

Urbanism & Sustainability

Keys to **Greener**, Healthier People Habitat



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What We *Will* Talk About:



- Some big-picture data
- A starting premise
- 6 keys to greener, healthier people habitat

Between 2010 and 2050:



- People: +129m
- New homes: +52m
- Replacement homes: +37m
- New & replacement nonresidential: +190b sq ft
- **More than half our built environment will be new**

We Need to Get This Right



The Damage Done

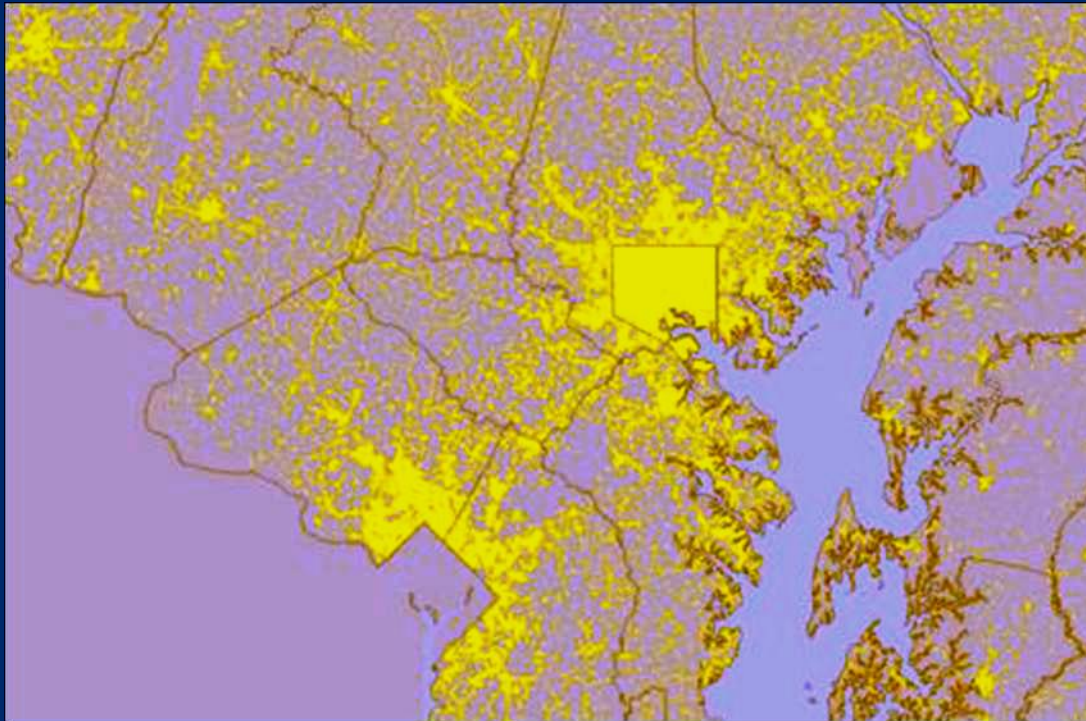


Land Consumption



- In 1990s, lost land @ 251 acres per hour
- 1982-2007 lost 41m acres (IL & NJ combined)
- 91% of fruit & 78% of vegetables are in urban-influenced areas

MD Development 1900-1960

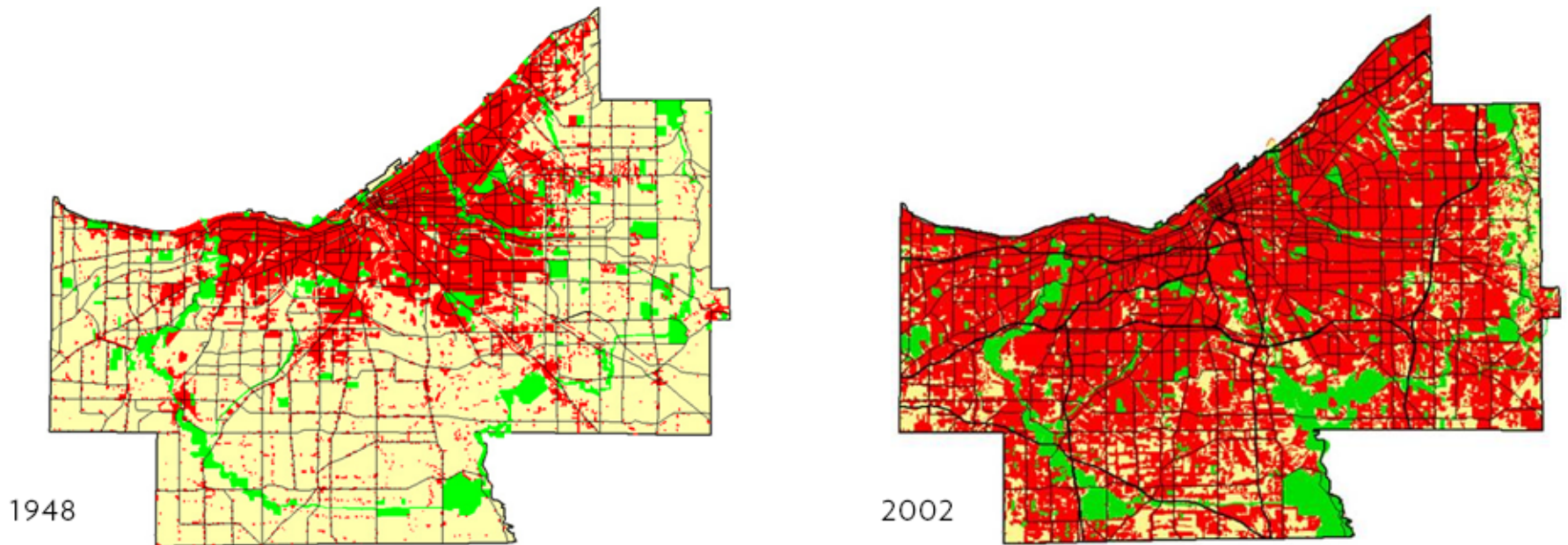


MD Development 1961-1997



Cleveland 1948 & 2002

FIGURE 4. METROPOLITAN AREA OF CLEVELAND, OHIO, 1948 AND 2002



Cleveland 1960s

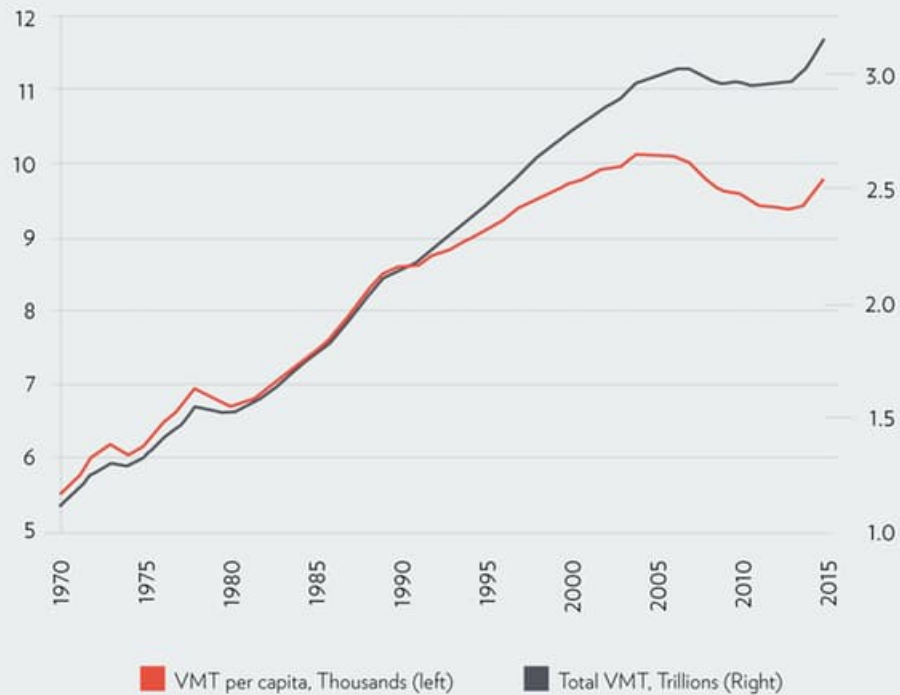


40 Years Later



Increased Driving

FIGURE 1. VEHICLE MILES TRAVELED (VMT),
TOTAL AND PER CAPITA, 1970-2015



Source: State Smart Transportation Initiative,
<http://www.ssti.us/2016/02/economy-gas-prices-pushed-driving-upward-in-2015-but-less-than-in-past-years/>.

