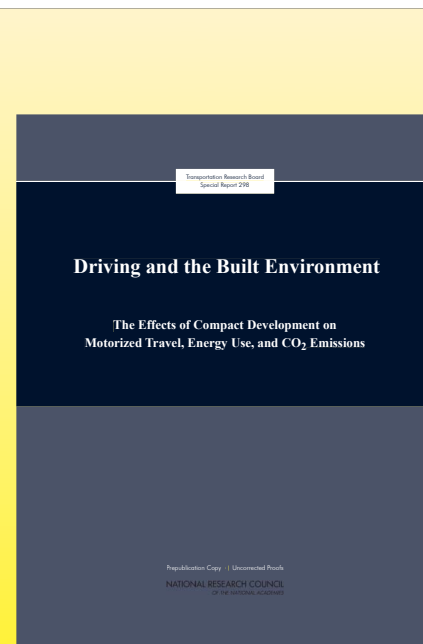
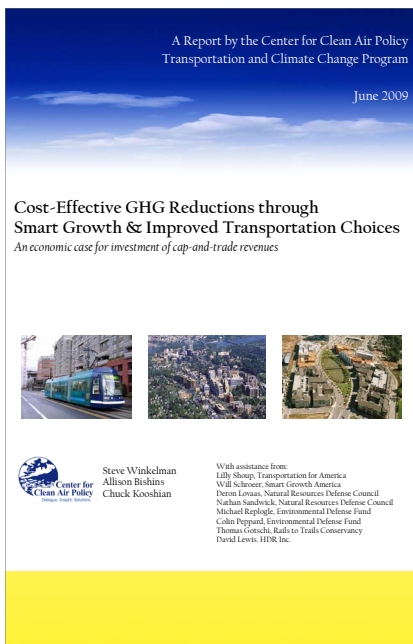


In recent months, several reports have argued that we can or must use smart growth -- that is, compact development combined with transit improvements -- to reduce greenhouse gas emissions. These include two reports from the Urban Land Institute,

Smart-Growth Logic

1. New technologies will not reduce CO₂ emissions enough to keep up with the growth of driving; we *must* reduce driving growth.
2. People living in higher densities with transit access drive less.
3. Therefore, we *must* expand transit and force Americans to live in higher densities.

These reports -- or at least the ones that claim that we must use smart growth -- are based on this chain of reasoning.

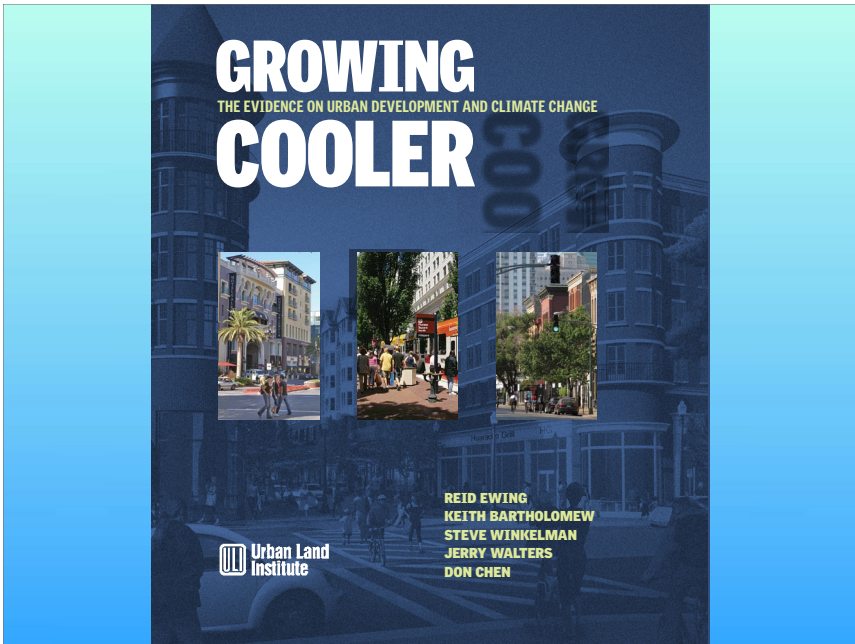


... plus a report from the Center for Clean Air Policy and one from the Transportation Research Board.

