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# What Will it Take to Halt Sprawl?

**by Molly O'Meara Sheehan**

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# What Will it Take to Halt SPRAWL?

Urban sprawl may pose greater dangers to the sustainability of civilization than even many anti-sprawl activists realize. But in three of the world's most prominent cities, citizen actions have begun to raise awareness of the problem—and to show just how attractive the alternatives to sprawl can be.

by Molly O'Meara Sheehan

On an interstate highway 20 miles outside Washington, D.C., four lanes of motor vehicles—many of them big sport utility vehicles or vans with solo drivers—are creeping toward the city at the speed of a man walking on crutches. One of the drivers, a government accountant who has been on the road since 6 a.m., knows from long experience that if he is lucky, there will be stretches where the speed mercifully picks up for a few minutes, and he'll gain a little ground before slowing again. He has to be at work by 8:30. It's an ordeal, but he'll make it. At 7:30 he reaches Springfield, Virginia, and drives slowly under the vaulting arches of the Springfield Interchange, a new complex of more than 20 massive bridges and ramps, estimated to cost $590 million. There are still 10 miles to go. "This is crazy," he thinks for the hundredth time. In the next election, he has decided, he's going to vote for that anti-sprawl candidate who says she supports "slow growth."

This driver's antipathy to sprawl is based mainly on frustration with the commute, and perhaps to some degree on an instinctive sense that suburban developments—such as the just-built one where he now lives—have been springing up too fast, and that there just aren't going to be enough schools, roads, and other public services to keep up with it all. But it's mainly frustration he's feeling, not a sense of any really acute threat to his comfortable lifestyle. What he may not realize, however, is that urban sprawl now amounts to a far larger danger to social and ecological stability than even many anti-sprawl activists acknowledge.

Car-oriented urban expansion has become a global phenomenon, and its effects aren't just disrupting pleasant neighborhoods and making it harder for people to get around. When new construction caters to cars, those who cannot drive lose out. For example, children who must rely on adults to drive them most places do not have the opportunity to develop the independence and fitness enjoyed by children who can get around on foot or by bicycle. The nondrivers include a third of the U.S. population and a far larger share of societies in developing nations where most of the world's urban growth is actually happening. In a dramatic transition, the share of people living in and around urban areas surged from 10 percent in 1900 to nearly 50 percent of the world's 6 billion today, and is projected to top 60 percent by 2030, with nearly all the growth in developing countries.

These numbers mean that more people than ever before are affected by the way cities are built—yet urban population growth alone does not account for

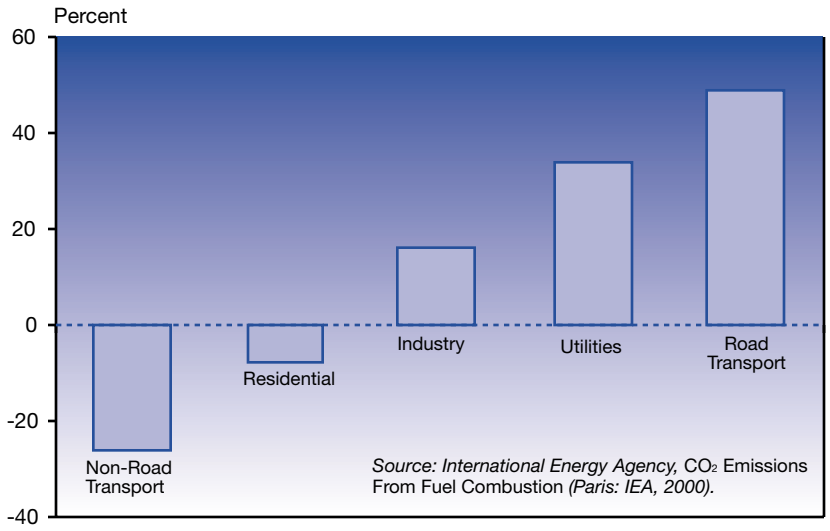
sprawl. Satellite and census studies show many cities consuming land much faster than they are adding people. The acreage covered by metropolitan areas in the United States has increased even in cities where the population has declined.

As roads stretch cities to new limits, paving over farms and forests, degrading local water supplies, and wasting motor fuel, sprawl is beginning to seriously endanger the planet. Road transportation is by far the fastest-growing source of carbon emissions, hastening global warming (see figure, page 14) and increasing the precarious dependence of industrial nations on oil. Perhaps most insidiously of all, sprawl is cutting off more and more of humanity from the direct contact with the natural environment that reminds us how essential it is to keep that environment healthy.

Part of the danger of this phenomenon is the enormous momentum it has gained, as public policies and industrial investments have combined to thrust the growth of cities outward from their centers, and the resulting practices have become so much a part of the modern industrial culture that they are difficult to challenge. Moreover, many of the practices this culture embraces were originally instituted with the best of intentions—which makes them still harder to criticize. A law passed in Chile, for example, was originally intended to help poor farmers own their own farms, but the unforeseen effect of the law was to encourage sprawl on the edges of Santiago. Other policies were adopted to improve traffic flow, and it is still difficult—despite overwhelming evidence—to convince the advocates of those policies

**BOGOTÁ, COLOMBIA:** Encouraged by citizen support in public referendums, this densely populated city of more than 6 million people has begun to curb the private vehicles that occupy 95 percent of the space on roads and account for more than 70 percent of trips shorter than 3 kilometers. City leaders hope to clean the air, make the streets more people-friendly, and avert sprawl, both by setting aside dedicated lanes for clean-burning buses to serve the 80 percent of the people who do not travel by private car, and by building a bike path network to allow bicycles to replace cars for shorter trips.