US CO₂ Emissions, by Sector

INDUSTRY 21.1%

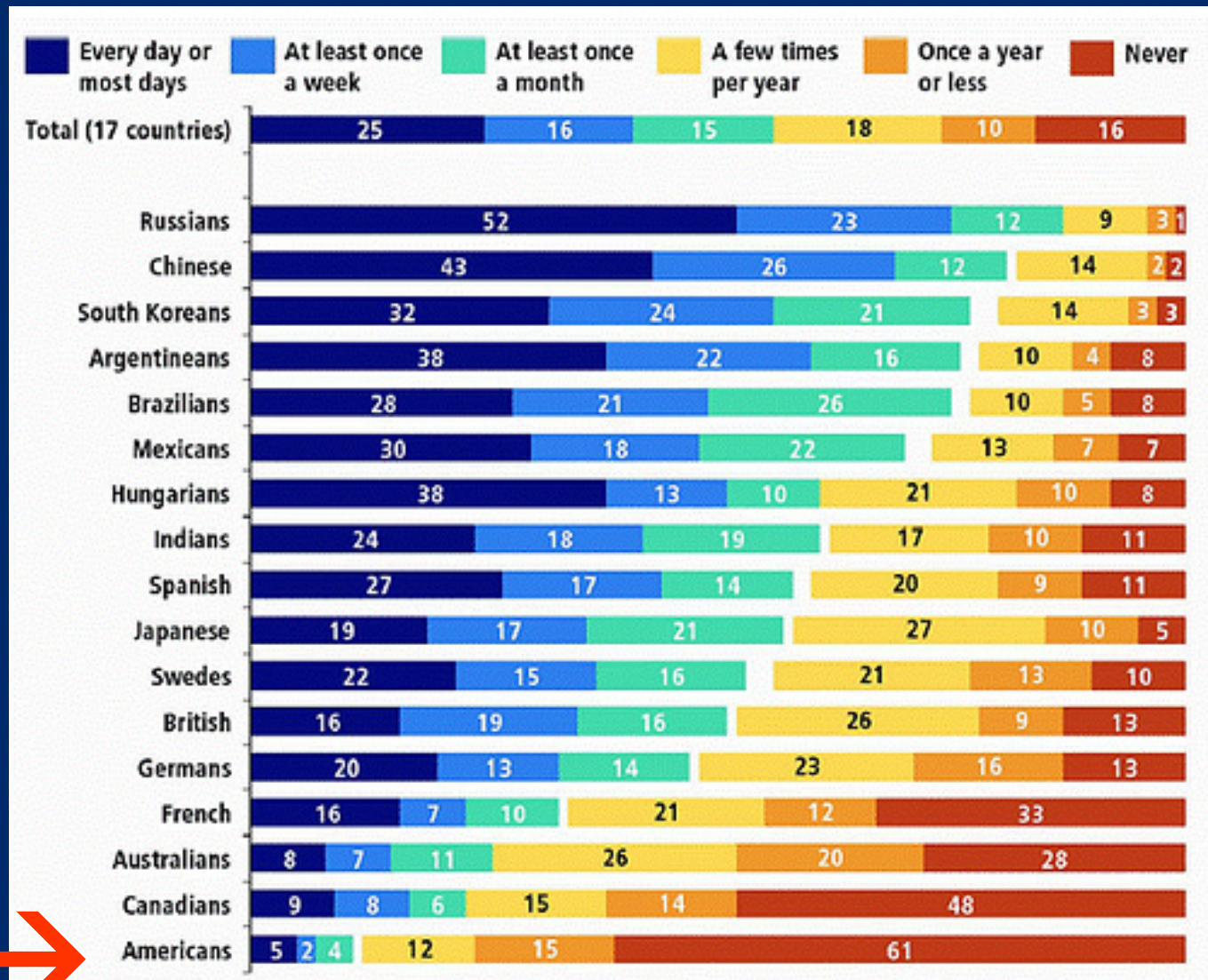


BUILDINGS 44.6%

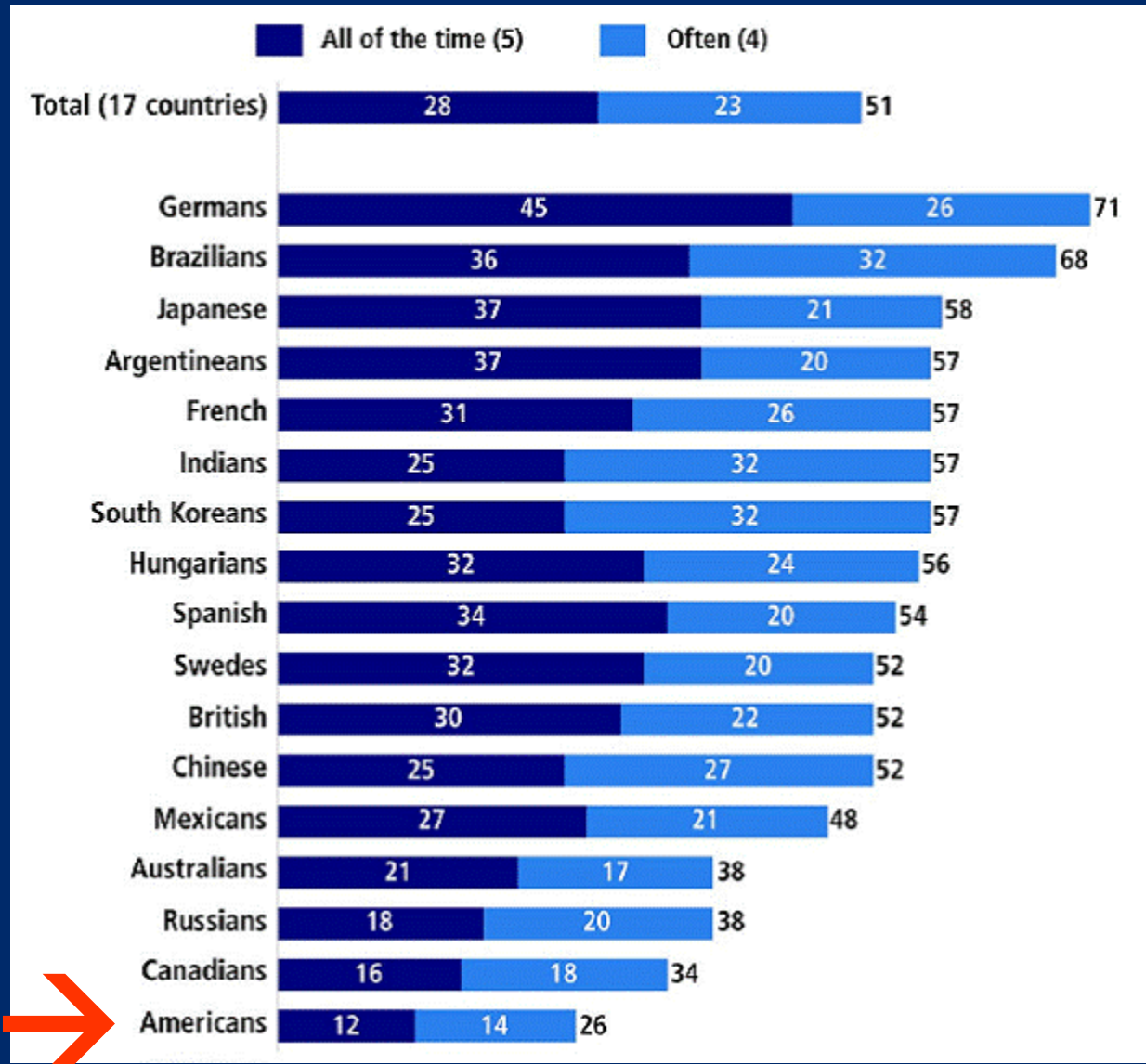


TRANSPORT 34.3%

Transit Use, by Country



Walking, by Country



Polluted Runoff from Development



- Untreated urban/suburban stormwater discharge: **10T gal/year**
- Impaired rivers & streams: 51,000 miles
- Lakes & ponds: 858,000 acres
- Bays & estuaries: 1,877 sq miles

Sheesh, Kaid – We Thought You
Were Going to Be Upbeat . . .



