

# Local Sustainability Policies and Programs

---

**Gabriela Garity**

Professor Steven O. Kimbrough

Wharton School of Business, OIDD Department

PURM Summer 2021


CURF Fall 2021 Research Expo





# Programs and Policies

---

- 
- ➡ 1. Low embodied carbon concrete
  - 2. Composting
  - 3. GEO: green extension office
  - 4. Building electrification mandates and subventions
  - ➡ 5. Electrification of lawn care equipment
  - 6. Electrification of transit buses and utility vehicles
  - ➡ 7. Food rescue programs
  - 8. EV charging stations
  - ➡ 9. Non-motorized (pedestrian and bicycle) thoroughfares
  - 10. Clean-sourced natural gas
  - 11. Green electricity



# My Role

---

1. Background and Motivation
2. Examples in Practice
3. Climate-Related Benefits
4. Additional Benefits
5. Dis-benefits
6. Policy Proposal
7. Estimated Costs





# Low Embodied Carbon Concrete

- Generates less carbon emissions in its production than conventional concrete
- Cement is responsible for 8% of global greenhouse gas emissions
- Three ways to reduce carbon footprint of concrete:
  - Reducing the amount of cement in concrete mixes
  - Using renewable energy for cement production
  - Storing CO<sub>2</sub> within cement





# Electrification of Lawn Care Equipment

- Gas-powered leaf blowers and lawn mowers emit GHGs
- Also emit other toxins into the air and make a lot of unpleasant noise
- Electric options are cleaner, quieter, and cheaper over the long term
- Multiple towns have already taken policy action





# Food Rescue Programs

- 1/3 of food produced is wasted
- Food waste accounts for 8 percent of GHG emissions
- Food in landfills releases methane
- Food rescue programs are often run by charitable organizations
- Government programs could help incentivize donation





# Bicycle and Pedestrian Thoroughfares

- Transportation is the largest source of GHG emissions in the US (29%)
- Studies show building bike and pedestrian paths significantly decreases car-related emissions.
- Spillover effects to overall road safety, health, the economy, and equity
- Eco-friendly and cheap ways to build





# Reflections

- Stimulated my interest in climate solutions
- Learned about climate policy and decision-making processes
- Applying to Kleinman Center in Energy Policy Undergraduate Fellowship
- Hired by Professor Kimbrough as a Research Assistant for Fall 2021
- Will be working on developing a Green Extension Office at Penn

