American Cities and Sustainable Development

Why Thinking Globally But Excluding Locally May Be A Recipe For Doom

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America’s Built Environment Today Reflects the Market Trends and Innovations of the Twentieth Century....

Along with our Public Laws, Policies, and Subsidies Promoting Low Density Automobile-dependant Sprawl
The Automobile Industry & The Interstate Highway
The Shopping Mall

&

Big Box Retail
The Suburban Office Park & Edge City
A World Completely Dependant on the Automobile & Fossil Fuels
Is Low Density Automobile Dependant Sprawl Sustainable?

- Quality of life – auto use/traffic congestion
- Economic cost to households
- Global competition - job losses/transit costs
- Auto impact public health & safety
- Infrastructure costs/maintenance
- Peak oil - rising gasoline prices
- Global warming – Co2 fossil fuels
High Density is Green

David Owen
“Green Manhattan”
New Yorker
Oct, 2004
Energy – Transportation – Density

USA Transportation (+80% of oil supply)

- Houston
- Phoenix
- Dallas
- Denver
- Boston
- Chicago
- New York
- London
- Berlin
- Shanghai
GLOBAL WARMING
CLIMATE CHANGE

CO2 Increase
-1700-280ppm
-2000-370ppm
-2999-700ppm

IPPC Estimate
Temperature Increase by End of Century
+1.4 _ +5.8°C
<table>
<thead>
<tr>
<th>Energy Source</th>
<th>Percentage</th>
</tr>
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<tbody>
<tr>
<td>Coal</td>
<td>23%</td>
</tr>
<tr>
<td>Oil</td>
<td>44%</td>
</tr>
<tr>
<td>Natural Gas</td>
<td>23%</td>
</tr>
<tr>
<td>Nuclear</td>
<td>8%</td>
</tr>
<tr>
<td>Hydro</td>
<td>3%</td>
</tr>
<tr>
<td>Solar</td>
<td>&lt;1%</td>
</tr>
<tr>
<td>Wind</td>
<td>&lt;1%</td>
</tr>
<tr>
<td>Geothermal</td>
<td>&lt;1%</td>
</tr>
</tbody>
</table>

**United States Energy Consumption**

Fossil fuels: 90%
Wind and solar energy

.2 %
Peak Oil

Urban Collapse?
China’s Oil Consumption 1995-2005 +1.2 billion barrels yr.
U.S.A.’s Oil Consumption
1995-2005
+1.1 billion barrels yr.
Conservation and energy efficiency are unlikely alone to be sufficient....
USA Population 300 million
two future growth stages

1. By 2035 year  +100 million people than now
2. By 2099 year  +250 million people than now

For stage 1 (next 30 yrs.) we will need to build/add
• 70 million new residential units!*
• More new non-residential development than all that now exists!*  
• 2/3 this new development in newer suburbs/beyond*
• + 90 million additional automobiles**

* A. Nelson & R. Lang, The Next 100 Million, Planning 4, Jan. 2007
** Estimate based on present USA +3 million vehicle yr
21 century?

Broomfield Subdivision
Colorado USA

Luodian New Town
Shanghai China
The Technological Fix?
-business as usual-

The “American Freedom Car”

An ethanol-electric-hybrid car that gets 600 miles to the gallon
Clean cheap electricity!

To produce hydrogen to run our entire transportation system with cars and trucks getting 80 miles a gallon we will probably need to build 600 (500 megawatt) nuclear power plants by mid-century.
Most large cities and downtowns in USA grew in the 1990s.
Decentralization still dominates
Density dropped across all regions in the U.S. between 1982 and 1997

<table>
<thead>
<tr>
<th>Region</th>
<th>1982</th>
<th>1997</th>
<th>Percent Change</th>
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<tbody>
<tr>
<td>Northeast</td>
<td>5.87</td>
<td>4.51</td>
<td>-23.1%</td>
</tr>
<tr>
<td>South</td>
<td>3.68</td>
<td>2.82</td>
<td>-23.4%</td>
</tr>
<tr>
<td>Midwest</td>
<td>4.19</td>
<td>3.39</td>
<td>-19.0%</td>
</tr>
<tr>
<td>West</td>
<td>5.46</td>
<td>4.85</td>
<td>-11.2%</td>
</tr>
<tr>
<td>United States</td>
<td>4.46</td>
<td>3.55</td>
<td>-20.5%</td>
</tr>
</tbody>
</table>

Source: Fulton and others, “Who Sprawls Most? How Growth Patterns Differ Across the U.S.”
Densities continue to decline....
Many cities (San Francisco, Chicago, Boston, that had been gaining population) now losing population

Many cities now losing population at a faster rate

Some major metropolitan regions now losing population to exurban areas
Mega Regional Growth*

2007 - 2040 metro decentralization continues....but growth focused in 10 Mega regions

- US population + concentration these Mega regions
- Substantial density + in most Mega regions
- May be little density change in other Mega regions
- 2/3 of new development in newer suburbs/beyond

It’s not just about Density!

