Smart Growth America

The Link to Energy Security and Climate Change

The amount we drive our cars plays an outsized role in our country's contribution to global warming and dependence on oil. But **why do we drive so much?** The United States is the largest emitter worldwide of the greenhouse gases that cause global warming. Transportation accounts for a full third of CO^2 emissions in the United States, and that share is growing as others shrink in comparison. Automobile emissions continue their rapid rise in large part because we have built our cities so that we have little choice but to drive from activity to activity. The good news, though, is that we can make enormous progress simply by shaping future building so that we create more communities where people can accomplish more by driving less. Numerous studies now demonstrate that when people are given the option to live in a less automobile-dependent place, they do indeed drive less.

THE MORE WE BUILD OUR COMMUNITIES FOR AUTOMOBILE DEPENDENCE, THE MORE WE MUST DRIVE

Vehicles Miles Traveled (VMT) and land consumption rates are both rising rapidly

• Across the U.S., land was consumed for development at three times the rate of population growth between 1982 and 2002. [xxii]

• Since the Arab Oil Embargo of 1973, America's per-capita vehicle miles traveled (VMT) – the amount of driving per person — has increased by roughly 250 percent. Between 1980 and 2000, the rate of increase in VMT was over three times that of population growth.[ii]

• Since 1980, the number of miles Americans drive has grown three times faster than the U.S. population, and almost twice as fast as vehicle registrations. [xxii]

• A large portion of our energy demand is being driven by land use patterns that require more driving. Over 60 percent of the growth in driving and associated forms of energy consumption is due to land use factors. [ix]

• An analysis of 83 metro regions found that the degree of sprawl was the strongest influence on VMT per person—more than population growth and per capita income. [x]

Energy consumption and reliance on oil threaten our national interests and security.

• We currently produce 8.9 million barrels of oil a day, which is only enough to meet 40 percent of our daily consumption of 21 million barrels daily.

• America is increasingly dependent on foreign sources to satisfy our growing demand for oil. In 2005, the U.S. spent $200 billion on oil imports v, with 22 percent coming from the unstable Persian Gulf region and almost half from OPEC member nations.[vi]

• Demand for oil is increasing, meaning that our reliance on imports will likely grow from two-thirds to three-fourths of our total supply by 2030. [v]

Growing vehicle mileage and land use patterns contribute to global warming

• For climate stabilization, a commonly accepted target would require the United States to cut its CO2 emissions by 60 to 80 percent as of 2050, relative to 1990 levels. [xxii]

• Transportation accounts for approximately 1/3 of our greenhouse gas (GHG) and CO2 emissions, with personal vehicle use representing 60% of those CO2 emissions. Transportation is also the fastest-growing CO2 source in the U.S. [vii]

• Burning one gallon of gasoline puts 19.4 pounds of CO2 into the atmosphere, or just under one pound per mile for the average U.S. passenger vehicle. viii Considering that Americans drove 2.7 trillion miles in 2004 ii and that VMT growth is expected to continue, our development patterns will continue to have a negative impact on climate stability.

• The U.S. Department of Energy's Energy Information Administration (EIA) forecasts that driving will increase 48 percent between 2005 and 2030, outpacing the projected 23 percent increase in population. The EIA also forecasts a fleetwide fuel economy improvement of 12 percent within this time frame, primarily as a result of new federal fuel economy standards for light trucks. Despite this improvement in efficiency, CO2 emissions would grow by 41 percent. [xxii]

Cleaner, more efficient technology for vehicles—though needed and useful—will not be sufficient solutions on their own.

• Increases in efficiency have largely been cancelled out by greater increases in vehicle miles traveled. (VMT).

• The transportation sector consumes more than 65 percent of our petroleum used, and highway vehicles account for 84 percent of that consumption. [iv]

• U.S. fuel economy peaked in 1987-88 and is currently 6% lower than 1988. [v]

PROPOSED SOLUTIONS INCLUDE PLANS FOR RENEWABLE ENERGY, LOWER CARBON FUELS, OR MORE EFFICIENT VEHICLES — LARGELY OVERLOOKING AN OBVIOUS COMPONENT: OUR EVER-GROWING RELIANCE ON DRIVING.

SMARTER LAND USE PAIRED WITH GREEN BUILDING CAN REDUCE ENERGY CONSUMPTION, LOWER VEHICLE MILES TRAVELED, AND CUT DOWN ON HARMFUL EMISSIONS.

