

PRAISE FOR **JANETTE SADIK-KHAN**

AND **STREETFIGHT**

"Janette Sadik-Khan is like the child that Robert Moses and Jane Jacobs never had: an urban visionary determined to reshape the streets of New York, but with an abiding concern for the health of neighborhoods and the safety of their residents. If you care about the future of cities, read STREETFIGHT."

—MICHAEL BLOOMBERG, former New York City mayor

"This book is an urban epic as audacious as the changes Janette Sadik-Khan made to the map of New York City. She is a superhero for cities and an inspiration that streets built to human scale aren't impossible but merely awaiting those who dare."

—JAN GEHL, urbanist, architect, author

"Cities are where innovation, creativity, and the unexpected happen, and Janette has helped make ours, New York City, safer, more livable, and more profitable all at once. I watched these exciting changes happen, but the really interesting part is how she managed to implement these changes quickly and cheaply. That's where other cities can use this as a manual for change on issues like health reform, education, and the arts. This, then, is not just a book about transportation."

—DAVID BYRNE, musician, artist

"To create safe and inclusive cities, being a visionary is not enough. You must also be an advocate, a communicator, a doer, and, perhaps most important, a streetfighter. Janette is that person and this is a book that provides the proof of the possible for citizens and their elected leaders everywhere."

—ENRIQUE PEÑALOSA, mayor of Bogotá, Colombia

"[A] bicycle visionary."

—FRANK BRUNI, THE NEW YORK TIMES

"Sadik-Khan manages to be equal parts Jane Jacobs and Robert Moses."

—NEW YORK MAGAZINE

"If [Robert] Moses had owned a pink fingernail of [Sadik-Khan's] beguilement, he might have scored a bridge across the Atlantic."

—ESQUIRE

"[Sadik-Khan is] an urban visionary who cuts through the gridlock."

—SLATE

ISBN 978-0-525-42984-5



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JANETTE SADIK-KHAN
SETH SOLOMONOW

STREETFIGHT

HANDBOOK
FOR AN URBAN
REVOLUTION



HANDBOOK FOR AN
URBAN REVOLUTION

**STREET
FIGHT**

JANETTE SADIK-KHAN
AND SETH SOLOMONOW



VIKING

An imprint of Penguin Random House LLC
375 Hudson Street
New York, New York 10014
penguin.com

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978-0-525-42984-5

Printed in the United States of America

1 3 5 7 9 10 8 6 4 2

Set in Linotype Syntax Serif Com and Gotham

Designed by Amy Hill

*To the men and women
of the
New York City Department of Transportation*



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Setting the Agenda

As a rule, 95,000-word documents about urban health and long-term sustainability aren't headline news, much less the stuff of dinner-table conversation. The news on Earth Day 2007 was different. Mayor Bloomberg unveiled PlaNYC at the American Museum of Natural History, beneath its famous 94-foot-long, 21,000-pound fiberglass blue whale, underscoring the urgency of the message. The unusually direct language the mayor used at the event was as rare as the animals that filled the museum halls, and it made news.

The document that Mayor Bloomberg and Team Camelot under Deputy Mayor Dan Doctoroff produced (pronounced "Plan-Y-C") was the first real inventory of the city's collective resources, assets, and deficiencies. It systematically reverse-engineered the city to accommodate expected population growth, amortizing the costs of investments over decades instead of election cycles, and looked at the impact of growth on health, the environment, and quality of life. From 2000 to 2005 alone, New York City's population grew by 200,000 people.

Doctoroff recalled that the plan didn't start with trying to solve the ultimate challenge of New York's long-term growth, but with trying to solve a single problem then facing the city: where to house the vast stockpiles of chemical salt needed for city plows when it snowed. The municipal land needed for the salt storage set in motion an inventory of city properties, which in turn forced officials to think about the properties needed for the equipment that carries and disperses the salt. The process quickly led to inquiries about lots for vehicles, for refueling them, and for transfer stations to carry out the waste—the banal stuff of municipal real estate.

As the exercise unfolded, Doctoroff recognized they were contemplating essential questions of the city's long-term health, not just addressing today's problems. "We realized that planning for the future was more than an exercise in creating space for government operations," he told me. "By 2030, there will be nine million people in New York City," Doctoroff says, a net increase of nearly a million people, or the equivalent of adding the current populations of Miami and Boston into the five boroughs.

To address the increased demands on the city, PlaNYC returned to a central theme: density is New York's destiny, and city planning must leverage that strength to enhance mobility and the quality of city life and avoid sprawl. Successful urban density isn't simply a matter of tall buildings stacked next to one another. City residents require both space and privacy, green space and open sky, breathing room and room to run. How cities deliver their services must be organized in ways that can be maintained over decades without depleting their coffers or making neighborhoods and the environment inhospitable.

Determining how these pieces fit together is a problem of public space design, and it's inextricable from the underlying city goals and policies. The plan's 127 proposals would increase the city's housing stock by 265,000 units, expand wetlands and plant a million trees,

build more efficient buildings and install street lighting that uses less energy. To reduce greenhouse gases, PlaNYC also sought to lower emissions by having fewer vehicles on the roads and enabling all New Yorkers to live within a ten-minute walk of open space. By investing more in ten years on sustainable infrastructure, the city could have a greener, more attractive city and realize savings from those investments fifteen, twenty, and thirty-five years later.

In 2007, the idea of planning beyond the length of a term in office was still a political fantasy. Sustainability plans for entire cities were still a rarity in the first decade of the new millennium. Similar plans had been drafted in Seattle and San Francisco. London in 2004 released the London Plan, one year after implementing its first congestion fee for cars entering the city center. But these plans lacked unifying sustainability themes across all city agencies to reach beyond urban planning and into the essential issues of land use, energy, waste management, air quality, and climate change.

Such strategies recognize and emphasize that ideas can outlast the people who drafted them. "Cities without plans tend to be politically disenfranchised with fragmented governments," says Transport for London's commissioner, Sir Peter Hendy, knighted in part for his success managing the city's transportation plan during the 2012 Summer Olympics. "As a result, they don't have any long-term purpose, don't have any long-term plan, and haven't done much. Whereas [in London] we have this massive population and economic growth, and it's fueled by all sorts of policies being executed alongside congestion charging—cycling, renewal of the subway—which then make the plan work. I think that is an incredible lesson here and for the rest of the world."

One of the first urban planning frameworks in the United States was established in Oregon more than forty years ago, and it has served as a great model and impressive success story. Inspired by urban devel-

opment models from early-twentieth-century England and led by visionary governor Tom McCall, the state legislature in 1973 required Oregon cities to establish urban boundaries outside of which commercial and residential development is prohibited. Every five years cities can assess their land use needs for the next twenty years, and if they believe there is a compelling need, they must make their case before the legislature to open new tracts of green space for housing or business. Some opponents object that by concentrating new growth within city boundaries, the boundaries artificially inflate real estate prices that should have been left to the free market. But something else has happened. Portland has become a model for transit and human-powered transportation. Its bike commuting rate of around 6 percent, while laughably small by European standards—and even considering that commuting trips represent only a fraction of overall bike trips—is the closest thing to Copenhagen among American cities of more than half a million people. Bike commuting tripled there from 2000 to 2012, and streetcars ply the car-free streets of downtown. One generation's planning helped dictate the next generation's infrastructure investment. In 2015, Portland officials opened the Tilikum Crossing, a 1,720-foot bridge that was the first span over the Willamette River in forty years. The bridge, known as the Bridge of the People, was designed to carry trains for Portland's light rail MAX system, streetcars, buses, bikes, pedestrians, ambulances, and fire trucks, but no private cars.

In other American cities, by contrast, urban planning is often absent from agendas. Houston, Texas, is renowned for having no long-term plan or even a unified zoning code that spells out what kinds of buildings can be built where. The result, predictably, is that Houston's population of 2.2 million is sprawled over more than 625 square miles, or about one tenth of the people in Mexico City spread throughout a slightly smaller area.

Comprehensive urban planning is a productive exercise in itself. PlaNYC reframed the idea of the city and repudiated the idea that cities (not just New York) are environmental, social, and economic lost causes. "We went from cities being a problem to density being the solution," said Rit Aggarwala, the sustainability guru Doctoroff brought in to manage the development of the report. The result was a document that was written in clear and accessible language and its positive tone reflected the belief that cities are sources of national strength.

