Motto: We provide the know-how. You make the choice. You keep the savings.

Mission Statement: Our team is committed to raising awareness and educating the residents of Oak Park about energy usage while providing guidance for reducing their carbon footprint.

OAK PARK CARBON FOOTPRINT REDUCTION

Problem and Goals

- **The Problem**
  - Oak Park residents lack energy-efficient homes.
  - Oak Park residents are not yet aware of long-term benefits and savings.
  - The Village of Oak Park wants to be more energy efficient.
  - The Village of Oak Park wants to retain the historic character of the community.
- **The Goals**
  - Evaluate Oak Park's building typology
  - Assess their current energy usage
  - Propose a comprehensive sustainability plan that will reduce the carbon footprint of Oak Park
  - Distribute/gather information from home condition survey

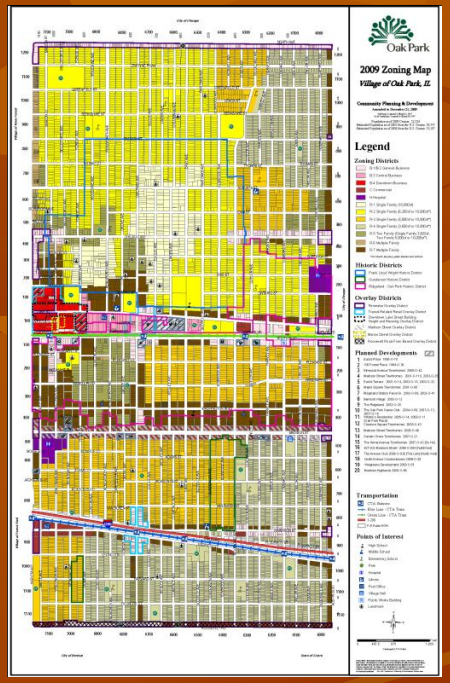
The Team

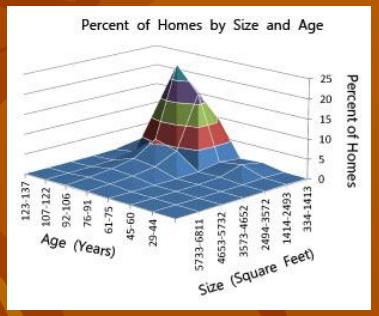
- **Initial Team Configuration**
- Deliverables Sub-Team
  - Jessica Fong
  - Jeremy Kieser
- Retrofit Research Sub-Team
  - Graeme Port
  - Casey Primm
  - Dustin Reznicek
- GIS Sub-Team
  - Julieann Young
  - Shabarinath Pabba

- **Final Team Configuration**
- The sub-teams dissolved as individual group tasks were completed.
- The whole team then operated by delegating work among the team members, playing to individual strengths.

