

CLIMATE MANAGEMENT THROUGH LAND USE PLANNING AND REGULATION

JOHN R. NOLON

The American Land Use System: **Who knew?**

- Mitigation and Adaptation - Shaping Human Settlements in an Era of Climate Change
- Sustainability: Certifying Communities (LEED-ND)
- Mediating Land Use Disputes
- Planning Land Use: Regionally and Locally
- Emissions Reduction: Zoning for Transit-Oriented Development
- Resiliency: Adapting to Sea Level Rise
- Energy Conservation: Requiring Green Buildings
- Equity: Remediating Distressed Properties – Promoting Affordable Housing
- Sequestration: Enhancing Available Open Space
- Livability: Promoting Green Infrastructure



LAND USE PLANNING AND REGULATION

Three Topics

1. Relevance of Land Use Planning and Regulation
2. Why markets will favor optimal urban development
3. Post-Sandy: Using our tools to adapt to sea level rise and storm surges.

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FIRST POINT

Great Relevance of Land Use Planning and Regulation

- Human Settlements and Climate Change
- Buildings and Energy
- Building Patterns and Emissions
- Building Patterns and Sequestration



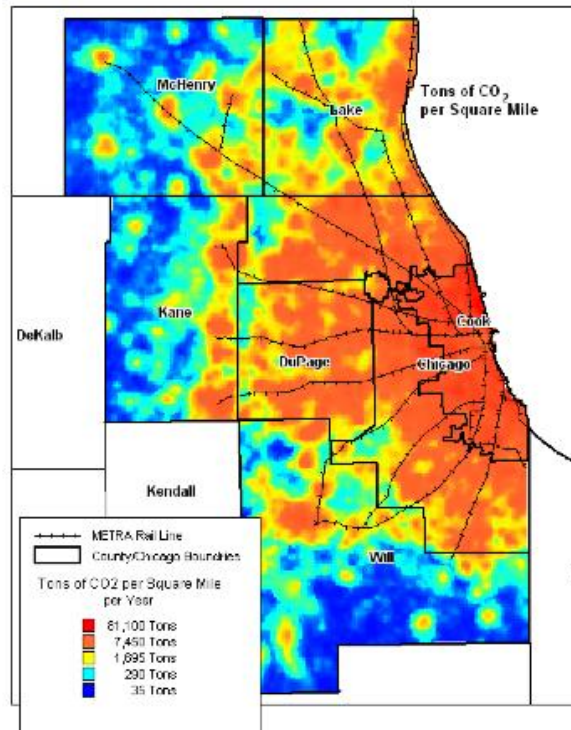
LAND USE AND CO₂ EMISSIONS

Two Views of Cities and CO₂

CO₂ Generated by Automobiles in the Chicago Region per Year

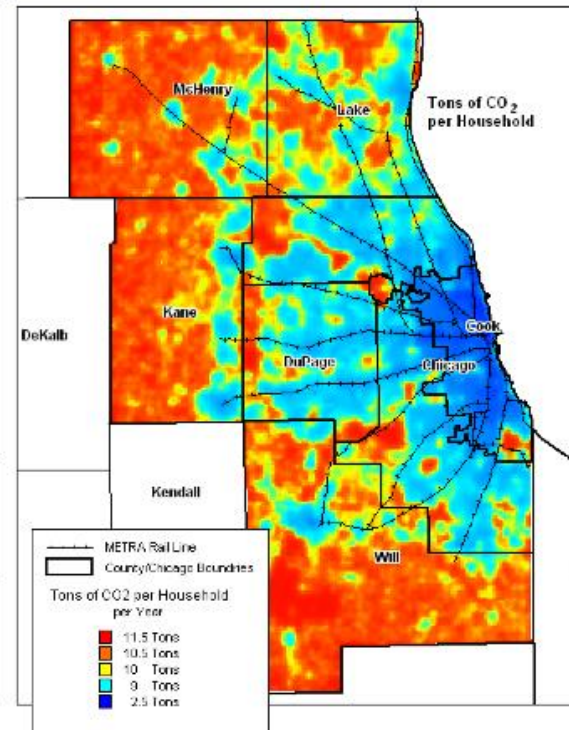
Traditional View:

Cities produce large amounts of GHGs.



Emerging View:

City dwellers produce relatively low amounts of GHGs.

