A SOCIALLY CONTEXTUALIZED FRAMEWORK FOR PHYSICAL METRICS OF SUSTAINABILITY

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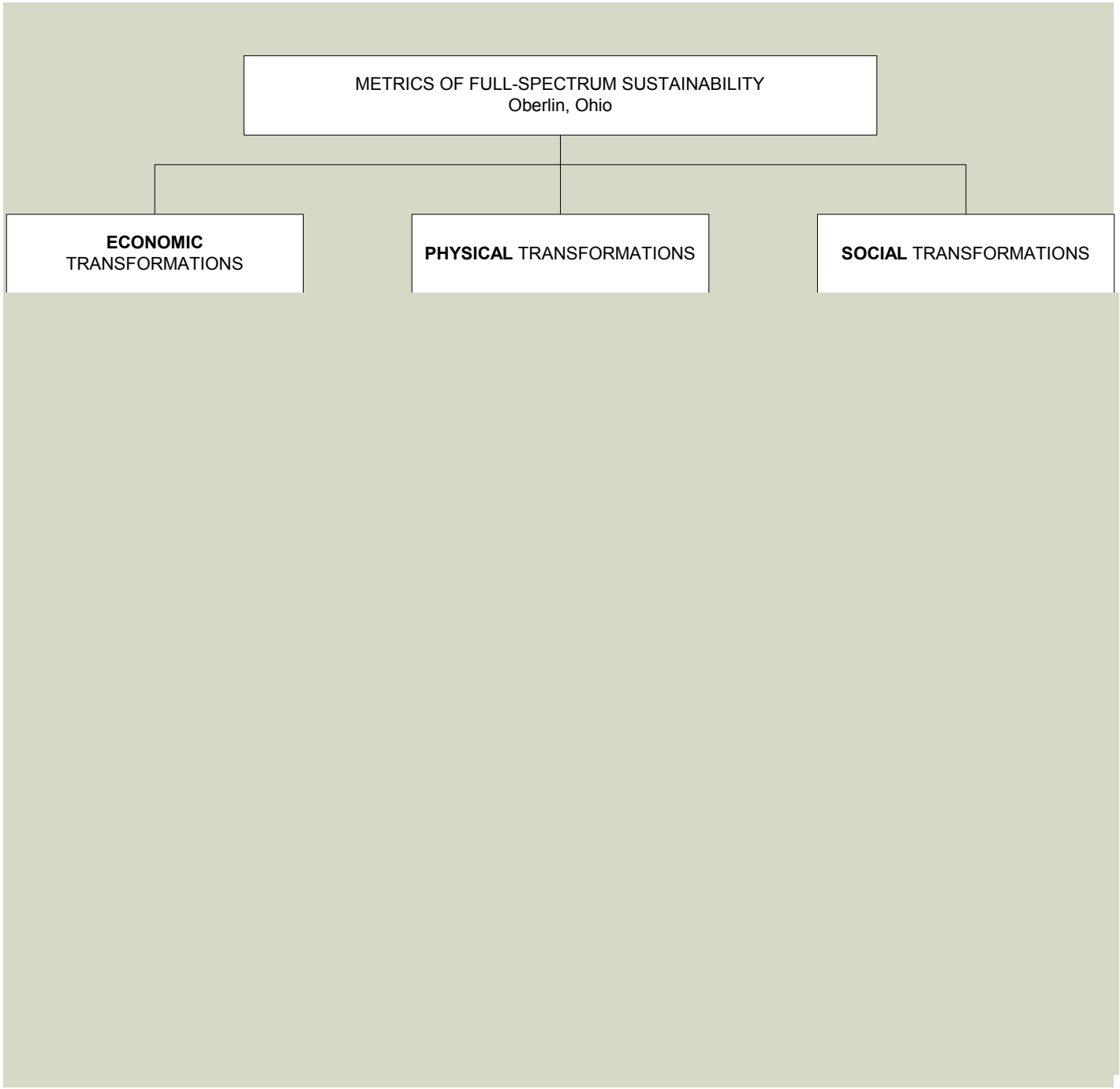
Image source: http://dawngregg.com via Google Image search

the BIG question

How can we create physical metrics of sustainability that informs, educates and motivates different interventions and audiences in the community?