Los Angeles
Highest density urban metro area in USA
Causes Unsustainable Low Density Sprawl

- Private market demand for low density
- Public laws, policies and subsidies (for low density development)
- Local low density fiscal zoning (taxes/spending concerns)
- Local low density zoning & NIMBY growth management programs
SMART GROWTH?

Built Environment NIMBYs

“Sentimental NIMBYs”

Land use activists promoting the “public interest” by “fighting sprawl” through various “smart growth” and “environmental protection” restrictions (which enhance the aesthetic character and property values of existing neighborhoods but that actually promote more harmful and unsustainable low-density regional sprawl).

“Think globally - Exclude locally”
Welcome!
New Urbanism
Town Center

Smart Growth
Meeting Tonight

Are Americans ready for a low-carbon diet??

The friendliest place to drive your Big SUV!
Changes for High Density Sustainable Development
-beyond merely fashionable remedies-

• Private market demand for high density
• Public laws, policies and subsidies (promoting/requiring high density & substantial exactions on low density)
• State law preemption of local zoning & NIMBY growth management programs (for all high density residential & energy projects)
• Substantial + funding new energy technologies
• Prohibit solo driver commuting
Our twenty-first century
2007-2050 problematic times USA

- Much oil from unstable regions of the world
- US households/a negative savings rate
- US $ +100 billion yr global terrorism
- US $ 8 trillion national debt
- US $ 2 trillion state infrastructure deficit
- US $50 trillion federal entitlement deficit by 2050
- Problem of sustaining “long term” goals in “short term” inward-thinking democracy.
The trouble is not just in the way we are thinking; it is also in the way we, or anyhow we in the affluent parts of the world, are living. And it is going to be hard to define anybody’s living as a series of simple choices between irrationality and rationality. Moreover, this is supposedly an age of reason; we are encouraged to believe that the governments and corporations of the affluent parts of the world are run by rational people using rational processes to make rational decisions.

The dominant faith of the world in our time is in rationality. That in an age of reason, the human race, or the most wealthy and powerful parts of it, should be behaving with colossal irrationality ought to make us wonder if reason alone can lead us to do what is right.

American Cities and Sustainable Development

“Tomorrow is promised to no one”

Sustainable Development?

Global ecosystems and resources are simply not sufficient to sustain the current economies of the industrial West and at the same time bring more than 2 billion people into the global middle class through the same resource intensive development model pioneered by North America and Europe.

Limits on the ability to increase oil production, shortages of water, and the economic impacts of damaged ecosystems and rapid climate change are among the factors that make it impossible to continue current patterns on such a vastly larger scale.

Humanity is now on a collision course with the world’s ecosystems and resources. In the coming decades, we will either find ways of meeting needs based on new technologies, policies, and cultural values, or the global economy will begin to collapse.

## GROWTH & CLIMATE CHANGE

### FUTURE GROWTH

China and the US are likely to be building thousands of coal-fired greenhouse gas emitting power plants by mid-century and both countries will be adding millions of new automobiles with greenhouse emissions from oil consumption.

### GLOBAL WARMING

To limit global warming to not more than a 2°C Celsius rise in temperature, the world will need to produce by mid-century from 100 to 300% of all the energy now produced, and all from non-fossil fuel sources.
Can our automobile cities survive without cheap fossil fuels?
Is Our Built Environment of Auto-Dependant Sprawl Sustainable?
The Balloon Frame House

&

The Housing Industry
New Urbanism

Denver

Still Automobile Dependant!

Lowry Redevelopment Map
Fixed Rail Public Transit for widely dispersed population?

A Comparative Perspective

Barcelona, Spain 1.6 million pop.

By year 2030
* 10 million households TOD
* 40 million households aren’t TOD
* 70 million more cars

City of Denver, USA ½ million pop.

*Barcelona has 9x Denver’s Residential Density
Sustainable Development

How about Green Development codes?
Green Development?

Homes +7,500 sq. ft
25% Solar Energy

Building Code
Marin County, California
Green Development?

Solar Energy Parking
Belmar, Colorado
New Urbanism

2 megawatts
250-500 homes