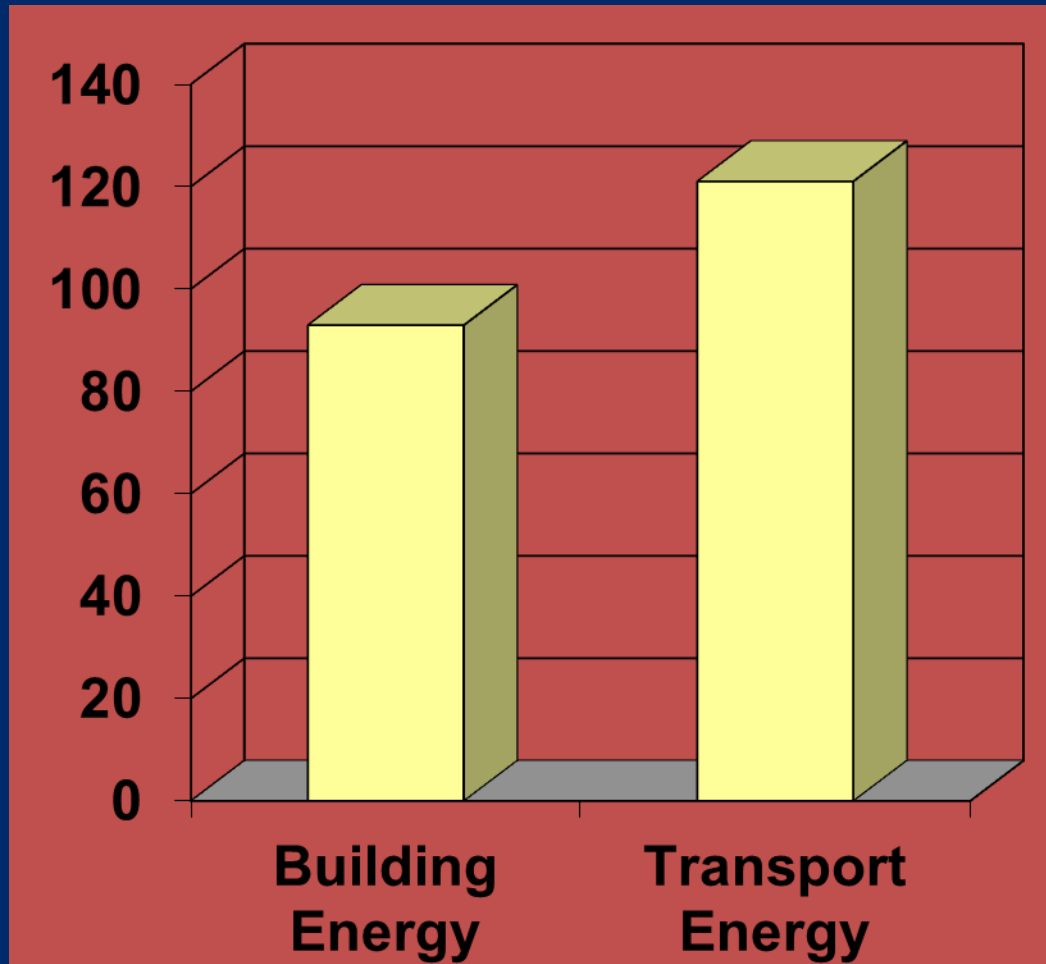
A Starting Premise: People First



1. Guide New Development to the Right Locations

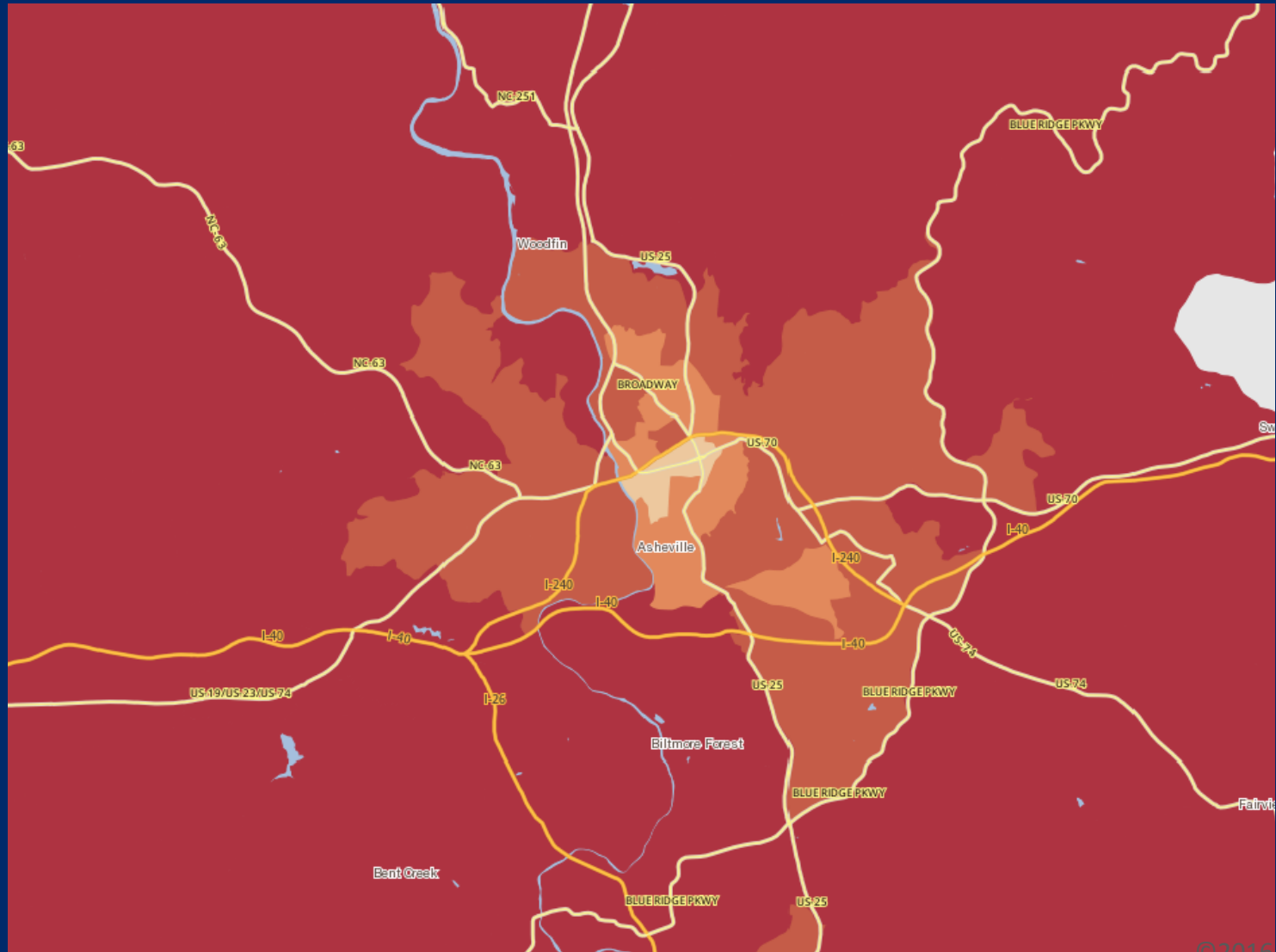


The Influence of Transportation on Energy & Carbon Emissions



kBtu/ft²/yr,
Average Office
Building

But: It Varies by Location



The Regional Core



Strong Transit Corridors

Homes near strong transit generate **only half the peak-hour auto trips** that are otherwise predicted