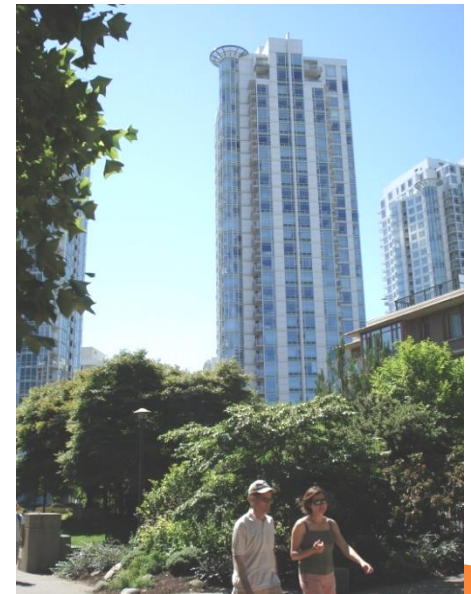


Each color represents one fifth of the land area on each map.



GREEN MANHATTAN: DAVID OWEN

- “Dense urban centers offer one of the few plausible remedies for some of the worlds’ most discouraging environmental ills.”
- Less Per Capita (U.S.):
 - Energy consumption (-70%)
 - CO2 Emissions (1/3rd)
 - Natural resource consumption
 - Water use (-25 gal/day/capita)
 - Impervious coverage (10%)
 - Less run-off, pollution, and flooding



THE END OF SPRAWL

- *Foot Traffic Ahead: A Study of 30 metro areas*
 - (Chris Leinberger and Patrick Lynch - 2014)
- 588 regionally significant walkable urban places
 - Walk-Ups
- Account for about 1% of metropolitan land area, but a substantial and growing amount of commercial development.
- In Atlanta, 27 Walk-Ups account for 50% of all recent commercial development
- Study documents a gradual shift from drivable suburbia to walkable urban development as the dominant real estate trend.



HOW PLANNING AND REGULATION CREATE SETTLEMENT PATTERNS

- Delegation of Power to Local Governments
- Power to Adopt Land Use Plans
- Power to Create Zoning Districts
- Power to Review and Approve, or Disapprove, of Development Projects
- All this determines settlement patterns: spread-out and low density or compact, mixed use, etc.



BUILDINGS, ENERGY, AND CO₂

- Residential and commercial buildings = 35% of CO₂
- Residential and commercial buildings = 75% of electricity
- Buildings consume over 40% of total energy used in U.S.
- Single-family homes use and waste more energy and emit more CO₂ than multi-family
 - More sq. footage to heat and cool
 - Harder to make energy efficient



TRAVEL, SETTLEMENTS, AND CO₂

- 17% of CO₂ comes from tailpipes of personal automobiles
- VMTs grew 3 times faster than population from 1980-2000.
- Why? Land use plans and regulations cause spread out development patterns.
- Suburban residents = up to 15 vehicle trips per day per household



BIOLOGICAL SEQUESTRATION & CO₂

18% of CO₂ is sequestered by:

- Pastures
- Meadows
- Forests
- Urban Tree Canopies
- Urban Green Infrastructure



SECOND POINT

Why markets will naturally favor certain types of optimal urban development.