While PlaNYC had high-level goals for congestion pricing, bike lanes, and bus rapid transit, it didn't spell out what that infrastructure should look like or the strategies to implement it. That was my job as the newly appointed commissioner of DOT. I immediately started by translating these goals into a strategic action plan for the 4,500-person agency, and, most important, building a team that could execute it. The first play was to identify the talent already within the agency, which would let us get to work fast.

As my right hand, I appointed Lori Ardito, a smart, seasoned DOT professional to oversee operations—paving and fixing roads, installing signs and signals, and keeping the Staten Island Ferry running on time. Her appointment also reassured the DOT establishment that I valued their skills and input. It also made it easier when I brought in a cadre of people from outside the agency—some who were former critics of DOT or who brought decades of experience from inventive private sector practices. They would help expand the capabilities of the entire team and push the bureaucracy to act with a nimbleness it had never seen. We set out to achieve big goals and change the very nature of the business and how we got things done. On my team were people who shared my brand of strategic thought and impatience with government dithering, like Jon Orcutt, a creative and pragmatic transportation advocate and leader to run our policy shop and major initiatives.

My friend Margaret Newman, an architect with a razor-sharp design

eye, became my chief of staff and elevated our aesthetic and lighting standards. Andy Wiley-Schwartz came from the Project for Public Spaces to head DOT's fledgling new office for public space. Another key player was Bruce Schaller, a data guru with years at the transit, parks, and taxi departments, to lead the agency's new Planning and Sustainability Division and help manage the plan to inaugurate five new bus rapid transit lines and meet the biggest goal of all: congestion pricing. Starting on our new course with this new team, we had no choice but to work fast—there were only thirty-two months before the mayor's second term would expire.

We started by developing an action plan for implementing PlaNYC's transportation agenda. The agency's deputy commissioners led a top-to-bottom audit of the department to plan our path forward instead of lurching from emergency to emergency. Within the first year we produced the agency's first-ever strategic plan, Sustainable Streets, a conversion of PlaNYC at the transportation level, with goals and benchmarks for a better city. It set forth goals to cut traffic fatalities by half and to bring dedicated bus lanes, enhance public space, and bike infrastructure across the city. DOT's sustainable future meant more recycled asphalt, more bridge investment, more cleaner-burning fuels in our operations, more efficient lights on our streets, and, critically, a new neighborhood communications strategy.

Another big part of the agenda was overhauling the public outreach process. For years DOT had communicated with communities through a curt exchange of form letters. A resident or civic group would request a stop sign or traffic signal and, after a study of traffic volumes and the number of pedestrians crossing the street, the department usually responded in a letter saying "No." No, the intersection did not have enough traffic to meet federal guidelines for installing a traffic signal. No, not enough pedestrians crossed the intersection to warrant a stop sign. In the view of the citizens, by saying no, the government had

failed in a basic responsibility to do something and solve an obvious problem. What they didn't know is that the underlying problem that they were concerned about might have had more effective solutions. The 12,700 intersections in New York City with traffic signals are no less prone to dangerous speeding and adding new ones may create new problems. Signals can spend more than half their time green, leaving plenty of time to speed. And many drivers who see a green light at a distant intersection often feel induced to hit the gas to increase their chance of beating the eventual red light. This is why transportation departments install traffic signals primarily to control the right-of-way, not to regulate speed.

Instead of mailing letters that simply denied traffic signal requests, we posed a new question to these communities: What problem were they trying to solve? Were there other strategies that were not considered because they were not specifically requested? If the problem was speeding, we could look at the possibility of narrower lanes, speed bumps, and parking restrictions near the corner so stopped cars wouldn't block the visibility of crossing pedestrians. Creative street design, not stop signs, could change safety on a street. To better define the problems and showcase new solutions, we developed workshops called DOT Academy, where agency staff made presentations to elected officials, community board leaders, and their staffs so they would know what we did and what to ask for—instead of stop signs and traffic signals.

At typical public meetings, city officials lecture community members for twenty minutes, then take questions. This format works against general public participation and in favor of the few who feel passionate enough to declare an opinion before a room of people—often the most extreme opinions, which frequently result in a polarized room. People with moderate opinions remain silent and stay out of the conflict, which means decision makers don't hear a full range of views. To encourage participation and also provide a better gauge of public wishes and senti-

ment in programs like our rapid bus projects, we arranged planning meetings that would seat participants at individual tables in groups of ten or even fewer, each one moderated by transportation staffers who jotted down ideas and provided details of proposed projects. Each individual—a resident, a business owner, a representative from a local institution—now had the chance to have his say, civilly, and resolve differences among themselves.

Of course the general public is not the only one engaged in the street business. The departments of design and construction, parks, buildings, planning, environmental protection, and others all developed projects that touched the streets. To put all these agencies on the same street design page, we pulled together eleven agencies and started working to create New York City's first ever street design guide. It includes the latest in designs piloted in New York or used in other cities—like bioswales that channel flooding rainwater from streets into landscaped tree pits, curb extensions that decreased crossing distances for pedestrians, and new techniques in street marking.

The collective impact of these plans, processes, and policies was a wholesale government rebranding. We were changing the language and the expectations of what the department was capable of and responsible for, and how it should use the resources under its control. In so doing, we helped expand and transform people's expectations of the city itself. We didn't eliminate tensions and opposition, but created a goal-based approach to government that resulted in better projects and outcomes, which, while they would not please each of New York's 8.4 million traffic engineers, would better serve more of them than ever before.

But nobody was served well by the traffic that had existed since Moses's time. The very first item on the transportation agenda at City Hall was a plan to deal with congestion and the chronic underfunding of our transportation network. This wasn't the first time I tried to tackle

the problem. As Mayor Dinkins's transportation adviser, I oversaw a report on the feasibility of tolling the East River bridges to fund the capital and operating needs of New York City's bridges and streets.

Swarming traffic persists as an inescapable part of daily life in Gotham and most major cities. Manhattan's population of 1.6 million doubles every weekday as commuters descend upon the borough's clusters of entertainment, finance, fashion, publishing, academia, dining, and media. As vivid as traffic is in Manhattan lore, a relatively small number of people are in vehicles. Only 6.6 percent of the 1.6 million people who travel to work in Manhattan daily drive alone, compared with a national average of 76.4 percent. Instead, public transportation is the choice for 59 percent of commuters who arrive at their Manhattan desks—riding aboard subways, buses, ferries, and commuter trains that connect the city and its suburban counties. That makes New York a public transportation nirvana compared with the national average of just 5 percent of commuters taking transit.

Even a small percentage of people driving alone is a huge absolute number in a metropolitan area of 20 million people. Cumulatively, within the five boroughs including Manhattan, drivers make 7.7 million daily car trips and rack up 30 million miles daily. These large numbers of vehicles require an immense amount of room while they are moving and while they are parked, which is why most New York City street space has been devoted to them. This disequilibrium is itself a daily streetfight, with taxis, pedestrians, bikes, buses, pedicabs, deliverymen, trucks, and street vendors in an uneasy dance for space, pace, and safety. Cars and trucks double-park to make deliveries, blocking lanes and forcing dangerous and traffic-inducing merges. Millions of hours of people's lives are collectively spent stuck in traffic annually, getting nowhere while emitting fumes into local neighborhoods. The Partnership for New York City estimated in 2006 that congestion cost the region \$13 billion each year in economic and health matters.

Our goal was to rebalance these streets, bringing greater equity to the transportation network and reducing the impact of congestion. The price of entering the city by car—free at many bridges—was the linchpin. There is no active congestion pricing system in the United States, yet paying tolls to use bridges and roads is a rich, if loathed, American driving tradition. I remember years ago fumbling for change to throw into a toll basket on the New Jersey Turnpike or Interstate 95 in Connecticut, a step up from handing over a crumpled bill and coins to a toll collector at one of the city's tunnels or bridges. By the late 1980s, electronic toll collection like E-ZPass started to snap up tolls without your having to hit the brakes. Despite this tradition, people who drive tend not to see a correlation between the price they pay to use the road and the poor quality of and congestion on that road. The idea of paying a toll to enter an area, as opposed to using a bridge or road, still remains as foreign a concept today as the idea of paying for driving at all.

"I was a skeptic myself," admitted Mayor Bloomberg when he publicly discussed congestion pricing for the first time. "But I looked at the facts, and that's what I'm asking New Yorkers to do. And the fact is in cities like London and Singapore, fees succeeded in reducing congestion and improving air quality."

