

## GREEN MANHATTAN

*Why New York is the greenest city in the U.S.*

By David Owen

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My wife and I got married right out of college, in 1978. We were young and naïve and unashamedly idealistic, and we decided to make our first home in a utopian environmentalist community in New York State. For seven years, we lived, quite contentedly, in circumstances that would strike most Americans as austere in the extreme: our living space measured just seven hundred square feet, and we didn't have a dishwasher, a garbage disposal, a lawn, or a car. We did our grocery shopping on foot, and when we needed to travel longer distances we used public transportation. Because space at home was scarce, we seldom acquired new possessions of significant size. Our electric bills worked out to about a dollar a day.

The utopian community was Manhattan. (Our apartment was on Sixty-ninth Street, between Second and Third.) Most Americans, including most New Yorkers, think of New York City as an ecological nightmare, a wasteland of concrete and garbage and diesel fumes and traffic jams, but in comparison with the rest of America it's a model of environmental responsibility. By the most significant measures, New York is the greenest community in the United States, and one of the greenest cities in the world. The most devastating damage humans have done to the environment has arisen from the heedless burning of fossil fuels, a category in which New Yorkers are practically prehistoric. The average Manhattanite consumes gasoline at a rate that the country as a whole hasn't matched since the mid-nineteen-twenties, when the most widely owned car in the United States was the Ford Model T. Eighty-two per cent of Manhattan residents travel to work by public transit, by bicycle, or on foot. That's ten times the rate for Americans in general, and eight times the rate for residents of Los Angeles County. New York City is more populous than all but eleven states; if it were granted statehood, it would rank fifty-first in per-capita energy use.

"Anyplace that has such tall buildings and heavy traffic is obviously an environmental disaster—except that it isn't," John Holtzclaw, a transportation consultant for the Sierra Club and the Natural Resources Defense Council, told me. "If New Yorkers lived at the typical American sprawl density of three households per residential acre, they would require many times as much land. They'd be driving cars, and they'd have huge lawns and be using pesticides and fertilizers on them, and then they'd be overwatering their lawns, so that runoff would go into streams." The key to New York's relative environmental benignity is its extreme compactness. Manhattan's population density is more than eight hundred times that of the nation as a whole. Placing one and a half million people on a twenty-three-square-mile island sharply reduces their opportunities to be wasteful, and forces the majority to live in some of the most inherently energy-efficient residential structures in the world: apartment buildings. It also frees huge tracts of land for the rest of America to sprawl into.

My wife and I had our first child in 1984. We had both grown up in suburbs, and we decided that we didn't want to raise our tiny daughter in a huge city. Shortly after she learned to walk, we moved to a small town in northwestern Connecticut, about ninety

miles north of midtown Manhattan. Our house, which was built in the late seventeenth-hundreds, is across a dirt road from a nature preserve and is shaded by tall white-pine trees. After big rains, we can hear a swollen creek rushing by at the bottom of the hill. Deer, wild turkeys, and the occasional black bear feed themselves in our yard. From the end of our driveway, I can walk several miles through woods to an abandoned nineteenth-century railway tunnel, while crossing only one paved road.

Yet our move was an ecological catastrophe. Our consumption of electricity went from roughly four thousand kilowatt-hours a year, toward the end of our time in New York, to almost thirty thousand kilowatt-hours in 2003—and our house doesn't even have central air-conditioning. We bought a car shortly before we moved, and another one soon after we arrived, and a third one ten years later. (If you live in the country and don't have a second car, you can't retrieve your first car from the mechanic after it's been repaired; the third car was the product of a mild midlife crisis, but soon evolved into a necessity.) My wife and I both work at home, but we manage to drive thirty thousand miles a year between us, mostly doing ordinary errands. Nearly everything we do away from our house requires a car trip. Renting a movie and later returning it, for example, consumes almost two gallons of gasoline, since the nearest Blockbuster is ten miles away and each transaction involves two round trips. When we lived in New York, heat escaping from our apartment helped to heat the apartment above ours; nowadays, many of the Btus produced by our brand-new, extremely efficient oil-burning furnace leak through our two-hundred-year-old roof and into the dazzling star-filled winter sky above.