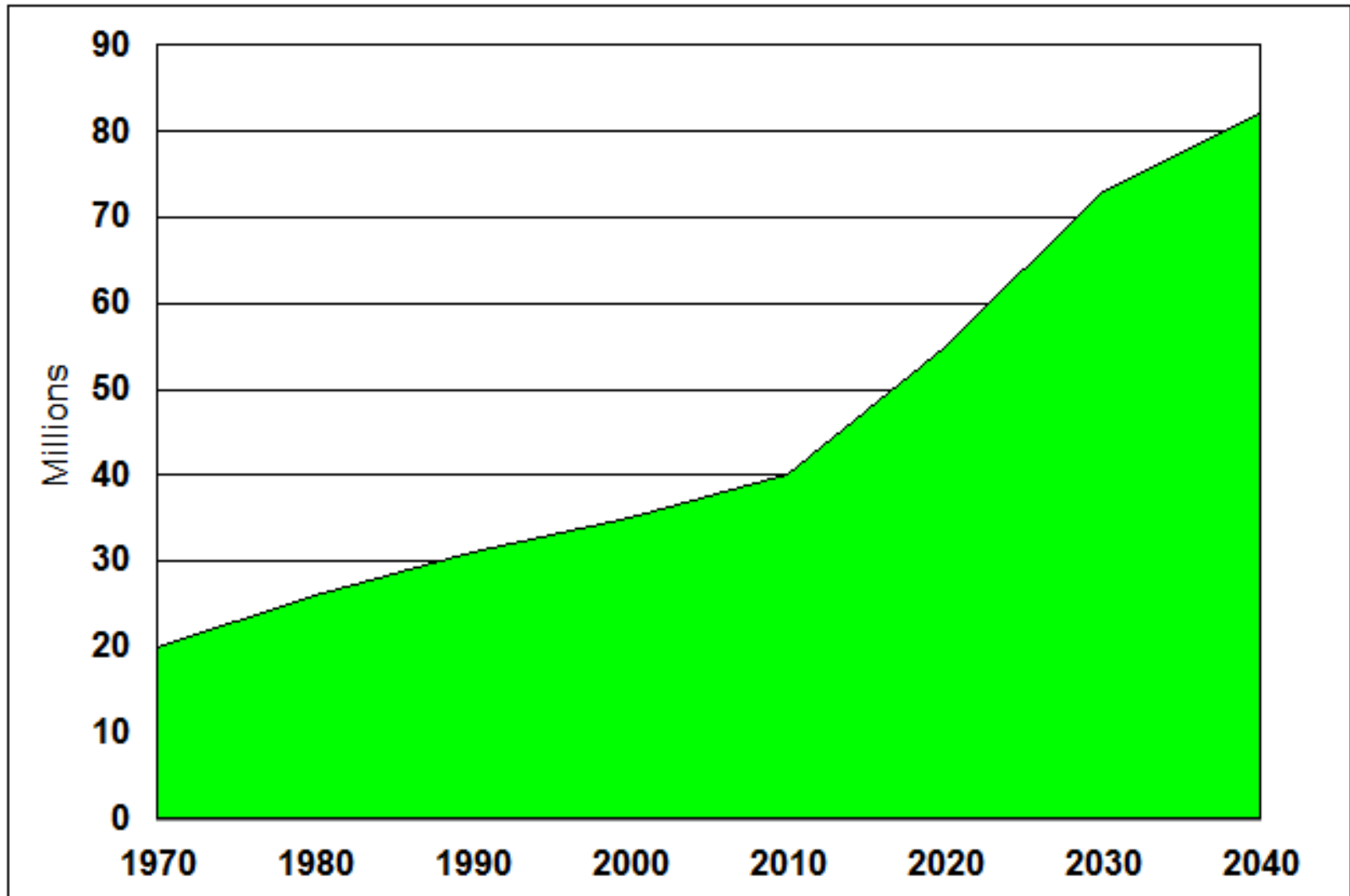


DEMOGRAPHY, MARKETS, AND SETTLEMENTS

- 2030: single households = 35%
- HHs with children = down to 27%
- 2010-2050, 70% of net gain in the number of HHs without children
- 2011 National Ass'n of Realtors survey: 47% of all HHs prefer cities or mixed use suburbs.
- And the senior *tsunami* is coming...



NUMBER OF SENIORS BY DECADE



Source: Arthur C. Nelson, Metropolitan Research Center, University of Utah

RELOCATION CHOICES OF SENIORS

<u>Housing Type</u>	<u>Before Move</u>	<u>After Move</u>
Apartment	20%	59%



Source: Arthur C. Nelson based on analysis of *American Housing Survey 2005, 2007, 2009*. New movers means moved in past five years. Annual senior movers are about 3% of all senior households; 60%+ of all seniors will change housing type between ages 65 and 85.



THE AMERICAN DREAM

80% of Americans wanted a single family home on a detached lot. This was the American Dream.

The Dream is changing.

Key drivers are:

- Demographic changes

- Housing market changes

- Housing finance changes

- Preference changes

We are moving toward Many American Dreams



CONCLUSIONS:

- For the first time in the modern era, promoting smart growth, sustainable neighborhoods, and mixed use, compact development near transit is **favored by market** and economic forces.
- Despite this, **urban areas must be creative** to attract seniors aging out of their homes, young professionals entering the workforce, and companies looking to expand.



THIRD POINT

ADAPTATION TO SEA LEVEL RISE

Understanding the challenge of Sandy and how to create a strategy in response.

Sea level rise and storm surges.

The logic of a no-build zone: the post-Sandy paradigm.

The illogic of a no-build zone.

- The *Lucas* case.
- The limits of science/lack of certainty.
- Economic realities.
- Local political realities.

Alternatives to the no-build strategy.



THE POST-SANDY PARADIGM

- Hurricane Sandy caused 132 deaths in the U.S., damaged 377,000 buildings in New York and New Jersey, cost \$71 billion in damages in the two states, and resulted in up to \$22 billion in insurance payouts.
- Future Shock: Post-Sandy press reports, political rhetoric, private conversations, moves us measurably closer to embracing a no build strategy.
- But there are countervailing realities.