Carbon Comparison: Three Examples

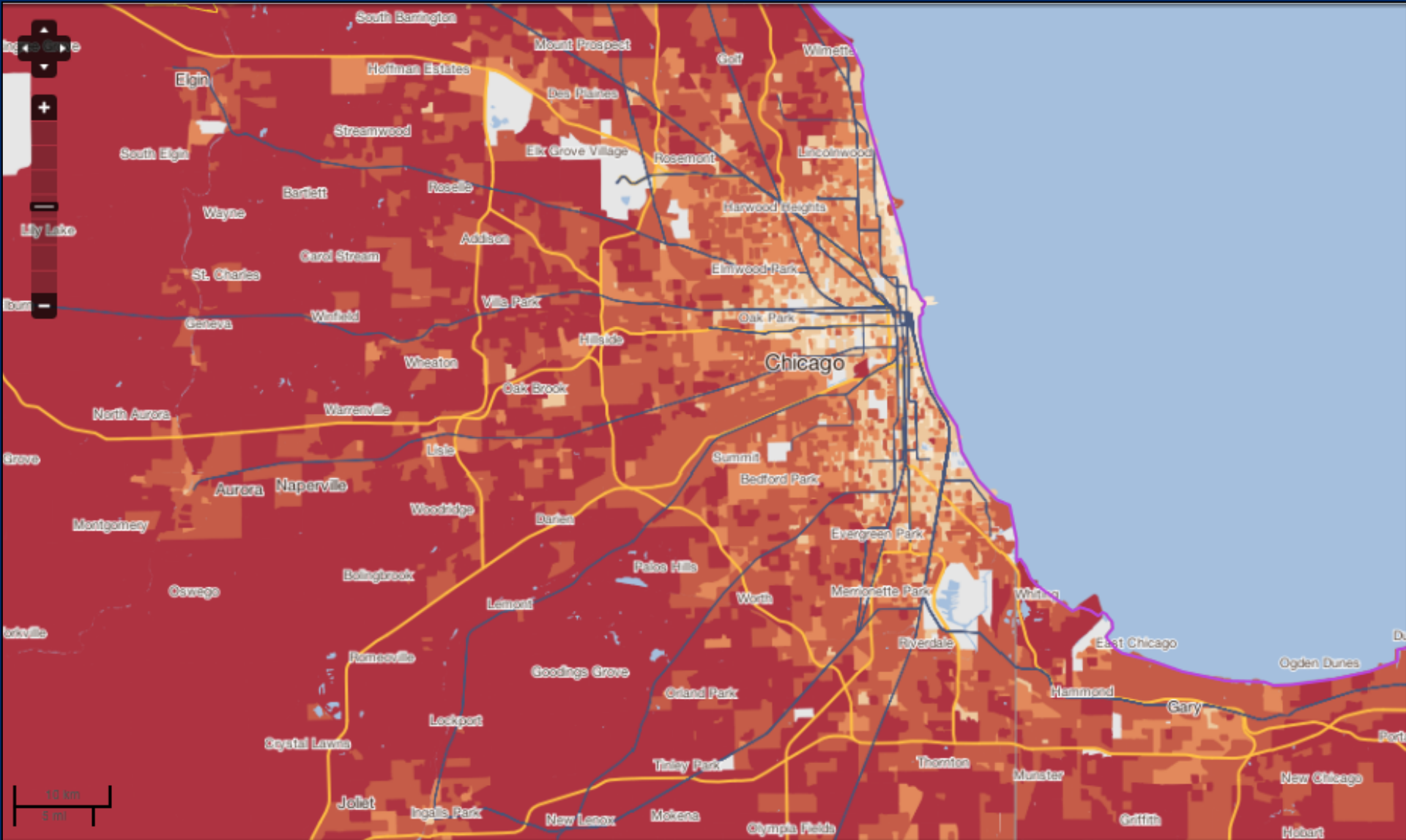


Outer Suburban:
Metro Chicago, IL

Urban:
Metro Atlanta, GA

Transit Corridor:
Metro Portland, OR

Chicago



Prairie Ridge Estates

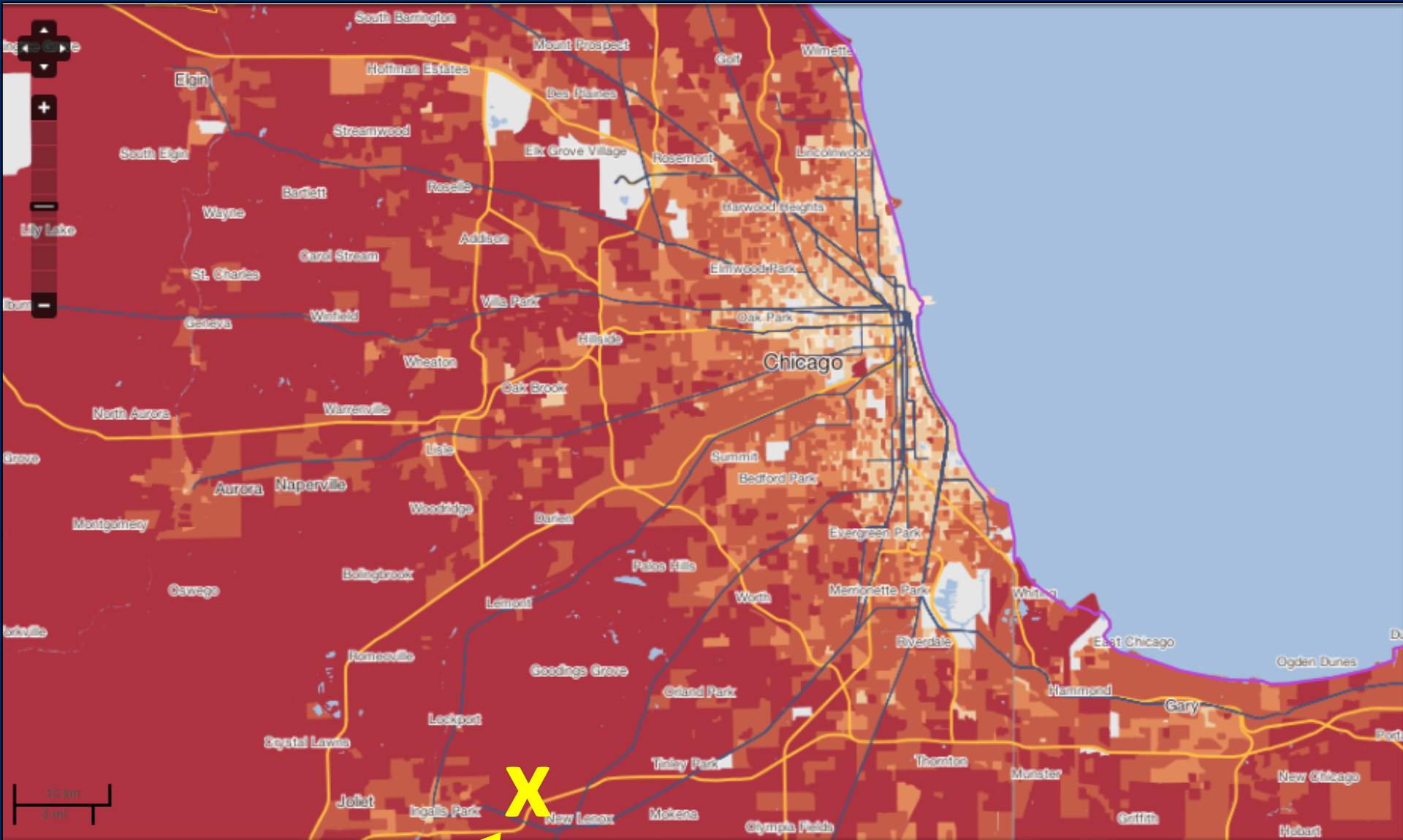


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Builder pitches net-zero energy homes

New Lenox development paints itself green to stand out in housing market

August 03, 2010 | By Mary Ellen Podmolik, Tribune reporter

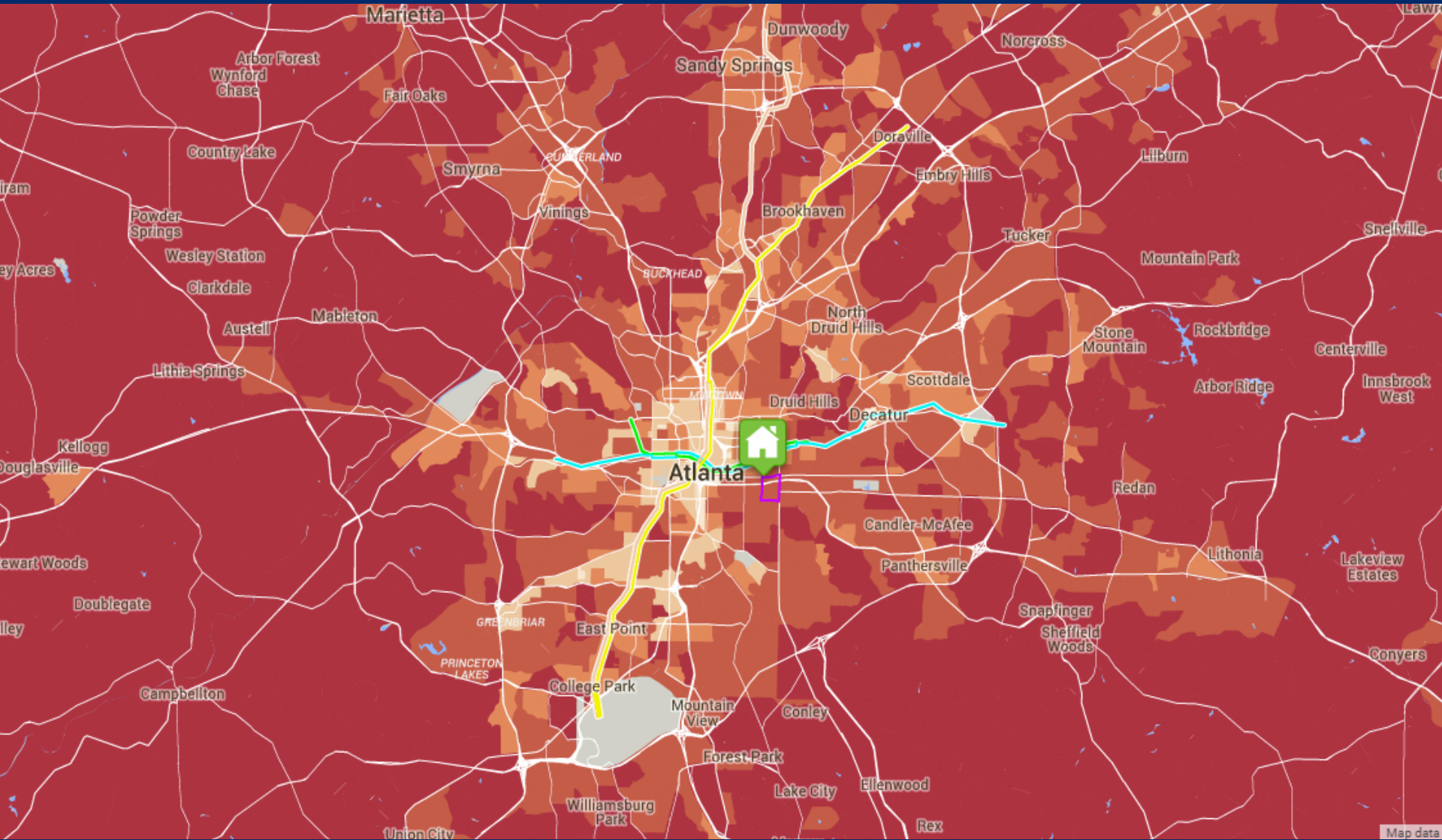


Carbon Comparison: Average CO₂ per Household from Driving

- Downtown Chicago: 0.28T/mo
- Regional average: 0.62T/mo
- **Prairie Ridge: 1.11T/mo**