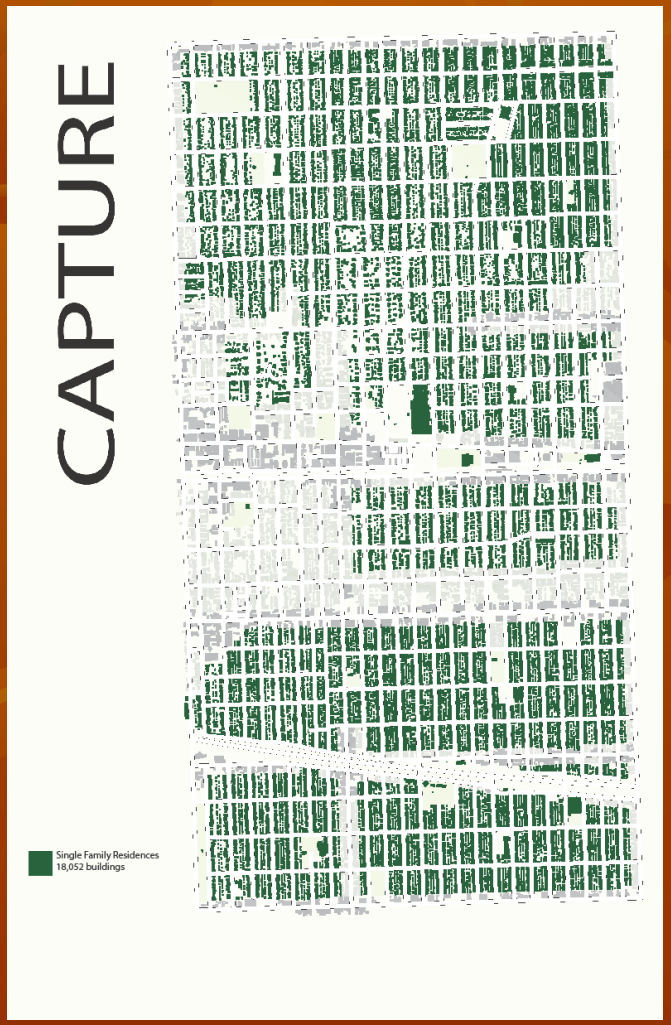
Research

- Zoning laws
- History of Oak Park
- Case Studies
- Energy Audit
- Building Typology Sampling
- Retro-fit options
  - Passive
  - Active
  - Community-wide



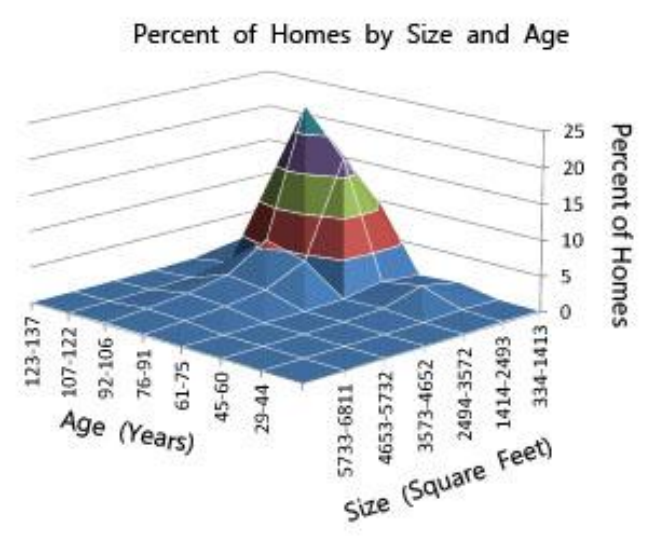


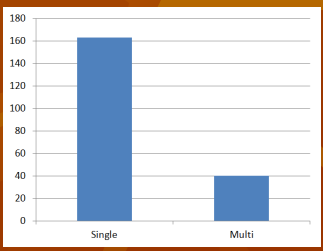
(GIS) Geographic Information System

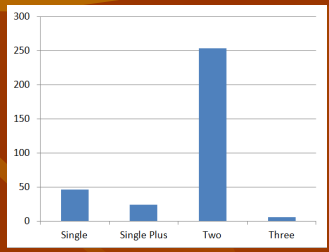


- 1.7 billion gallons of rain fall on Oak Park
- 2.0 billion gallons of water purchased (8.8 mil dollars)
- Green roofing
  - Could cover up to 8.8 mil ft^2
  - Drastically cut down storm water runoff
- Permeable paving
  - reduces flood damage
  - the need to de-ice roads
  - treatment of runoff