When most Americans think about environmentalism, they picture wild, unspoiled landscapes—the earth before it was transmogrified by human habitation. New York City is one of the most thoroughly altered landscapes imaginable, an almost wholly artificial environment, in which the terrain's primeval contours have long since been obliterated and most of the parts that resemble nature (the trees on side streets, the rocks in Central Park) are essentially decorations. Ecology-minded discussions of New York City often have a hopeless tone, and focus on ways in which the city might be made to seem somewhat less oppressively man-made: by increasing the area devoted to parks and greenery, by incorporating vegetation into buildings themselves, by reducing traffic congestion, by easing the intensity of development, by creating open space around structures. But most such changes would actually undermine the city's extraordinary energy efficiency, which arises from the characteristics that make it surreally synthetic.

Because densely populated urban centers concentrate human activity, we think of them as pollution crisis zones. Calculated by the square foot, New York City generates more greenhouse gases, uses more energy, and produces more solid waste than most other American regions of comparable size. On a map depicting negative environmental impacts in relation to surface area, therefore, Manhattan would look like an intense hot spot, surrounded, at varying distances, by belts of deepening green.

If you plotted the same negative impacts by resident or by household, however, the color scheme would be reversed. My little town has about four thousand residents, spread over 38.7 thickly wooded square miles, and there are many places within our town limits from which no sign of settlement is visible in any direction. But if you moved eight million people like us, along with our dwellings and possessions and current rates of energy use, into a space the size of New York City, our profligacy would be impossible

to miss, because you'd have to stack our houses and cars and garages and lawn tractors and swimming pools and septic tanks higher than skyscrapers. (Conversely, if you made all eight million New Yorkers live at the density of my town, they would require a space equivalent to the land area of the six New England states plus Delaware and New Jersey.) Spreading people out increases the damage they do to the environment, while making the problems harder to see and to address.

Of course, living in densely populated urban centers has many drawbacks. Even wealthy New Yorkers live in spaces that would seem cramped to Americans living almost anywhere else. A well-to-do friend of mine who grew up in a town house in Greenwich Village thought of his upbringing as privileged until, in prep school, he visited a classmate from the suburbs and was staggered by the house, the lawn, the cars, and the swimming pool, and thought, with despair, You mean I could live like this? Manhattan is loud and dirty, and the subway is depressing, and the fumes from the cars and cabs and buses can make people sick. Presumably for environmental reasons, New York City has one of the highest childhood-asthma rates in the country, with an especially alarming concentration in East Harlem.

Nevertheless, barring an almost inconceivable reduction in the earth's population, dense urban centers offer one of the few plausible remedies for some of the world's most discouraging environmental ills. To borrow a term from the jargon of computer systems, dense cities are scalable, while sprawling suburbs are not. The environmental challenge we face, at the current stage of our assault on the world's non-renewable resources, is not how to make our teeming cities more like the pristine countryside. The true challenge is how to make other settled places more like Manhattan. This notion has yet to be widely embraced, partly because it is counterintuitive, and partly because most Americans, including most environmentalists, tend to view cities the way Thomas Jefferson did, as "pestilential to the morals, the health, and the liberties of man." New York is the place that's fun to visit but you wouldn't want to live there. What could it possibly teach anyone about being green?

New York's example, admittedly, is difficult for others to imitate, because the city's remarkable population density is the result not of conscientious planning but of a succession of serendipitous historical accidents. The most important of those accidents was geographic: New York arose on a smallish island rather than on the mainland edge of a river or a bay, and the surrounding water served as a physical constraint to outward expansion. Manhattan is like a typical seaport turned inside out—a city with a harbor around it, rather than a harbor with a city along its edge. Insularity gave Manhattan more shoreline per square mile than other ports, a major advantage in the days when one of the world's main commercial activities was moving cargoes between ships. It also drove early development inward and upward.