Glenwood Park, Atlanta



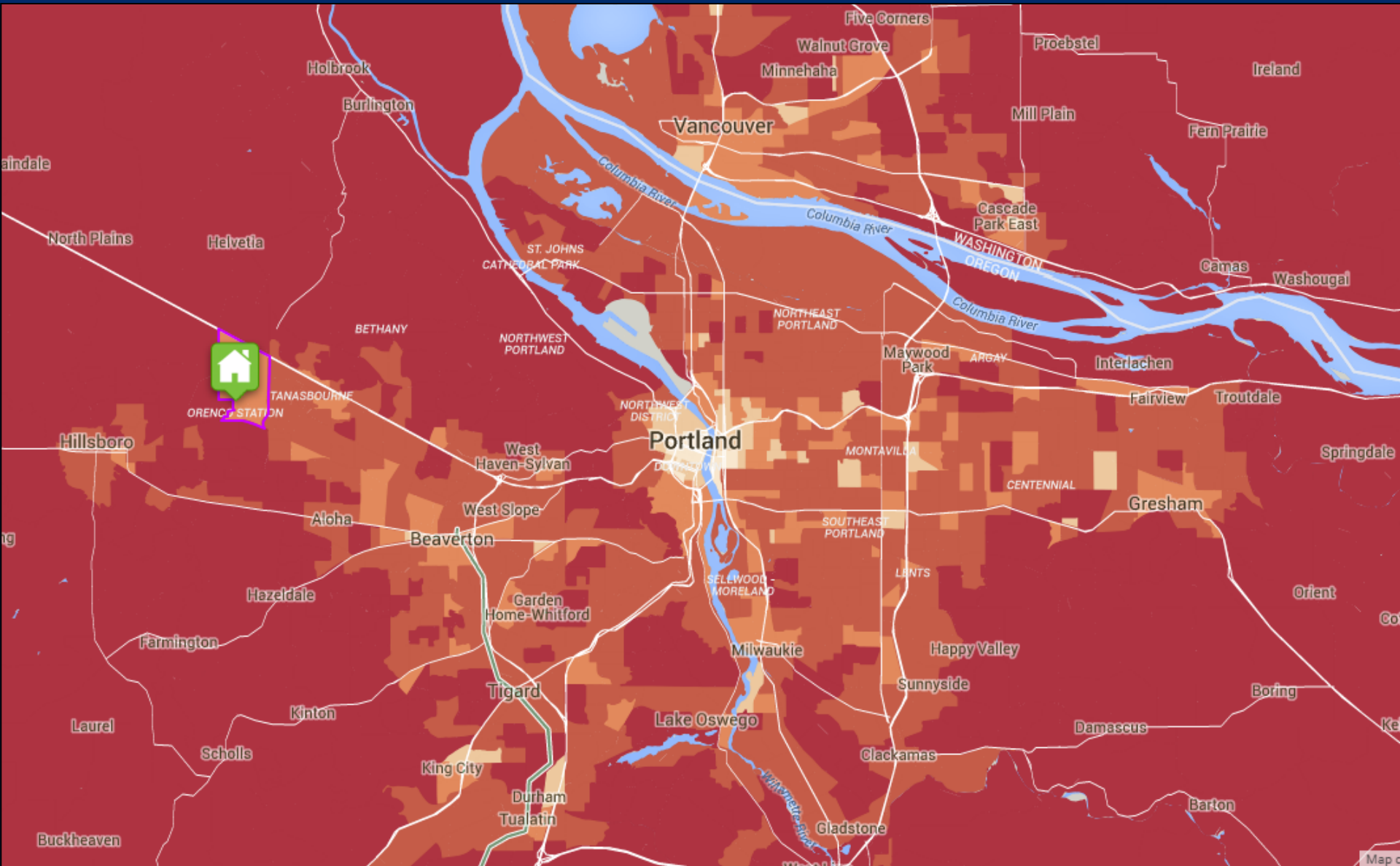


Much Better: Average CO₂ per Household from Driving

- Downtown Atlanta: 0.31T/mo
- Regional average: 0.82T/mo
- **Glenwood Park: 0.59T/mo**

Orenco Station, Hillsboro OR





Orenco Station Performance

- Downtown Portland: 0.34T/mo
- Regional average: 0.70T/mo
- Orenco Station: 0.54T/mo

2. Make America Walkable Again





Is This What We Really Wanted?

