A stylized, high-contrast black and white illustration of a cityscape. It features various geometric shapes representing buildings, some with windows, and a few small human figures. A bicycle is visible on the right side. The overall style is graphic and minimalist.

# Charles Montgomery Happy City

Transforming Our Lives  
Through Urban Design

"Happy City is its own opiate: an eye-opening, pleasurable, utterly necessary tour through the best and worst neighborhoods of our urbanized world. Charles Montgomery shows us the way to a beautiful city." —Andrew Blum, author of *Tubes*

## 8. Mobilicities I

### *How Moving Feels, and Why It Does Not Feel Better*

The heavens themselves run continually round, the sun riseth and sets, the moon increaseth and decreaseth, stars and planets keep their constant motions, the air is still tossed by the winds, the waters ebb and flow, to their conservation no doubt, to teach us that we should ever be in action.

—Robert Burton, *The Anatomy of Melancholy*

When we talk about cities, we usually end up talking about how various places look and perhaps how it feels to be there in those places. But to stop there misses half the story, because the way we experience most parts of cities is at velocity: we glide past on the way to somewhere else. City life is as much about moving *through* landscapes as it is about being *in* them.

This is a critical point; not only does the city shape the way we move, but our movements shape the city in return. Jan Gehl rightly pointed out that designing a road for one mode of movement—say, travel in private automobiles—causes the road to fill up with people using that mode, in this case, driving cars. But the relationship goes both ways. The more we choose to drive, the more the urban system gets reconfigured to accommodate drivers, in an endless feedback loop of journeys and changing landscapes.

So we can't fully understand the effect that the city has on happiness without considering how it feels to move through it and how that feeling guides our behavior. But the psychology of mobility is a house of mirrors where what we want, what we do, and what makes us feel good are rarely the same choice.

I have met and interviewed dozens of commuters in cities around the world, people whose journeys are spectacularly varied in texture and difficulty. None of them embodies the complex psychology of the urban traveler as thoroughly as Robert Judge, a forty-eight-year-old husband and father who once wrote to a Canadian radio program explaining how much he enjoyed going grocery shopping on his bicycle. Judge's confession would have been unremarkable if he did not happen to live in Saskatoon, Saskatchewan, where the average temperature in January hovers around 1 degree Fahrenheit. The city stays frozen and snowy for almost half the year. It is the last place you would imagine anyone wanting to depend on a bicycle.

I called Judge up to inquire about his sanity. He told me that he and his wife had decided to go car-free a couple of years back. He liked a challenge. He began by bolting a utility tub to a bike trailer so he could haul as much as a hundred pounds of groceries. He bought studded tires. He acquired expedition ski clothes, including a puff jacket with an arctic collar to protect his lips and windpipe from the chill. Then Judge hit the road.

"Biking in winter is kind of like walking on hot coals: people say you can't do it. They say it's impossible! But then you just go and do it," he told me. "First you feel the cold in your mouth and nose. It's twenty-five below and the wind is blowing. Your eyes fill up with tears for the first few blocks, but then they clear up, and you just keep going."

Judge was especially proud of his trips to Superstore, a big-box grocery outlet about three and a half miles from his house in an inner suburb. He could make it there in about twenty minutes. With his studded tires, he could outmaneuver most cars on the icy road, but people would give him funny looks when they saw him pulling up at the edge of the big-box parking lot. Some people asked if he was homeless. Others offered him a ride. But Judge didn't want their help. He even grew to appreciate the snowdrifts that blew across his route. He would steer his bicycle through fresh drifts just so people would see the tracks and know that the lone cyclist had been there and prevailed.

Judge's pleasure in an experience that seems slower, more difficult, and considerably more uncomfortable than the alternative

might seem bizarre. He explained it by way of a story: Sometimes, he said, he would pick up his three-year-old son from day care and put him on the backseat of his tandem bike and they would pedal home along the South Saskatchewan River. The snow would muffle the noise of the city. Dusk would paint the sky in colors so exquisite that Judge could not begin to find names for them. The snow would reflect those hues. It would glow like the sky, and Judge would breathe in the cold air and hear his son breathing behind him, and he would feel as though together they had become part of winter itself.