BROAD / CROSS-CUTTING INDICATORS

- ✓ GHG Emissions
- ✓ Ecological Footprint
- ✓ Resource monitoring / feedback
- ✓ Measures of Resilience

the GOALS

- Collect baseline data
- Develop a framework for:
  - Measuring resource flows,
  - Monitoring resource flows,
  - Providing feedback, and
  - Supporting decision making.

Contextualizing the GOALS

- Collect baseline data

- Develop a framework for:
  - Measuring resource flows,
  - Monitoring resource flows,
  - Providing feedback, and
  - Supporting decision making.

- Social contextualization
- Policy relevance

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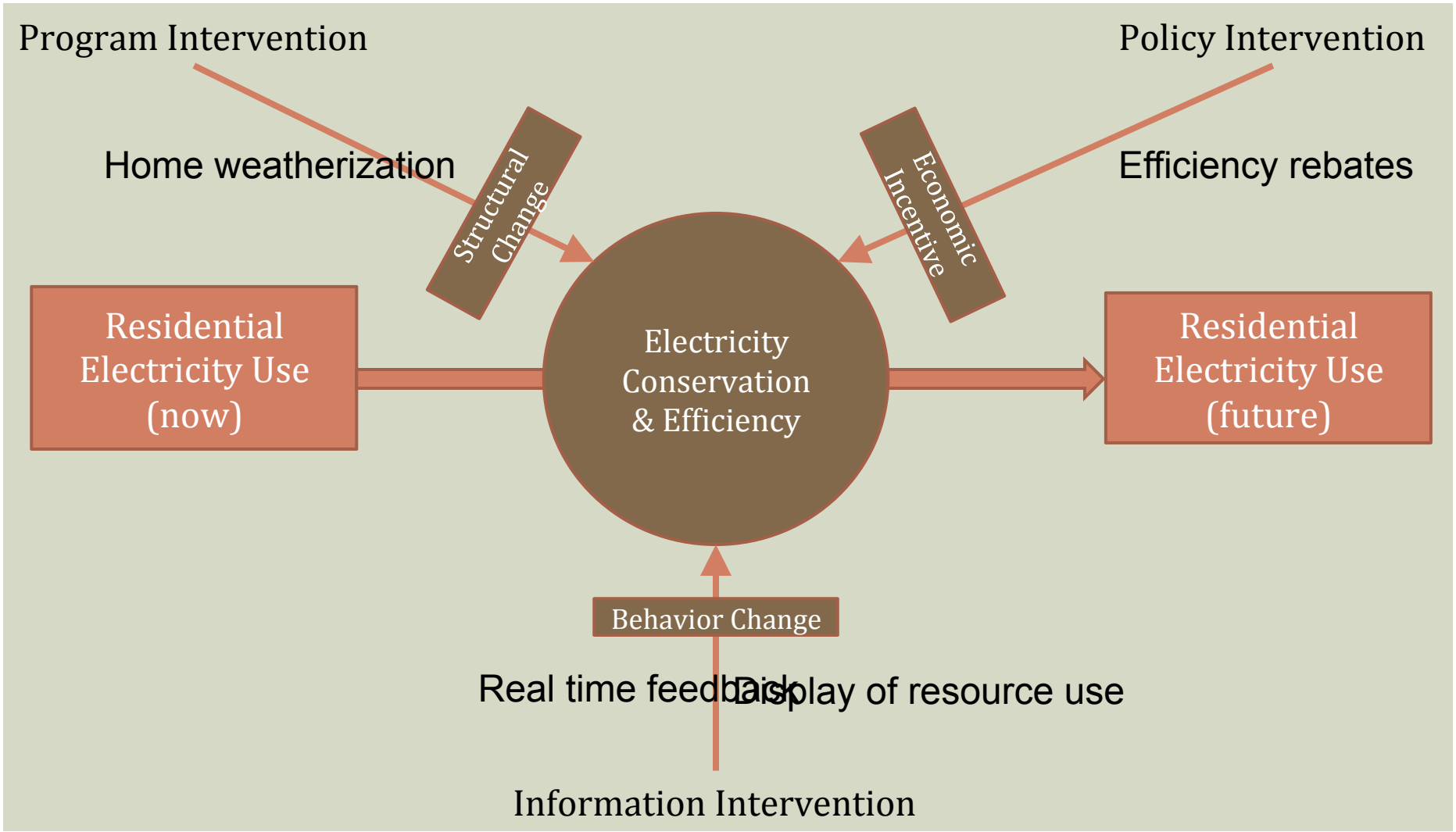
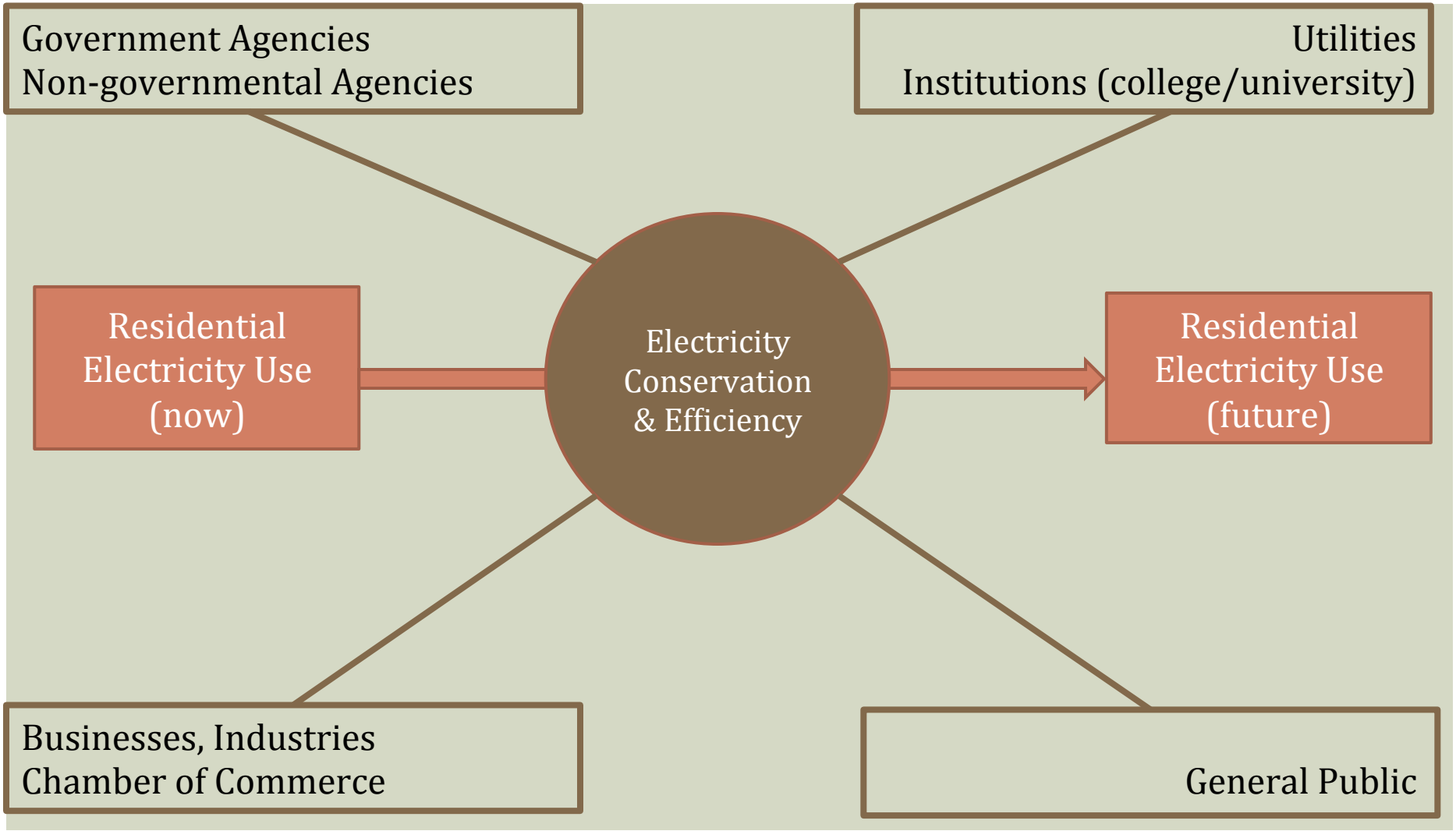
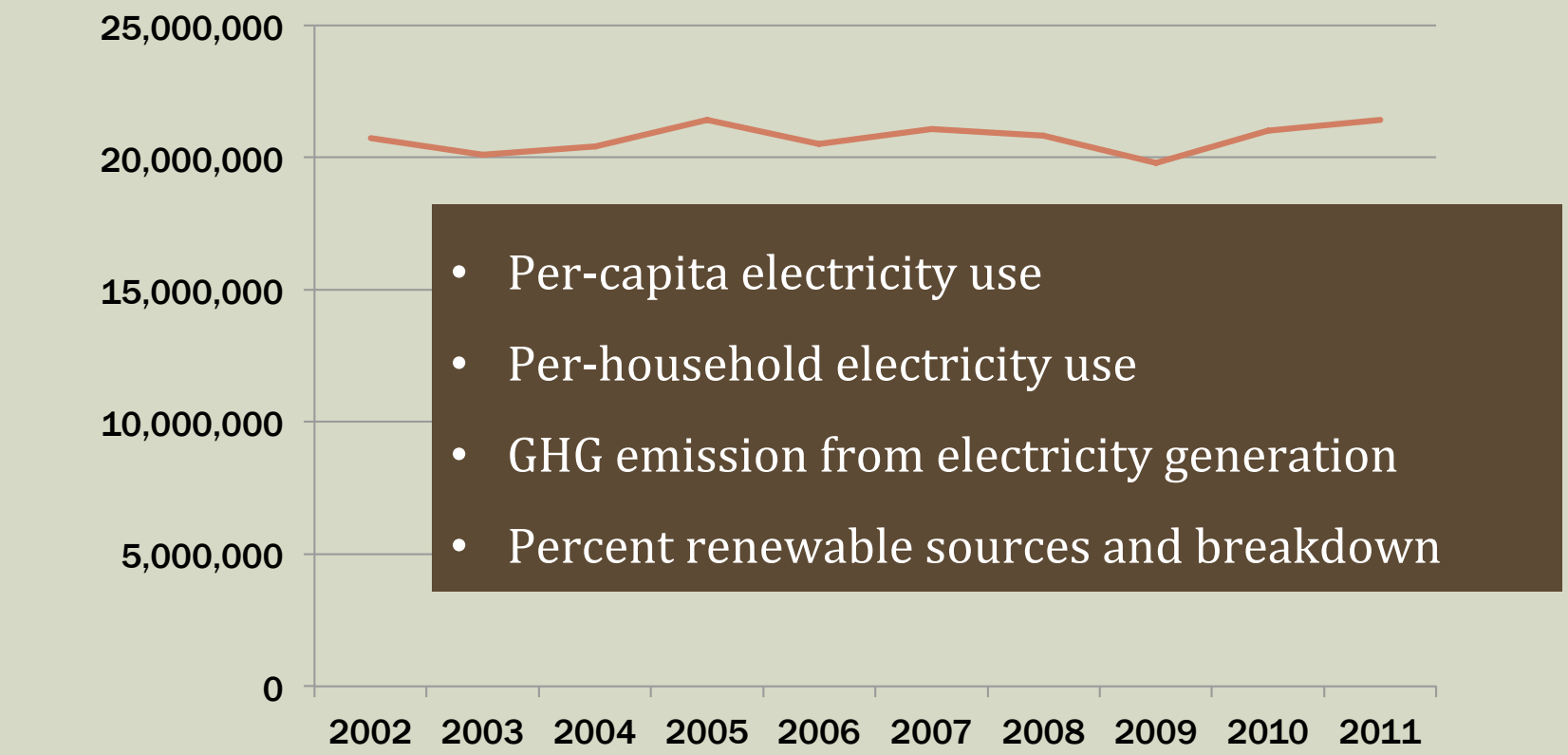
connecting PHYSICAL DATA with PLANNED INTERVENTIONS