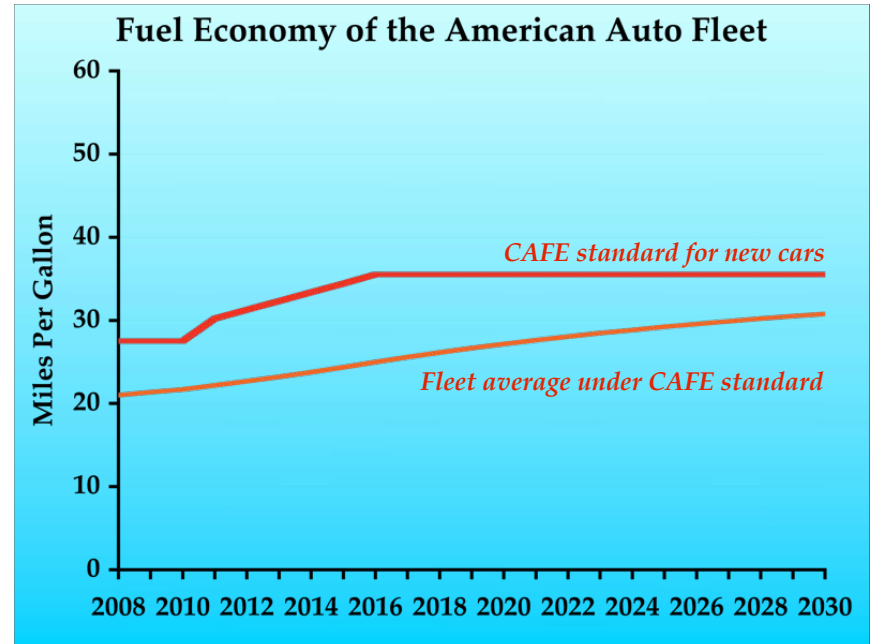
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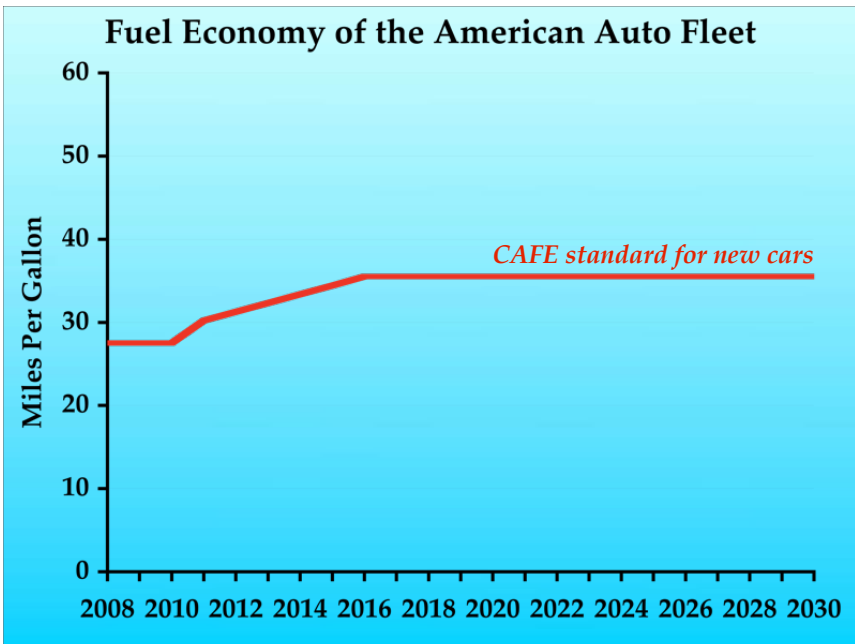
Let's take these points one by one.



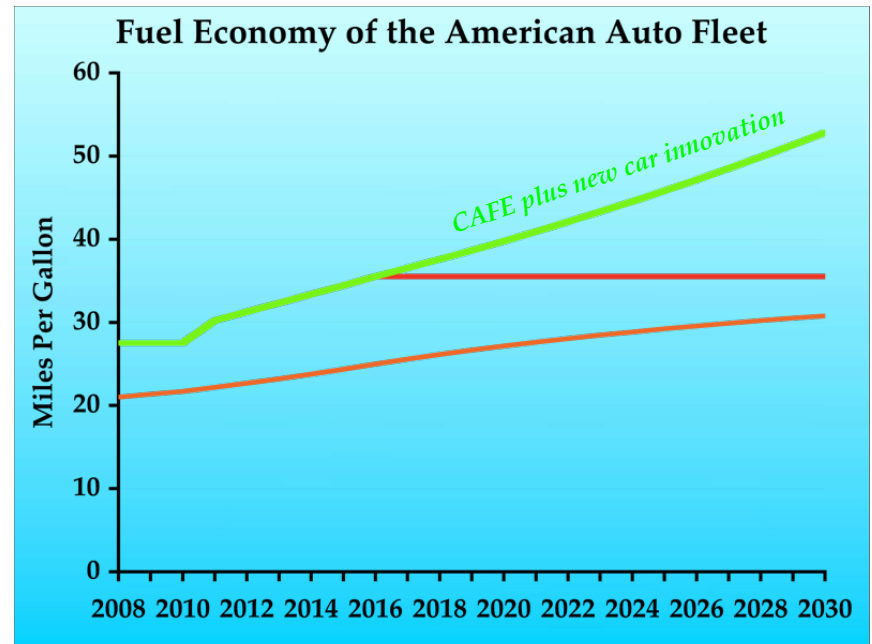
Growing Cooler assumes that future cars will meet the CAFE standards in the Energy Security and Independence Act of 2007.