Few people share Judge's tolerance for discomfort, hard work, and inconvenience, but most of us are more like him than we might imagine. Our urban journeys can meet all kinds of psychological needs. "For many, the commute really is a kind of heroic quest," Patricia Mokhtarian, a University of California, Davis, transportation engineer, said after I told her Judge's story. She said many car commuters feel the same way. "Remember the *Odyssey*, where the heroes launch their ships and head off to face adventures and traumas before making their return? Well, the commute can be this heroic going out into the world, conquering the traffic, surviving, and coming home to the warm reception of family."

People may complain about commuting, but after surveying hundreds of commuters in California, Mokhtarian discovered that the average person actually prefers to be forced to travel for part of every day. "We hear many people say, 'Darn, my commute is not long enough!'" Of course, few people pine for a super-commute. The trip time most people *wish* they had is about sixteen minutes, one way.\* Still, Mokhtarian and other travel researchers insist that long or short, every commute is a ritual that can alter our very sense of who we are and what is our place in the world.

\*Like the people in her studies, Mokhtarian likes the ritual transition between home and work. In fact, rather than living near her office in the cozy hamlet of Davis, she chose to live in the nearby town of Woodland, a conscious choice that forced her to drive to work each day. Commute time? Sixteen minutes, door-to-door.

## Driving Sideways

If you were to judge the hedonic utility of various modes of travel by how many people choose them each day, there would be absolutely no substitute for driving an automobile—at least not in North America. Nearly nine in ten American commuters drive to work every day. Three-quarters of Canadians and two-thirds of Brits do the same.

Drivers experience plenty of emotional dividends. When the road is clear, driving your own car embodies the psychological state known as mastery: drivers report feeling much more in charge of their lives than transit users or even their own passengers. Many commuters admitted to Mokhtarian that much of the pleasure of driving came simply from being seen in their fine cars. An upmarket vehicle is loaded with symbolic value that offers a powerful, if temporary, boost in status. The biochemical response is especially strong in young men. Researchers in Montreal found that when male college students spent a mere hour driving an expensive sports car—a \$150,000 Porsche—they experienced a heady blast of testosterone, while driving an older, high-mileage Toyota Camry left them slightly drained. "The endocrinological response was substantial, irrespective of whether they had an audience or not," explained study coauthor Gad Saad, associate professor of marketing at Concordia University. In other words, the experience of driving a hot car triggered a hormonal response even when there were no hot babes to impress. No wonder four in ten Americans actually claim to *love* their cars.

Despite these romantic feelings, half of commuters living in big cities and suburbs claim to dislike the heroic journey they must make every day—an unhappy group made up mostly of drivers. Part of the problem is that cars fail to deliver the experience of freedom and speed that we all know they are capable of bestowing in a world of open roads. The urban system neutralizes their power. Luxury and sports cars might still offer their drivers a status bump, but the car's muscles cease to matter when it is surrounded by other cars.

Driving in traffic is harrowing for both brain and body. The blood of people who drive in cities is a high-test stew of stress hormones. The worse the traffic, the more your system is flooded with adrenaline

and cortisol, the fight-or-flight juices that, in the short term, get your heart pumping faster, dilate your air passages, and help sharpen your alertness, but in the long term can make you ill. It can take as much as an hour to recover the ability to concentrate after a long urban commute. Researchers for Hewlett-Packard convinced volunteers in England to wear electrode caps during their commutes and found that whether they were driving or taking the train, peak-hour travelers suffered worse stress than fighter pilots or riot police facing mobs of angry protesters.\*

If you have ever flown a spaceship through an asteroid belt or driven the Santa Ana Freeway from Anaheim to Los Angeles on a Friday evening, you will understand and have benefited from the heightened focus and alertness offered by the full-on adrenal rush. It can be thrilling in the short term, but if you bathe in these hormones for too long, they can be toxic. Your immune system will be compromised, your blood vessels and bones will weaken, and your brain cells will begin to die off from the stress. Chronic road rage can actually alter the shape of the amygdalae, the brain's almond-shaped fear centers, and kill cells in the hippocampus.