• If they do survive legal challenge, California's groundbreaking CO2 emissions standards will result in fleet-wide savings of 27 percent in 2030. But even these drastic improvements still won't be able to keep up with the projected rate of growth in VMT. [iii]

• Leaders in California acknowledged that improving the mileage and emissions of vehicles alone will not be sufficient methods to meet their goals of reducing GHGs to 1990 levels by 2020 (Legislative act AB32). xxi In AB32, their climate change package of legislation, they have stated that 16% of the reductions must come from smarter growth and more efficient land uses.

• Growth in VMT continues to outpace improvements in vehicles' efficiency. Dramatic progress in emissions control technology over the past 30 years per mile has resulted in a per car reduction of harmful emissions (except CO2), but rapid growth in driving is outweighing those reductions. [iii]

• When viewed in total, the evidence on land use and driving shows that compact development will reduce the need to drive between 20 and 40 percent, as compared with development on the outer suburban edge with isolated homes, workplaces, and other destinations. [xxii]

• The authors of "Growing Cooler" calculate that shifting 60 percent of new growth to compact patterns would save 79 million metric tons of CO2 annually by 2030. [xxii]

Building smart can reduce the need to drive. Just as inefficient land use increases VMT, a smarter approach can reduce it, lowering energy consumption and reducing harmful emissions.

• Compact, mixed-use, interconnected and pedestrian-friendly neighborhoods with transportation choices, a balance of homes, jobs, schools, and other uses can help reduce the need to drive and foster walkability. Areas like these, whether dense city cores or small-town neighborhood streets on a grid, generate less vehicle travel because people drive shorter distances and have to drive less due to the ability to walk or take transit.

• When controlling for factors such as income, a doubling of urban densities results in a 25-30 percent reduction in driving.

• A Seattle study found that the households located in the most interconnected areas of Seattle generated less than half the VMT of households located in the least-connected areas of the region, holding true after adjusting for household size, income and vehicle ownership. [xi]

• An Atlanta study by some of the same researchers found that people who live in more walkable neighborhoods — with a mix of housing types and streets that connect to shops, offices and other destinations — drive 30 percent less than those in conventional auto-oriented settings, even when they own the same number of cars at the same rate.[vi]

• In terms of energy consumption, embracing green technologies while living in a sprawling environment still doesn't match the impact of smart growth. In terms of energy consumption, a "smart location" outperforms even the greenest sprawl house with hybrid cars. (136 million BTU/year vs. 158 milllion BTU/year.) [xiii]

• Shifting just 10 percent of new U.S. housing starts to smart growth would save 4.95 billion gallons of gasoline, 118 million barrels of oil, 59.5 mmt CO2, and $220 billion in household expenses over 10 years. [xvii]

• The average daily vehicle miles traveled (VMT) for the ten most sprawling metropolitan areas is 27 compared to 21 for the ten most compact metropolitan areas. [xxii]

• Numerous studies have found that households living in developments with twice the density, diversity of uses, accessible destinations, and interconnected streets when compared to low-density sprawl drive about 33 percent less. [xxii]

• There is tremendous opportunity for smart growth in coming years. Two-thirds of the homes and commercial buildings expected to be standing in 2050 have yet to be built, according to an analysis by Chris Nelson of Virginia Tech. The form those buildings take will have an enormous impact on energy use and climate emissions. [xxii]

One way to reduce driving, emissions, land and energy consumption is to invest in alternative modes of transport.

• Public transportation reduces U.S. petroleum consumption by a total of 1.4 billion gallons of gasoline annually. This is equivalent to a supertanker leaving the unstable Middle East every 11 days. [xiv]

• Individuals living in higher-density neighborhoods that include convenient access to transit, as well as pedestrian and bicycle-friendly features, reduce their driving by 15 to 50 percent. [xv]

• 10.1 billion trips were taken on public transit last year, marking the highest level of ridership in 49 years, due partially to the increase in gas prices and frustration over congestion. According to the American Public Transportation Association, the gas saved would be enough to pile gas cans all the way from the earth to the moon.

• People who live close to transit stops tend to use it. Consider: A study in the Bay Area by the Metropolitan Transportation Commission found that for people who both live and work within half a mile of a rail or ferry stop, 42 percent of them commute by transit. For those who neither work nor live within such proximity, the number falls to 4 percent. [xviii]

• Bus, rail and other forms of public transportation are extremely more efficient than vehicles in reducing consumption, miles traveled, and emissions. We can move more people while also reducing our impact on energy needs and climate through greater investment in public transit.

• ***Consider:*** In one hour, one road-mile of road-lane can accommodate about 2,000 cars on a limited access freeway, and from 800 to 1,300 cars in various non-freeway situations. That same lane mile can accommodate 6,750 people riding buses, 10,000 people riding bus rapid transit, a minimum of 15,000 people riding light rail, and up to 65,000 people in heavy rail (subway). [xix]

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