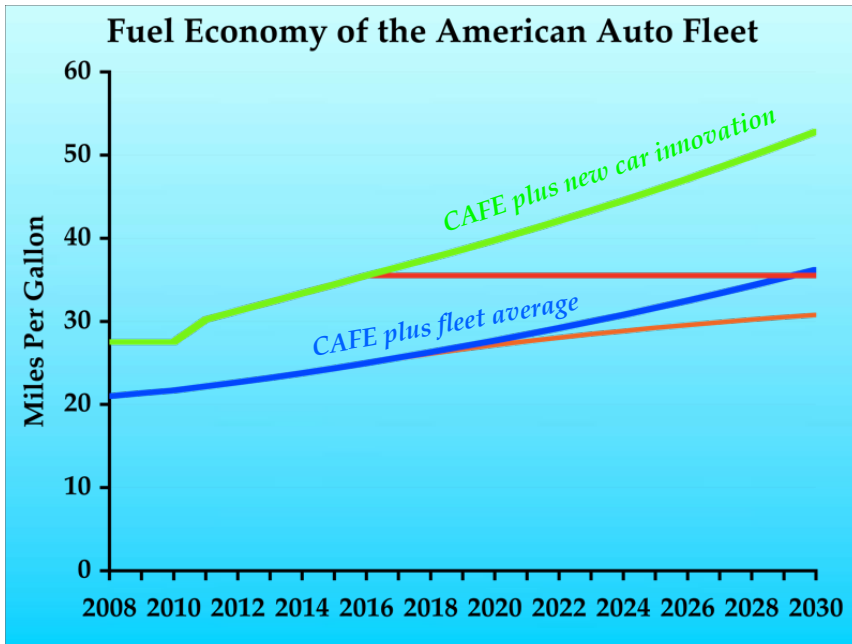
Considering that the American auto fleet turns over about every 18 years, the average car on the road will get a little more than 30 mpg by 2030.



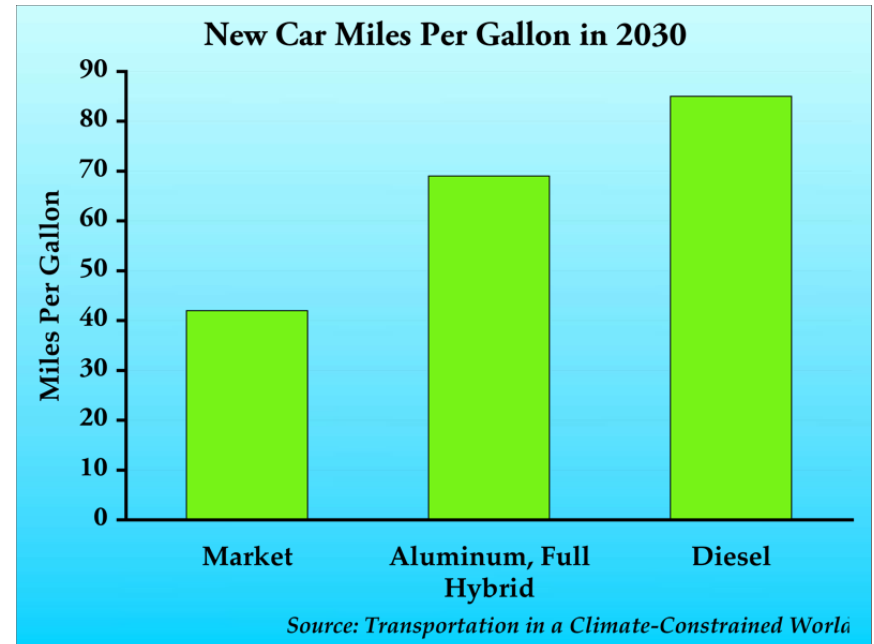
That means that new cars built in 2020 will get 35 mpg and thereafter new cars will never become more efficient.



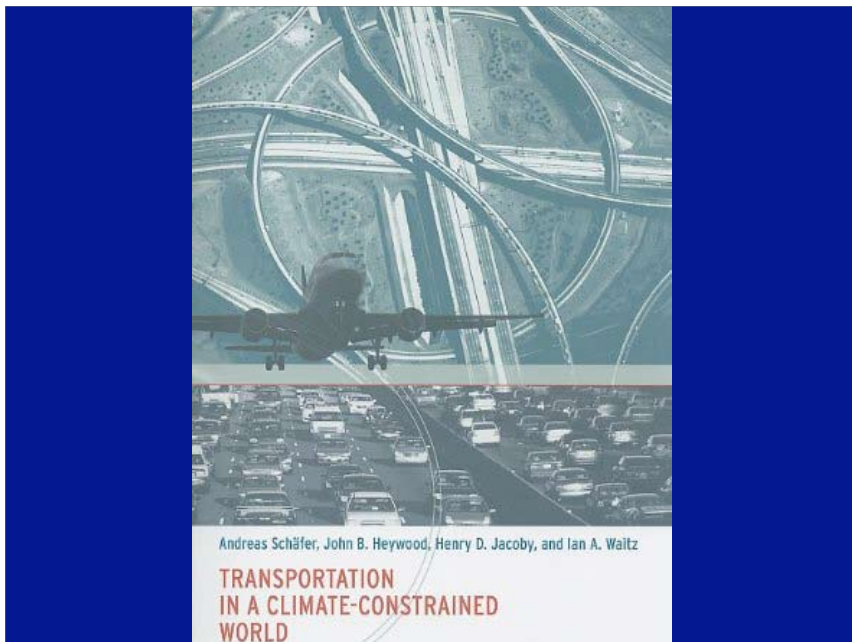
But it is far more likely that new cars will continue to become more efficient after 2020.



If efficiency grows at the same rate after 2020 as before, then by 2030 the average car on the road will get better than 35 mph.



... by 2030, without any further mandates or subsidies, the average car on the road will get 42 mph. The book adds that it would be cost effective to use regulations that could increase fuel-economy to 69 mph, and further increases up to 85 mph are possible but not, in the authors' opinions, cost effective.