A second lucky accident was that Manhattan's street plan was created by merchants who were more interested in economic efficiency than in boulevards, parks, or empty spaces between buildings. The resulting crush of architecture is actually humanizing, because it brings the city's commercial, cultural, and other offerings closer together, thereby increasing their accessibility—a point made forty-three years ago by the brilliantly iconoclastic urban thinker Jane Jacobs, in her landmark book "The Death and Life of Great American Cities."

A third accident was the fact that by the early nineteen-hundreds most of Manhattan's lines had been filled in to the point where not even Robert Moses could easily redraw them to accommodate the great destroyer of American urban life, the automobile. Henry Ford thought of cars as tools for liberating humanity from the wretchedness of cities, which he viewed with as much distaste as Jefferson did. In 1932, John Nolen, a prominent Harvard-educated urban planner and landscape architect, said, "The future city will be spread out, it will be regional, it will be the natural product of the automobile, the good road, electricity, the telephone, and the radio, combined with the growing desire to live a more natural, biological life under pleasanter and more natural conditions." This is the idea behind suburbs, and it's still seductive. But it's also a prescription for sprawl and expressways and tremendous waste.

New York City's obvious urban antithesis, in terms of density and automobile use, is metropolitan Los Angeles, whose metastatic outward growth has been virtually unimpeded by the lay of the land, whose early settlers came to the area partly out of a desire to create space between themselves and others, and whose main development began late enough to be shaped by the needs of cars. But a more telling counterexample is Washington, D.C., whose basic layout was conceived at roughly the same time as Manhattan's, around the turn of the nineteenth century. The District of Columbia's original plan was created by an eccentric French-born engineer and architect named Pierre-Charles L'Enfant, who befriended General Washington during the Revolutionary War and asked to be allowed to design the capital. Many of modern Washington's most striking features are his: the broad, radial avenues; the hublike traffic circles; the sweeping public lawns and ceremonial spaces.

Washington is commonly viewed as the most intelligently beautiful—the most European—of large American cities. Ecologically, though, it's a mess. L'Enfant's expansive avenues were easily adapted to automobiles, and the low, widely separated buildings (whose height is limited by law) stretched the distance between destinations. There are many pleasant places in Washington to go for a walk, but the city is difficult to get around on foot: the wide avenues are hard to cross, the traffic circles are like obstacle courses, and the grandiloquent empty spaces thwart pedestrians, by acting as what Jane Jacobs calls "border vacuums." (One of Jacobs's many arresting observations is that parks and other open spaces can reduce urban vitality, by creating dead ends that prevent people from moving freely between neighborhoods and by decreasing activity along their edges.) Many parts of Washington, furthermore, are relentlessly homogeneous. There are plenty of dignified public buildings on Constitution Avenue, for example, but good luck finding a dry cleaner, a Chinese restaurant, or a grocery store. The city's horizontal, airy design has also pushed development into the surrounding countryside. The fastest-growing county in the United States is Loudoun County, Virginia, at the rapidly receding western edge of the Washington metropolitan area.

The Sierra Club, an environmental organization that advocates the preservation of wilderness and wildlife, has a national campaign called Challenge to Sprawl. The aim of the program is to arrest the mindless conversion of undeveloped countryside into subdivisions, strip malls, and S.U.V.-clogged expressways. The Sierra Club's Web site features a slide-show-like demonstration that illustrates how various sprawling suburban intersections could be transformed into far more appealing and energy-efficient developments by implementing a few modifications, among them widening the sidewalks

and narrowing the streets, mixing residential and commercial uses, moving buildings closer together and closer to the edges of sidewalks (to make them more accessible to pedestrians and to increase local density), and adding public transportation—all fundamental elements of the widely touted anti-sprawl strategy known as Smart Growth. In a recent telephone conversation with a Sierra Club representative involved in Challenge to Sprawl, I said that the organization's anti-sprawl suggestions and the modified streetscapes in the slide show shared many significant features with Manhattan—whose most salient characteristics include wide sidewalks, narrow streets, mixed uses, densely packed buildings, and an extensive network of subways and buses. The representative hesitated, then said that I was essentially correct, although he would prefer that the program not be described in such terms, since emulating New York City would not be considered an appealing goal by most of the people whom the Sierra Club is trying to persuade.

