at key points to prevent all invasive species from passing through the CAWS—effectively undoing the work of generations (Great Lakes Commission).

As can be imagined this idea is rather controversial. Although at present less than 3% of all transportation of goods and people is by boat but there is great potential for growth. Industries are realizing that that this method of shipping is cheap, environmentally-friendly and energy efficient. A single 15-foot barge can carry the same amount of cargo as two 100-car trains or 870 trucks. Mayor Emanuel has suggested that by utilizing the CAWS we can alleviate congestion on streets and railroads. Furthermore the expansion of the Panama Canal in 2015 will potentially enable Chicago to return to its legacy as Port City ([Lydersen 2011](#)).

The plan proposed by the Great Lakes Commission offers solutions for barriers. Each plan takes in consideration the concerns presented by stakeholders. Most include transportation

modifications such as boat elevators, decontaminating stations and multi-modal shipping options (Great Lakes Commission). Recent discoveries of silver carp DNA in the North Channel of the Chicago River have further strengthened the federal lawsuit filed by five states-Michigan, Wisconsin, Minnesota, Ohio and Pennsylvania along with the Grand Travers Band of Ottawa and Chippewa Indians in Michigan. They demand that a separation solution be determined and enacted by the Army Corps of Engineers. The Corp has stated that it will complete and release a study within a year but it may take longer to determine which solution is best (Flesher 2012).

In the meantime, the Asian carp population in the northern waterways continues to expand. Biologists with the Illinois Natural History Survey are concerned that two native species of fish, the gizzard shad and the largemouth buffalo, are being overwhelmed and crowded out by the Asian carp. However, commercial fisherman are taking an entrepreneurial approach to the invasion. "Asian Carp: If you can't beat them? Eat them," touted a WBEZ headline. Each carp weighs on average 15-25 pounds. At current market price, they fetch about 14 cents per a pound. Fishermen make up for this fairly low price in volume. Demand for the fish is growing mostly among Asian communities in Chicago, New York and California. Senator Mike Jacobs has big plans for Asian Carp. He imagines a rebranding campaign that could make the fish more attractive to consumers. "Chilean Sea Bass wasn't always known as Chilean Sea Bass," he told the WBEZ reporter "There was a time it was known as a Patagonian Toothfish, and people wouldn't eat it." He suggests changing Asian's carps name, "I'm from Rock Island, so I'm thinking of 'Rock Island Sole,'" he adds "Schafer Fisheries is near Savanna, [Ill.], so Savanna Sole might work, too" (Schaper 2006). I am already looking up recipes.

Community Energy Choice: Aggregating For a Clean Energy Future

On November 6 2012, Chicagoans can take a historical step toward clean energy. There will be a referendum on the ballot that will ask whether we should allow the city to aggregate our electrical purchases. Since 2007, Illinois law has permitted local governments to negotiate for lower utility costs on behalf of residents and small businesses. Over 200 communities across the state have taken advantage of the law—a good portion of which have opted to augment their energy supply with renewables (Citizens Utility Board). Cincinnati passed a community choice referendum last year and has since become the first major U.S. city to offer 100% green energy. Although some of this energy is sourced locally from the University of Cincinnati's generating facility and the Cincinnati Zoo's Solar Canopy Project, the majority will be in the form of renewable credits (McCartney 2012).

Mayor Emmanuel is supporting the referendum, and it is expected to pass because voters are excited by the prospect of saving money on their electric bills. Examples from communities who have already passed community aggregation bode well for Chicagoan. Both Willmette and Kenilworth residents and small business owners who use 15,000 kilowatt hours or less pay under 4.2 cents per a kilowatt hour, while the majority of Illinoisans pay Commonwealth Edison's (ComEd) electricity-supply price of 8.32 c/kWh (Bullington 2012).

If the referendum passes, a series of public forums will be held to help the city decide which energy bid to accept. The Chicago Clean Power Coalition (CCPC) will lobby for Chicago to follow Cincinnati's example in replacing our power supply with renewables (CCPC 2012). Like Cincinnati, Chicago would likely rely on renewable credits to make up a portion of its portfolio but there is hope for an inclusion of locally produced wind energy as well (Bullington 2012).