Singapore introduced the first congestion pricing and taxing system in 1975, which officials married to new transit investments and strict rules on owning cars, decreasing traffic volume and leading to a long-term increase in the use of transit. In the early 2000s European planners started to pick up on the quiet, pocketbook power of charging people to drive. To reduce congestion and vehicle emissions, London officials in 2003 introduced a fee for drivers coming into the city center on weekdays. By 2006 the plan reduced congestion within the zone by an estimated 30 percent and decreased greenhouse gases by 16 percent. Meanwhile, Londoners walked and took buses in increasing numbers. Stockholm, Sweden, introduced a pilot congestion charge program, one

that it made permanent in 2006, within months of PlaNYC's launch. Again, traffic decreased. From my first day in office I was thrust into this, the most controversial issue in the city. Joined frequently by Bruce Schaller and Rit Aggarwala, I became one of the public faces of the battle at public hearings and testimony in front of the Metropolitan Transportation Authority, the city council, and other public meetings required before a policy can take effect.

We thought that charging people who drive into downtown Manhattan might succeed in ways that pleading, cajoling, and engineering never could. Congestion, danger, lack of parking, and aggravation hadn't dissuaded many New Yorkers from driving, and having one of the world's best transit networks wasn't enough. Maybe the price would tip the balance.

The original proposal in PlaNYC was a charge of \$8 for vehicles to enter Manhattan anywhere south of 86th Street weekday mornings through early evenings. Faced with a new toll, a driver who wouldn't have thought twice about commuting before might do some quick math and ask herself "Is this trip really necessary?" Beyond reducing congestion itself, the goal of the charge was to raise a projected \$380 million a year to improve transit options, reduce crowding on subways and buses, and upgrade the heavily used but aging transit network. This piece was critical. It's not enough to use tolls to get people to change how they get around. Cities need to provide new and more reliable transit options. The congestion charge would give cities the means to do it.

Despite New York City's manifest traffic problems, New York drivers would not be so easily convinced that anything could be done—or even needed to be done—about it. Part of the problem wasn't the policy or the goals but the branding. Congestion pricing was unfortunately named, with two problems, traffic and payment, united in one pithy phrase. It was also awkwardly abstract, rooted more in the basic con-

cept of supply and demand. Inconsistent tolls at New York City bridges and tunnels, which are run by different agencies and authorities, tempt millions of annual drivers to "bridge shop" for the least expensive trip. Instead of taking a direct route across tolled bridges, people drive, some in large trucks, miles out of their way to reach the four toll-free East River bridges to Manhattan: the Brooklyn Bridge, the Manhattan Bridge, and the Williamsburg and Queensboro/Ed Koch bridges. Drivers then course along local streets to reach the Port Authority's Holland Tunnel and Lincoln Tunnel and their free one-way trips to New Jersey. An alternative, more direct trip to New Jersey might really be through Staten Island, where a cash toll at the MTA's Verrazano-Narrows Bridge starts at \$16 round trip and can run \$124 for a seven-axle truck (and no, that's not a typo as of 2015!). The network incentivizes people to drive through Manhattan for free. Charging vehicles to enter Manhattan would change that message.

Opponents framed the debate not in terms of traffic—Would it or wouldn't it succeed in reducing congestion or improve public transportation?—but as an attack on poorer New Yorkers. Elected officials railed that poorer residents live farther from subway stations and bus stops and had no choice but to drive. Paying a daily congestion pricing fee to drive to work in Manhattan could add up to \$2,000 in tolls a year that hit those who can least afford to pay it. Wealthier New Yorkers, the argument continued, wouldn't flinch at the toll and would continue to drive. It should come as no surprise that the chief spokesman making that argument was a state legislator from Westchester County, one of the five wealthiest counties in the state by median income that is heavily populated by commuters.

Residents from Queens, Staten Island, the Bronx, and Brooklyn—the populations congestion pricing was targeted to help—also inveighed that it would be unfair that their tolls would be used to fund a public transit system they did not use. Yet in the example of one bor-

ough, Brooklyn, census data showed that 57 percent of households don't even own a car. The households that did own cars enjoyed a median household income a full 100 percent higher than those without cars. And while we may think of Manhattan as the sole business hub in town, about two thirds of Brooklyn workers don't work in Manhattan, commuting instead to work within Brooklyn, in another borough, or in a neighboring county. Those who commute regularly to Manhattan overwhelmingly take public transit. By the time the math of congestion pricing was wrestled to this level, the data showed that 97.5 percent of Brooklyn residents wouldn't have to pay a congestion charge to get to work.

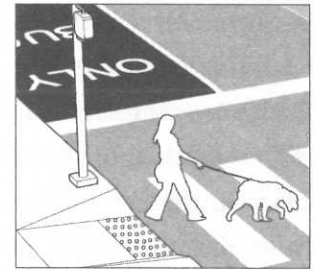
Despite passionate arguments against congestion pricing, New Yorkers backed the proposal 67 percent to 27 percent in a poll, provided that the proceeds would be used to improve transit service. Even the typically raucous editorial boards at New York City's newspapers supported the plan or at least hedged. After an intense national competition for federal funds under the Urban Partnership Program, U.S. transportation secretary Mary Peters offered New York City \$354 million to implement a congestion pricing program, conditioned on the state legislature's approval of the plan by spring 2008.

The political battle developed into a six-month full-court press, a blur of meetings, charts, and statistics. A subsequent New York City Council vote to authorize congestion pricing wasn't really close, but the atmosphere in the chambers was no less dramatic, yielding a 30–20 yes vote on March 31, 2008. But elation at the city council vote turned to dejection in Albany. The final decision on congestion pricing wasn't the mayor's or even the city council's alone. New York State prohibits New York City from a range of revenue collection practices without authorization from the legendarily ineffectual state legislature. State legislators in April 2008 smothered the plan without even taking a vote, typical of the institution, led by Sheldon Silver, who stepped down

from the assembly speakership in disgrace in 2015, following his arrest and subsequent conviction on charges of corruption. Silver claimed that the assembly would have defeated the proposal had it been brought to the floor for a vote. But by not taking a vote, the assembly deprived New Yorkers of the opportunity to know where their elected leaders stood on the issue and why—and had no way to hold them accountable for the decision.

The news seemed almost unreal, the cowardice particularly galling because the legislature had forced us through so many procedural hurdles and dozens of public meetings, hearings, and media battles, only to do nothing. "What we are witnessing today is one of the biggest cop-outs in New York's history," Mayor Bloomberg spokesman John Gallagher said as the plan foundered.

We had lost this particular battle but had changed the conversation about how New Yorkers get around and who pays for it. The congestion pricing debate has made New Yorkers more receptive to projects like rapid bus systems. And congestion pricing remains on the table. The latest iteration of the tolling proposal is called Move NY, promoted by former transportation first deputy commissioner Sam Schwartz. The new plan, being discussed today at editorial boards, community boards, and political meetings, takes a five-borough view by lowering tolls at crossings where drivers lack good transit alternatives while instituting tolls at others so that motorists pay more or less the same toll wherever they cross—and whenever they enter Manhattan below Sixtieth Street. It may not be this plan, but I remain convinced that it's not a matter of *if* some kind of tolling plan will be introduced in New York; it's a matter of *when*.



4

How to Read the Street

A century-old, fundamental traffic principle, ignored by a century of transportation planners, is that you get what you build for. Building more lanes only creates more traffic. Although decades of evidence confirm this principle, state transportation departments are still staffed with people whose primary mission is to build and maintain more roads. As long as planners widen roads and build new ones; as long as drivers have poor transportation options and remain insulated from the full cost of their trips; and as long as government policies encourage people to live in far-flung suburbs, we will have an even more sprawling urban future.

"This looks like Carvana!"

It was May 2014, and an exuberant Los Angeles mayor Eric Garcetti stood with state transportation officials on a balcony overlooking the Sepulveda Pass and a four-and-a-half-year project to build a ten-mile carpool lane on the northbound 405 freeway. Following an extended

construction nightmare, opening a year late and \$100 million over budget, just finishing the \$1.1 billion job was as close as you could get to car-based nirvana in this town.