This is part of the reason why urban bus drivers get sick more often, miss work more frequently, and die younger than people in other occupations. One stress-medicine specialist, Dr. John Larson, reported that many of his heart attack patients had one thing in common: shortly before their hearts gave out, they had been enraged while driving. No wonder people start to report steady drops in life satisfaction the more their commute time exceeds Mokhtarian's utopian sixteen minutes, even if they don't attribute their misery to their commute.†

\*Commuters' hearts raced at 145 beats per minute, well over double the normal rate. They experienced a surge in cortisol. And, in what was apparently a coping strategy, their brains underwent a bizarre temporary transformation that psychologist David Lewis dubbed "commuter amnesia." Their brains simply shut out stimulus from the outer world, and they forgot about most of the trip as soon as it was over.

†When Gallup and Healthways polled Americans, they found that the longer people's commute, the more likely they were to report chronic pain, high cholesterol, and general unhappiness. (People with commutes over ninety minutes have it the worst. They are the most likely to be anxious, tired, and fat. And they are much less likely than people with short journeys to say they enjoy life.)

Cars once promised us unparalleled freedom and convenience, but despite fantastic investments in roads and highways, and the almost complete configuration of North American cities to favor automobile travel, commute times have been getting steadily longer. Americans, for example, clocked in relatively the same average daily commute times for years—about forty minutes round-trip, not including time spent on other errands—since as far back as 1800. But the average American now spends more than fifty minutes commuting. Return commute times have shot past sixty-eight minutes in the New York megalopolis, seventy-four minutes in London, and a whopping eighty minutes in Toronto. Dozens of studies have now confirmed beyond doubt what Atlantans know from experience: the obvious solution to congestion—building more roads—simply produces more traffic, creating a hedonic treadmill of construction and frustration.

### Happy Feet

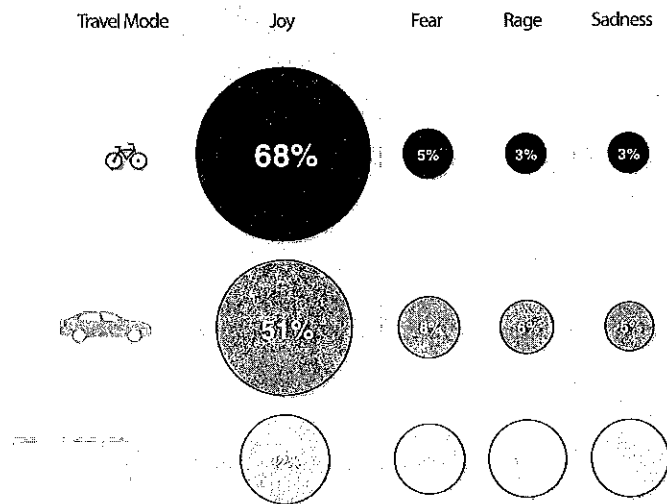
One group of commuters reports enjoying themselves more than everyone else. Their route to happy mobility is simple. These are people who travel on their own steam like Robert Judge. They walk. They run. They ride bicycles.

Despite the obvious effort involved, self-propelled commuters report feeling that their trips are *easier* than the trips of people who sit still for most of the journey. They are the likeliest to say their trip was fun. Children overwhelmingly say they prefer finding their own way to school rather than being chauffeured. These are the sentiments of people in American and Canadian cities, which tend to be designed in ways that make walking and cycling unpleasant and dangerous. In the Netherlands, where road designers create safe spaces for bikes, cyclists report feeling more joy, less fear, less anger, less sadness than both drivers and transit users. Even in New York City, where the streets are loud, congested, aggressive, and dangerous, cyclists report enjoying their journeys more than anyone else.