connecting PHYSICAL DATA with TARGET AUDIENCES

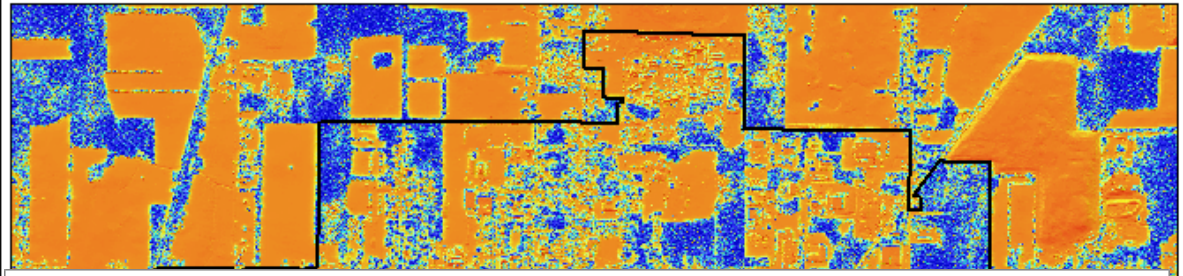


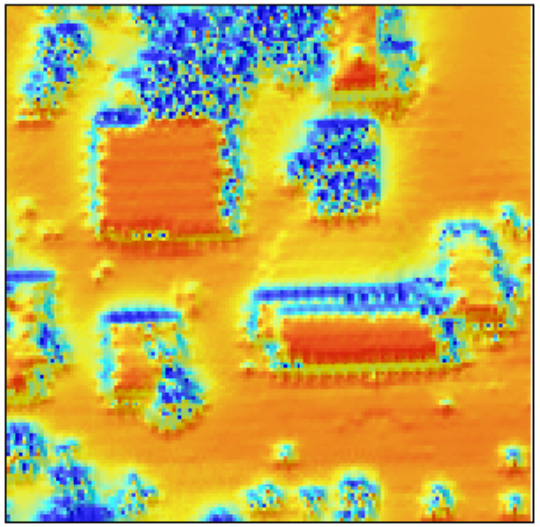
residential ELECTRICITY use

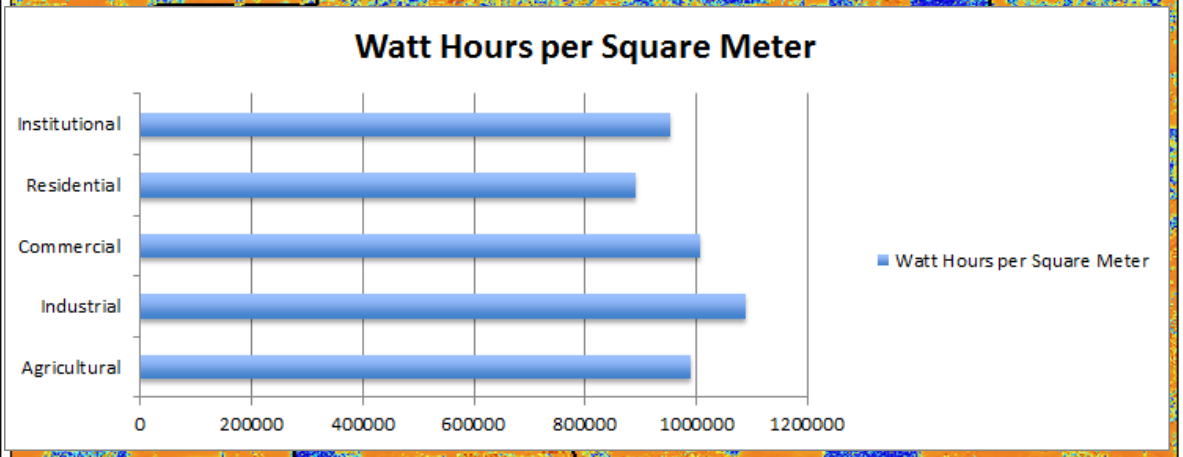


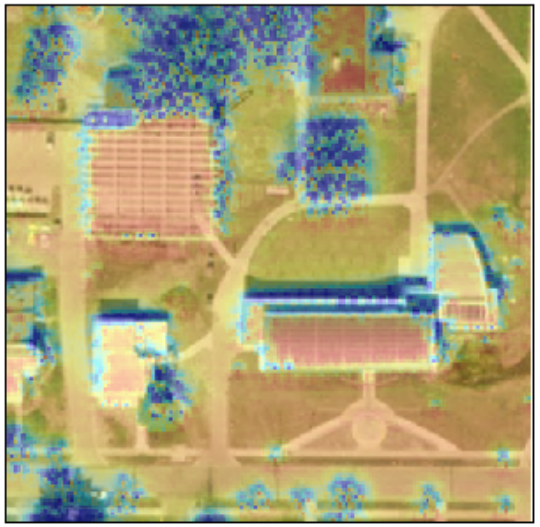
targeted ELECTRICITY *data for* HOUSEHOLDS