If there's any city that's a punch line for car-based planning and traffic, it's Los Angeles, and the 405 (Southern Californians always use the definite article) holds a special stature as one of the worst-of-the-worst roads in the hemisphere. It's a transportation facility where peace of mind dies faster than you can say, "Have a nice day." An average of three hundred thousand vehicles daily cruise that stretch of the Sepulveda Pass at speeds that dip well below twenty miles per hour. Transportation officials wanted to chip away at that delay. By dedicating a northbound lane for carpool vehicles only from which people driving alone are strictly banned, the project filled the final gap in a seventy-mile continuous lane for vehicles carrying multiple occupants. At best, the five-mile extension was expected to cut peak travel times on the Sepulveda section of the 405 by ten minutes. While that may not seem like a lot of time in a commute, every minute saved from the frustration of stop-and-go traffic is a welcome reprieve for Angelenos. It's also evidence that planners are "doing something" about traffic. The carpool lane might encourage more people to share rides, in turn removing a few cars from general traffic lanes, reducing congestion and helping the environment. Those optimistic expectations turned out to be grossly misplaced.

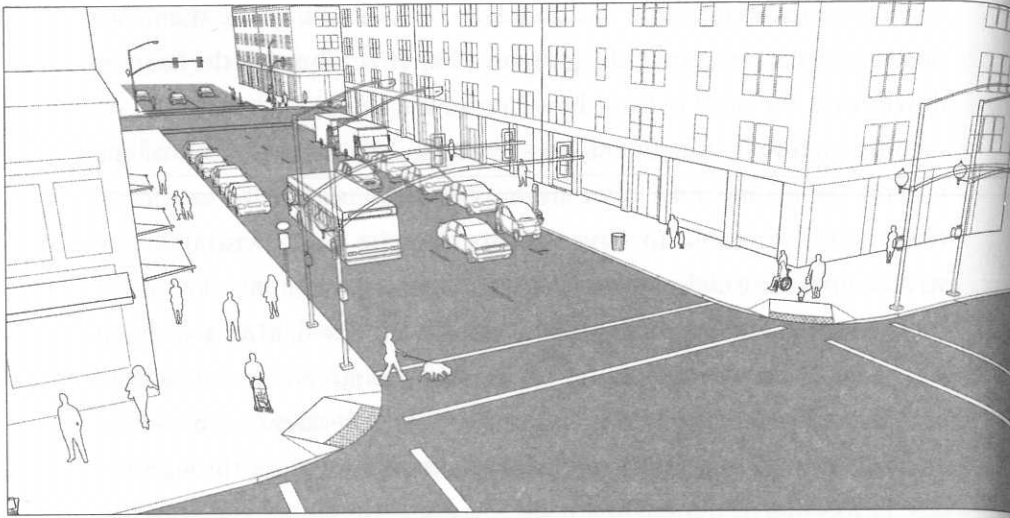
Six months after the lane's opening, a study by a private transportation data-analysis firm found that travel times on the 405 had barely changed or had actually gotten slightly worse. During the peak drive time from four to seven p.m., travel on the northbound 405 from the 10 to the 101 freeways took thirty-five minutes—one minute longer than the same trip in the previous year. With an added lane, everyone expected traffic to improve at least proportionally faster. Yet traffic remained just as bad. So what happened? Did an engineer miscalculate?

To understand how roads like these work, and how to fix them, we need to start at the core of the core, on a city street through the heart of downtown. We need to learn how to read the street.

Like highways, the city streets and sidewalks where much of the world's population now lives are largely bleak, utilitarian corridors, their design invisible to city dwellers. Despite this invisibility, the streets' operating code connects cities and their inhabitants physically, commercially, and psychologically. Virtually all city denizens spend at least part of the day on, along, or crossing the street. Schoolchildren and deliverymen. Commuters heading to work. Residents and visitors ambling around to shopping districts. Tourists threading through the city to local attractions. They walk, they jog, they bike and travel in cars, minivans, buses, and box trucks. And they typically move along a grid-based matrix designed by engineers and decorated with standard-issue traffic controls and markings: zebra-striped crosswalks, hash-marked lanes, red stop signs, and bright yellow school crossing signs—and the functional, often-ignored traffic signals and streetlights. This is effectively urban design for most of the world's population.

On our busy urban avenue it's almost impossible for people to see past the buses, the taxis, ambulances, other pedestrians, delivery trucks, parked and double-parked cars. We don't notice the street unless it changes. But beyond the moving parts, the street's underlying design is hidden in plain sight. It's a kind of engineering archaeology, as what we see is not just the street as it is today, but also what planners thought the street should be when they designed it fifty years ago or longer.

Many people would glance at the illustration on the next page and say, "It looks like a street." But let's take this model street apart and read between the lanes. This example is a one-way street with four twelve-foot lanes. It's similar, give or take a lane or a foot or two, to thousands of miles of streets that city dwellers live, walk, or work on. It's Spring



A model street: One-way, four twelve-foot lanes, countless road design possibilities. NACTO/Courtesy of Island Press

Street in Los Angeles, Pitt Street in Sydney, or Camden High Street in London. Two parking lanes flank the road, one on each side along the curb. The two center lanes are dedicated for moving vehicles. Where our model street meets an intersection, pairs of parallel lines perpendicular to the flow of traffic mark the crosswalk where people on foot can cross the forty-eight-foot street with the pedestrian signal.

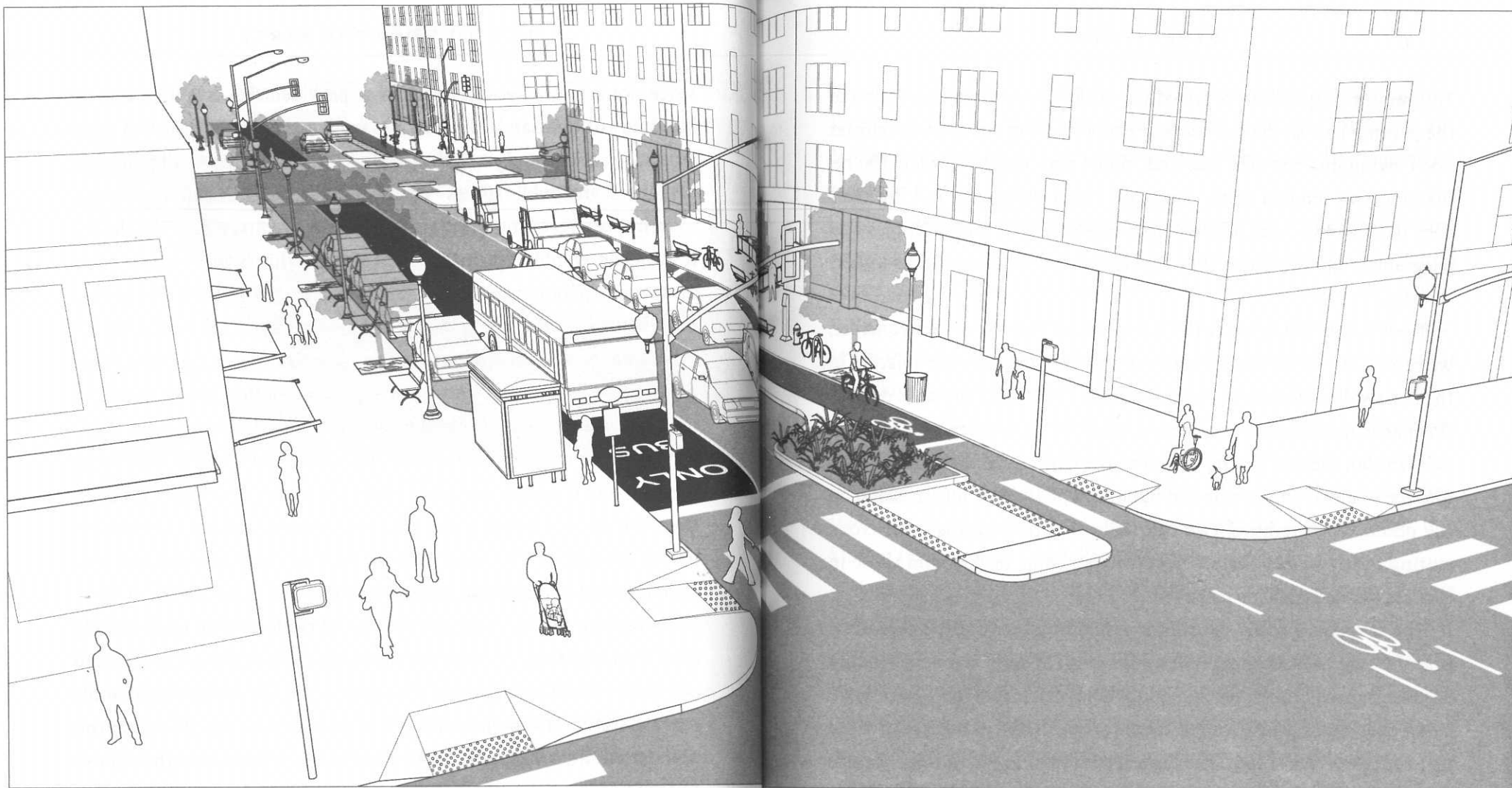
Let's look more closely at these twelve-foot lanes. Twelve feet isn't a random number. It's a standard width on many highway lanes, as laid out in the federal guideline meant to create highway lanes able to accommodate the widest semis safely. So what's good for the highway must also be good for city streets, right? Not so much. A 2015 Toyota Camry is only about six feet wide, and the vast majority of trucks and commercial vehicles are less than eight and a half feet across. When you multiply the up to six feet of excess lateral space built into every traffic lane, you can begin to see how this street is grossly overbuilt. This model street alone may contain more than twenty feet of excess road

space not actually needed to move or park vehicles. Multiply that by hundreds of thousands of miles of lanes in thousands of urban areas around the world and you'll find millions of miles of sidewalks, bus and bike lanes, and public spaces—entire cities—trapped within our streets.