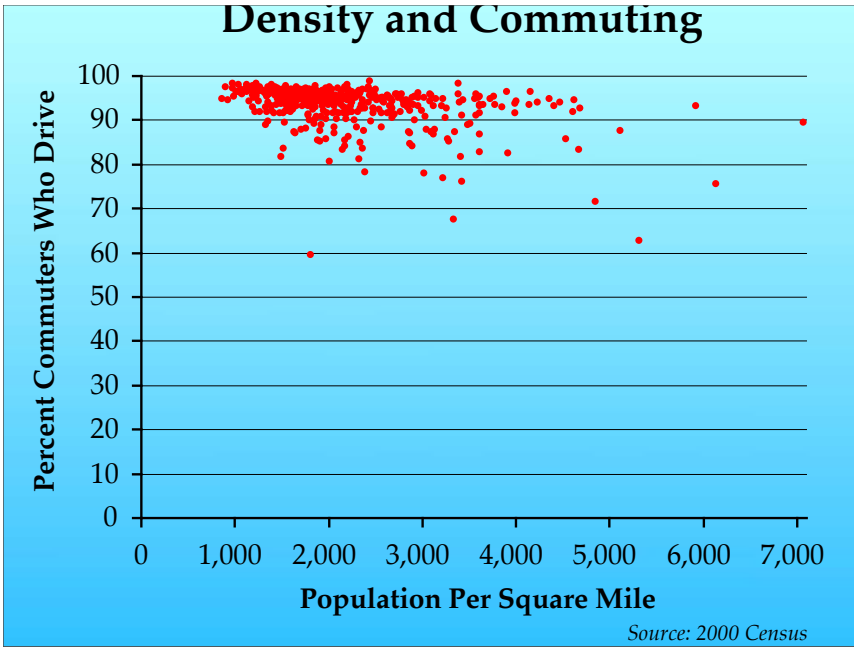


Even that may be conservative. According to this book by four researchers at MIT. . .

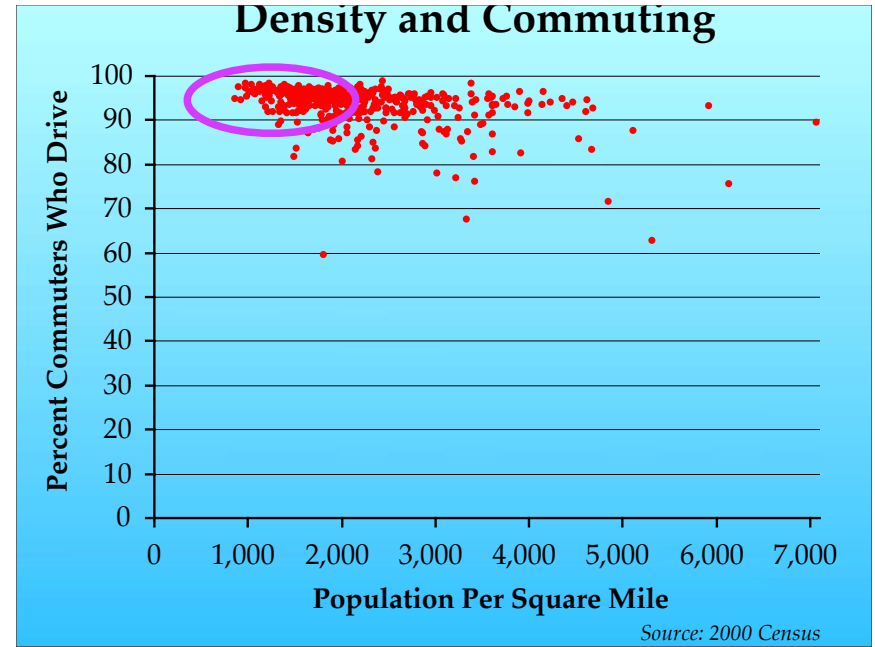
Smart-Growth Logic

1. New technologies will not reduce CO₂ emissions enough to keep up with the growth of driving; we *must* reduce driving growth.
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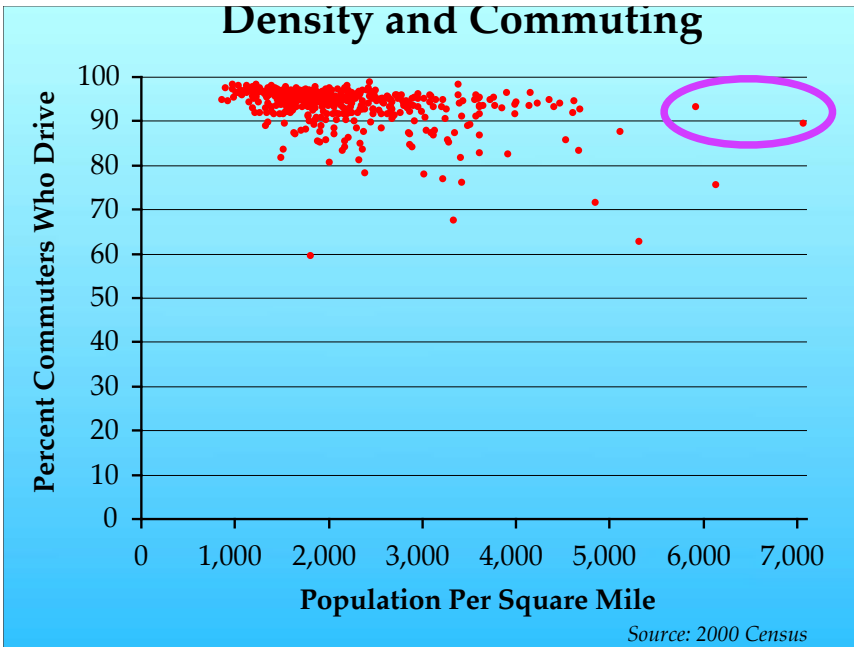
Economists and planners are far from unanimous about the second proposition, that higher densities reduce driving.



