



TO: LFUCG Council, Environmental Quality and Public Works Committee
FROM: LFUCG Environmental Commission
DATE: Adopted January 6, 2020
RE: Recommendations regarding Climate Change and Plastics Pollution

Statement of Purpose

The Environmental Commission will request the endorsement of the Urban County Council to begin implementation of the Empower Lexington Plan by focusing on the plan's goal for reducing energy use in the residential sector. The Commission would compile resources on reducing energy usage, work on educating the public through community events and organizations, and identify potential LFUCG policies to promote energy conservation and reduce greenhouse gas emissions.

SUMMARY

This memorandum includes recommended initial steps to address two key environmental issues in Lexington Fayette County by (1) reducing the energy use to mitigate climate change and (2) to reduce single-use plastic products to combat plastics pollution. These recommendations build on existing community input and are the result of months of work by members of the Environmental Commission with additional input from members of the public, non-governmental organizations, and business. The recommendations include specific actions that the Environmental Commission proposes to perform as well as policy considerations to be considered by the Council. An appendix that discusses the rationale for these recommendations is attached.

RECOMMENDATIONS

Climate Change: That LFUCG begin implementing the *Empower Lexington* plan by focusing on the plan's goal for reducing energy use in the residential sector. To assist in the implementation, the Environmental Commission will compile resources on reducing energy usage, work on educating the public through community events and organizations, and identify potential LFUCG policies to promote energy conservation and reduce greenhouse gas emissions.

Plastics Pollution: That the Council endorse the Environmental Commission’s initiatives to promote awareness of the adverse impacts of plastics pollution, to provide public education and outreach on approaches to reduce plastic pollution, and to identify potential LFUCG policies on reducing plastics pollution.

PROPOSED ACTIONS

1. The Council should designate one or more Council Members to participate regularly in meetings of the Environmental Commission to facilitate continuing exchange of information between the Council and the Commission.
2. The LFUCG should appoint, hire, or designate a staff member for whom a significant portion of the paid duties will include providing guidance to residents of Fayette County on energy use, greenhouse gas emissions, climate change. Working in concert with the Commission, this staff member’s initial tasks should be to:
 - (a) Identify neighborhoods and existing housing types that have the greatest potential for improvements in energy use;
 - (b) Identify specific techniques and resources for lower-income areas.
 - (c) Work with landlords, homeowners, neighborhood and homeowner or other associations to communicate the benefits of efficient energy use and proven techniques to reduce energy consumption and save money.
3. The Commission will identify key LFUCG policy initiatives that could promote energy conservation and reduction of greenhouse gas emissions in the residential and other sectors. Policies that should be considered and evaluated for recommendation to the LFUCG include, but are not limited to:
 - (a) Property tax rebates, particularly for lower income homeowners, for undertaking energy audits and energy conservation measures such as insulation, more efficient lighting and heating and cooling units, smart thermostats, and weather sealing.
 - (b) Code improvements requiring energy conservation measures for rental properties. A sample of such code requirements can be found at <https://www.epa.gov/statelocalenergy/local-residential-energy-efficiency>
 - (c) Promote retail subsidies for energy-efficient appliances, LED fixtures, water-heater blankets, insulating window film, low-flow shower heads, faucets, and toilets.
 - (d) Consideration of the contribution of municipal waste disposal and recycling to overall energy use and greenhouse gas emissions.

4. With the assistance of the Commission, LFUCG will provide access to web-based resources and other educational and outreach materials regarding:
 - (a) factually supported aspects of energy use, greenhouse gas emissions, climate change, and the diverse impacts of those phenomena on local, regional, and worldwide scopes.
 - (b) the extent of the problem of plastics pollution and guidance on methods to reduce plastic use and waste.

5. The Commission should convene an annual Environmental Summit [name to be decided], which will consist of a collection of stakeholders convened by the Commission to facilitate community efforts pertaining to issues discussed within this initiative. The first to be held in fall-2020 will focus on two topics:
 - (a) to discuss issues related to climate change and to explore actions to be taken by individuals as well as local and state government.
 - (b) to discuss solid waste issues in Lexington, the role of plastics in environmental pollution, and strategies to reduce use of single use plastics.