An obvious way to reduce consumption of fossil fuels is to shift more people out of cars and into public transit. In many parts of the country, though, public transit has been stagnant or in decline for years. New York City's Metropolitan Transportation Authority and Department of Transportation account for nearly a third of all the transit passenger miles travelled in the United States and for nearly four times as many passenger miles as the Washington Metropolitan Area Transit Authority and the Los Angeles County Metropolitan Transportation Authority combined.

New York City looks so little like other parts of America that urban planners and environmentalists tend to treat it as an exception rather than an example, and to act as though Manhattan occupied an idiosyncratic universe of its own. But the underlying principles apply everywhere. "The basic point," Jeffrey Zupan, an economist with the Regional Planning Association, told me, "is that you need density to support public transit. In all cities, not just in New York, once you get above a certain density two things happen. First, you get less travel by mechanical means, which is another way of saying you get more people walking or biking; and, second, you get a decrease in the trips by auto and an increase in the trips by transit. That threshold tends to be around seven dwellings per acre. Once you cross that line, a bus company can put buses out there, because they know they're going to have enough passengers to support a reasonable frequency of service."

Phoenix is the sixth-largest city in the United States and one of the fastest-growing among the top ten, yet its public transit system accounts for just one per cent of the passenger miles that New York City's does. The reason is that Phoenix's burgeoning population has spread so far across the desert—greater Phoenix, whose population is a little more than twice that of Manhattan, covers more than two hundred times as much land—that no transit system could conceivably serve it. And no amount of browbeating, public-service advertising, or federal spending can change that.

Cities, states, and the federal government often negate their own efforts to nurture public transit by simultaneously spending huge sums to make it easier for people to get around in cars. When a city's automobile traffic becomes congested, the standard response has long been to provide additional capacity by building new roads or widening existing ones. This approach eventually makes the original problem worse, by generating what transportation planners call "induced traffic": every mile of new highway lures

passengers from public transit and other more efficient modes of travel, and makes it possible for residential and commercial development to spread even farther from urban centers. And adding public transit in the hope of reducing automobile congestion is as self-defeating as building new highways, because unclogging roads, if successful, just makes driving seem more attractive, and the roads fill up again. A better strategy would be to eliminate existing traffic lanes and parking spaces gradually, thereby forcing more drivers to use less environmentally damaging alternatives—in effect, “induced transit.” One reason New Yorkers are the most dedicated transit users in America is that congestion on the city’s streets makes driving extraordinarily disagreeable. The average speed of crosstown traffic in Manhattan is little more than that of a brisk walker, and in midtown at certain times of the day the cars on the side streets move so slowly that they appear almost to be parked. Congestion like that urges drivers into the subways, and it makes life easier for pedestrians and bicycle riders by slowing cars to a point where they constitute less of a physical threat.

Even in New York City, the relationship between traffic and transit is not well understood. A number of the city’s most popular recent transportation-related projects and policy decisions may in the long run make the city a worse place to live in by luring passengers back into their cars and away from public transportation: the rebuilding and widening of the West Side Highway, the implementation of EZ-Pass on the city’s toll bridges, the decision not to impose tolls on the East River bridges, and the current renovation of the F.D.R. Drive (along with the federally funded hundred-and-thirty-nine-million-dollar Outboard Detour Roadway, which is intended to prevent users of the F.D.R. from being inconvenienced while the work is under way).