BICYCLE PHOTO BY OSCAR EDUMUNDO DIAZ, INSTITUTE FOR TRANSPORTATION AND DEVELOPMENT POLICY. D. HINRICHSEN/WWW.JHUCCP.ORG/MMC/PHOTOSHARE, BOTTOM.




**Change in World Carbon Emissions by Sector, 1990–98**

that the actual effects have been just the opposite.

With the arguments of academics falling on deaf ears, it's unlikely that the momentum of sprawl will be broken by citing studies of transportation alternatives, harm to water supplies, or public health damage in the abstract. What may be essential, now, are concrete, viable alternatives to sprawl—examples that visitors from other cities around the world can see. Nothing would do more to help shift the momentum toward more compact, energy-efficient, people-friendly, and attractive cities than for some prominent national capitals to *demonstrate* just what such a shift can do. Such initiatives are now being born in three very different capitals—of industrial, developing, and formerly communist nations: Washington, D.C.; Santiago, Chile; and Prague in the Czech Republic.

## WASHINGTON, D.C.

The United States leads the world in sprawling development. Its capital, Washington, D.C., is close to the geographic center of the original 13 U.S. states. It was founded in 1800, after the states of Maryland and Virginia donated land around existing trading ports on the Potomac River. At the dawn of the twentieth century, electric trams, railroads, and auto roads began to expand the city outward. Between 1920 and 1940, as the population of the Washington metropolitan area grew by 66 percent to top 1 million, its built-up area grew even faster—by 135 percent, to roughly 280 square kilometers. As the twentieth century progressed, national policies (and auto industry lobbying) encouraged building more roads and replacing urban trams with buses. The National Interstate and Defense Highway System Act of 1956 launched a frenzy of highway-building across the country, and while the goal was to facilitate travel between cities, the unintended result was also to pave more roads *within* cities. The lure of federal highway funds skewed the priorities of states, which paid only 10 percent of the bill for a highway, while the federal government paid the rest.

The spreading-out of U.S. cities was also stimulated by the nation's push to provide more affordable housing. Federal subsidies helped to extend water and sewer lines to outlying areas, and assisted home buyers with financing. Between 1940 and 1960, as the Washington metropolitan area's population doubled to top 2 million, the urbanized area again grew even faster—quadrupling to 1,300 square kilometers.

The first efforts to bring some order to the city's expansion came around 1960, when Washington's first regional transportation plan proposed development along radial corridors of roads and rail, and concentric roads, or "beltways." On paper, the plan was reasonably balanced between road and rail, but in reality, the roads came first. The Metro underground rail system, designed to bring people into the core, didn't open its first stations until 1976—long after the region's basic structure had been determined by its tangle of roads. Later, state agencies set up the Maryland Area Rail Commuter system in 1983 and the Virginia Rail Express in 1992, to serve areas beyond Metro's reach.

Some of the outer beltways and other roads were never built, due to local opposition or lack of funds, but a pattern became clear: land development catered to the roads, not to the new rail services. County zoning boards rigidly separated land uses: homes, offices, and stores were isolated from each other. Building codes demanded ample parking and wide roads to accommodate driving from one place to another. Between 1960 and 2000, the metropolitan population more than doubled to nearly 5 million people, and the amount of land consumed grew apace—this time to more than 2,500 square kilometers.

Regional cooperation to stop sprawl has been thwarted by jurisdictional conflicts. The Washington metro region straddles two states (Maryland and Virginia) and the District of Columbia (D.C.). Within the states, individual counties must compete for state funds—often to the detriment of the region as a whole. Virginia's counties are constrained from taking any action of their own unless explicitly authorized by the state government. And D.C., despite its

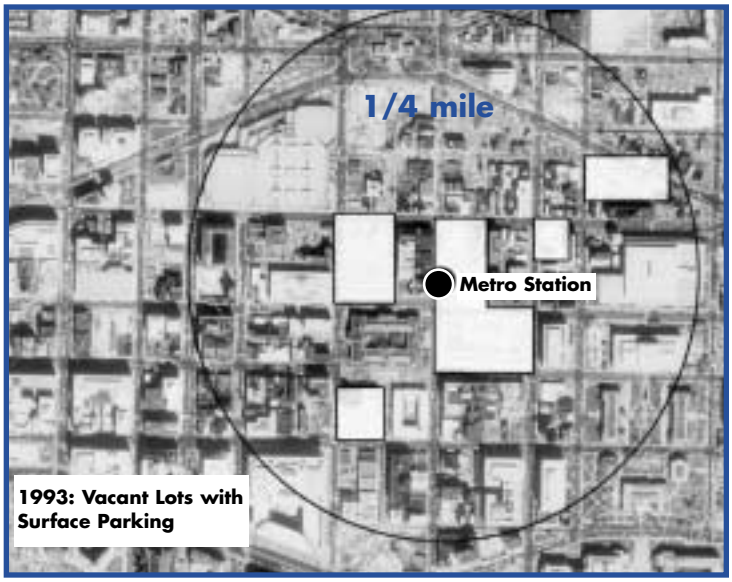
global importance, is politically weaker than any other U.S. city—its citizens have no voting representatives in Congress, which nonetheless has final say on their municipal budget and laws. Joe Sternlieb, founder of DC Vote (a group pushing for representation of the city's disenfranchised citizens), says local leaders often "make decisions so as not to upset our masters" in Congress. For example, in an effort to shift more people from cars to transit, the D.C. city council boldly passed a $1-per-day parking fee in 1994—but after Congress (which is more loyal to suburban commuters who have the vote than to D.C. residents who don't) threatened to veto it, the city decided not to enforce it, and eventually it was repealed.