Village Energy Use

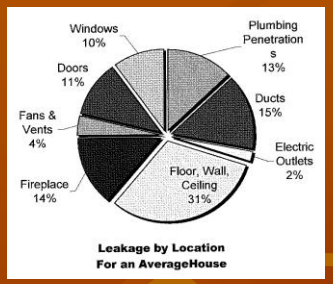


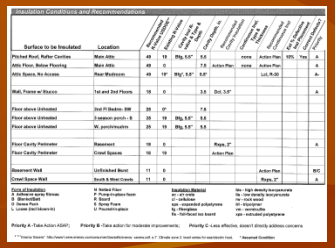


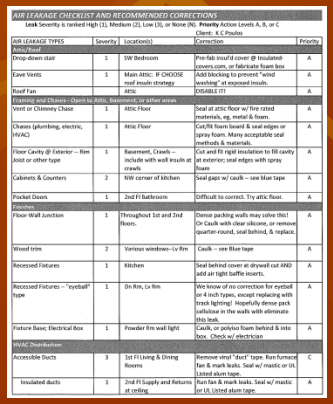


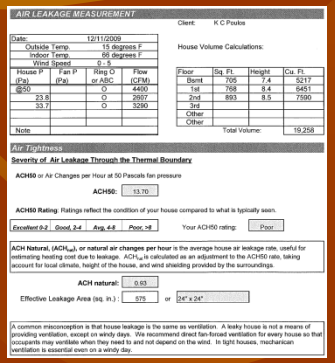
- Reasonable Energy Reduction
  - 25% on retrofitted homes
  - 15% behavioral changes
- 21,000 Residential Homes
  - Averaging 95 years old
  - 2,500 square feet
- Expected Impact per 10%
  - 2.2 million saved by consumers
  - 6,500 tons of carbon emissions prevented

Energy Audit





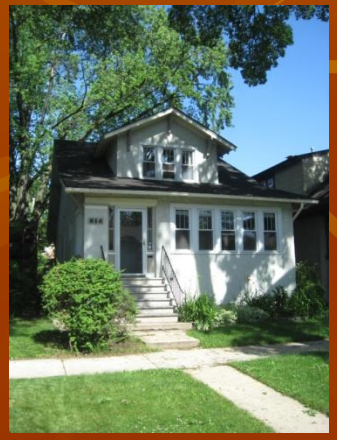




- Standard Tests
  - Blower door
  - Infrared scanning
  - Combustion air supply
  - Combustion appliance safety
- Benefits
  - Possible locations of air leakage
  - Assessed adequacy of current appliances
  - Recommendations
  - Installation methods

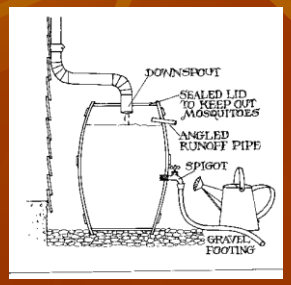
Case Studies




- Identify similar patterns among Oak Park housing typologies
- Identify common issues and solutions, especially in historic buildings
- Produce literature to educate Oak Park residents about opportunities
- Provide examples of costs and savings

Retro-Fit Options

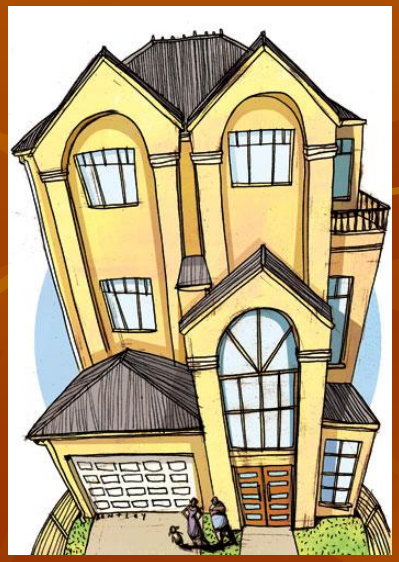


- Attic and Wall Insulation
  - Cellulose instead of fiberglass
  - Larger initial cost
  - 40% more energy efficient
- Energy Star Appliances
  - 15%-50% more efficient
  - Save upwards of $135 a year each
- Rain Barrels
  - For 55 gallon barrel - $60
  - Save 40% water bill in summer - irrigation

Ethical Issues

- Case study participants' privacy
- Village-wide retro-fit options may not be the best use of Village funds if other projects are more important
- Accuracy and relevance of our information to the Village of Oak Park
- Reliable and accurate source of research materials

Conclusions



- Do not immediately install community-wide retro-fit options, rather, implement incrementally as needed.
- Average Village member can save money by being aware of his/her energy use
- Oak Park home and business owners should consider having an energy audit performed

Future IPRO

- Create more case studies based on different house typologies
- Work with the Oak Park Village Council to organize a plan of action
- Market research to find most relevant targets
- Expand on retro-fit research
- Research renewable energy
- Self-educate on Oak Park and its history
- Maintain a healthy relationship with Oak Park

Thank You! Any Questions?

- The Village of Oak Park
- IPRO @ IIT
- John Kelly
- K.C. Poulos
- John Porterfield
- Jim Gill
- Don McLauchlan
- The Oak Leaves
- Oak Park Public Access