Why would traveling more slowly and using more effort offer more satisfaction than driving? Part of the answer exists in basic human physiology. We were born to move—not merely to be transported,

## Happy Travels

Percentage of commuters reporting these emotions in the Netherlands:



*In the Netherlands, where road space is provided for everyone, cyclists are by far the happiest people on the road. Public transit users report being the most miserable, as they do in most other places. (Scott Keck; from Harms, L., P. Jorritsma, and N. Kalfs, *Beleving en beeldvorming van mobiliteit*, The Hague: Kennisinstituut voor Mobiliteitsbeleid, 2007)*

but to use our bodies to propel us across the landscape. Our genetic forebears have been walking for four million years.\*

How much did we once walk every day? Loren Cordain, a profes-

\*To put our history of mobility into perspective, try to picture time since the day the first hominid stood tall as a walk across New York's Central Park, all fifty-one blocks from Harlem to Midtown Manhattan. We'd be hunter-gatherers from end to end for thousands of steps, right until the moment we could spot the doorman of the Plaza Hotel on Fifty-ninth Street. The age of farming would almost add up to the sprint across Fifty-ninth. We'd enter the age of cities on the sidewalk right in front of the hotel. The years during which we've let automobiles do the work for us would take up less than the depth of one red carpet-clad step at the hotel's front door.

sor of health and exercise science at Colorado State University, tried to find out by comparing the daily energy expenditure of the average sedentary office worker to modern hunter-gatherers such as the !Kung of southern Africa. In some parts, !Kung women still spend their days collecting nuts, berries, and roots while the men hunt lizards, wildebeests, and whatever else they can track down in the desert. The women tend to walk about six miles per day and the men as much as nine, often burdened by heavy loads. The average American office worker gets barely a fifth of that exercise.

This is a troubling state of affairs, given that immobility is to the human body what rust is to the classic car. Stop moving long enough, and your muscles will atrophy. Bones will weaken. Blood will clot. You will find it harder to concentrate and solve problems. Immobility is not merely a state closer to death: it hastens it. Just spending too much time sitting shortens your life span.

We have evolved to get smarter and cheerier when we exercise, provided we can do it someplace where we aren't burning, freezing, terrified, or in other mortal danger. Robert Thayer, a professor of psychology at California State University, fitted dozens of students with pedometers, then sent them back to their regular lives. Over the course of twenty days, the volunteers answered survey questions about their moods, attitudes, diet, and happiness. The average student walked 9,217 steps a day—much more than the typical American, though much less than a !Kung tribesman.\* But within that volunteer group, people who walked more tended to feel more energetic and upbeat. They had higher self-esteem. They were happier. They even felt that their food was better for them.

"We're talking about a wider phenomenon here than just walk more, feel more energy. We're talking about walk more, be happier, have higher self-esteem, be more into your diet and also the nutritiousness of your diet," Thayer said. The psychologist has devoted his life to the study of human moods. In test after test he proved that the most powerful way to fix a dark mood is simply to take a brisk walk. "Walking works like a drug, and it starts working even after a few steps."

As the philosopher Søren Kierkegaard put it, there is no thought

\*The average walking step is 2.5 feet. So the average student walked around 4.5 miles each day, much more than the typical American.

so burdensome that you cannot walk away from it. We can literally walk ourselves into a state of well-being.

The same is true of cycling, although a bicycle has the added benefit of giving even a lazy rider the ability to travel three or four times faster than someone walking, while using less than a quarter of the energy. A bicycle can expand the self-propelled travelers' geographical reach by an astounding nine or sixteen times. Quite simply, a human on a bicycle is the most efficient traveler among all machines and animals.

Even those who endure the most severe bicycle trips seem to take pleasure in them. They feel capable. They feel free. They feel and are healthier. The average convert to bike commuting loses thirteen pounds in the first year. They may not all attain Robert Judge's level of transcendence, but cyclists report feeling connected to the world around them in a way that is simply not possible in the sealed environment of an automobile or a bus or a subway car. Their journeys are both sensual and kinesthetic.