APPENDIX TO RECOMMENDATIONS OF ENVIRONMENTAL COMMISSION JANUARY 2020

CLIMATE CHANGE

1. Public polling data on climate issues show general acceptance of the phenomenon of climate change and the role of human activities in causing the change.
 - (a) Yale Program on Climate Change Communication: Public polling data results on climate change - searchable by county, congressional district and state.
<http://climatecommunication.yale.edu/visualizations-data/ycom-us-2018/?est=happening&type=value&geo=county>
 - (i) Results from 2018 show
 - (1) 74% of Fayette County residents believe that global warming is happening;
 - (2) 61% believe that global warming is caused mostly by human activities; and
 - (3) 59% think that local officials should do more to address global warming.
2. Recent national and international reports have shown the nature of global temperature increases and the related impact of greenhouse gas emissions.
 - (a) Example resources include the following:
 - (i) Fourth National Climate Assessment, Volumes I and II
<https://www.globalchange.gov/nca4>
 - (1) Highlight conclusions of Vol I, Climate Science Special Report:
 - a. Global average surface temperature has increased 1.8°F in last 115 years (1901 to 2016).
 - b. Global average sea level has risen 7 – 8 inches since 1900. Coastal tidal flooding is increasing.
 - c. Heavy rainfall is increasing in intensity and frequency.

- d. Global atmospheric carbon dioxide concentration is now about 400 parts per million (level last seen about 3 million years ago).
 - e. It is extremely likely that human activities, especially emissions of greenhouse gases, are the dominant cause of the observed warming since the mid-20th century
- (ii) Intergovernmental Panel on Climate Change (“IPCC”) Special Report, Global Warming of 1.5°C
<https://www.ipcc.ch/sr15/>
 - (1) Summary Excerpt of Conclusions
 - a. Human activities are estimated to have caused a 1.0°C global temperature increase above pre-industrial levels. Global warming is likely to reach 1.5°C between 2030 and 2052 if it continues at current rate.
 - b. Warming from anthropogenic emissions from the pre-industrial period to the present will persist for centuries to millennia and will continue to cause further long-term changes in the climate system, such as sea level rise, with associated impacts.
 - c. Regional differences are expected to include increased mean temperatures, higher extreme temperatures in many inhabited regions, and locally heavy precipitation in some regions but drought in others.
- (b) Additional national, international, and state reviews of climate research and predictions include:
 - (i) United Nations Emissions Gap Report 2019
<https://www.unenvironment.org/resources/emissions-gap-report-2019>
 - (ii) Kentucky Climate Center: Hosted by Western Kentucky University
<http://www.kyclimate.org/>
 - (iii) EPA Climate Change Indicators:
<https://www.epa.gov/climate-indicators>
 - (iv) University of Kentucky Greenhouse Gas Emissions Reduction Plan and Results
<https://www.uky.edu/sustainability/greenhouse-gas-emissions>
<https://www.uky.edu/sustainability/sites/www.uky.edu.sustainability/files/2017-2018%20Emissions%20Reduction%20Progress%20Report.final.pdf>

- (v) Princeton University Carbon Mitigation Initiative.
<https://cmi.princeton.edu/wedges>
and S. Pacala and R. Socolow, Stabilization Wedges: Solving the Climate Problem for the Next 50 Years with Current Technologies, Science 305:968-972 (2004).
3. Our neighboring cities and other have adopted broad plans to address climate change.
- (a) Louisville Sustainability Plan:
<https://louisvilleky.gov/government/sustainability/sustain-louisville>
 - (b) Green Cincinnati Plan:
<https://www.cincinnati-oh.gov/oes/citywide-efforts/climate-protection-green-cincinnati-plan/>
 - (c) 100 Resilient Cities:
<http://www.100resilientcities.org/>
 - (d) USA Sustainable Cities Initiative
<http://unsdsn.org/what-we-do/solution-initiatives/usa-sustainable-cities-initiative-usa-sci/>
4. The Residential Sector is underserved by programs on energy efficiency and alternative energy.
- (a) Lexington's GreenCheck program provides guidance to commercial enterprises.
 - (b) Many industrial facilities have existing programs that focus on energy efficiency and other sustainability initiatives. Lexmark and Linkbelt are leaders in sustainable practices.
 - (c) The University of Kentucky and the Fayette County Public Schools have their own sustainability programs. For example, the University of Kentucky has implemented a Greenhouse Gas Emissions Reduction Plan that has completed a highly-successful first year. See the links below:

<https://www.uky.edu/sustainability/greenhouse-gas-emissions>

<https://www.uky.edu/sustainability/sites/www.uky.edu.sustainability/files/2017-2018%20Emissions%20Reduction%20Progress%20Report.final.pdf>
 - (d) Transportation-based energy use depends in large part on the crossroads of interstate highways and the Bluegrass Airport. Regional transportation planning is a component of local, state, and federal actions. Vehicle fuel efficiency is governed by federal law.

PLASTICS POLLUTION

1. The problem of plastics pollution and the adverse impacts of single use plastics is relevant to Lexington and Central Kentucky.
 - (a) Discarded plastics interfere with stormwater management and obstruct wastewater treatment systems. *See Sustain*, Plastic Pollution, Issue 39.
<https://ir.library.louisville.edu/sustain/vol2018/iss39/>
 - (b) Deterioration of large plastic structures into microplastics or microfibers, that are defined as plastic pieces less than 5 mm in size. *See, e.g., Sustain* Part 3.
 - (i) Studies have shown the wide-spread presence of microplastics in humans with the potential negative impacts on human health. *See* Dr. Judith Weis, et al., *Human Health Impacts of Microplastics and Nanoplastics*, Report or the NJDEP-Science Advisory Board (Dec. 30, 2015).
 - (ii) Microplastics have been documented in freshwater river sediments. *See*, R. A. Castaneda, et al., *Microplastic pollution in St. Lawrence River Sediments*, *Can J. Fish. Aquat. Sci.* 71: 1767-1771 (2014). Microplastic pollutants have been observed to be related to decreased feeding effectiveness of aquatic organisms, reduced immune response, liver stress, reduced growth rates, and developmental abnormalities. *See, e.g.,* Brian Pachkowski, *Microplastics as Contaminants of Emerging Concern* (2016) and B. Ravit, et al., *Microplastics in urban New Jersey freshwaters; distribution, chemical identification, and biological affects*, *AIMS Environmental Science* 4(6):809-826 (217).
2. Communities across the country have examined strategies to reduce the generation of plastic pollution. The Environmental Commission may consider and recommend to the LFUCG Council strategies that may include, but are not limited to these categories:
 - (a) For commercial settings such as restaurants and hotels, see policies discussed by Shengyuan Su, et al., *Plastic Reduction Case Studies* (2015).
 - (i) Reduce use of plastics for take-out (change containers)
 - (ii) Change consumer behavior by encouraging reusable containers (whether plastic or glass)
 - (iii) Track data on plastics use, waste generation, and recycling
 - (iv) Establish baseline on waste generation
 - (v) Provide reusable items instead of single-use plastics
 - (b) Efforts addressed to educate citizens and promote waste reduction:
 - (i) Encourage individual users to refuse plastic items (cups, bottles, straws, bags, food containers)
 - (ii) Encourage reusable items
 - (iii) Reusable bags
 - (iv) Reusable food containers (even simple glass mason jars)
 - (v) Reusable water bottles

- (vi) Reusable mugs/cups
- (vii) Purchase items that have little or no plastic packaging
- (viii) Consider the effectiveness of bans, charges and fees.

3. Resources and policy evaluations

- (a) <https://www.wbalTV.com/article/baltimore-foam-container-ban-signed-into-law/19865906>
<http://www.ncsl.org/research/environment-and-natural-resources/plastic-bag-legislation.aspx>. <https://www.ecowatch.com/plastic-straw-bans-disabled-2587630750.html>
- (b) Minnesota Pollution Control Agency, Production Bans and Restrictions: A Guide for Local Governmental Policy Makers (2016).
- (c) New York State Plastic Bag Task Force Report, Analysis of the Impact of Single-Use Plastic Bags (2018).
- (d) Rebecca L.C. Taylor, Bag Leakage: The Effect of Disposable Carryout Bag Regulations on Unregulated Bags, *Journal of Environmental Economics and Management* 93:254-271 (2019).