

# Sustainable Chicago

Viscous Flow (Jon Raybin and Julia Murphy)  
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username: jraybin  
jraybin@uchicago.edu  
University of Chicago

# Reducing Fossil Fuel Consumption

## Electricity:

As of 2015, energy used by buildings contributed to 71% of Chicago's carbon emissions. 42% of electricity was generated by coal, and only 2% came from renewable sources. Mayor Rahm Emanuel announced in August 2017 that he wants all 900+ Chicago city buildings to be powered by 100% renewable energy by 2025. This would drastically reduce the city's emissions, but there are other ways to reduce fossil fuels consumption in electricity as well:

- Adding solar panels or wind turbines to existing infrastructure rooftops is a simple way to utilize otherwise unused space. It also eliminates the need to expand land use for energy production.
- Providing tax subsidies for using energy efficient appliances, light bulbs, and means of energy production encourages individuals to adopt cleaner practices.

## Transportation:

The Chicago Transit Authority (CTA) bus and train systems replace an estimated equivalent of 400,000 cars on roads each day. 15% of the buses are hybrids and many use clean diesel engines and filters that meet EPA standards, and the city is working to convert all buses to meet these standards. In addition, Chicago has a bikeshare program, called Divvy, that offers 6,000 bikes at 580 stations throughout the city. Further improvement can be made in the following areas:

- CTA ridership has decreased by almost 48 million boardings since 2011. A renewed initiative to encourage taking buses or trains over driving is needed to reduce fossil fuel consumption.
- Bike riding is a great way to decrease the amount of cars on the roads. Safer bike lanes that are separated from city traffic and increased Divvy bike stations are needed to accomplish this goal.

# Preserving Chicago's Water Resources

## Water Conservation:

Chicago has a strong historical connection with Lake Michigan and its abundant water resources. In the early 20th century, the city embarked on a massive engineering project to reverse the flow of the Chicago River and preserve the Lake. The Chicago region currently uses 770 million gallons per day from Lake Michigan.

- Chicago has over 900 miles of water mains. If we replace the current 100-year-old system, we can reduce leaks while improving water quality.
- Expanded water metering systems across the city will allow building managers to monitor their consumption, detect leaks, and use less water.

## Rainwater Collection:

During heavy storms, the city is susceptible to flooding and sewer overflow.

Sewage-contaminated water carries bacteria which can spread disease and contaminate water systems. Chicago has worked to replace many paved surfaces with permeable materials to reduce flooding.

- We can prevent flooding further by reducing the city's paved areas and introducing more parks and green spaces that can absorb water.
- Individuals can also contribute by collecting stormwater through the use of downspout cisterns and catch-basins.

# Rethinking Green Spaces

## Rooftop Gardens:

Rooftops are an often ignored aspect of landscaping, but they provide an excellent space to help offset climate damage. Rooftop gardens can help clean and reduce rainwater runoff; provide insulation in both cold and hot months, reducing electricity usage to warm or cool the buildings; and absorb greenhouse gases. Modifying current buildings and designing new buildings to support rooftop gardens will help reduce environmental destruction.

## Vertical Farming:

Chicago is home to FarmedHere, the largest organic vertical farm in the United States. The indoor facility is climate controlled and allows a wide variety of food to be grown year-round. This farm is not the only one like it in the Chicago area. Even still, grocery stores, both locally owned and large national stores, sell huge quantities of imported foods. Changing the supply infrastructure so that vertical farms provide the majority, if not all, of food for the Chicago area would drastically reduce the environmental costs of pesticides, herbicides, and fertilizers, as well as transportation and packaging. However, it must be ensured that the farms are powered with renewable energy sources.

## Urban Forest Agenda:

Chicago's Urban Forest Agenda hopes to maintain, conserve, and expand forests. Not only will this reduce greenhouse gas emissions and improve air quality, it will also improve wildlife habitats and help with stormwater management, similarly to rooftop gardens. Forests must be kept in mind when planning urban development and expanding our cities. Wherever possible, replace existing infrastructure with green spaces or with organization that allows for healthy tree conservation.

Dear Commissioner Reifman,

We are students at the University of Chicago and are writing to voice our support of Mayor Emanuel's environmental sustainability initiatives and to encourage extending the plan to encompass further sustainable development.

Chicago has a true opportunity to become a model for sustainable cities everywhere. In a city as large and complex as Chicago, sustainability requires innovation in multiple sectors, including water usage, fossil fuel use, and green spaces. We'd like to encourage plans for further innovation in these areas.

The CTA and Divvy bike share program have contributed to reducing greenhouse gas emissions and fossil fuel consumption from individual car usage. However, emissions can be reduced further by continually encouraging people to walk or bike on their morning commutes. Current roads are not set up to be conducive for recreational or commuter biking. Increasing the number of bike paths and bike lanes that are separated from traffic will increase the availability of biking as an option for commuters.

The over 900 miles of water mains that run through Chicago that are 100 years old. Replacing this system will reduce leaks, therefore reducing overall water usage, and improve water quality. Expanding water metering systems across the city would allow building managers to monitor their water consumption, detect leaks in the mains, and use less water.

Lastly, rooftop gardens are an opportunity to increase green spaces without drastic modifications to current infrastructure or the city layout. These gardens help clean and reduce rainwater runoff; provide insulation to buildings in both winter and summer - reducing electricity usage to heat or cool buildings; and absorb greenhouse gas emissions. Modifying current buildings to support rooftop gardens will help offset the city's carbon footprint.

We thank you for your time and participation in making Chicago a more sustainable city.

Sincerely,

Jon Raybin and Julia Murphy