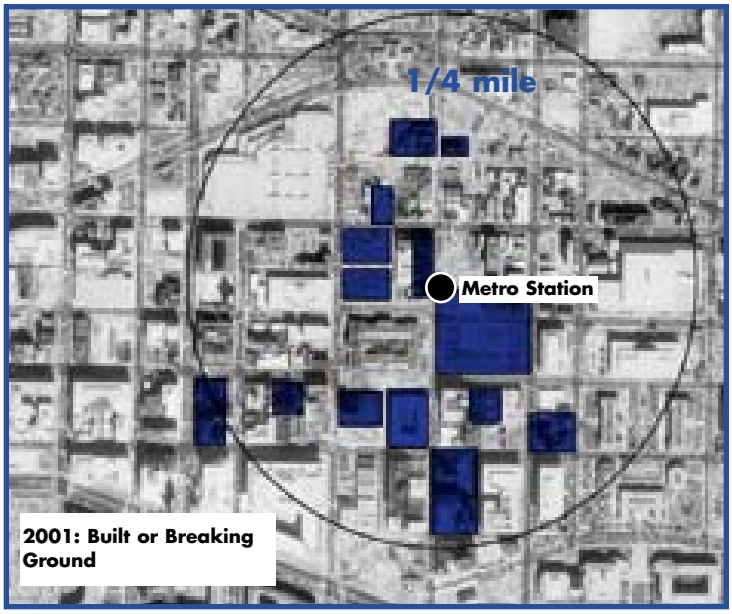
While not accountable to the D.C. residents who must nonetheless give it their tax dollars, the federal government is the city's largest employer, and thus heavily influences its transportation demand. When Congressman Earl Blumenauer first arrived in Washington in 1996 to represent Portland, Oregon, he marveled at the federal government's lack of responsible leadership. Although traffic congestion, air pollution, and decay in D.C.'s city center were all in the local headlines, noted Blumenauer, "I could give everyone in my office free parking, but I couldn't give them a modest incentive to use the transit system. It was nuts." It took Blumenauer two years "catching Newt Gingrich [then Speaker of the House] on a treadmill in the House gym and persuading enough members of Congress to pass legislation giving its employees transit benefits."

The first real movement toward countering the forces that drive the region's sprawl, after the groundbreaking for Metro, didn't come until the last decade of the century, when two new national laws were enacted. The 1990 Clean Air Act amendments require all U.S. metropolitan areas to meet standards for air quality or risk losing federal transportation funds. And the 1991 Intermodal Surface Transportation Efficiency Act (ISTEA) made it easier for regions to use federal funds for transit, bicycle lanes, or crosswalks. Both laws served to raise public awareness of the link between transportation policy and air pollution.

This link became a serious concern in metropolitan Washington in August 2001,

**WASHINGTON, D.C.:** The downtown district between 7th and 16th Streets, NW became a blighted area in the 1970s and 80s, after suburban flight left many businesses bankrupt and residential buildings abandoned. Some buildings were razed and replaced by parking lots; others were left empty. The city's Metro rail system, however, helped spark a renaissance in the 1990s, as large numbers of people were now able to move easily around the neighborhood without driving. A major sports arena was built next to the Gallery Place Metro station. Developers began to "fill in" the empty lots with shops, upscale office buildings, restaurants, and residences, as well as with a new convention center—restoring economic and cultural vitality to the area.




IMAGES FROM THE COALITION FOR SMARTER GROWTH AND USGS; USED WITH PERMISSION.

when the region's Transportation Planning Board received new vehicle registration data showing more sport utility vehicles (SUVs) on the roads than expected—resulting in an estimated 8 tons more nitrogen oxides per day than budgeted for in the region's air quality plan, and posing a threat to human lungs. Phil Mendelson, chairman of the planning board's air quality task force, hoped the crisis would spark dramatic new regional cooperation. His committee listed $50 million worth of measures the region could take, including investing in cleaner buses. All of it could be paid for with a $1 per day parking fee for commuters, which would generate some $387 million a year. That would leave ample funding to enhance regional transit.