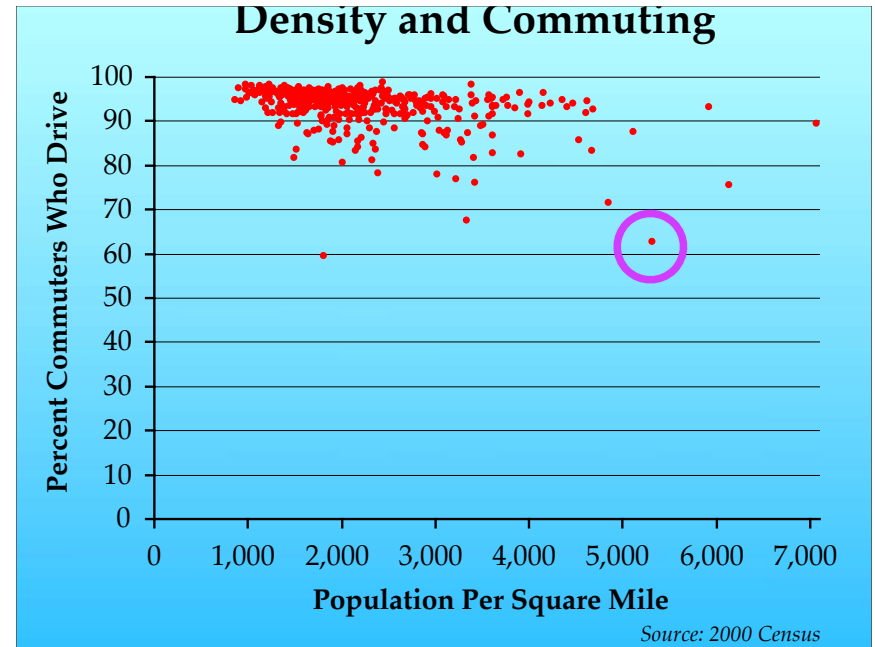
These census data from 400 urbanized areas compare densities and driving.



... but have only 6 to 9 percent less per-capita auto commuting.



The highest density areas are six to seven times denser than the lower density ones,



This urban area has lower commuting, but it is far from having the highest densities.

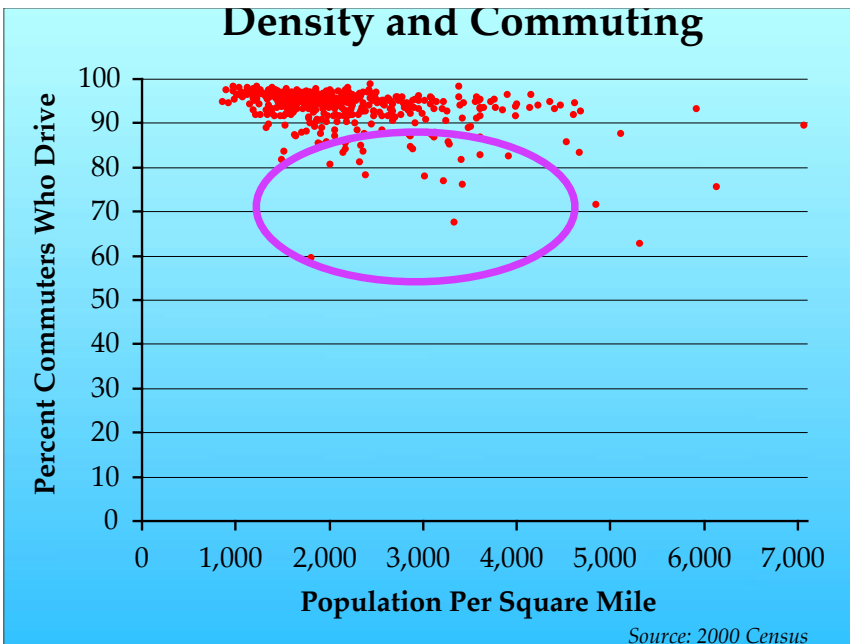


In fact, it is New York, and it has low rates of auto commuting because it has so many jobs in a small portion of the city center.

“There is a **statistically significant link** between aspects of the built environment correlated with density and VMT. ”

David Brownstone, UC Irvine

The Transportation Research Board study commissioned a literature review of this question. The review found that there is a link between density and driving. . .