- 1969: 48% of kids walked to school
- 2009: **13%**

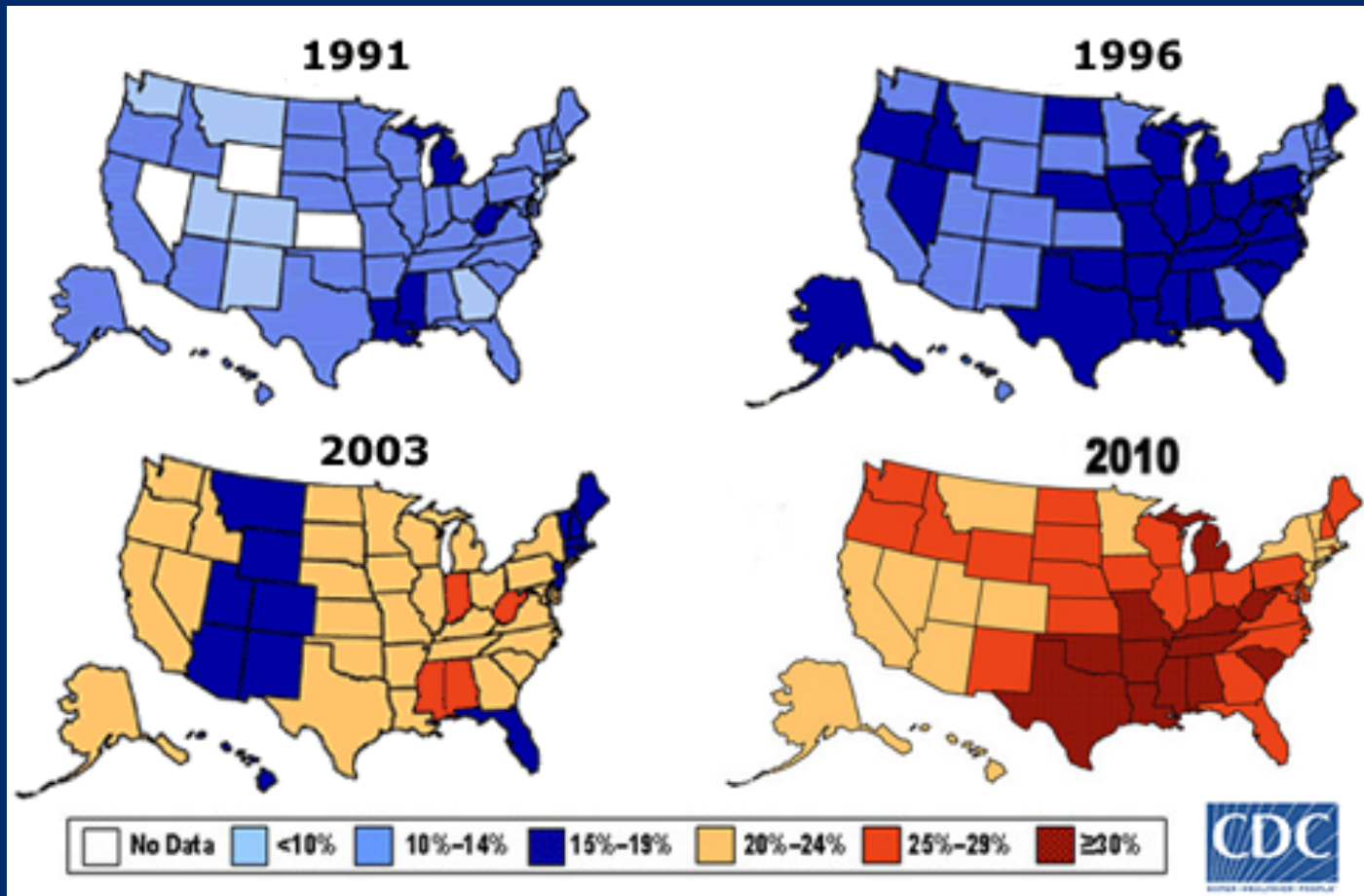




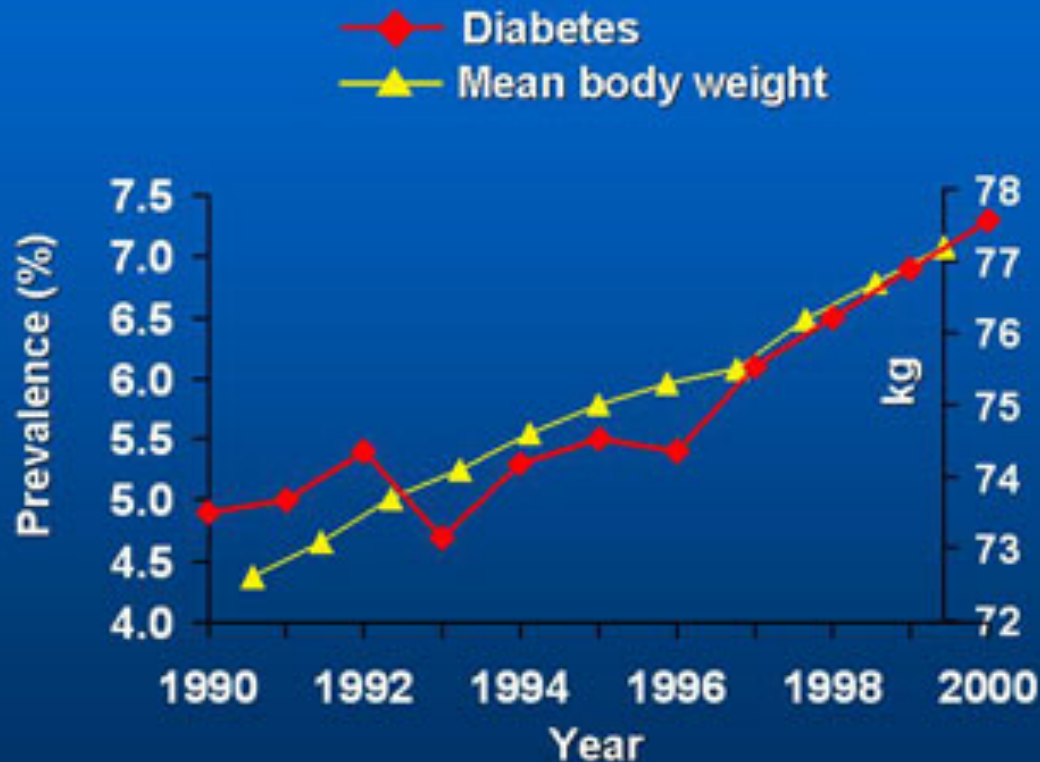
Warehouse? Mall? Prison?



Obesity



Diabetes and Obesity: The Continuing Epidemic

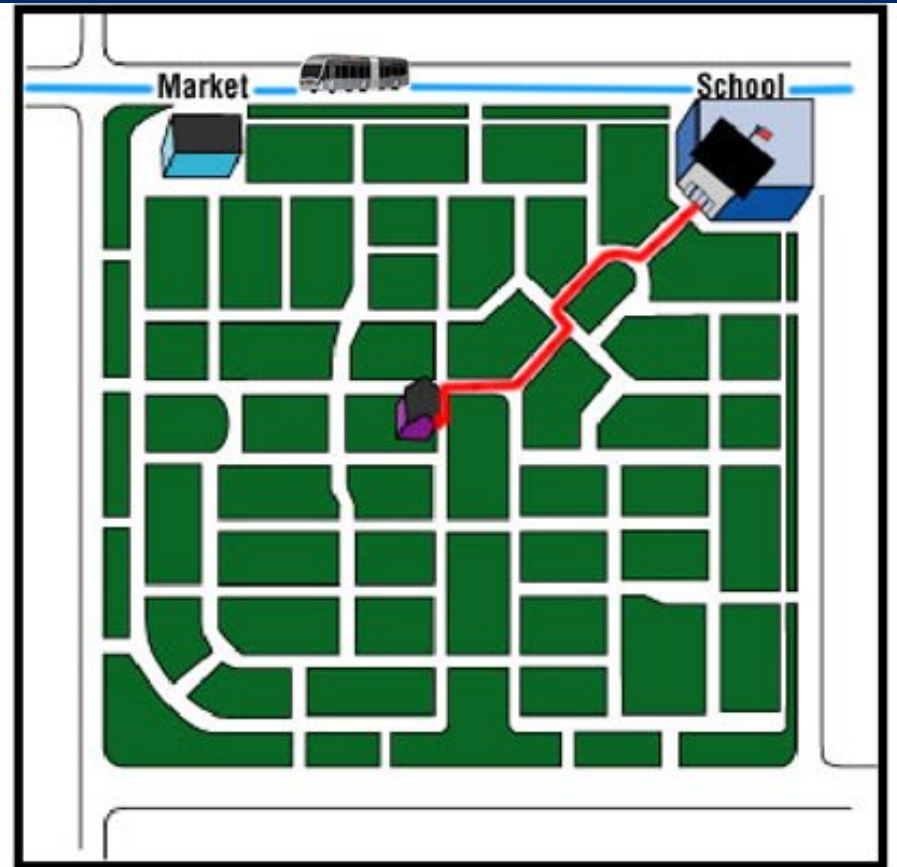


Mokdad AH et al. *Diabetes Care*. 2000;23:1278-83.
Mokdad AH et al. *JAMA*. 1999;282:1519-22.
Mokdad AH et al. *JAMA*. 2001;286:1195-200.

What to Do: Connected Streets



Driving-only transportation pattern



Walkable connected transportation network

More Strategies



- Walkable density
- Good infrastructure (“complete streets”)
- Calm traffic
- Things to walk to (incl. transit & parks)
- (8-10 lbs/person diff.)

3. Integrate Nature Into Urban Fabric





1945

Imagery Date: 6/3/2015 51°31'18.25" N 0°07'33.68" W elev 83 ft eye alt 2700 ft

Google earth

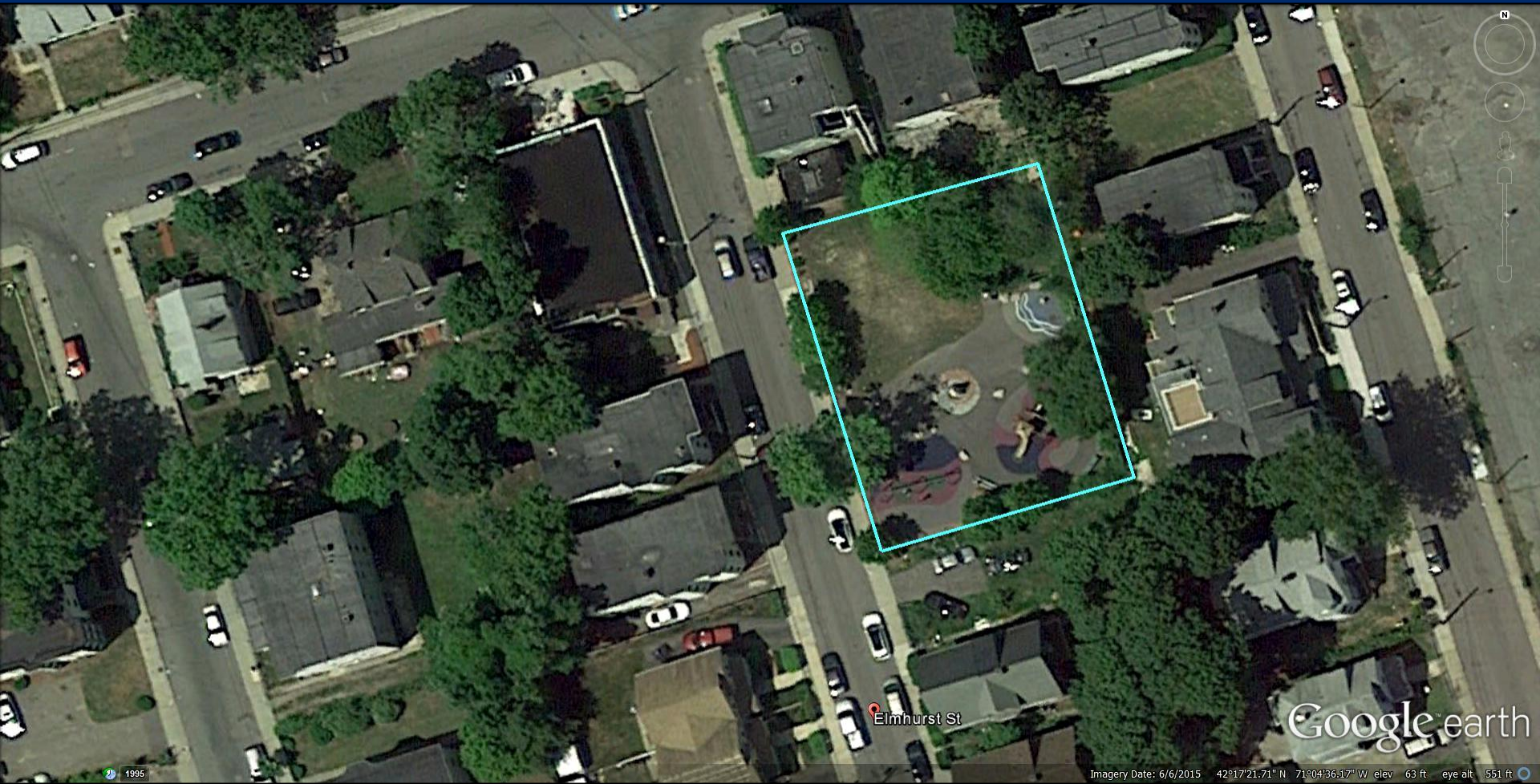
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Google earth