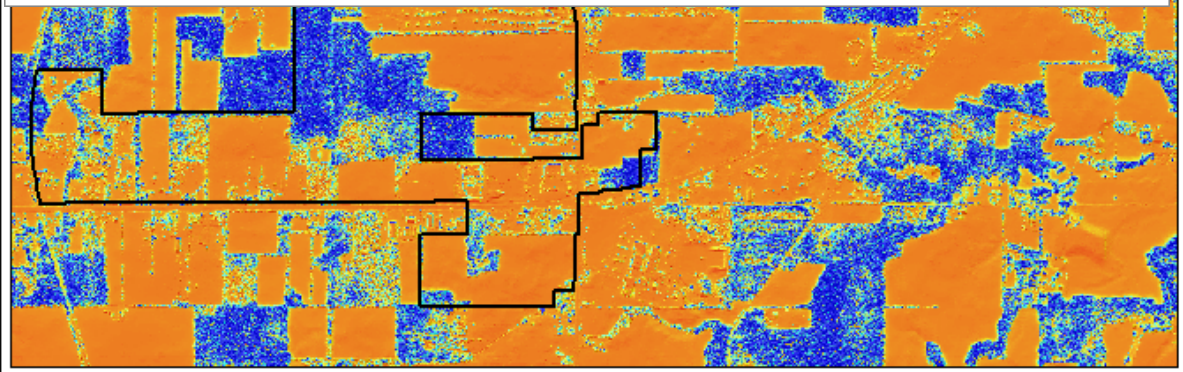
- How is my community doing? (city-wide data)
- How is my neighborhood doing? (block-level data)
- How are my neighbors doing? (building-level data)
- How am I doing? (building-level data)
- **Data Delivery:**
  real-time feedback, various display options