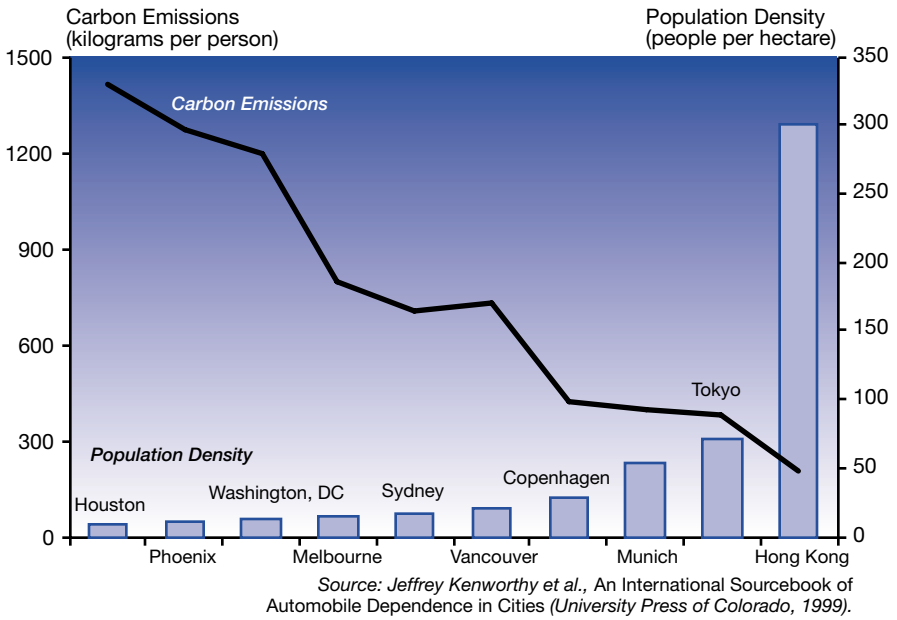
The region's Metro system and its two commuter rail systems could then provide a focus for new development. Ed Risse, a Fairfax, Virginia-based consultant on "the science of human settlements," calculates that there is enough vacant and severely underutilized land within one-half mile of 75 existing Metro stations alone to meet the region's projected growth in demand for new homes, offices, and stores for the next two decades.

To embolden politicians enough to enact a parking fee, or to revise zoning around transit stations, will require widespread and vociferous citizen support for a clear vision of the region's future—a vision of attractive, walkable communities linked by transit. In the mid-1990s, prompted by the ISTEA legislation, Washington's Council of Governments tried to engage citizens in developing such a vision, but the process was too narrowly focused on the technical aspects of transportation, and never captured popular imagination. Subsequently, an organization called the Coalition for Smarter Growth has had more success in helping Washingtonians to begin "thinking regionally but acting locally" to build a healthier region. The Coalition can point to some real, brick-and-mortar demonstrations of how such a strategy can work. For example, recent construction around the Gallery Place Metro station, in a previously blighted area of the city, dramatically demonstrates how vacant land can be redeveloped into a lively complex of housing, stores, and offices all within walking distance of the station (see images, page 15).

In Maryland, the growing awareness of transit's role in livable communities helped to enact, in 1997, a set of "smart growth" laws that may help to steer more such development toward the vicinities of transit stations. Historically, the quest for affordable housing near good schools has pulled many people away from the city's center to new housing in outlying areas, in part because government-subsidized roads and infrastructure make such "greenfield" sites cheaper for builders. The new laws halt such subsidies, instead directing state funds to already established communities. The share of Maryland's school construction budget devoted to improving existing schools jumped from 34 percent in 1995 to 84 percent in 1998. The state has also adopted new building codes to reduce the cost of building in existing neighborhoods.

A better mix of housing for different income levels throughout the region would help reduce travel demand, because when housing in one jurisdiction is available only to the wealthy, for example, others must travel there to fill low wage jobs. Montgomery County, Maryland long ago took a step in this direction by requiring 10 percent of housing in any new development to be "affordable," spurring the building of 10,000 moderately priced units over 25 years. But the mix could be further improved by changing zoning laws to permit rental units in single family homes, to reduce the amount of required parking, and to allow "mixed-use" development of housing, office, and retail in close proximity.

Even in Virginia, where highway proponents wield heavy political clout, there are signs of change. Loudoun County, one of the nation's fastest growing places in the 1990s, had a




*Source: Jeffrey Kenworthy et al.,* An International Sourcebook of Automobile Dependence in Cities *(University Press of Colorado, 1999).*

**Population Density vs. Carbon from Transportation, 1990**

local board of supervisors that was quick to rezone agricultural land and open space for new car-centered development, even when it would be beyond the reach of public water and sewer lines and would require significant public investment. After local activists formed a group called Voters to Stop Sprawl, voters in the 2000 election threw out the old guard. New leaders revised the county's comprehensive plan to center development around existing infrastructure—eliminating the need to build an estimated 61 new schools to serve far-flung communities.

Now, even industry groups that were previously at odds with the smart-growth movement are beginning to collaborate—realizing that focusing their planning on pedestrian-friendly projects planned around transit stops still gives them ample opportunity to keep building.

## SANTIAGO

Santiago, the capital of one of the developing world's more dynamic economies, is a relative newcomer to sprawl. At the geographic center of Chile, Santiago straddles the Mapocho River between the Pacific Ocean to the west and the Andes Mountains to the east. Horse-drawn trams, and then electric ones, began to spread the population outward in the nineteenth century. As in Washington, D.C., the trams were ripped out in the mid-twentieth century, replaced by highways. Between 1930 and 1970, the city's area increased by about 5 square kilometers per year, but the rate accelerated starting in the 1960s—here, too, the consumption of land outpacing population growth.