According to the American Wind Energy Association (AWEA) Illinois currently produces approximately 3,055 MW (AWEA 2012). Cook County consumed a total of 51 million MW in 2005 (Center for Neighborhood Technology 2009). This number has likely grown since then. We have a long way to go before wind is our primary or even majority source of power, but community aggregation will allow Chicago to incorporate renewables into our portfolio. Chicago is the third most populous city in the nation with 2.7 million residents (US 2011 Census). As one of the largest cities, our energy choice could set a powerful precedent for the rest of the country.

Final Thoughts

As I mentioned at the beginning of this paper, there is far too much happening in Chicago to fit in this short paper. I left out the prairie conservation efforts happening in the Chicago suburbs and the chemical cleanup of the Chicago River. I left out the “greenest street in the country” in the Southside Pilsen neighborhood where the alleys are made from a water permeable material to help with storm drainage and the streetlamps are über efficient and solar powered. Needless to say, it is an exciting time to be a Chicagoan. Transition towns are characterized by the efforts of community members to use innovation to tackle the problems of oil dependency, environmental detriment and sustainability. I believe we have a long way to go, but are heading in the right direction.

**** Bonus Material. I originally wrote about the Midland Tallgrass Prairie Restoration but because this project is outside of Chicago, not controversial at all, and the Plant served as better example of urban sustainability, I cut it. I thought you might still want to read about the restoration project so it is included below the references. ****

REFERENCES

- Active Transportation Alliance. (2012). Neighborhood Bikeways Campaign. *Active Transportation Alliance*. Retrieved from <http://www.activetrans.org/bikeways>
- Alexander, J. (2012, January 31). Study offers a solution to Asian carp crisis facing the Great Lakes. *Wildlife Promise*. Retrieved from <http://blog.nwf.org/2012/01/study-offers-a-solution-to-asian-carp-crisis/>
- American Wind Energy Association. (2012, October 17). U.S. Wind Industry Third Quarter 2012 Market Report. American Wind Energy Association. Retrieved from <http://www.awea.org/learnabout/publications/reports/AWEA-US-Wind-Industry-Market-Reports.cfm>
- Banks, J., & Schneider, C. (2010, September). The Toll From Coal An Updated Assessment of Death and Disease from America's Dirtiest Energy Source. Clean Air Task Force.
- Bergstrom, M. (2012). The Plant Chicago. *The Plant Chicago*. Retrieved October 18, 2012, from <http://www.plantchicago.com/about/>
- Blake, M. (2012, September 26). Buyer, Clean-Up Plans Still Unknown For Chicago Coal Plant Sites. *Progress Illinois*. Retrieved from <http://progressillinois.com/quick-hits/content/2012/09/26/buyer-clean-plans-still-not-known-chicago-coal-plant-sites>
- Bullington, J. (2012, October 4). Electricity Aggregation on November Ballot: Some Glenview residents Question Why the Village Didn't Pursue Change Sooner. *Chicago Tribune*. Retrieved from http://articles.chicagotribune.com/2012-10-04/news/ct-tl-glenview-public-aggregation-meeting-20121004_1_electricity-aggregation-electrical-aggregation-residents-question

Center for Neighborhood Technology. (2009, September). Chicago Regional Energy Snapshot.

Chicago Metropolitan Agency for Planning. Retrieved from

<http://www.cntenergy.org/planning/completed-projects/>

Chicago Clean Power Coalition. (2012, October). The Chicago Clean Power Coalition. *The Chicago*

Clean Power Coalition. Retrieved October 17, 2012, from <http://cleanpowerchicago.org/>

Chicago Department of Transportation. (2012, October 16). CDOT Bicycling. *Chicago Department of*

Transportation. Retrieved October 17, 2012, from

<http://www.cityofchicago.org/city/en/depts/cdot/provdrs/bike.html>

Citizens Utility Board. (2012, February 28). CUB Unveils Consumer Guide as Nearly 300 Illinois

Communities Plan Referendums to Consider ComEd/Ameren Competitors. *PR Newswire*.