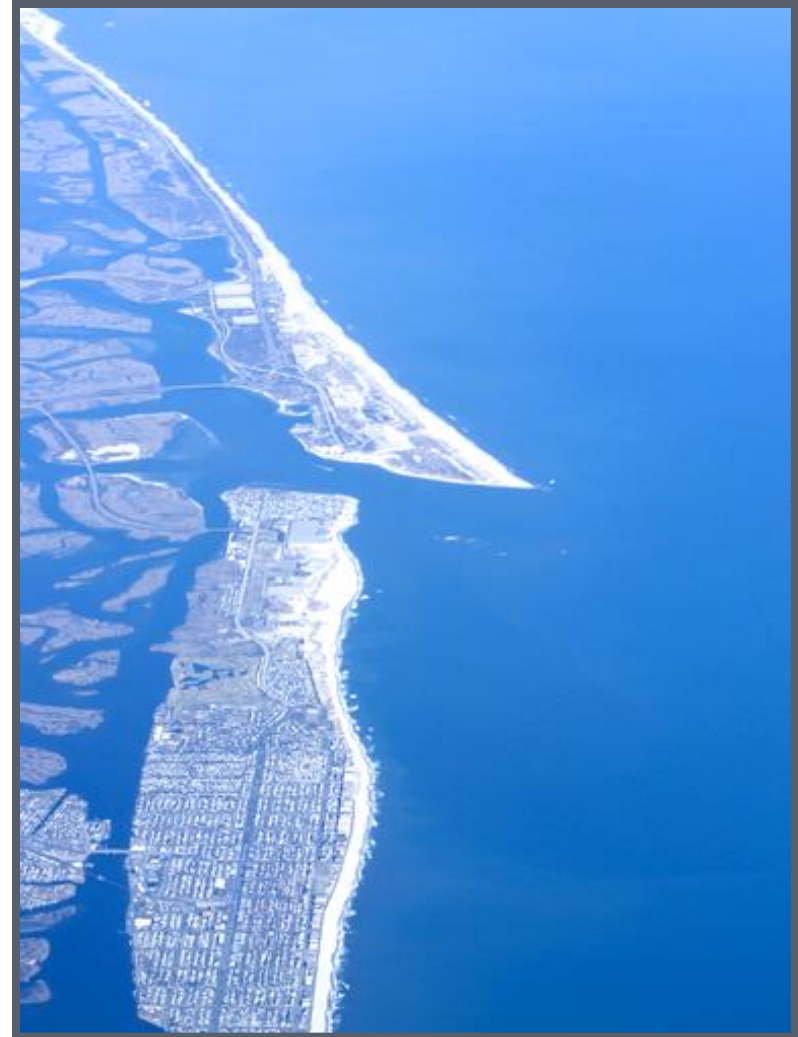
WHAT ARE THE COUNTERVAILING REALITIES?

- Lucas: total takings doctrine.
- Limited doctrinal exceptions.
- We are not there yet, legally.
- There are several environmental, political, legal, and economic realities:
 - Widely varying estimates of SLR and storm surges.
 - Sympathy for local owners who pay taxes.
 - Local owners vote.
 - Established post-disaster norms.
 - Political gains for supportive politicians.
 - Political loses for those who embrace no-build: as an overt regulatory strategy.



East Hampton, New York: Dawning Realities

“Future planning efforts should examine the likely effects of global warming, including increasing sea level rise and storm and hurricane activity on the Town’s coastline. Beginning to plan for these effects, assessing potential damage to public resources and infrastructure, and evaluating methods of protection and associated costs are vital for future coastal management.”



COLLIER COUNTY, FLORIDA: BURDEN OF PROOF ON DEVELOPER



Requires sea level rise impact analysis for shoreline development

Analysis must show that the development will remain fully functional for its intended use after a six inch rise in sea level



FOR MORE INFORMATION:

- *Protecting the Environment Through Land Use Law: Standing Ground*, by John R. Nolon
- Ten Chapters, 350 pages: *Local Land Use Authority, Environmental Protection, Resiliency, Urban Agriculture, Green Infrastructure, Environmental Review, Land Use Dispute Resolution, and Sequestration.*
- Available Through the Environmental Law Institute, APA, and West Publishing
- <http://www.eli.org/eli-press-books/protecting-the-environment-through-land-use-law%3A-standing-ground>