Public transit itself can be bad for the environment if it facilitates rather than discourages sprawl. The Washington Metropolitan Area Transit Authority is considering extensions to some of the most distant branches of its system, and those extensions, if built, will allow people to live even farther from the city’s center, creating new, non-dense suburbs where all other travel will be by automobile, much of it to malls and schools and gas stations that will be built to accommodate them. Transit is best for the environment when it helps to concentrate people in dense urban cores. Building the proposed Second Avenue subway line would be environmentally sound, because it would increase New Yorkers’ ability to live without cars; building a bullet train between Penn Station and the Catskills (for example) would not be sound, because it would enable the vast, fuel-squandering apparatus of suburbia to establish itself in a region that couldn’t support it otherwise.

On the afternoon of August 14, 2003, I was working in my office, on the third floor of my house, when the lights blinked, my window air-conditioner sputtered, and my computer’s backup battery kicked in briefly. This was the beginning of the great blackout of 2003, which halted electric service in parts of eight Northeastern and Midwestern states and in southeastern Canada. The immediate cause was eventually traced to Ohio, but public attention often focussed on New York City, which had the largest concentration of affected power customers. Richard B. Miller, who resigned as the senior energy adviser for the city of New York six weeks before the blackout, reportedly over deep disagreements with the city’s energy policy, told me, “When I was with the city, I attended a conference on global warming where somebody said, ‘We really need to raise

energy and electricity prices in New York City, so that people will consume less.’ And my response at that conference was ‘You know, if you’re talking about raising energy prices in New York City only, then you’re talking about something that’s really bad for the environment. If you make energy prices so expensive in the city that a business relocates from Manhattan to New Jersey, what you’re really talking about, in the simplest terms, is a business that’s moving from a subway stop to a parking lot. And which of those do you think is worse for the environment?’ ”

People who live in cities use only about half as much electricity as people who don’t, and people who live in New York City generally use less than the urban average. A truly enlightened energy policy would reward city dwellers and encourage others to follow their good example. Yet New York City residents pay more per kilowatt-hour than almost any other American electricity customers; taxes and other government charges, most of which are not enumerated on electricity bills, can constitute close to twenty per cent of the cost of power for residential and commercial users in New York. Richard Miller, after leaving his job with New York City, went to work as a lawyer in Consolidated Edison’s regulatory affairs department, spurred by his thinking about the environment. He believes that state and local officials have historically taken unfair advantage of the fact that there is no political cost to attacking a big utility. Con Ed pays more than six hundred million dollars a year in property taxes, making it by far the city’s largest property-tax payer, and those charges inflate electric bills. Meanwhile, the cost of driving is kept artificially low. (Fifth Avenue and the West Side Highway don’t pay property taxes, for example.) “In addition,” Miller said, “the burden of improving the city’s air has fallen far more heavily on power plants, which contribute only a small percentage of New York City’s air pollution, than it has on cars—even though motor vehicles are a much bigger source.”

Last year, the National Building Museum, in Washington, D.C., held a show called “Big & Green: Toward Sustainable Architecture in the 21st Century.” A book of the same name was published in conjunction with the show, and on the book’s dust jacket was a photograph of 4 Times Square, also known as the Condé Nast Building, a forty-eight-story glass-and-steel tower between Forty-second and Forty-third Streets, a few blocks west of Grand Central Terminal. (The New Yorker’s offices occupy two floors in the building.) When 4 Times Square was built, in 1999, it was considered a major breakthrough in urban development. As Daniel Kaplan, a principal of Fox & Fowle Architects, the firm that designed it, wrote in an article in *Environmental Design & Construction* in 1997, “When thinking of green architecture, one usually associates smaller scale,” and he cited as an example the headquarters of the Rocky Mountain Institute, a nonprofit environmental research and consulting firm based in Snowmass, Colorado. The R.M.I. building is a four-thousand-square-foot, superinsulated, passive-solar structure with curving sixteen-inch-thick walls, set into a hillside about fifteen miles north of Aspen. It was erected in the early eighties and serves partly as a showcase for green construction technology. (It is also the home of Amory Lovins, who is R.M.I.’s co-founder and chief executive officer.) R.M.I. contributed to the design of 4 Times Square, which has many innovative features, among them collection chutes for recyclable materials, photovoltaic panels incorporated into parts of its skin, and curtain-wall construction with exceptional shading and insulating properties.