Retrieved from [http://www.prnewswire.com/news-releases/cub-unveils-consumer-guide-as-](http://www.prnewswire.com/news-releases/cub-unveils-consumer-guide-as-nearly-300-illinois-communities-plan-referendums-to-consider-comedameren-competitors-140724333.html)

[nearly-300-illinois-communities-plan-referendums-to-consider-comedameren-competitors-](http://www.prnewswire.com/news-releases/cub-unveils-consumer-guide-as-nearly-300-illinois-communities-plan-referendums-to-consider-comedameren-competitors-140724333.html)

[140724333.html](http://www.prnewswire.com/news-releases/cub-unveils-consumer-guide-as-nearly-300-illinois-communities-plan-referendums-to-consider-comedameren-competitors-140724333.html)

Committee on Health, Environmental, and Other External Costs and Benefits of Energy Production

and Consumption, & National Research Council. (2010). *Hidden costs of energy: unpriced*

consequences of energy; production and use. Washington, DC: National Academies Press.

EveryBlock. (2012). Kinzie Street Bike Lanes. *EveryBlock*. Forum. Retrieved October 18, 2012, from

[/announcements/jul27-kinzie-street-bike-lanes-4137542/](#)

Fisk and Crawford Reuse Task Force. (2012, September). Fisk and Crawford Reuse Task Force:

Process, Principles and Recommendations. City of Chicago's Mayor's Fisk and Crawford Reuse

Task Force & the Delta Institute. Retrieved from <http://www.delta-institute.org/FiskandCrawford>

- Flannery, P. (2012, June). ICP-AES Analysis of Fisk and Crawford Coal Fire Plants and Ensuing Site Remediation Strategies. Retrieved from http://isen.northwestern.edu/research/awards_summary/students.php
- Flesher, J. (2012, October 10). Asian carp DNA found in Chicago River channel. *Rockford Register Star*. Retrieved from <http://www.rrstar.com/updates/x233634389/Asian-carp-DNA-found-in-Chicago-River-channel>
- Greenberg, J. (Ed.). (2008). *Of Prairie, Woods, and Water: Two Centuries of Chicago Nature Writing*. University Of Chicago Press.
- Greenfield, J. (2012, September 13). Highlights from this week's Mayor's Bike Advisory Council meeting. *Grid Chicago*. Retrieved from <http://gridchicago.com/2012/highlights-from-this-weeks-mbac-meeting/>
- Haggerty, R. (2012, September 23). Emanuel discusses plans for sites of closed power plants in Pilsen, Little Village - City hopes to draw industry to areas long dominated by coal-fired facilities. *Chicago Tribune*. Retrieved from http://articles.chicagotribune.com/2012-09-23/news/ct-met-mayor-emanuel-coal-plants-20120923_1_crawford-plant-power-plants-midwest-generation
- Hopkins, R. (2008). *The Transition Handbook: From Oil Dependency to Local Resilience*. Chelsea Green.
- Learner, H. (2010). MidwestGenerations "Unpaid Health Bills" The Hidden Public Costs of Soot and Smog From the Fisk and Crawford Coal Plants in Chicago. Environmental Law & Policy Center. Retrieved from <http://elpc.org/2010/10/25/report-finds-chicago-coal-plants-caused-up-to-1-billion-in-health-damages-since-2002>