Why are streets and their lanes so wide in the first place? The theory, if someone would explain it, might go like this: wider streets mean more room to move more cars, and wider lanes give cars a buffer so they don't hit one another. So in reality, all this excess space is hidden within thousands of streets simply to give cars breathing room twenty-four hours a day, year-round. With such a generous buffer, streets should be the safest places on earth. Yet they are congested and dangerous. Highway hypnosis makes planners treat city streets like highways, divvying them up into lanes like turnpikes under the theory that bigger is better. Once the street is laid out, the space between sidewalks is presumed to be the domain of the motor vehicle. Each of these assumptions only compounds the wrongheadedness of the one that preceded it.

By reading the street accurately you can reallocate the space already there—no expensive reconstruction required. Two of the four lanes on our model street are reserved for parking and the remaining two for moving traffic. No room for bikes and pedestrians, right? Look again: without eliminating traffic lanes, there is more than enough room to add a bike lane and to shorten the distance that pedestrians must cross by two full lanes. A lane can be dedicated for buses without banning parking or ripping out sidewalks. As if by magic, ample space is available for many uses. How is this possible?

First, we can expand the use of a street by narrowing its lanes. Reducing the width of the two parking lanes that flank the street from twelve to just nine feet leaves more than enough room to park even an oversize vehicle. These dimensions can be reinforced by painting a line on the street marking where the parking lane ends. This simple change can yield six full feet of space that can now be reprogrammed for other uses.



Same street, different way: The same number of traffic lanes but with added room for a protected bike path, bus lane curb extensions for pedestrians that reduce crossing distances from four lanes to two, connecting with a landscaped safety island. NACTO/Courtesy of Island Press

Six feet is more than enough room for a bike lane, and we haven't even touched the moving traffic lanes yet. Now, where will this new bike lane go—between the lane of parked cars in the left part of the picture and a lane of moving traffic? Let's try something different. Look at the parking lane on the far right. You might be accustomed to seeing only parked cars along virtually every curb in every city, but there's no law—legal,

moral, or otherwise—that requires it to be there. It's a convention, a choice. If we place the bike lane where the parking lane was, the parking lane becomes a "floating" lane, parallel to but not alongside the curb. By placing the bike lane on the side of the road opposite the bus stop, bus and bike traffic won't cross paths.

So now we have a bike lane at the curb and a parking lane next to it. If we narrow the two moving lanes from twelve to ten feet each, there is enough room for moving traffic and an additional four feet of roadbed.

This reclaimed space can be added as a buffer between the bike lane and the parking lane so the car doors of people getting out of their vehicles don't swing into the bike lane and "door" a passing bike rider. The remaining two ten-foot traffic lanes are better organized and, by their very narrowness, safer. Clearer markings reinforce these changes and telegraph to motorists that they shouldn't speed or change lanes unnecessarily.

Now, what's going on at the intersection? For the cost of concrete, we can easily extend the sidewalk out into the curbside lane adjacent to the crosswalk. Known as a curb extension, "bulb-out," or "neck-down," this particular extension can create space for passengers to board and exit without the bus having to pull to the curb. By extending the curb into the roadbed on one side and building a pedestrian refuge island on the other, we've reduced two full lanes that pedestrians must cross, cutting nearly in half the territory where people on foot and those in cars are in one another's paths.

The surprising reality about the remaining ten-foot travel lanes is that they are safer than the twelve-footers. Highway-size lanes induce highway speeds and lane-changing tendencies that go with them. Wide-open lanes provide more room for the driver of one car to wind up in another's blind spot. The biggest consideration in how fast people drive isn't the posted speed limit or how traffic signals are timed, but the street's design speed—the vehicle speed that the street was designed to accommodate safely. Traffic engineers assume that people will drive fast on a particular road, so they build wide lanes hoping that they will keep these fast-moving cars farther from one another and thus safer. But the wider lanes don't just accommodate the posted speed limit—they can actually induce higher speeds. When the road removes obstacles to speeding, it cancels out any safety benefits that the extra room would have given.

"In cities," the urban designer Jeff Speck told me, "we set our speed

based upon how safe we feel; the speed is a function of our feeling comfortable, which is a function of friction—are there cars coming at me, are there parallel parked cars, how wide are their lines, are there bikes, what are the sight lines?"

Changing the street's geometry by reducing the width of individual lanes, and therefore bringing vehicles closer together, would seem to create the conditions for more collisions and jostling of cars. But a funny thing happens when people driving cars suddenly find themselves in closer quarters on the road: they tend to exercise more caution and drive more slowly, and lower speed is more effective than wider lanes in averting and reducing the frequency and severity of crashes on city streets. Narrow lanes and design changes can provide cues for motorists to slow down and stay in the lane. The driver sees a slimmer, tighter, and more clearly defined lane, hence the nicknames for this kind of intervention: "road diet" or "traffic calming."

Extending the curb at the crosswalk also corrects one of the most basic design flaws in city streets: the rounded, right-angled corner. The very wideness of the crosswalk itself provides no prompt for drivers to slow down, inviting them to make the turn at high speed, and it offers no protection for pedestrians against turning trucks and buses. The grid makes sense to the human sense of order, but this intersection design encourages drivers to "cut" the corner when they turn. On a vast number of city streets, the first step for someone walking is a parking lane, not even a lane necessary to keep vehicles moving. This is the part of the street where people are most likely to walk and it is also the spot where it's hardest for drivers to see. Their sight lines are often blocked by parked vehicles and other obstructions, and by pedestrians losing six inches of height by stepping from the sidewalk into the road. This design needlessly increases the risk of being struck and serves little traffic engineering purpose. Future streets should be built to a different standard.

The missing links in the conventional design are curb extensions. Curb extensions on both sides of a street can give pedestrians nearly twenty fewer feet of moving vehicle space that they have to cross. The extended sidewalk enhances pedestrians' profiles on the street, making them more visible to drivers as they enter the crosswalk. Narrowing the crosswalk may not physically narrow the traffic lanes, but the double-sided extension sends a powerful message to drivers to ease up on the gas.



Curb extensions, shaded in this image, decrease crossing distances for pedestrians, reclaiming crosswalk space not needed to move traffic, establishing the presence of people crossing the street and cueing drivers to slow down. NACTO/Courtesy of Island Press

Two-way streets offer similar challenges and opportunities. The two-way street in the figure on the opposite page has three moving lanes in each direction and parking lanes on both sides. For wide, multilane streets like these, many cities are discovering a design principle that has widespread applications: when it comes to lanes, less is more. Fewer but more efficient lanes can move traffic better than more, poorly designed lanes.

