

Making Truth Convenient: Ending Our Oil Addiction, Building Sustainable Communities

Campus Progress National Student Conference, Washington, D.C., 12 July 2006

John Holtzclaw

Chair, Sierra Club Transportation Committee

john.holtzclaw@sierraclub.org www.sierraclub.org/sprawl www.sierraclub.org/sprawl/density

As a result of suburban sprawl, America drives more than any other nation on earth. Consequently, our fossil fuel emissions rank among the highest per capita in the world. Convenient communities (dense, abundant local shopping and restaurants, safe and attractive walkways and good public transit) reduce trip lengths, allowing more walking, biking and use of public transit, thus reducing emissions of pollutants and global warming gases. Density is crucial to walkability and curbing global warming. Take the following example:

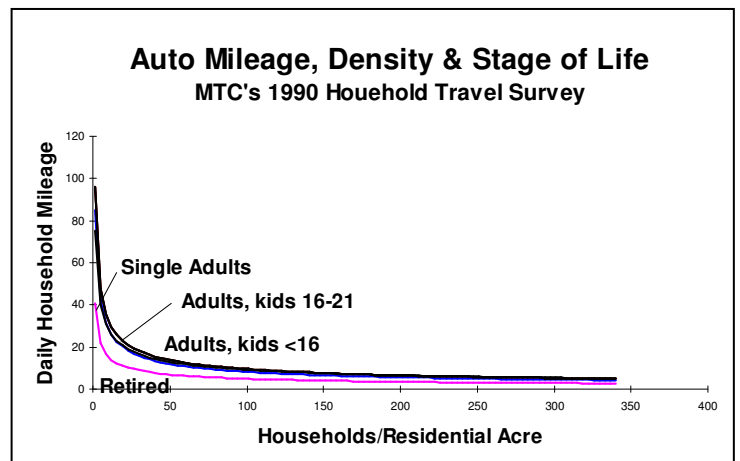
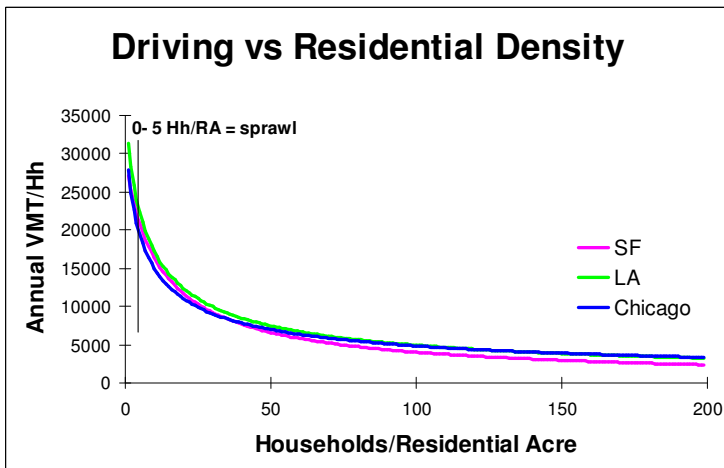
	SPRAWL San Ramon, CA	TRANSIT VILLAGE Rockridge, Oakland, CA	URBAN CENTER North Beach, San Francisco	METRO CENTER Manhattan
Residential Density (hh/res. acre)	3.2	10	100	200
Land/1,000 households (acres)	312	100	10	5
Transit Service (veh/hr nearby)	1	27	90	very high
Shopping (5 stores < 1/4 mi)	no homes	25% of homes	all homes	all homes
Pedestrian Amenities	low	medium	high	high
Autos/capita	.79	.66	.28	.12
Auto miles/capita	10,591	6,455	2,759	1,145
Annual Auto Costs	\$8,200	\$5,030	\$1,900	\$800
Ann lbs CO ² emissions/capita	14,827	9,037	3,863	1,603
Housing Sales Prices, 2002-3	\$295 / ft ²	\$407 / ft ²	\$1,858 / ft ²	higher