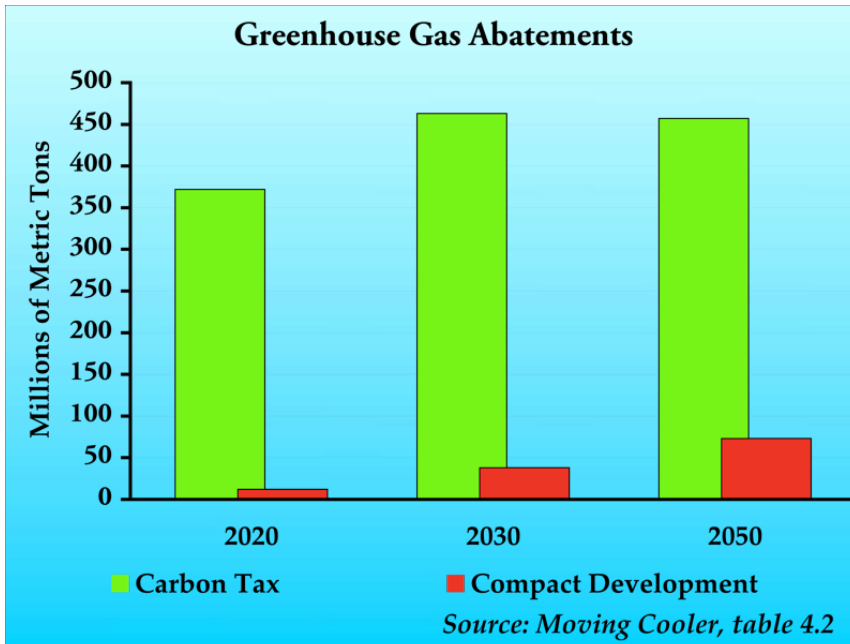


These other urban areas have low rates of auto commuting, but they are mostly college towns, with young populations, or -- like New York -- have downtown job concentrations. Ironically, smart growth calls for spreading jobs out, not concentrating them downtown.

“There is a statistically significant link between aspects of the built environment correlated with density and VMT. Very few studies provide enough detail to judge whether this link is large enough to make manipulating the built environment a feasible tool for controlling VMT, but those that do suggest that the size of this link is **too small to be useful.**”

David Brownstone, UC Irvine

. . .but the link is “too small to be useful” in trying to reduce per-capita driving.



Another problem with compact development is that it takes years to implement. *Moving Cooler* found that carbon taxes would have an almost immediate effect on greenhouse gas outputs, but compact development would have minimal effects for several decades.

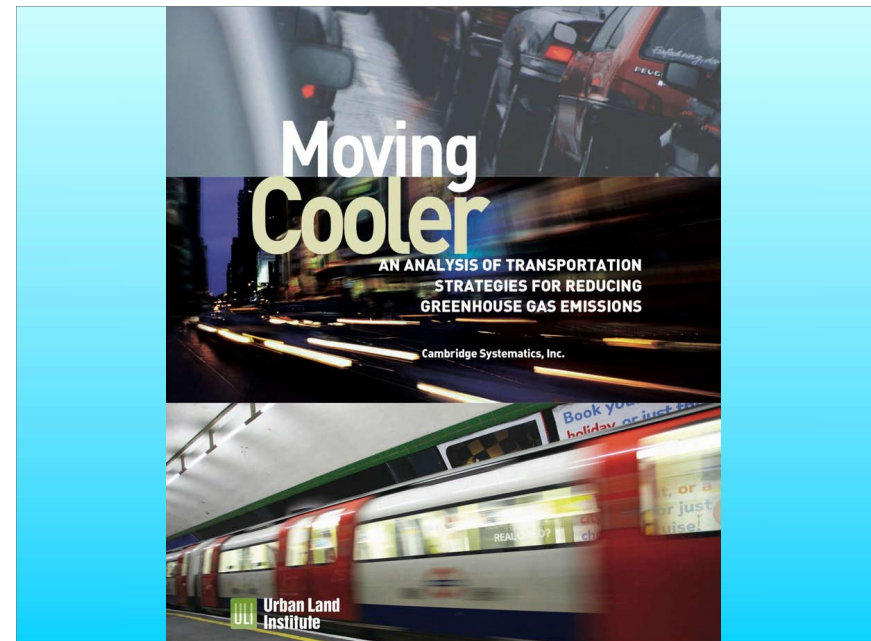


A McKinsey & Company report found that the U.S. can meet greenhouse gas reduction targets by investing in activities that reduce emissions at a cost of no more than \$50 a ton. This means that any programs that cost significantly more than \$50 a ton are not cost-effective.

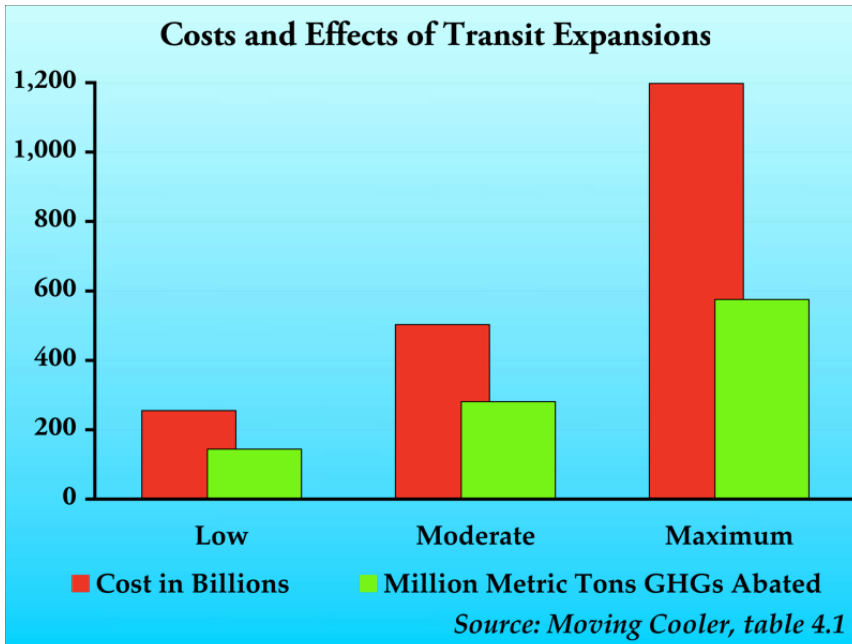
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The third proposition implicitly assumes that there are no alternatives to compact development that are more cost effective.