Without dedicated lanes for turning vehicles, a three-lane street

with traffic in each direction may be little better than a street with only one traffic lane for both directions. For example, a car moving in one direction may be stopped in the leftmost of the three lanes, waiting for a break in traffic moving in the opposite direction before making a left turn. That single, stopped car may block an entire line of cars behind it for a whole light cycle, forcing those drivers to inch their way into the middle lane and slowing that lane as well. The same thing may happen



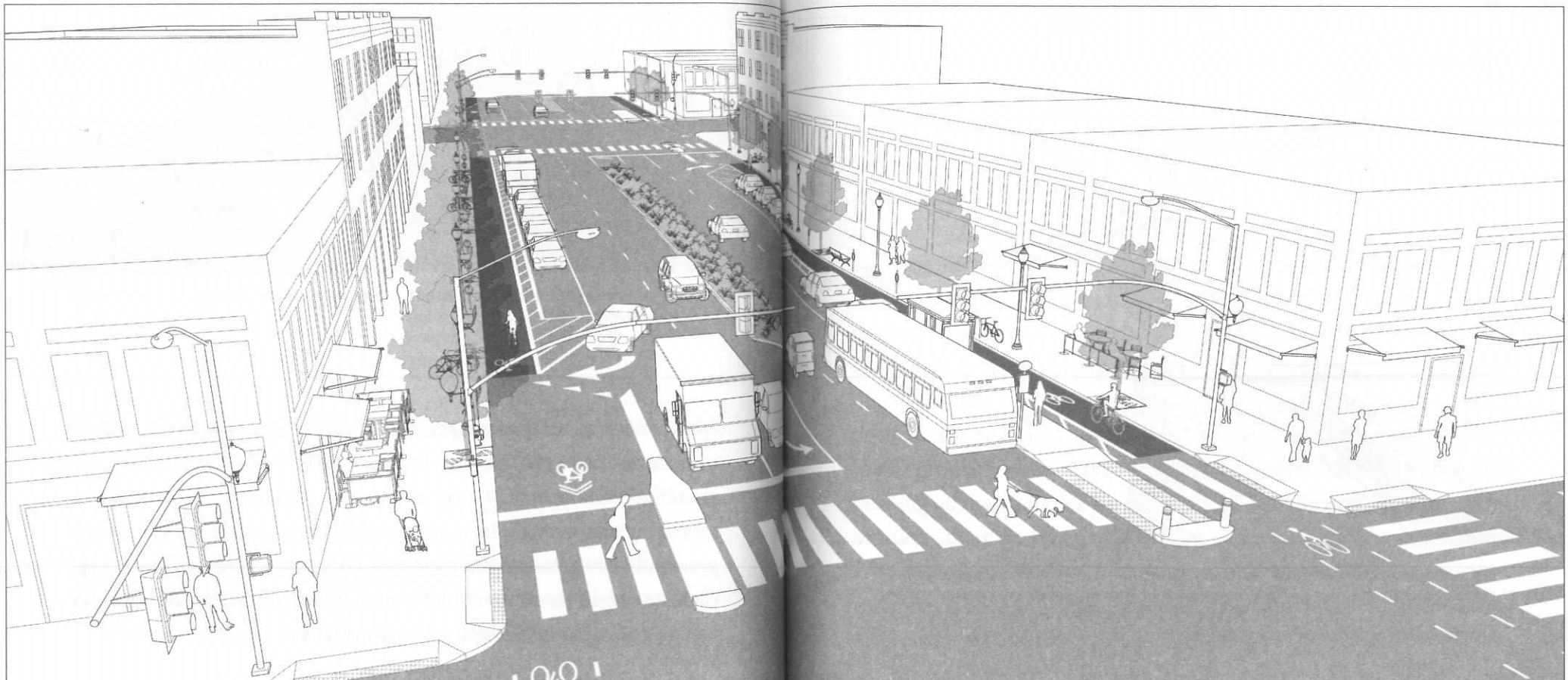
A common two-way, eight-lane street: More than meets the eye.

NACTO/Courtesy of Island Press

at the same time in the far right lane, with a vehicle waiting for a break in pedestrians to cross before turning right. When you add the real possibility that a vehicle may already be double-parked or stopped somewhere in that right lane, you have that much more traffic trying to get around these stopped vehicles via the middle lane. We are asking each lane to do too many things—turns, through traffic, parking—and none is functioning efficiently. The street fails.

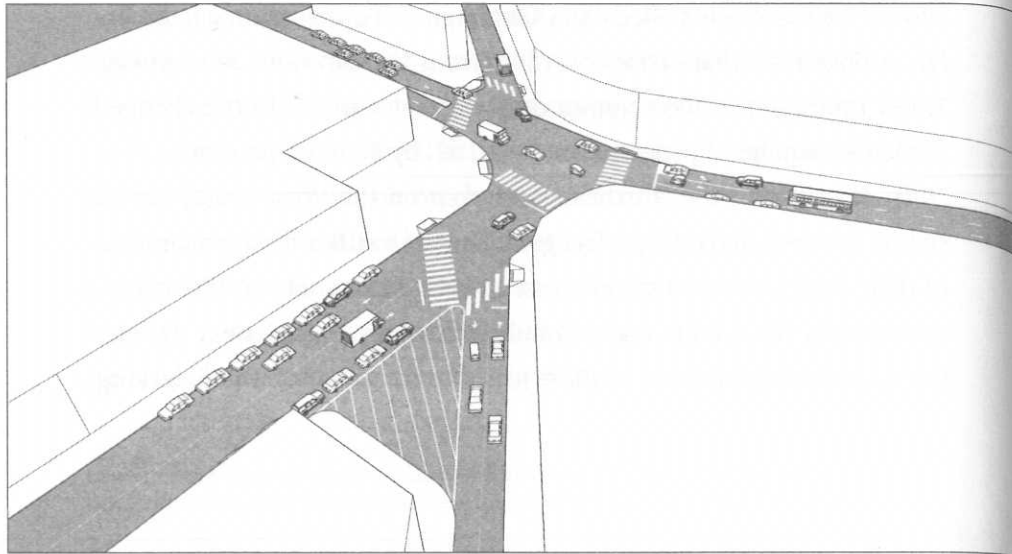
Reducing three lanes to two doesn't reduce the amount of traffic that the street can process; it can sustain or even increase traffic capacity. At the intersection, dedicated turn lanes can segregate turning cars from traffic in the main two lanes, letting them proceed straight through the intersection smoothly. The two lanes removed from through traffic can be reassigned for protected bike paths on either side, plus a median in the middle of the road can be allocated to make the street more attractive. Pedestrian islands provide safe stations during the long walk across the street, and one can be designed to accommodate passengers getting on

Less is more: Two efficient lanes plus turn lanes at intersections can be better for everyone than three free-for-all lanes. NACTO/Courtesy of Island Press

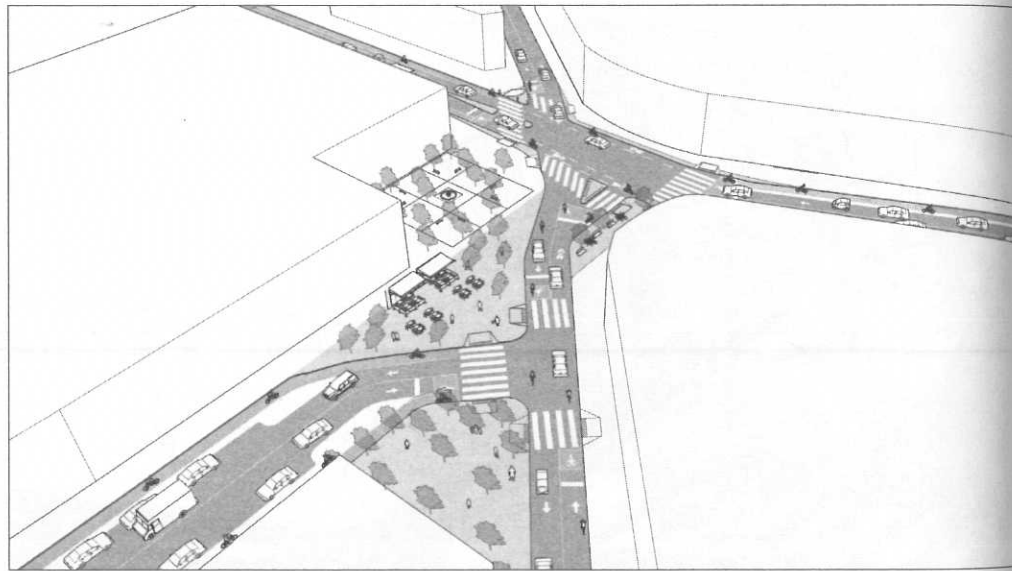


and off the bus. We installed a similar design on Fourth Avenue in Brooklyn, a busy road that carries overflow from the Gowanus Expressway. Travel times and traffic volumes on the street remained little changed while the number of pedestrians injured fell by 30 to 60 percent.

In old cities in the Northeast and even on the West Coast, not all streets are designed on a perfect grid. They can still offer opportunities in their angles, where a street crosses a grid on an angle or where multiple streets meet and create complex crossings. In the next picture, three roads converge, one of them just short of an intersection, leaving



Beyond the grid: Where three roads meet, irregular angles make for abundant unused road. NACTO/Courtesy of Island Press



Reconfiguring complex intersections can activate un- or underused road space, as with the plaza in the lower part of the image; or create new space, as with the plaza higher in the image; all while organizing traffic better and providing room for pedestrians and bike riders. NACTO/Courtesy of Island Press

a large triangle of empty space not needed to move cars. This effectively creates a three-way intersection, which is difficult to organize and creates confusion and unsafe conditions.