All this points to two problems in urban mobility. First, people are not maximizing happiness on their commutes, especially in North American cities. Second, and perhaps more urgent, most of us are overwhelmingly choosing the most polluting, expensive, and place-destroying way of moving. As I discussed in the previous chapter, cars, whether they are caught in congestion or moving fast and free, can rip apart the social fabric of neighborhoods. They are by far the biggest source of smog in most cities. They produce more greenhouse gas emissions per passenger mile than almost any other way of traveling, including flying by jet airliner. It seems preposterous that we would choose a way of moving that simultaneously fails to maximize pleasure while maximizing harm. But once again, we are not all as free to choose as we might hope.

### Behavior by Design

Of every one hundred American commuters, five take public transit, three walk, and only one rides a bicycle to work or school. If walking and cycling are so pleasurable, why don't more people choose to cycle or walk to work? Why do most people fail to walk even the ten thou-

sand daily steps needed to stay healthy? Why do we avoid public transit?

I was naive enough to ask that question of a fellow diner I met in the food court of the bunkerlike Peachtree Center in downtown Atlanta. Her name was Lucy. She had driven her car in that morning from Clayton County (a freeway journey of about fifteen miles), pulled into a parking deck, followed a skyway a few dozen paces to an elevator and then a few more to her desk. Trip time: about half an hour. Total footsteps: maybe three hundred. She flashed me a broad smile.

"Honey, we don't *walk* in Atlanta," Lucy told me. "We *all* drive here. I can't say why. I guess we're just lazy."

Lazy? The theory doesn't stand up. Lucy's own commute was proof. She could not have made it to work any other way. Suburban Clayton County parked its entire bus fleet in 2010.\* In the midst of a cash crunch, the county just couldn't afford to run buses through the sparsely populated dispersed city.

No, the answer to the mobility conundrum lies in the intersection between psychology and design. We are pushed and pulled according to the systems in which we find ourselves, and certain geometries ensure that none of us are as free as we might think.

Few places design travel behavior as powerfully as Atlanta. The average working adult in Atlanta's suburbs now drives forty-four miles a day.<sup>†</sup> Ninety-four percent of Atlantans commute by car. They spend more on gas than anyone else in the country. In Chapter 5, I explained how the centrifugal force of Atlanta's extensive freeway network enabled its population to spread far across the Georgia countryside—and then left them vulnerable to world-class road congestion. But in a study of more than eight thousand households, investigators from the Georgia Institute of Technology led by Lawrence Frank discovered that people's environments were shaping their travel behavior and their bodies. They could actually predict how fat people were by where they lived in the city.

Frank found that a white male living in Midtown, a lively district near Atlanta's downtown, was likely to weigh ten pounds less than

\*The bus service in Clayton County carried two million riders in 2009 before it was shut down.

<sup>†</sup>That's seventy-two minutes a day behind the wheel, just getting to work and back.

his identical twin living out in a place like, say, Mableton, in the cul-de-sac archipelago that surrounds Atlanta, simply because the Midtowner would be twice as likely to get enough exercise every day.

Here's how their neighborhoods engineer their travel behavior:

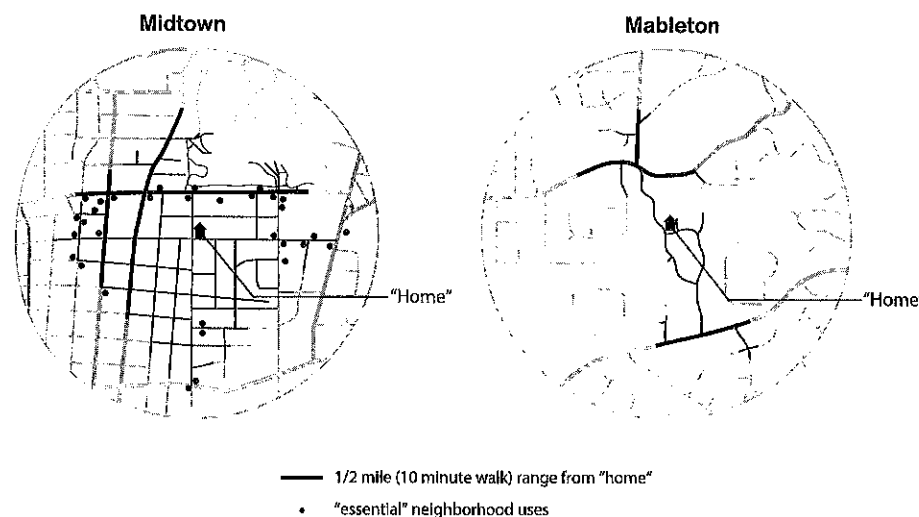
Midtown was laid out long before the dispersalists got their hands on the city. It exhibits the convenient geometry of the streetcar neighborhood even though its streetcars disappeared in 1949. Housing, offices, and retail space are all sprinkled relatively close together on a latticelike street grid. A quart of milk or a bar or a downtown-bound bus are never more than a few blocks away. It is easy for people to walk to shops, services, or MARTA, the city's limited rapid transit system, so that's what they do.

But in suburbs like Mableton, residential lots are huge, roads are wide and meandering, and stores are typically concentrated in faraway shopping plazas surrounded by parking lots. Six out of every ten Atlantans told Frank's team that they couldn't walk to nearby shops and services or to a public bus stop. They just didn't have the mix. Road geometry was partly to blame. Frank and others have found that that iconic suburban innovation—the cul-de-sac—has become part of a backfiring behavioral system.

When designers try to maximize the number of cul-de-sacs in an area, they create a dendritic—or treelike—system of roads that feeds all their traffic into a few main branches. The system makes just about every destination farther away because it eliminates the most direct routes between them. Connectivity counts: more intersections mean more walking, and more disconnected cul-de-sacs mean more driving.\*

The long-distance story is not unique to Atlanta. In 1940 the average person in Seattle lived less than half a mile from a store. By 1990 the distance had grown to more than three-quarters of a mile, and it has grown since. In 2012, after Facebook and architect Frank Gehry unveiled designs for a new 10-acre base across the Bayfront Expressway from Facebook's old base in Silicon Valley, Gehry explained that his plan strove for "a kind of ephemeral connectivity"

\*People who live in neighborhoods with latticework-like streets actually drive 26 percent fewer miles than people in the cul-de-sac forest.



### First We Shape Our Streets, Then They Shape Us

*A white male living in Midtown (left), near Atlanta's downtown, is likely to weigh ten pounds less than his identical twin living near Mableton (right), a sprawling suburb. This is partly owing to road geometry and land-use mix: a ten-minute walk from a home amid the traditional grid in Midtown will get you to grocery stores, churches, schools, bus stops, restaurants, cafés, a dry cleaner, a bank, and the glorious lawns of Piedmont Park. But the spread-out and homogeneous system of Mableton pushes destinations beyond walking range, which means residents are likely to drive whether they like driving or not. (Each bullet represents a school, church, grocery store, dry cleaner, bank, day-care center, police station, transit stop, or hospital. If restaurants, cafés, bars, and other services were included, the Mableton map would not change, but the Midtown map would be sprayed with dozens more bullets.)*

(Erick Villagomez, Metis Design Build)

through its single-level, open-concept floor design. But no magical configuration of the office-park geometry could make up for the fact that half of Facebook's workers actually lived thirty miles away in dense, walkable, networked San Francisco. Facebook would just have to keep busing them in.

Our responses to distance are quite predictable. Most of us will walk to a corner store rather than climb in and out of the car if it's

less than a five-minute walk—about a quarter mile—away. We won't walk more than five minutes to a bus stop, but we will walk ten to a light-rail or subway station, partly because most of us perceive rail service to be faster, more predictable, and more comfortable. This is the geometry perfected by streetcar city developers a century ago. It's now being rediscovered by planners who find that simply introducing regular high-quality light-rail service can alter the habits—and the health—of people nearby. Less than a year after the LYNX commuter light-rail line was installed in Charlotte, North Carolina, people living near the line had started walking an extra 1.2 miles *every day* because the system changed their daily calculus. People who switched to the LYNX for their commute lost an average of six and a half pounds during that time.