Moving Cooler estimated the costs and GHG reductions from investments in transit improvements.



They estimated costs in billions would reduce emissions by millions of tons. In other words, the cost per ton would be more than \$1,000, and at the maximum level it would be more than \$2,000.



In fact, we know from those cities that already use compact development policies that the costs are high. The biggest cost is housing. In Houston, which has no compact development policies, the cost of a 4-bedroom, 2,200-square-foot home is \$160,000.

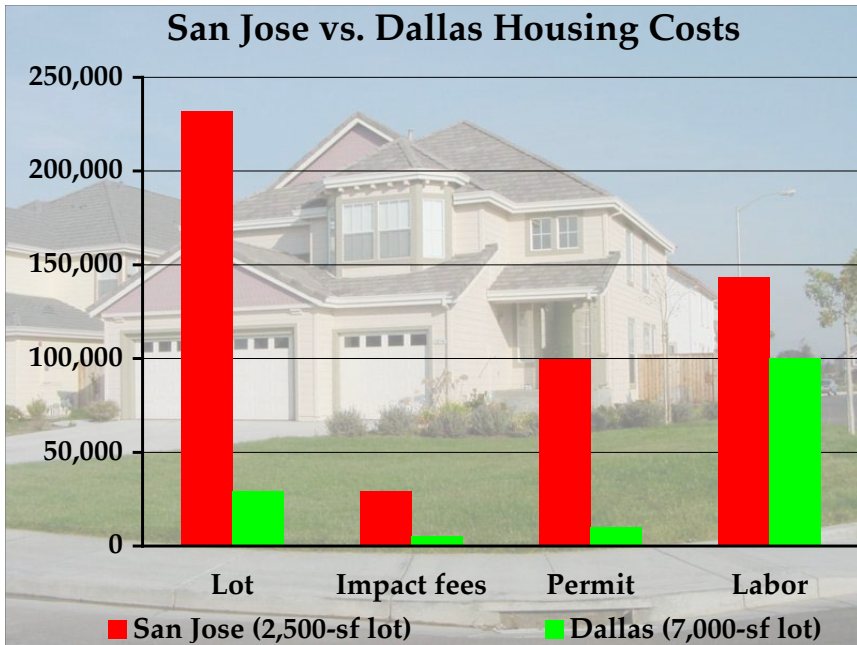
Compact City Predictions

1. *Growing Cooler*: Making 60% of new development more compact will reduce CO₂ by 1.3%
2. *Moving Cooler*: Making 90% of new development more compact will reduce CO₂ by 1.2%
3. *Driving & the Built Environment*: Making 75% more compact will reduce CO₂ by 1.4%

These three reports estimated that, if most future urban development were compact, human-cause GHG emissions in the U.S. would fall by 1.2 to 1.4%. *Moving Cooler's* estimate of the costs of such reductions was clearly wrong, as they had the same estimate no matter what percentage of development was compact.



A similar sized house (but on a smaller lot) in Portland is more than twice as much.




To some degree, the higher cost to homebuyers represents a higher benefit to homesellers. But the costs of permits, labor, and other costs are deadweight losses to society. For example, labor costs more in high-cost housing markets, but workers don't win because they have to pay more for housing.



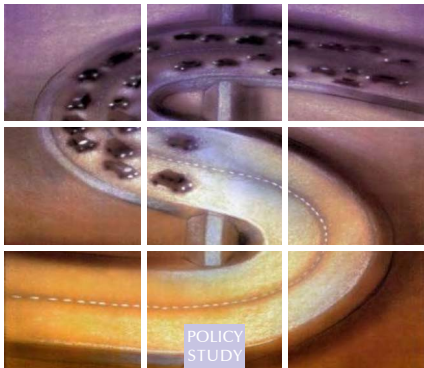
Another major cost is congestion. Even if doubling densities reduces per-capita driving by 10 percent, that still means far more vehicle miles of driving per square mile of land. Since smart growth calls for no new roads, this means congestion will be far worse.