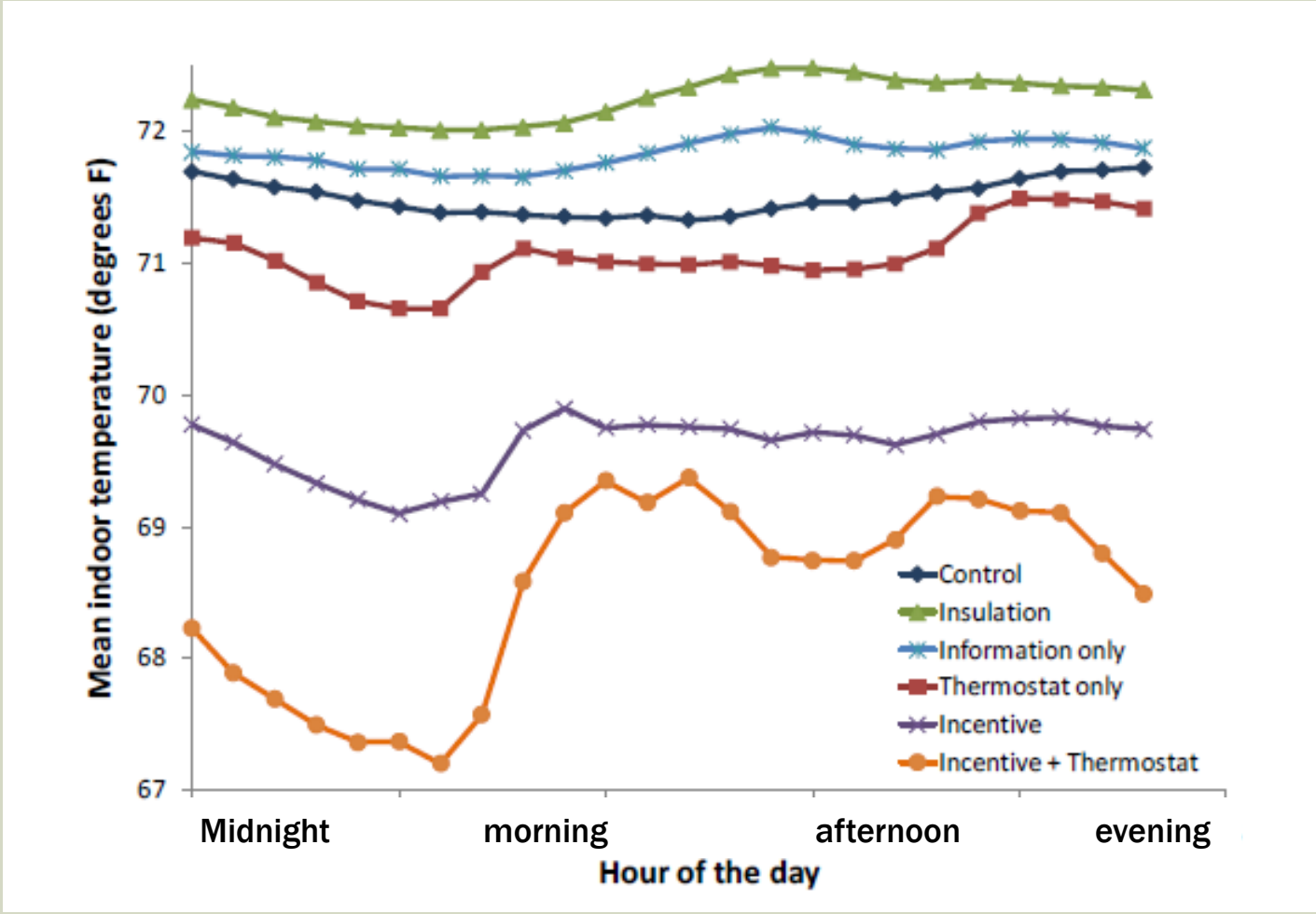


Western Reserve Land Conservancy

OUR LAND. OUR LEGACY

2006 Aerial Photo (OSIP)
Map Created 11/6/2012 pb

INTERVENTIONS ⟶ BEHAVIOR CHANGE



the WATER example
aggregate data to support policy

Oberlin Water Consumption, 2010

Type of Use	# of Customers	Total Revenue	CCF
Residential	2,717	$1,144,337	171,307
Commercial	106	$164,898	24,685
Industrial	11	$47,901	7,171
Institutional	26	$629,476	94,234

CITY OF DUBUQUE SUSTAINABILITY INDICATORS

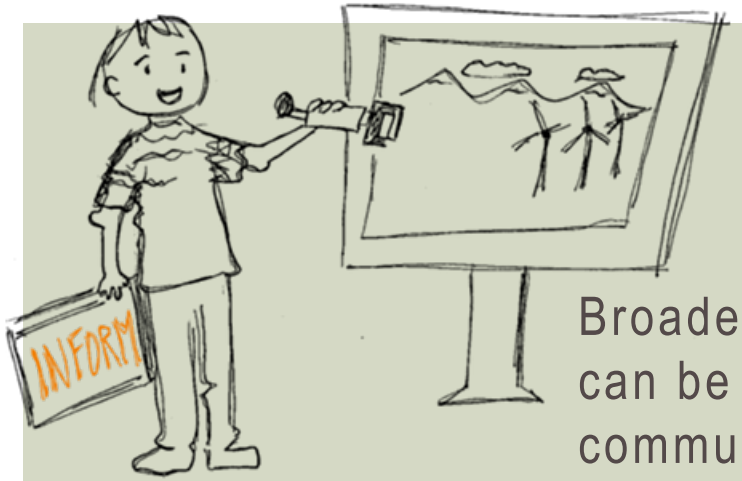
----------Clean Water----------

Themes	Indicators
River, Stream, & Watershed Quality	*Bacterial Concentration* – Total coliform concentrations measured in colonies per 100mL of water
	Turbidity – Measure of surface water turbidity in NTU's
	Impaired Streams – Miles of impaired streams
Drinking/ Groundwater Quality	*Groundwater Contamination* – Number of contaminants exceeding allowable drinking water standards
Sewer Management	*Wastewater Discharged* – Gallons of wastewater discharged from sewer spills

the WATER example
targeted data to motivate behavior change

it takes 87 btu of energy to bring each gallon of water to you

take home MESSAGES



Broadening the scope of physical data and indicators can be more effective in advancing sustainability in communities.

- Track changes & assess goal fulfillment (community-wide)
- Inform policies and programs (planned interventions) directly for different audiences
- Make information more accessible to the general public and motivate behavior change

Image source: http://brentmasters.co via Google Image search