There are infinite ways to redesign this kind of intersection, but the basic principle is to simplify the street and make it easier to use. In the top image, we can merge the two lower legs of the intersection in order to make clear two-way crossings. This simplified design creates pedestrian space at two different corners. In the bottom image, the space expands the available sidewalk area where there is already open space adjacent to a building, activating that space and providing room for food vendors, tables and chairs, and foot traffic. Bulb-outs, sidewalk extensions, and neck-downs that narrow the street complete the design at all corners of the intersection.

These are just a few of the limitless possibilities hidden within city streets around the world today. There are thousands of ways to tailor the design to the specific geometry and needs of the road, turning what today appear to be traffic liabilities into components of a healthier street tomorrow. The most important factors are observing how a street is being used and building that use into the street itself.

Knowing how to change the street is only one part of the challenge. Understanding what the problem even is in the first place can be more confounding. For most city dwellers, a traffic problem means traffic congestion. It's one of the most vexing issues affecting urban quality of life. Busy streets and highways are ugly, noisy, and inconvenient. Nobody wants to be stuck in traffic and no one wants to live too close to them, yet many cities make it hard to live or get around without depending on these unloved roads. Roads are built for cars, and this combination stifles vital human behaviors like social interaction, physical activity, and spontaneity. And as these roads extend the distance we travel between home, work, and play, they turn our cities' in-between neighborhoods into drive-through corridors.

Ask anyone stuck in traffic what should be done to "fix" it and you probably will get the clear answer: more and wider roads! Compared with most controversial public issues, traffic is seen by every city's self-appointed traffic engineers as the simplest problem to address. When in the driver's seat, people see traffic congestion as evidence that infrastructure hasn't kept up with traffic demand. Too many cars and the road isn't big enough. Just build another lane to accommodate the excess cars and I'll get to work on time. Problem solved, right?

Remember what happened with the 405 at the beginning of this chapter? As we've seen, traffic congestion isn't a matter of too little *supply*—roads—it's a product of overabundant *demand*—too many people driving without credible transportation alternatives. Increasing the supply of road space doesn't alleviate traffic; it almost always allows more people to drive more. If building roads actually resulted in less traffic, then surely after sixty years of interstate highway construction we would all be cruising at highway speed.

Instead, thousands of road-building and -widening projects have resulted in more lanes, more roads, but no less traffic. Evidence has mounted showing that spending billions of dollars on road projects is no more effective at stemming congestion than building *nothing*. That's right: cities that built no new highways had no more (or less) congestion than cities that spent billions on expansions like the 405. A 2009 study by Gilles Duranton and Matthew Turner, two economics researchers at the University of Toronto, compared driving data from cities that invested in new roads from 1980 to 2000 with cities that didn't. The data "suggest a 'fundamental law of road congestion' where the extension of most major roads is met with a proportional increase in traffic." Not just a close correlation, but for every one mile of road built, vehicle miles traveled increased by one mile.

The term of art for this lockstep growth in traffic is "induced" or "latent" demand. It's a tedious topic for those who have seen city after

city around the world ignore this fundamental principle and the devastating effect it has on our cities. When modeling the impacts of a project that will increase capacity, traffic planners assume that roughly the same number of people driving on a street today will use the street after the new road or lane is built. Urban designer Jeff Speck, who has seen this assumption play out on the streets of hundreds of cities and towns, says it's the mark of "the fundamental intellectual bankruptcy of traffic engineering as a profession and its unwillingness to acknowledge that environment influences behavior."

"And that plays out both in terms of traffic and in terms of safety," he told me. "In traffic it's induced demand, the idea that you add a lane to absorb traffic without acknowledging that that lane will cause traffic."

After building an eight-lane highway in a major urban area, a city almost invariably finds itself with eight lanes of slow-moving traffic soon thereafter. When, in an effort to ease that traffic, the eight-lane road is expanded by 25 percent to ten lanes, the city will eventually have ten lanes of traffic and nearly 25 percent more traffic, not 25 percent less. What's most dismaying about this planning principle is that it has been almost universally ignored over the last half century. Writing in 1955, at the dawn of the interstate age and the Moses era, urbanist Lewis Mumford observed that trying to address congestion by building more traffic lanes is like trying to prevent obesity by loosening one's belt.

As we have seen, the road tells you how it wants to be used, and conventional traffic studies don't factor in what invariably happens when motorists—who are people, not mathematical constants—are greeted by a wider road: they drive more. Once motorists see that a road has been widened, more people will be inclined to drive more frequently, slightly more confident they won't hit traffic. When combined with natural growth in local population, more people will drive on that road. Maybe they are people who would have lived closer to their job,

but once the road opens, the range they are willing to drive increases. The number of miles traveled by car goes up, hitting capacity soon after the road is opened. By building more and wider highways, cities are not building their way out of congestion. They are building how many lanes of congestion they will have.

So if the *capacity* of road isn't the underlying problem behind congestion, what can we do about the *volume*—the supply? Managing people in cars isn't a matter of adjusting streams as you would taps of water. Traffic volumes result from people's transportation choices, and many cities have few, poor, or no alternatives provided by their public transportation networks. Cities today are designed for private vehicles not because it is the most efficient mode, but because most other transportation options were rendered impossible following planning decisions made decades ago. Instead of building new roads, urban planners need to start with building new transportation choices. If cities truly want a future where more people choose to take buses or trains, to bike or walk, then cities must invest in trains and buses, bikes and better streets. Yet, as the New York experience has shown, this seemingly obvious concept is counterintuitive in practice. It is in fact a transportation Copernican revolution. And as in the Renaissance, the battle is not just with the science or locked in a debate among traffic engineers; it's within the culture and the idea of whom streets serve.

Urban engineers have a century of case work that has been inculcated in the autocentric view that transportation *is* a car, and pedestrians, bike riders, and public transit passengers—all street life—are natural enemies of this order. It wasn't always this way but the result of a concerted effort, writes historian Peter Norton. Frightened by the arrival of fast-moving automobiles on city streets and the casualties and congestion they caused in the early twentieth century, residents, schools, and civic associations reacted with horror and sought to limit car speed. The automobile industry offered an alternate version of events: pedestrians

were to blame for their own casualties. Defenders of the private automobile invented the concept of "jaywalking" and created safety campaigns and educational materials for schools that reinforced an idea that streets are for cars—and that pedestrians should take responsibility for their own safety by fearing and avoiding the street. Drivers learned that the street was theirs and to stop for red lights instead of for people, a principle for the operation of streets that exists to this day.

What if no new roads were built? Would cars eventually pile up in the middle of the street like so many dirty socks in a laundry hamper? Another way of looking at it: If California transportation officials hadn't built the new lane on the 405, would the cars not have come? If cities tore down old roads instead of repairing or replacing them, what would happen to the traffic? San Francisco's Embarcadero today is a grand boulevard lined with palm trees, active waterfront properties and a port, a streetcar and high-visibility bike lanes. There's no sign today of the hundred thousand cars that formerly used the Embarcadero Freeway as it ran by the Ferry Building before it was damaged in the 1989 Loma Prieta earthquake. The Embarcadero was one of numerous Bay Area roadways damaged beyond repair. Mother Nature made real something that San Francisco residents had contemplated but were too afraid to actually try: tear down the elevated eyesore and improve access to their famous and picturesque waterfront.

While it may have taken an act of God to change the transportation network twenty-five years ago, more cities today are choosing new approaches to their elevated roads instead of spending billions to rebuild what has failed or become obsolete. Madrid tore down a freeway and created in its place an underground complex of highways, converting six miles of space into parkland called Madrid Río (Madrid River). Officials in Seoul razed an elevated highway to reveal the humble Cheonggyecheon Creek hidden beneath that is now the centerpiece for a park, programmed with art installations and public events. What was once

shrouded in darkness is now an attraction where thousands of people snap selfies.