These are all important innovations. In terms of the building's true ecological impact, though, they are distinctly secondary. (The power generated by the photovoltaic panels supplies less than one per cent of the building's requirements.) The two greenest features of 4 Times Square are ones that most people never even mention: it is big, and it is situated in Manhattan.

Environmentalists have tended to treat big buildings as intrinsically wasteful, because large amounts of energy are expended in their construction, and because the buildings place intensely localized stresses on sewers, power lines, and water systems. But density can create the same kinds of ecological benefits in individual structures that it does in entire communities. Tall buildings have much less exposed exterior surface per square foot of interior space than smaller buildings do, and that means they present relatively less of themselves to the elements, and their small roofs absorb less heat from the sun during cooling season and radiate less heat from inside during heating season. (The beneficial effects are greater still in Manhattan, where one building often directly abuts another.) A study by Michael Phillips and Robert Gnaizda, published in *CoEvolution Quarterly* in 1980, found that an ordinary apartment in a typical building near downtown San Francisco used just a fifth as much heating fuel as a new tract house in Davis, a little more than seventy miles away. Occupants of tall buildings also do a significant part of their daily coming and going in elevators, which, because they are counterweighted and thus require less motor horsepower, are among the most energy-efficient passenger vehicles in the world.

Bruce Fowle, a founder of Fox & Fowle, told me, "The Condé Nast Building contains 1.6 million square feet of floor space, and it sits on one acre of land. If you divided it into forty-eight one-story suburban office buildings, each averaging thirty-three thousand square feet, and spread those one-story buildings around the countryside, and then added parking and some green space around each one, you'd end up consuming at least a hundred and fifty acres of land. And then you'd have to provide infrastructure, the highways and everything else." Like many other buildings in Manhattan, 4 Times Square doesn't even have a parking lot, because the vast majority of the six thousand people who work inside it don't need one. In most other parts of the country, big parking lots are not only necessary but are required by law. If my town's zoning regulations applied in Manhattan, 4 Times Square would have needed sixteen thousand parking spaces, one for every hundred square feet of office floor space. The Rocky Mountain Institute's showcase headquarters has double-paned krypton-filled windows, which admit seventy-five per cent as much light as ordinary windows while allowing just ten per cent as much heat to escape in cold weather. That's a wonderful feature, and one of many in the building which people ought to copy. In other ways, though, the R.M.I. building sets a very poor environmental example. It was built in a fragile location, on virgin land more than seven thousand feet above sea level. With just four thousand square feet of interior space, it can hold only six of R.M.I.'s eighteen full-time employees; the rest of them work in a larger building a mile away. Because the two buildings are in a thinly populated area, they force most employees to drive many miles—including trips between the two buildings—and they necessitate extra fuel consumption by delivery trucks, snowplows, and other vehicles. If R.M.I.'s employees worked on a single floor of a big building in Manhattan (or in downtown Denver) and lived in apartments nearby, many of them would be able to give up their cars, and the thousands of visitors who drive to



Snowmass each year to learn about environmentally responsible construction could travel by public transit instead.

Picking on R.M.I.—which is one of the world’s most farsighted environmental organizations—may seem unfair, but R.M.I., along with many other farsighted environmental organizations, shares responsibility for perpetuating the powerful anti-city bias of American environmentalism. That bias is evident in the technical term that is widely used for sprawl: “urbanization.” Thinking of freeways and strip malls as “urban” phenomena obscures the ecologically monumental difference between Phoenix and Manhattan, and fortifies the perception that population density is an environmental ill. It also prevents most people from recognizing that R.M.I.’s famous headquarters—which sits on an isolated parcel more than a hundred and eighty miles from the nearest significant public transit system—is sprawl.