Some of the sprawl was driven by national policies that had unintended results. In the early 1970s, Chile's socialist government passed a law, *Parcelas de Agrado*, to enable poor farmers to own land by making it easier to subdivide large rural tracts into very small lots. The eventual result, however, was that developers snapped up these parcels of land on the city's fringe—to build houses.

In 1973, General Augusto Pinochet came to power in a military-backed coup, suspended Chile's constitution, and created a police state that lasted until 1990. In a slum-removal campaign, the regime evicted poor residents from the city's center and moved them to public housing projects built on large tracts of agricultural land at the southern edge of the metropolitan area. In addition, the government added 600 square kilometers to the amount of developable land in the metropolitan area, according to researchers Todd Litman of the Victoria Transport Policy Institute in Canada and Chris Zegras, then of the International Institute for Energy Conservation in Santiago (IIEC) and now of Massachusetts Institute of Technology (MIT).

Civilian rule was restored in 1990, but by then the pattern of road-facilitated sprawl had gained a momentum of its own. Between 1992 and 1997, more than 8,000 hectares in greater Santiago were urbanized, most of it in four outlying jurisdictions, or *comunas*. By the late 1990s, Santiago's more than 5 million people used less than half the urbanized land that their counterparts in Washington, D.C. did, but the stage was set for sprawl. Influential investors, who had bought small rural plots in a province just beyond Santiago's urbanized area and consolidated them into huge holdings, had lobbied the government to allow them to develop the land for urban uses. And in 1997, just three years after drawing up a land-use plan that had been intended to rein in the sprawl, the government had acceded to the investors' requests and amended the plan to allow for "conditional urban development zones." The amendment allowed developers to build outside the urban region, as long as they met certain seemingly reasonable conditions—such as leaving some of the land for open space and schools. "Not coincidentally, these zones coincide with where all the huge real estate holdings are," notes Zegras. And, while the new law will purportedly contain sprawl outside the identified zones, there is no visible enforcement—now that some roads are in—to prevent other nearby land from being built on as well.

MIT's Zegras and Ralph Gakenheimer note that while Santiago is home to some of the world's best transportation engineers and urban analysts, its metropolitan region—like so many others around the world—suffers from a "lack of a clear, coherent, and integrated urban development and transportation policy at any relevant level of government." In the 1960s, the region was divided into 17 jurisdictions, and today it includes 37 or more, depending on how you define the metropolitan area. To make matters worse, Chile's national government agencies, which historically have had more power than local governments, often oppose each other. The transport secretariat (SECTRA) argues that investment in public transportation benefits the vast majority who use buses and rail, but the Ministry of Public Works (MOP) promotes highway projects, as it believes greater wealth will inevitably transform today's public transit users into car drivers. Enrique Vial, a consultant to MOP, says professionals there fear being "held responsible for not having built the roads in time." Lake Sagaris, an anti-sprawl activist, says an uneven balance of funds has helped the highway proponents prevail: "MOP has all the money, and they're spending it all on highway projects."

In the 1990s, the burdens of highway-led sprawl around Santiago became increasingly apparent to the city's residents. A 1997 study found that traffic accidents, pollution, and congestion were costing the city

almost $800 million per year. And as motorized travel more than doubled between the 1970s and 1990s, and housing projects and new businesses sprouted on the city's outskirts, farms and forests disappeared. With less vegetation to soak up rain, the region became more vulnerable to floods. In the mid-1990s, when the national government announced plans for a major new highway, the Costanera Norte, which would run along the Mapocho River, a variety of citizen groups protested. Downtown street vendors complained that they would be uprooted; working class people would lose their homes; and upper middle class residents would lose their unobstructed views of San Cristobal Hill. The diverse groups formed a coalition called *Ciudad Viva*, or "Living City."

In the process of fighting against the highway, the protesters realized they were also fighting *for* certain alternatives, such as improved public transportation and better facilities for bicyclists and pedestrians. They teamed with a range of professionals—transport engineers, urban planners, architects, and environmental scientists—who lent weight to their arguments.

At the same time, a like-minded group of bicyclists formed a group called *Ciclistas Furiosos* to take to the streets on the first Tuesday of every month—a tactic used by urban cyclists worldwide to dramatize the potential of a clean, quick means of personal transport—to pressure the government to add bicycle lanes to existing roads, create new bike paths, and install racks for bicycle parking.

One achievement of the coalition has been to envision how these sorts of changes might help to revitalize a street called *Pio Nono*, which fronts some beautiful, historic buildings but lies in a no-man's-land between two local government jurisdictions and has been declining. The citizen groups propose to pedestrianize the street, keeping only a bus route. Last fall, during the national elections, they convinced local officials to close down *Pio Nono* to display large images of what the street might look like after the proposed changes.