Some cities have buried highways as opposed to removing them, a costly task that can have the effect of sweeping traffic problems under the rug. Even as cities accelerate sustainable strategies, the opposite tendency remains as more cities invest billions in traffic-moving projects that can reinforce or expand the city's footprint. After more than a decade of political battles, Seattle in 2011 started to tear down State Route 99, the Alaskan Way Viaduct, which carries about 110,000 cars daily. The viaduct was built in the early 1950s, when many American cities were on highway-building binges. Similar to the Embarcadero Freeway in San Francisco, the viaduct was damaged in a 2001 earthquake. Just as San Francisco replaced its highway with a street-level, pedestrian-friendly boulevard, Seattle opted to build a street-level waterfront park in the footprint of the former viaduct. So far, so good. But they also chose to build a replacement highway tunneled beneath downtown Seattle. Total cost estimate: \$3.1 billion.

The boring machine used to dig out the tunnel was so massive—57.5 feet in diameter and weighing 14 million pounds—that Seattleites gave it a big name: Bertha (actually the first name of Seattle's first female mayor). Big Bertha had only started drilling when the drill was damaged and work came to a halt in December 2013, about 1,000 feet into its 9,270-foot path. Because of the drilling technology, the tunnel created behind Bertha was narrower than the drill itself, so it was impossible to retract the drill and fix it. Instead, workers had to dig a massive 120-foot rescue shaft to hoist out the drill head's 2,000-ton mass. Two years elapsed before Bertha was back on track.

While there is seemingly no end to how far suburban Los Angeles is capable of sprawling, or how much Seattleites are willing to spend to keep the same amount of vehicle traffic moving, other cities have taken a different approach with their highways. One of the most frequently

invoked examples of smart development is Vancouver, British Columbia, where city officials in the beautiful West Coast port city made the explicit decision in the 1960s not to build downtown highways. This approach complemented progressive zoning rules that encouraged dense, mixed-use development, increased transit, and initiated a long-term policy to increase space on the street for pedestrians and cyclists. Vancouver's downtown today sprouts sleek residential towers built atop shorter town houses and street-level retail, set back from the street to let sunlight reach the street. Thousands of bikes cruise Dunsmuir Street, the city's bike superhighway, and plans are under way to remove vestiges of the city's driving past, such as the century-old Georgia and Dunsmuir viaducts.

"Our city has a great reputation but it's tended to be evolutionary rather than revolutionary," said Brent Toderian, a former Vancouver city planner and one of the city's foremost public realm thinkers.

This evolution has made the city an example for the rest of the world, but has not managed to elevate transportation beyond political, passionate, and counterproductive fights when it comes to deciding how to pay for a city's transportation needs. As a rule, city residents can be counted upon to express a hatred for their public transportation system usually reserved for visiting sports teams. And if you ask people to pay more in fares or taxes to support a service they feel maybe doesn't work so well, the answer often comes back: *Hell no*.

Vancouver's leaders in spring 2015 put the question to voters in a referendum on whether to levy a 0.5 percent tax to fund \$7.5 billion of investments over a decade; to revitalize the subway and commuter rail network; bring new buses to the city; expand ferry service; and build a new bridge. If officials saw in the vote the political cover they would need to pass a tax increase, they miscalculated. Critics claimed that Vancouver's transit system, TransLink, was poorly managed and provided middling service, so voters should deny new funds until it first

resolved its problems, such as the salary of the system's chief executive officer.

"It's become a referendum on just about everything except transit infrastructure," Toderian told me in the weeks before voting was completed. The debate over more funding for transit is "more likely about whether you're mad at the mayor or you think the CEO of TransLink makes too much. . . . And what we got is a polarized campaign instead of an intelligent conversation."

Vancouver voters defeated the plan in 2015 after a withering, five-month campaign. Opponents effectively portrayed Vancouver's transportation network and the people who ran it as inefficient and incompetent, and, in so doing, cut off new sources of funding to guarantee that the agency couldn't do its job efficiently or competently.

"Welcome to our existential crisis," says Gordon Price, an urban planner and former Vancouver city council member. Price says that the referendum wasn't just a defeat of a funding stream, it was a calculated discrediting of government policies in the public interest, and a blow to Vancouver's status as a "green dragon"—a mighty example of an environmentally balanced city.

"If you can get Vancouverites to vote against transit—if you can kill the green dragon in its own den—every politician across the country and across the States and in Australia will look at what happened in Vancouver and be in despair."

Hundreds of cities and municipalities are moving through these same processes, passionately debating whether public transit is worth the investment while attempting futilely to build their way out of congestion with increasingly expensive roads. The result so far has been the worst of both worlds, with congestion and starved transit.

In Los Angeles, the future urban streetscape could be less like the 405 and more like Broadway in that city's downtown. Mayor Garcetti's transportation department, under the leadership of Seleta Reynolds,

is revitalizing downtown L.A. with expanded pedestrian space along its own Broadway, and with bike lanes and city-backed curbside patio seating in former parking spaces along Spring Street. A bike master plan is taking shape alongside a Great Streets program to redesign corridors in fifteen neighborhoods and create safer, more walkable communities within the nation's car capital. Metro, its transportation agency, has launched rapid bus networks and gone from zero miles in 1990 to 87 miles of subways and light rail by 2015. The Obama administration proposed \$330 million to fund Metro's Purple Line subway extension and create a downtown regional connector system, and the city is working on a \$2 billion, 8.5-mile light rail to Los Angeles International Airport. Los Angeles today is the capital of urban transit investment. Still, residents of Beverly Hills protested the planned Westside subway expansion beneath Beverly Hills High School, saying the tunnel was close to an earthquake fault and would create a possible explosion hazard. A judge threw out the case in 2014.

Downtown Los Angeles is also first in line for the city's bike-share program, and the district's progress could easily be a model for pedestrian-friendly and place-making projects in Hollywood, seven miles away. In 2012, then-council member Eric Garcetti worked with his predecessor, Mayor Antonio Villaraigosa, to alter zoning regulations in Hollywood that would allow high-rise residential and commercial buildings. Higher-density buildings would provide needed housing and take advantage of the city's subway system, decreasing dependence on single-occupant vehicles for every trip.

Despite these virtuous-sounding aims, neighborhood residents opposed the plan with an intensity largely absent from the decision to build the traffic-inducing 405: "More is not better, bigger is not better," a president of the local homeowners' association said at a public hearing. "Hollywood needs limits, protections and preservations, not destruction

and high density. Please save Hollywood. Once it's lost it will be gone forever."

The up-zoning succeeded. Hollywood is still there. Los Angeles may yet have a chance to develop more like a city and less as an ever-sprawling suburb, but this change won't be without controversy and people fighting it fiercely, on dubious grounds, to maintain streets exactly as they are—even if they are broken, dangerous, congested, and underperforming.

Seattle mayor Ed Murray gets this and isn't betting his city's future on Bertha or the tunnel to replace the Alaskan Way Viaduct. In 2015 he campaigned for a transportation referendum that included a package of street, transit, and state-of-good-repair improvements. While Vancouver voted down a transit referendum just a few months earlier, Seattlites ultimately agreed to \$930 million in property tax increases over nine years to fund new rapid bus systems, bike lanes, and radical street and sidewalk redesigns. "Seattle will get moving again," Murry said on election night as it became clear the ballot would win, despite heated opposition. "If current trends continue, while the rest of the nation says no, Seattle says yes—we can be a livable city and an affordable city. Seattle can move forward."

More and more cities are moving forward with plans to expand pedestrian, transit, and biking zones. Dublin, Ireland, in 2015 announced a €150 million (\$164 million) plan to improve downtown streets for people who walk, ride bikes, or take transit. London mayor Boris Johnson has embarked on a bike superhighway building spree through the heart of the city, with expenditures on bike lanes tripling to £913 million (\$1.4 billion) over ten years.

Paris mayor Anne Hidalgo has led the way with a plan to sharply reduce private vehicles in central Paris by 2020, launching its own €150 million plan to double the city's network of bike lanes and triple ridership to 15 percent of trips. These efforts follow Seville, Spain, which has rapidly developed into the bike capital of southern Europe, with cycling

rates growing eleven times over the last decade and with seventy-five miles of protected bike paths built in the city. These sums, while significant, are a fraction of the \$3.1 billion being spent in Seattle for the highway tunnel, and far less risky. As of this writing, and as I bury my face in my hands, California's state transportation department is mulling a \$5.6 billion tunnel to extend the 710 freeway in Los Angeles, a process that could take six years of Carmageddon construction.

By designing infrastructure and developing real estate to support people who walk, ride bikes, or take public transit, cities aren't merely meeting existing demand, they are creating demand for the kind of growth the city wants to see and needs to survive. If planning past is prelude, cities that invest in sustainable streets will get what they build for.