- Lydersen, K. (2011, December 31). Chicago Waterways Study Stirs Debate on Their Future. *The New York Times*. Retrieved from <http://www.nytimes.com/2012/01/01/us/chicago-waterways-study-stirs-debate-on-their-future.html>
- McCarron, J. (2011, November 27). Chicago's war on cars. *Chicago Tribune*. Retrieved from http://articles.chicagotribune.com/2011-11-27/news/ct-oped-1127-mccarron-20111127_1_bus-lanes-bike-lanes-bike-business
- McCartney, H. (2012, April 26). Cincinnati Chooses Green Energy Aggregation: Decision makes Cincinnati first major U.S. city to offer 100 percent green electricity. *Cincinnati CityBeat*. Retrieved from http://citybeat.com/cincinnati/blog-3366-cincinnati_chooses_green_energy_aggregation.html
- National Forest Foundation. (2011, October). Midewin National Tallgrass Prairie A Shared Vision For Restoration. National Forest Foundation. Retrieved from <http://www.nationalforests.org/conservation/programs/conservation/midewin-tallgrass-prairie-restoration>
- PERRRO. (2012, September). Fisk Power Plant Remediation and Redevelopment. Pilsen Environmental Rights Reform Organization. Retrieved from <http://pilsenperro.org/the-long-awaited-schematic-design-booklet-is-now-available/>
- Ricks, K. (2012, May 11). Chicago Forward - Chicago Department of Transportation Action Agenda. Chicago Department of Transportation. Retrieved from <http://www.cmap.illinois.gov/policy-updates/-/blogs/chicago-department-of-transportation-releases-action-agenda>
- Schaper, D. (2006, July 12). Asian Carp: Can't Beat Them? Eat Them. *All Things Considered*. NPR. Retrieved from <http://www.npr.org/templates/story/story.php?storyId=5542199>

The Great Lakes Commission. (2012, January). Restoring the Natural Divide: Separating the Great Lakes and Mississippi River Basins in the Chicago Area Waterway System. The Great Lakes Commission and the Great Lakes and St. Lawrence Cities Initiative. Retrieved from <http://www.glc.org/caws/>

Thayer, J. R. L. (2003). *LifePlace: Bioregional Thought and Practice* (1st ed.). University of California Press.

U.S. Census Bureau. (2012, September 18). State & County QuickFacts. *U.S. Census Bureau*. Retrieved from <http://quickfacts.census.gov/qfd/states/17/1714000.html>

Wilson, A. (2011). Coal Blooded Putting Profits Before People in Illinois. National Association for the Advancement of Colored People, Little Village Environmental Justice Organization (LVEJO), the Indigenous Environmental Network. Retrieved from <http://www.naacp.org/pages/coal-blooded1>

The Midewin National Tallgrass Prairie Restoration

“A world of grass and flowers that stretched around me, rising and falling in gentle undulations, as if an enchanter had struck the ocean swell and it was at rest forever. Acres of wild flowers of every hue glowed around me, and the sun arising from the earth where it touched the horizon, ‘kissing with golden face the meadows green’”—Eliza Steele, 1841 (Greenburg 2008).

Only .01% of the Prairie State still resembles the land described by early settlers. Some was lost due to agriculture and the rest to development. A partnership between the Wetlands Initiative and the U.S. Forest Service is “turning back the hands of time” in the creation of Midewin, the country’s first tallgrass prairie reserve. The project began in 1997 when the U.S.

Army decommissioned the former Joliet Ammunitions Factory and donated 30 square miles (19,200 acres) for restoration. Since then, over \$2.5 million has been leveraged in grant money and donations and more than 2,000 acres have been restored (National Forest Foundation).

“Midewin” is the Potawatomi Native American word for “healing,” which is exactly what is occurring as volunteers remove non-native plants and restore the 600 species of native prairie grasses and plant. When Eliza Steele wrote her travel journal, tallgrass prairies swathed the American Midwest. Grasses averaging 5 to 6 feet in height such as indiangrass, big bluestem and switchgrass were part of a complex ecosystem which was home to a diversity of insects, birds and mammals. The 10-year plan calls for the restoration of another 18,000 acres and 22 miles of streams, and the re-habitation of a herd of bison. Midewin will also host a natural education center and facilities for outdoor recreation such as hiking trails and bike paths. Located only an hour from Chicago, the site will attract visitors and will be an important educational component for students (National Forest Foundation).

Because a restoration on this scale has never been attempted before, and the site contains rusting munitions factory buildings, ammunition bunkers and a buried pipe system once used for drainage that caused great detriment to the natural hydrological processes, the 20,283 acre restoration will be challenging and expensive. But the reward, a pristine prairie landscape resurrected from the memories of our ancestors will serve as a shining example of our natural heritage, a national treasure that will teach and delight generations to come (National Forest Foundation).