Citizens are also demanding greater government accountability. *Ciudad Viva*'s Patricio Lanfranco, reflecting on the fate of the Costanera Norte Highway, recalls: "In places where citizens put pressure on local authorities, the local authorities concluded that they had to oppose it. In places where citizens didn't say anything, local authorities supported it. That's why we think it's important to open the decision-making bodies." MIT's Chris Zegras concurs, saying that the highway culture prevailed because "the agencies that actually have executing powers are the ones that are still the most closed."

*Ciudad Viva*, like Washington's Coalition for Smarter Growth, is also making headway by appealing to businesses. They point out that as only 20 percent of the people in Santiago can afford to commute by car, most would benefit if the government were to shift some of the space used by cars to the express use of public busways. "What we are saying to business people," says Lanfranco, "is to get out of the business of private cars" and into mass transportation, which is 80 percent of the market.

So far, the citizen activism has produced only limited results. In March 2001, the government implemented *Ciudad Viva*'s proposal for dedicated bus lanes. Initial surveys found that the creation of the bus lanes on several main streets dramatically speeded up the flow of traffic, saving the average commuter 25 to 35 minutes per trip. By October, however, the company hired by the government to build the Costanera Norte Highway had begun construction. Yet, the activists do not seem discouraged. "We've been going for six years," says Lake Sagaris, of *Ciudad Viva*, "and we're not going to stop now."

## PRAGUE

Compared to Washington and Santiago, Prague has the longest urban history, but the shortest experience with sprawling development. The first settlements at what is now Prague arose in the 9th century, on the Vltava River at the crossroads of trade routes linking Northern and Southern Europe. During the Industrial Revolution, as factories were built to take advantage of nearby mines and ironworks, and the first railway was built in 1845, the city grew in both population and land area, so that by the end of the nineteenth century, more than 500,000 people lived in the metropolitan area. Through the 1930s, rail and road networks further stimulated growth, and Prague's population neared 1 million by the time of World War II.

After the war, as Czechoslovakia came under Communist rule, the government nationalized most land, transportation, and housing, erecting high-rise residential blocks around the city's historic core. Unlike Washington and Santiago, which mushroomed in both population and land area in the last half century, Prague remained relatively small and compact. Between 1950 and 1990, it gained fewer than a quarter of a million people, with 500,000 in the core area and another 1.2 million in a surrounding metropolitan area of less than 500 square kilometers.

The communist era ended abruptly, starting with a mass protest in Prague's Wenceslas Square in November 1989 and leading to the "Velvet Revolution," the bloodless overthrow of the government, and free elections in 1990. Foreign investors rushed to Prague's newly free markets, attracted by its educated workforce and proximity to Western Europe. The Czech Republic was the first former communist country to enter the industrial nations' club, the

Organisation for Economic Cooperation and Development (OECD), and is in line to join the European Union. As a prospective member, it is receiving aid to improve long-distance transportation links to the West. But its short-distance urban transport is foundering. In the first half of the 1990s, the number of passengers on public trams, buses, and subways declined by 8.5 percent.

As the new money flowed into Prague, it either went to the historic core or it leapfrogged the bleak communist-era high rises to outlying locations not easily reached by public transport—thus further eroding ridership. Developers looked to greenfields—areas not previously built on—because they could more easily find sites there for the huge new stores they planned. In 1997, the industry journal *Chain Store Age* predicted that "every opportunity" for building large stores in the Czech Republic "will be exploited before long." Indeed, in scattered pockets of countryside around Prague the number of "hypermarkets" (the European term for large, out-of-town supermarkets) ballooned from 1 in 1997 to 53 in 2000.

This development was not guided by planners. In the 1980s, new regional plans were drafted, but following the transition, the regional governments were abolished and the plans scrapped. To citizens who suffered the abuses of a centrally planned economy, "the very idea of planning has been treated with suspicion," writes Ludek Sykora of the Charles University of Prague. Municipalities amalgamated during

**PRAGUE, CZECH REPUBLIC:** In recent years, foreign firms have invested freely in Prague's historic core, which includes charming medieval streets such as those depicted in this street artist's drawing. Outside the core, however, lies a no-man's land of industrial "brownfields" such as the one in the photo below. Developers have largely avoided these abandoned factory sites, because they fear the costs of environmental clean-up and the headaches of reassembling parcels of land that were divided when communist state enterprises were turned over to private ownership. Other development around Prague has leapfrogged the brownfields into distant "greenfields" sprawl. Activists and local officials are now trying to reduce the barriers to revitalizing such abandoned urban land, most of which is close to public transport and within walking distance of the downtown core.

PHOTOGRAPH FROM YAAKOV GARB, INSTITUTE FOR TRANSPORTATION AND DEVELOPMENT POLICY. USED WITH PERMISSION.

**COPENHAGEN, DENMARK:** This is Nyhavn, one of many attractive public spaces reclaimed from parked cars in the last several decades. The city replaced curbside parking with bicycle lanes and walkways, and focused urban development—as is happening around Washington, D.C.'s Gallery Place—around rail stations. As a result, Copenhagen changed "from a car-oriented to a people-oriented place," says a local official. Even though the road network is bigger now than it was in 1970, the total number of kilometers traveled by motor vehicles in Copenhagen is now 10 percent lower than it was then.