Kids move by a similar calculus. Frank found that if there is a park or some kind of store within a half mile of their home, school-age youth are more than twice as likely to walk. If destinations are farther, they wait for a parental chauffeur. Think of the implications: a community with one central mega-sports complex with several baseball diamonds and soccer fields can actually be bad for children's health if it replaces small parks scattered every few blocks. In the finer-grained community, instead of begging Mom for a ride to a league game, a teenager might find it easier to organize her own game at the local park.\* Nearly two-thirds of parents say there is no place for their children to play within walking distance of home. This is part of the reason that American children now actually gain weight during the supposedly leisure-filled summer break.

"The way we organize most cities actually encourages individuals

\*The amalgamation and supersizing of schools has been a disaster for children's freedom and health. If school is more than three-quarters of a mile away, children just don't walk there. The journey passes the convenience threshold, and parents frequently deem it too dangerous to let kids go it alone. Less than 13 percent of children walked to school in 2004, compared with half in 1969. Many fears cause parents to limit their children's free time in cities, but the real and present danger to suburban children is posed not by muggers and child-nappers, but by cars. Thanks to generations of safety-engineered and accidentally fast roads, kids walking to school in suburbia face more than fifteen times the risk of being in an accident than car passengers. In a hideous irony, the people who run over school-bound children are often the parents of other children.

to make choices that make everyone's life harder," Frank told me. "The system fails because it promises rewards for irrational behavior."

Put simply, most people do not walk in American cities because cities have designed destinations out of reach. But they have also corroded the experience of walking. Road engineers have not even bothered to build sidewalks in many Atlanta suburbs. Try a Google search for directions near, say, Somerset Road in Mableton, and the map engine will offer a warning you would not expect in a first world city: "Use caution—This route may be missing sidewalks or pedestrian paths."

Aesthetics matter. We walk farther when streets feel safe and interesting. People who live in central New York or London typically walk between a third to a half mile to go shopping. That's a four- to ten-minute stroll. Even in Montreal, with its freezing winters and sweat-soaked summers, people reported walking about a third of a mile (six to eight minutes) between shops, bags in tow. The numbers are almost as high for people arriving at enclosed shopping malls, which mimic the downtown experience, at least once you're in the building. But dump us in a vast parking lot surrounded by big-box outlets, and our inclination to walk evaporates. Even when people are equipped with shopping carts, they won't endure so much as the three-minute stroll between retailers. Researchers observed that a third of the shoppers at one Canadian power center actually parked their cars three or more times during one visit. They just hated trudging across the asphalt desert. It felt ugly, uncomfortable, and unsafe.\*

You might speculate that these studies merely demonstrate the

\*A survey of shoppers at the forty-eight-acre Kenaston Power Centre in Winnipeg, Canada, found that they behaved like an entirely different species from people in the urban core. Almost none of them were willing to make even the three-minute walk between Walmart and its big-box neighbors. They jumped back into their cars and began the search for a closer parking spot whenever they moved from store to store. A third of Kenaston's visitors actually parked their cars three or more times during one visit.

Why wouldn't they walk, as people do downtown? Shoppers complained that the journey between retail islands meant trudging along the gravel berms of arterial roads, circumnavigating drainage ditches, crossing vast plains of pavement, or all three. The landscape is visible on Google Street View: from the roof of the Google truck the terrain between the Kenaston Power Centre's Safeway and Walmart is as empty and never-ending as the Arctic tundra.





Do Not Walk



Walk

*Shoppers in power center environments like this one near Washington, DC (top) don't make even the two-minute walk between stores, while people shopping in traditional market environments like this one in Toronto (bottom) typically walk six to eight minutes to destinations. (Top: Brett VA/ Flickr; above: Charles Montgomery)*

city's power to sort people by their preferences: maybe Manhattanites walk because they are walkers, while Atlanta's big-lot suburbanites and Canada's power center pilgrims drive because they prefer the air-conditioned comfort and storage capacity of the family minivan. In other words, just because urban designs correlate with travel behavior, it doesn't mean they cause it.