August 2009

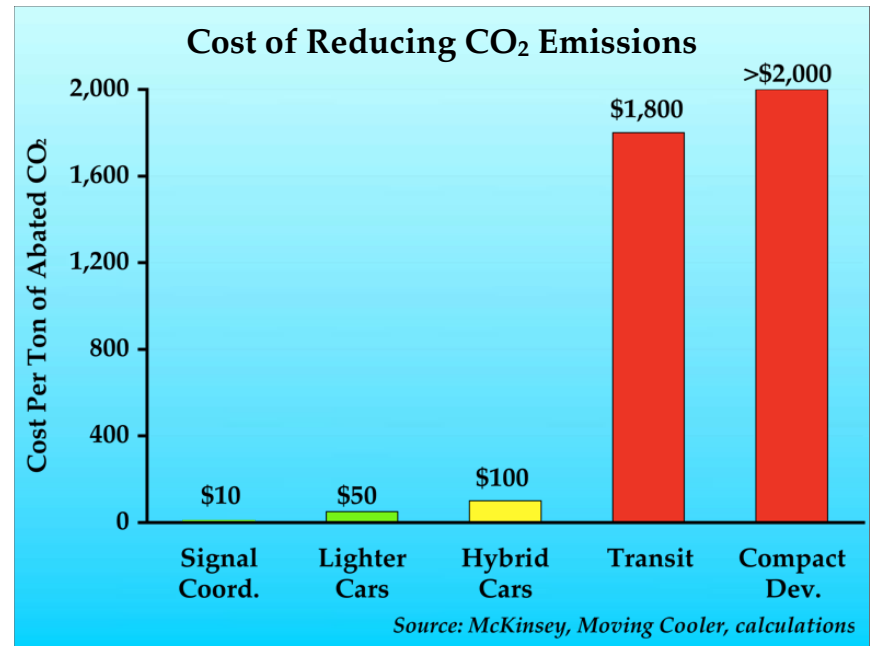


GRIDLOCK AND GROWTH: THE EFFECT OF TRAFFIC CONGESTION ON REGIONAL ECONOMIC PERFORMANCE

By David T. Hartgen, Ph.D., P.E. and M. Gregory Fields
Project Director: Adrian T. Moore, Ph.D.



A third cost is reduced productivity and incomes. Studies such as this one from the Reason Foundation show that automobility gives employers a bigger pool of workers and leads to higher incomes. This means efforts to reduce automobility will reduce incomes.

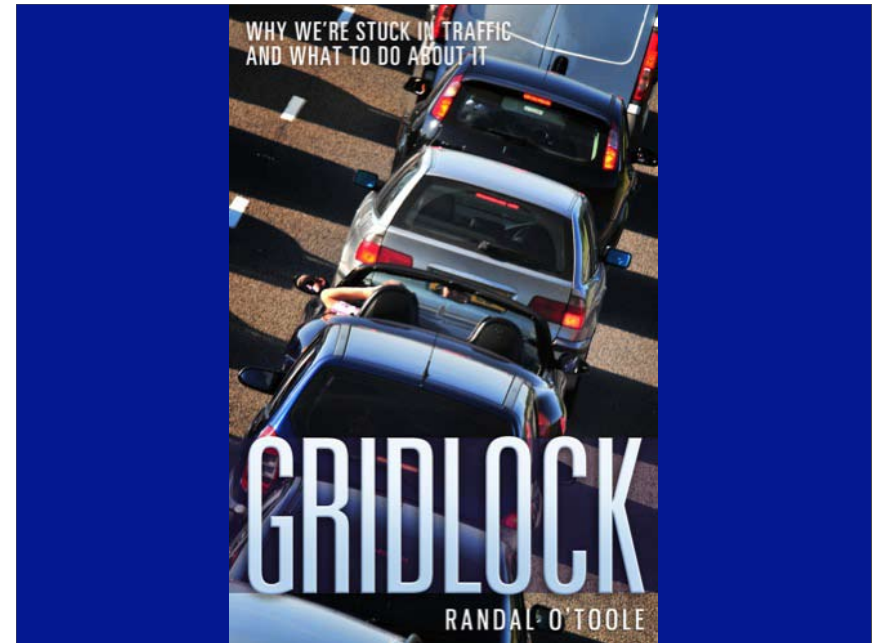


Just considering the costs of housing and congestion, the cost of compact development will be more than \$2,000 per ton. This makes compact development and transit far less cost effective than technical improvements to highways and automobiles.

Conclusions

Advocates of reducing CO₂ should reject smart growth as too **risky, expensive, and likely to distract** from policies that could be more successful at a lower cost.

None of the recent studies advocating smart growth seriously compared the cost-effectiveness of alternative policies. When this is recognized, those who truly believe we need to reduce GHG emissions should reject smart growth as a way of doing so.



I would also like to give a shameless plug to my new book, Gridlock, which is now available from the Cato Institute.

Policy Analysis

No. 653

November 18, 2009

The Myth of the Compact City Why Compact Development Is Not the Way to Reduce Carbon Dioxide Emissions

by Randal O'Toole

Executive Summary

Proponents of compact development argue that rebuilding American urban areas to higher densities is vital for reducing greenhouse gas emissions. Compact city policies call for reducing driving by housing a higher percentage of people in multi-family and mixed-use developments, reducing the average lot sizes of single-family homes, redesigning streets and neighborhoods to be more pedestrian friendly, concentrating jobs in selected areas, and spending more on mass transit and less

sent a huge intrusion on private property rights, personal freedom, and mobility. They are also fraught with risks. Urban planners and economists are far from unanimous about whether such policies will reduce greenhouse gas emissions. Some even raise the possibility that compact city policies could increase emissions by increasing roadway congestion.

Such reductions are insignificant compared with the huge costs that compact development

Further details can be found in a paper recently published by the Cato Institute and downloadable from cato.org/policyanalysis.