1995

Elmhurst St

Google earth

Imagery Date: 6/6/2015 42°17'21.71" N 71°04'36.17" W elev 63 ft eye alt 551 ft















Benefits of Urban Nature



- Climate resilience
 - Rainwater absorption
 - Summer cooling
 - CO₂ absorption
- **Public health**
- Property values
- Shade for walkability

4. Get the Buildings Right.

“The Greenest Building”



Impact of Demo & Replacement



Incorporate Green Technology



Green Dividends



- 25% less energy
- 11% less water
- 34% lower CO₂
- 19% lower maintenance costs

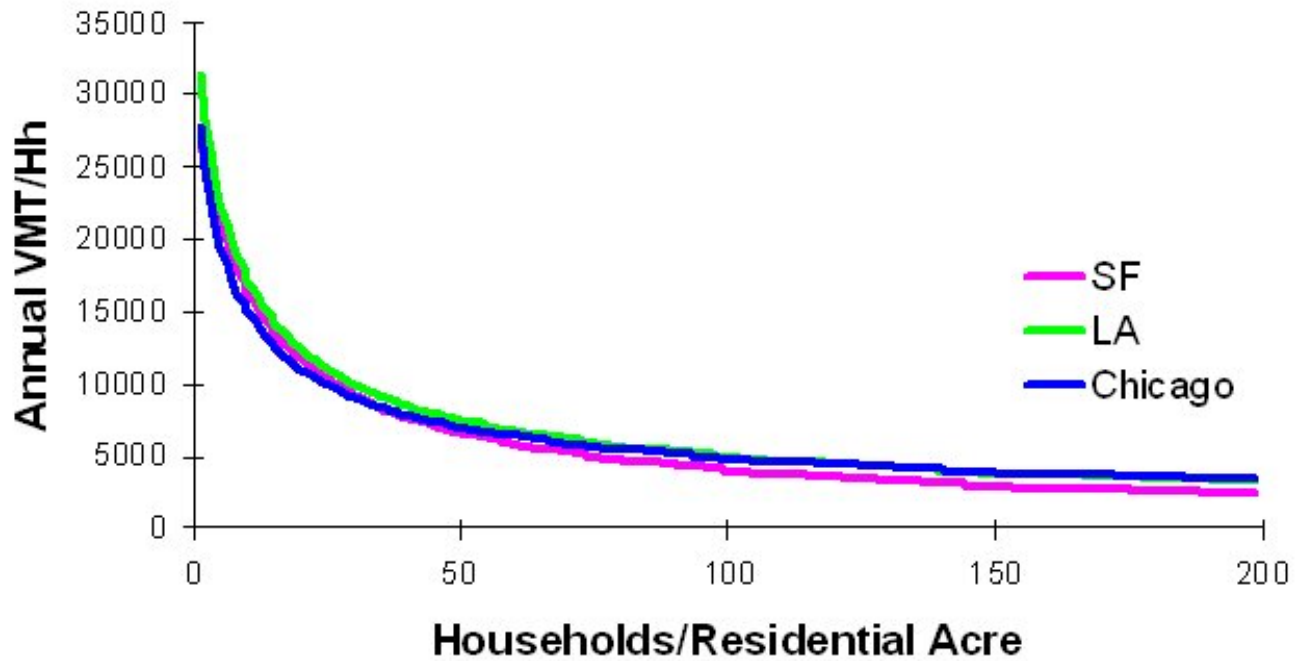
5. Employ Density. With Sensitivity.

Per Capita Benefits of Density



- Lower CO₂ emissions
- Reduced stormwater runoff
- Lower infrastructure costs

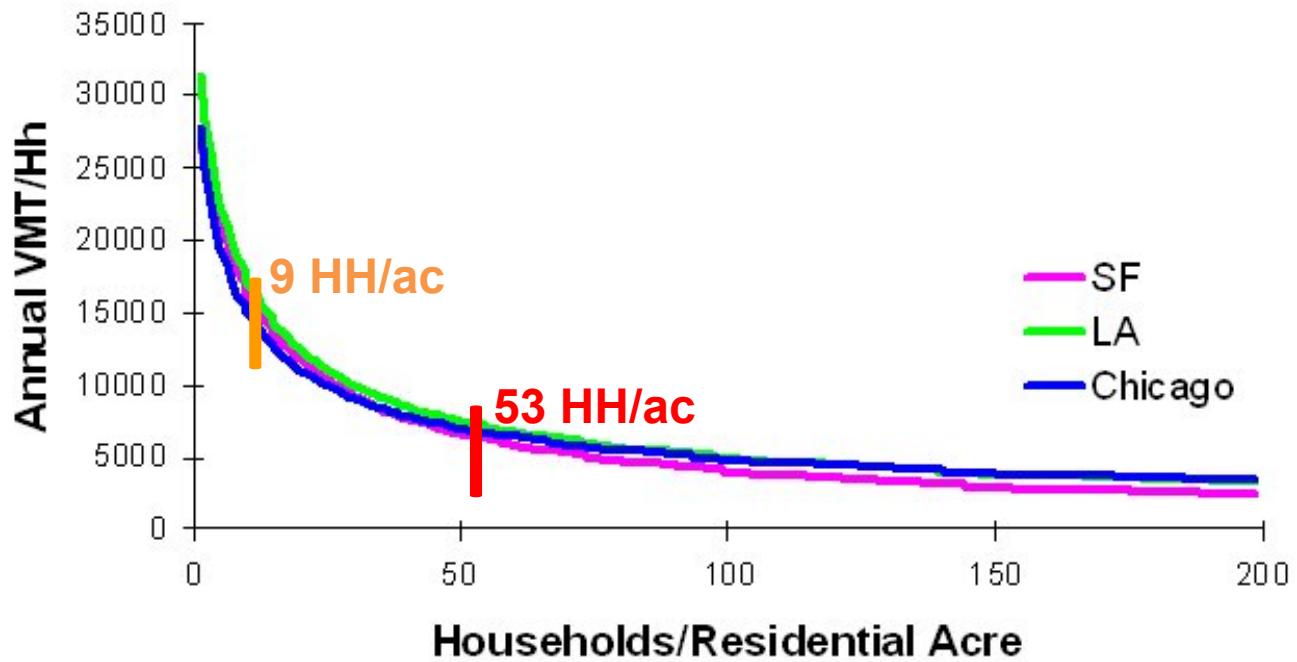
Driving vs Residential Density



How Much Density?