PHOTOGRAPHS FROM: *PUBLIC SPACES PUBLIC LIFE*, BY JAN GEHL AND LARS GEMZØE (COPENHAGEN: 1996). USED WITH PERMISSION.

communism were allowed to disintegrate into a large number of small jurisdictions—57 in central Prague alone. The tiny new entities, strapped for cash, had little bargaining power when it came to doing business with private developers.

In the absence of any new form of regional planning by a democratically elected government, real estate developers have become Prague's de facto urban planners. To prove the point, Karel Maier of the Czech University of Technology in Prague compares a map showing areas in the central city where government planners would have liked to see retail develop-

ment to a map showing where stores have actually sprouted at highway interchanges outside of town.

While new shopping opportunities in Prague's outskirts are in many ways a boon, some citizens are beginning to believe that the long-term interests of the region would be better served if the revitalization were also to include the massive communist-era housing blocks that are increasingly in disrepair, and if new development were to be located closer to the city's core, so that people would not have to drive so much.

There are ample sites for such development, as more than 1,000 hectares of abandoned industrial sites—or "brownfields"—now exist as holes in the fabric of central Prague. One entire borough, Prague 9, effectively became a giant brownfield after a major metalworks, surrounded by barracks for tens of thousands of workers, shut down. Indeed, the metropolitan area is becoming "Swiss-cheesed," in the words of Yaakov Garb, who is leading an anti-sprawl campaign sponsored by the Institute for Transportation and Development Policy (ITDP). "You've got developed land in the middle with holes of brownfields, and outside, you've got retail development in patches of agricultural land," explained Garb. "Why not just fill in the holes in the center first?"

In April 2001, this anti-sprawl campaign brought foreign experts on brownfields redevelopment together with local developers and officials. Developers are wary of building on abandoned industrial sites because they do not know how polluted they are. But governments can help address these concerns—for instance, by changing the tax code to make the cost of cleanup deductible.

According to Walter Hook, ITDP's Executive Director, the campaign has begun to petition lending institutions such as the European Bank for Reconstruction and Development, because of fears that the building frenzy may ultimately harm the local economy. "It is an open secret that of the hundreds of malls that have been and will be constructed in Central Europe in recent years, many of them will not survive," he notes. Hook warns that if the real estate market collapses, both domestic and international investors will suffer, "but the pockets of the international banks and developers are much deeper."

The ITDP campaign is targeting both governments and companies to more responsibly develop Prague. Its view is that the Czech government could assert more control over land development, as do Western European countries that prohibit retail stores above a certain size outside town centers. And consumer pressure could coax the retail industry into considering the environmental implications of store locations. Garb recalls that the furniture store chain IKEA lost business when environmental groups showed that bookshelves were releasing toxic chemicals. "Now they use organic cottons more, avoid old-growth woods, and make sure their bookshelves don't emit formaldehyde, but some of their biggest environmental impacts go completely unremarked. Where do you locate your stores? And how do people get to them?" The campaign is looking for a partner such as IKEA to take a lead in committing to locating a certain percentage of its future stores in more central locations, and improving the non-automotive access of existing stores.

One development that may aid the campaigners is the Czech Republic's January 2001 introduction of elected regional governments. The regional government for Prague, which encompasses the central city and several neighboring towns, is supposed to prepare regional plans for transportation and set aside areas to be protected as open space.

## Moving to the Inside Lane

While Washington, Santiago, and Prague differ in political history and economic development, some elements of their stories are remarkably similar. Like many cities worldwide, all were built at trading crossroads, on rivers that moved people and goods, and all have subsequently suffered as twentieth-century patterns of transportation and construction, along with political fragmentation, have led to sprawl, albeit to varying degrees. Highways have led suburban development in Washington for at least a half century, whereas housing projects became common on Santiago's fringe only in the 1980s, and big-box stores did not pop up on Prague's outskirts until the 1990s. In each case, however, sprawl is threatening the ease of human interaction that made these places viable in the first place.

Budding citizen opposition to sprawl in all these places seeks a better balance between private and public interests. In the United States, private automotive and construction firms helped the government set ground rules for business that have encouraged hugely inefficient uses of land, energy, and time. Although Americans may be more predisposed than their counterparts in other democracies to distrust government, a vigilant civil society has exposed the influence of dominant industries on government decisions, and the environmental movement has helped show that we live in an interdependent world. An increase in ballot measures to limit sprawl in the 1998 and 2000 U.S. elections reflects a growing realization that government does have an important role in protecting public interests. In Chile, citizens shut out of government during military rule are starting to demand more openness in transportation decisions. In the Czech Republic, where the end of communist rule left a legacy of popular mistrust of government planning, anti-sprawl campaigners are now hoping to show that good regional planning—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**CURITIBA, BRAZIL:** Starting in the 1970s, Curitiba built a bus network on lanes separated from other traffic, allowing speedy travel. These futuristic tube shelters add even greater convenience: passengers pay their fare in advance and step directly onto the bus when it arrives, as the floors of the tube and the bus are at the same level. By concentrating development around these bus corridors, Curitiba has reduced the pressure to expand outward, and has preserved more green space for people to enjoy.

with full citizen participation—can produce far better results than simply handing over all the key land-use and transportation decisions to private business.