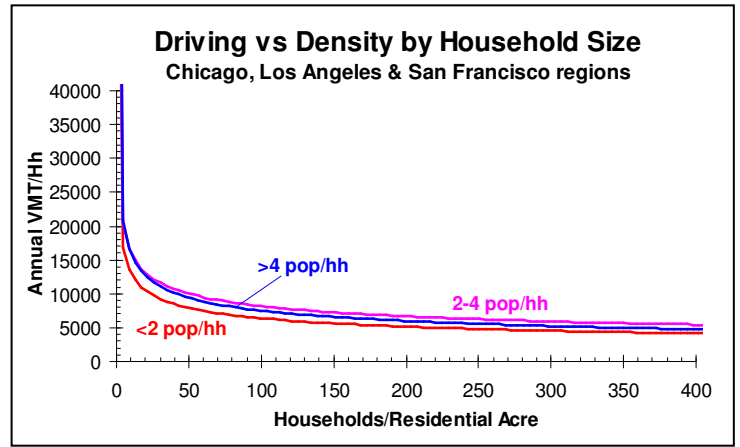
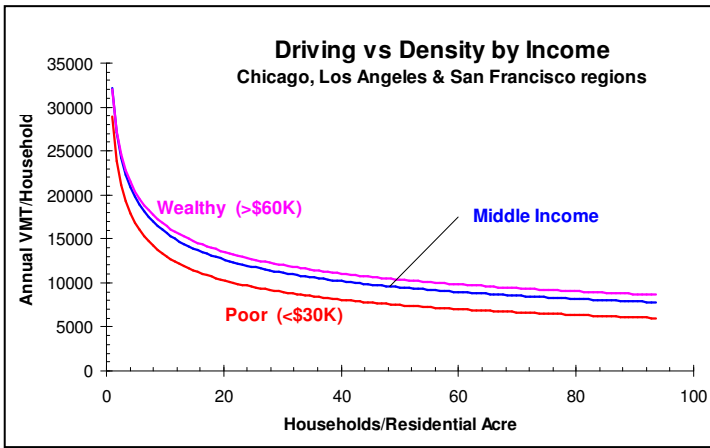
Holtzclaw, *Using Residential Patterns and Transit to Decrease Auto Dependence and Costs*, 1994; Newman and Kenworthy, *Cities and Automobile Dependence*, 1989. [CO² emissions added 1/2007.]

From 2 households/acre and up, each doubling of density reduces driving 25 -30%; from 10 hh/ac and up, each doubling reduces driving 40%.
Holtzclaw, 1994

Location Efficient Mortgage Research

The Institute for Location Efficiency tested nearly 3,000 neighborhoods in the Chicago, LA and San Francisco metro areas to learn **how** densities (3 measures), local shopping, proximity to jobs, public transit, pedestrian/bike (grid, short, narrow, sidewalks, setbacks), family income and family size **impact** vehicle ownership (from census data) and driving (Vehicle Miles Traveled -- odometer readings from smog checks -- total driving, not just commutes).





Building Materials

Sprawling homes in Davis, CA use 5 times more copper pipe than a typical apartment house in dense Nob Hill, San Francisco. And...

- use 35 times more land
- need 15 times more roadway
- use 4 times more lumber
- require mail carriers to travel 300 times as far
- use 70 times more water
- need 5 times more heating
- require 4 times more driving

Phillips & Gnaizda, *CoEvolution Quarterly*, Summer 1980

Pedestrian Friendliness

To create pedestrian- and transit-friendly neighborhoods, you need:

- Fine-grain street grid -- small blocks with many pedestrian routes, secure bike parking
- Wide, continuous sidewalks with trees, bus shelters, seating, fountains
- Buildings built close to the sidewalks, not set back behind parking or broad lawns
- Calm, safe traffic -- narrow roads, trees, frequent vehicular stops, slow traffic, prominent crosswalks
- Sidewalk cafes and other urban amenities to attract pedestrians