Driving vs Residential Density



Human-Scale Density Produces Benefits

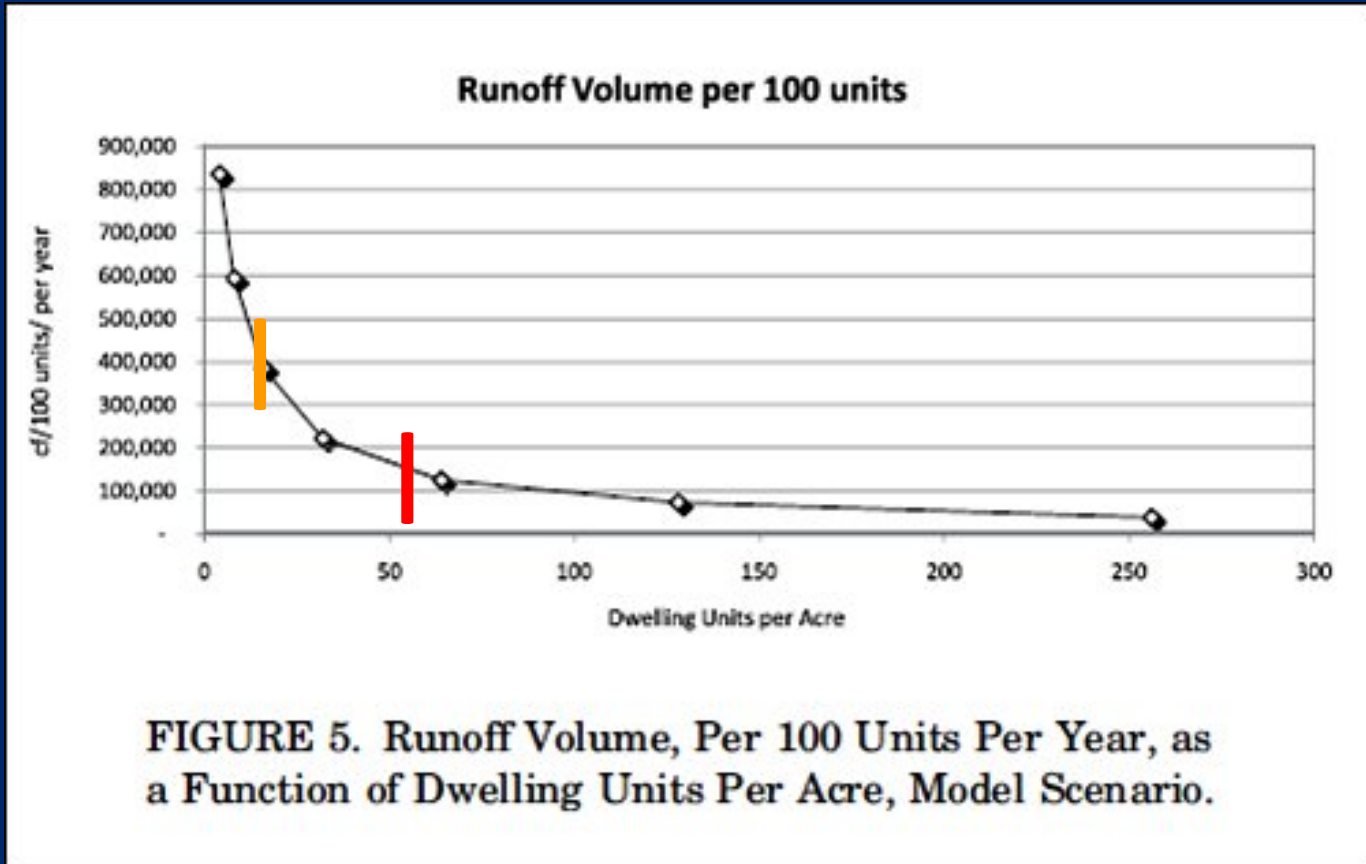


9 homes/acre



53 homes/acre

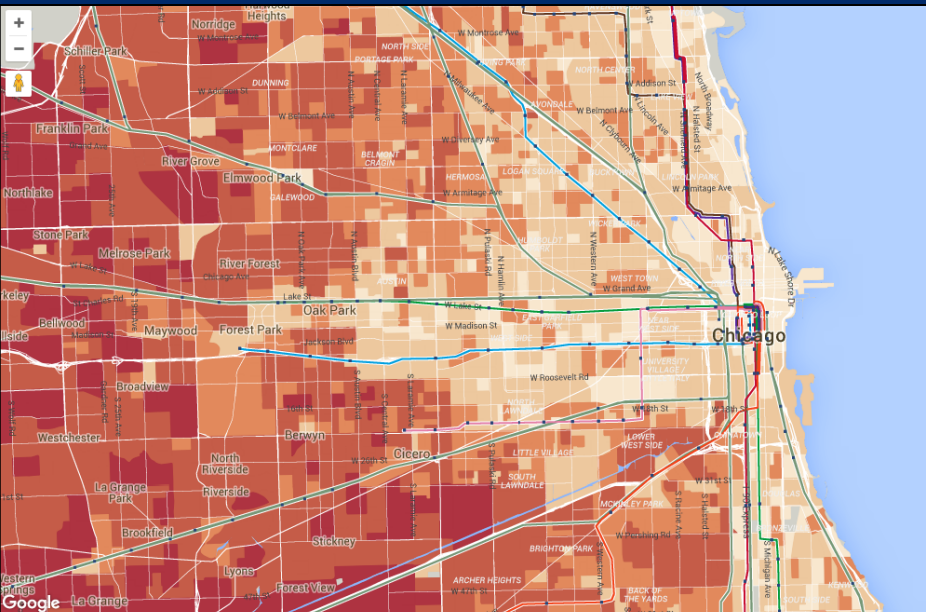
Stormwater Runoff



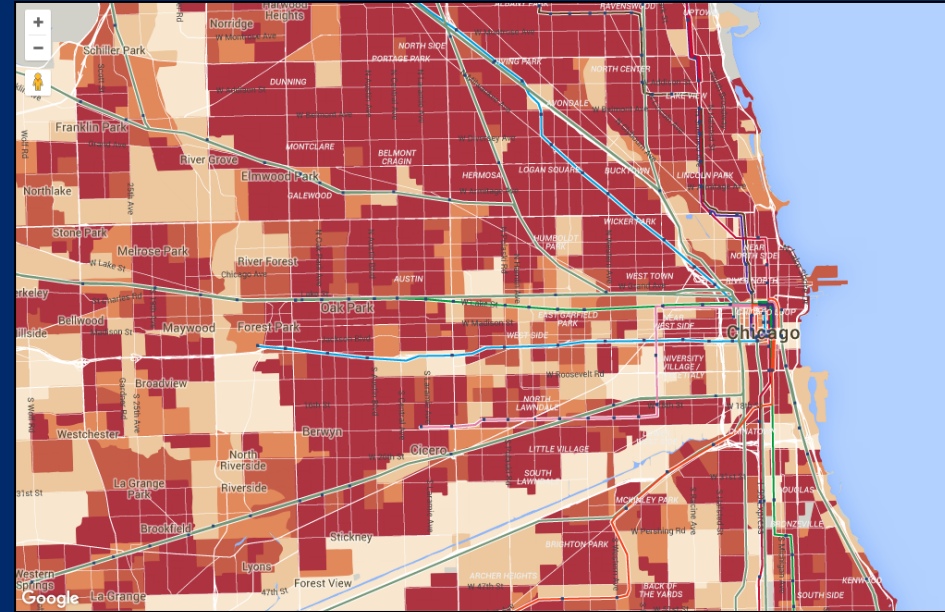
Density Brings Urban Intensity



Concentrated Impacts



Chicago: Emissions per household



Chicago: Emissions per acre

Density With Sensitivity



6. Sustainability Is Where the Heart Is.

Places People Love



Literal Sustainability











Candy • Ice Cream • Donuts
Novelties • News

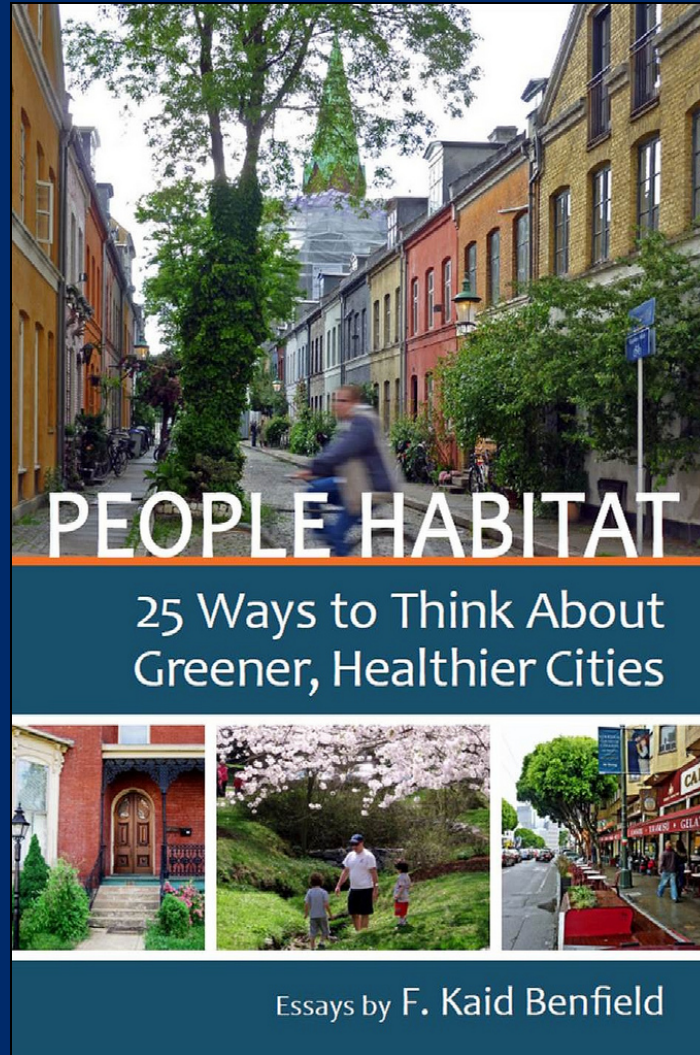
Dairy • Baked Goods
Pet • Baby

Market



Indicator Species for People Habitat

Thanks!



PeopleHabitat.com
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