As citizens in Washington, Santiago, and Prague envision their futures, they are learning from international experience. Santiago's activists recently traveled to Bogotá, Colombia, to study how the administration of mayor Enrique Peñalosa, even in the face of violent conflicts involving drug-funded paramilitary organizations, succeeded in building nearly 200 kilometers of bicycle paths and launching a dedicated busway system between 1998 and 2000. Bogotá, in turn, had learned from the city of Curitiba, Brazil. Bogotá manages the system, while the owners of 95 new buses—far less polluting than the old ones—make a profit on their investment. "I'm not saying . . . it's perfect," comments Lake Sagaris of Santiago's *Ciudad Viva*, "but it's a fantastic system. It's incredibly good for the drivers, for the bus owners, for the city, for the users, and even for a group of poor people who are being taken off the streets and trained to work as guides."

Similarly, when a diverse group of leaders from the Washington area took an information-gathering trip to Europe, organized by the NGO coalition Surface Transportation Policy Project (STPP) and sponsored by the German Marshall Fund, they found an inspiring model in Copenhagen. "From the pictures that planners showed us," said Stewart Schwartz, the head of the Coalition for Smarter Growth in the Washington region, "they had streets and plazas that were as car choked as any" several decades ago. Rather than widening the roads to ease congestion, Danish officials proposed decreasing parking and closing streets to cars to improve conditions for pedestrians. Those decisions were "politically tough," noted D.C. City Council member Carol Schwartz. Chris Zimmerman, an elected official from Arlington County, Virginia (one of the jurisdictions in D.C.'s metro area) recalled, "People there said that when you talked about this 25 years ago, the response often was 'Danes aren't Italians or Spaniards! They don't sit outside!'" But Copenhagen today, Zimmerman says, "has become a hugely

pedestrian-oriented city, where a third of the commuting traffic goes by bicycle."

Bogotá, Curitiba, and Copenhagen were able to make bold changes, in part because they are not as politically splintered as most metropolitan areas. Better regional cooperation is budding in Washington, Santiago, and Prague, but national governments could provide incentives to push this further. In recent years, France's national government has been giving a monetary bonus to local governments that cede some services and a portion of their taxes to new metropolitan bodies. The United States requires transportation funding requests to the national government to be coordinated by a metropolitan planning organization, but these entities are narrowly focused on transportation. Their mandate could be expanded to include full regional land-use planning. Developing countries such as Chile, now in the midst of shifting power from central to local governments, could build in these incentives from the beginning.

As the successes of regional plans like those of Copenhagen and Curitiba become more apparent, they are being closely watched by policymakers in other countries. If the high-profile capitals of Washington, Santiago, and Prague succeed in creating new successes of their own, this global sharing of information—not in academic papers, but in the form of real-life examples of more compact and people-friendly urban communities—could move to a higher level of importance worldwide.

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## Oil Dependence, Urban Vulnerability, and Wealth: A View from Australia

by Peter Newman

Cities across the world felt the collapse of the World Trade Center in New York. We all felt immediately vulnerable, fragile, exposed. New York has been not just a city of pre-eminent financial power, but also a city of refuge for the past century. But what now? Can we learn something about urban sustainability from this new sense of vulnerability?

The September 11 attacks raised a wide range of issues—the politics of global wealth disparities, cultural and religious differences, the globalization agenda, the history of grievances. Beneath them all lies the competition for the Earth's resources. The geological foundation of the vulnerability of our cities is that the last known major oil reserves are in the Middle East. All cities face the prospect of having to import more of their oil from that region if they are to continue using oil.

U.S. cities are particularly vulnerable, as the country imports 2.5 million barrels of oil each day from the Middle East. Despite frantic efforts to find more oil, the United States has been essentially on the downward slope of its production curve for 30 years. Yet, the reaction of many to the terrorist attacks has been to disperse from city centers and find even more remote suburban or exurban locations, which unfortunately are even more car dependent and require even more oil.

Every city in the world uses oil for transport, but some use much more than others. U.S. cities consume 431 gallons per person per year; Australian cities 295 gallons; European cities 133 gallons; and Asian cities 49 gallons. Within the United States, there is large variation: residents of the sprawling city of Houston, Texas burn 493 gallons per person, whereas residents of Manhattan, the site of the terrorist attack, use only 90 gallons per person. The compact transit-oriented city of New York is actually a fairly good example of how cities can work with relatively low levels of oil dependence.

Contrary to conventional thinking about development, there is almost no correlation between gasoline use and the wealth of a city. Wealthy European cities burn one-third of the gasoline used in U.S. cities. Residents of Singapore, Tokyo, and Hong Kong drive cars 24 percent less, on average, than people living in Kuala Lumpur, Bangkok, Seoul, Jakarta, Manila, and Surabaya—yet they are eight times as wealthy on a per-capita basis.

Often, what accounts for the differences of wealth among cities is that the more affluent cities have invested in good public transportation that provides a better option than private cars for most trips. European, Canadian, and wealthy Asian cities spend 5 to 9 percent of their municipal wealth on transport, whereas U.S. and Australian cities spend 12 to 13 percent. A community that spends a large share of its revenue on building and maintaining the infrastructure needed for motor vehicles has less of its money available for other public services—such as economic development, education, and public health.

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