When I told a friend recently that I thought New York City should be considered the greenest community in America, she looked puzzled, then asked, “Is it because they’ve started recycling again?” Her question reflected a central failure of the American environmental movement: that too many of us have been made to believe that the most important thing we can do to save the earth and ourselves is to remember each week to set our cans and bottles and newspapers on the curb. Recycling is popular because it enables people to relieve their gathering anxieties about the future without altering the way they live. But most current recycling has, at best, a neutral effect on the environment, and much of it is demonstrably harmful. As William McDonough and Michael Braungart point out in “Cradle to Cradle: Remaking the Way We Make Things,” most of the materials we place on our curbs are merely “downcycled”—converted to a lower use, providing a pause in their inevitable journey to a landfill or an incinerator—often with a release of toxins and a net loss of fuel, among other undesirable effects.

By far the worst damage we Americans do to the planet arises not from the newspapers we throw away but from the eight hundred and fifty million or so gallons of oil we consume every day. We all know this at some level, yet we live like alcoholics in denial. How else can we explain that our cars have grown bigger, heavier, and less fuel-efficient at the same time that scientists have become more certain and more specific about the consequences of our addiction to gasoline?

On a shelf in my office is a small pile of recent books about the environment which I plan to reread obsessively if I’m found to have a terminal illness, because they’re so unsettling that they may make me less upset about being snatched from life in my prime. At the top of the pile is “Out of Gas: The End of the Age of Oil,” by David Goodstein, a professor at the California Institute of Technology, which was published earlier this year. “The world will soon start to run out of conventionally produced, cheap oil,” Goodstein begins. In succeeding pages, he lucidly explains that humans have consumed almost a trillion barrels of oil (that’s forty-two trillion gallons), or about half of the earth’s total supply; that a devastating global petroleum crisis will begin not when we have pumped the last barrel out of the ground but when we have reached the halfway point, because at that moment, for the first time in history, the line representing supply will fall through the line representing demand; that we will probably pass that point within the current decade, if we haven’t passed it already; that various well-established

laws of economics are about to assert themselves, with disastrous repercussions for almost everything; and that “civilization as we know it will come to an end sometime in this century unless we can find a way to live without fossil fuels.”

Standing between us and any conceivable solution to our energy nightmare are our cars and the asphalt-latticed country we have built to oblige them. Those cars have defined our culture and our lives. A car is speed and sex and power and emancipation. It makes its driver a self-sufficient nation of one. It is everything a city is not.

Most of the car’s most tantalizing charms are illusory, though. By helping us to live at greater distances from one another, driving has undermined the very benefits that it was meant to bestow. Ignacio San Martín, an architecture professor and the head of the graduate urban-design program at the University of Arizona, told me, “If you go out to the streets of Phoenix and are able to see anybody walking—which you likely won’t—they are going to tell you that they love living in Phoenix because they have a beautiful house and three cars. In reality, though, once the conversation goes a little bit further, they are going to say that they spend most of their time at home watching TV, because there is absolutely nothing to do.” One of the main attractions of moving to the suburbs is acquiring ground of your own, yet you can travel for miles through suburbia and see no one doing anything in a yard other than working on the yard itself (often with the help of a riding lawnmower, one of the few four-wheeled passenger vehicles that get worse gas mileage than a Hummer). The modern suburban yard is perfectly, perversely self-justifying: its purpose is to be taken care of.

In 1801, in his first Inaugural address, Thomas Jefferson said that the American wilderness would provide growing room for democracy-sustaining agrarian patriots “to the thousandth and thousandth generation.” Jefferson didn’t foresee the interstate highway system, and his arithmetic was off, in any case, but he nevertheless anticipated (and, in many ways, embodied) the ethos of suburbia, of anti-urbanism, of sprawl. The standard object of the modern American dream, the single-family home surrounded by grass, is a mini-Monticello. It was the car that put it within our reach. But what a terrible price we have paid—and have yet to pay—for our liberation from the city.