This view is partly true. People do self-sort in cities. In Atlanta, for example, Frank found that people who said they preferred to live in car-dependent neighborhoods tended to drive pretty much everywhere, no matter where they lived. Not surprisingly, people who both liked and lived in lively, walkable places drove less and walked more. But the suburbs were full of people who, like those teenagers I met back in Weston Ranch, wished they could walk places but couldn't. Nearly a third of people living in Atlanta's car-dependent sprawl wished they

lived in a walkable neighborhood, but they were mostly out of luck because Atlanta had gone nearly half a century without building such places.

When Atlanta builds differently, people do change their movements. Proof sits on the edge of a tangled freeway interchange three miles north of the city center, where the 138-acre site of a former steel mill has been redeveloped into a dense mix of offices, apartments, retail stores, small parks, and theaters. Despite the fact that much of Atlantic Station, as it is known, sits atop a three-level parking garage, people who have moved there since 2005 have shaved a third of the miles off their driving. Instead, they walk, because some of their destinations have suddenly fallen within the range of a pleasant sidewalk stroll.

### Only the Brave

If distance alone determined how we move, then the calculus should be different for cyclists. Seventy percent of American car trips are shorter than two miles, which translates to about an easy 10-minute bike ride. Even a casual rider travels between twelve and twenty miles per hour, which means that she can cross more than five miles during the twenty-five minutes it takes the average American to get to work.\* Yet the travel mode rated the most fun, efficient, and joyful has been avoided by all but a tiny fraction of North American travelers, even in dense, connected communities.

For most people, the prospect is unthinkable. Urban cycling is just too scary, and cycle enthusiasts are partly to blame. Beginning in the 1970s, transportation planners and cycle advocates in the United States worked to convert everyone who used a bike into what has become known as a "vehicular cyclist": someone who navigated the streets of the city as though she were driving a car. According to this philosophy, the properly trained vehicular cyclist should play the role

\*In 2006 the city of St. Petersburg, Florida, installed bike-riding lanes on two streets. The average speed of the bicycle riders even in this often uncomfortably hot city was between eleven and twelve miles per hour, before and after the bike lanes were installed, which works out to about .2 miles per minute.

of hero rather than victim. She should never jump to the sidewalk or cower near the gutter. She should instead claim a whole lane between the cars and demand respect! The philosophy was like a religion, especially among bicycle advocates who saw it as a matter of asserting their right to the street. It found its way into the bible of American traffic planning: the Federal Highway Administration's *Manual on Uniform Traffic Control Devices*, or *MUTCD*. Following the vehicular cyclist mantra—and with the support of hard-core bicycle advocates—road builders avoided creating safe, separate paths for bicycles, in part so cyclists would not be treated as second-class travelers.

The problem is that the vehicular cyclist is almost as rare a creature as economic man. Most people are simply too scared to ride bicycles in traffic. This fear is entirely logical. Nearly half of people struck by cars moving at thirty miles per hour die, and the mortality rate just keeps going up with velocity.

Some say the bicycle helmet is a solution to this reasonable fear. They are dead wrong. As a safety device, the helmet may actually backfire. Ian Walker, an English traffic psychologist, put his body on the line to make this discovery. Walker fitted his bicycle with an ultrasonic distance sensor, then pedaled around the English cities of Salisbury and Bristol to see how close motorists would come when overtaking him. He found that drivers were twice as likely to come dangerously close when he was wearing a helmet. In fact, Walker was struck by a bus and, later, a truck, during the course of the experiment. He was wearing a helmet both times.\* It takes a rare hero, someone like Robert Judge, to see hostile conditions as a call to adventure rather than a warning to stay safely behind the wheel of a car.

\*The problem, Walker speculates, might be semiotic. When drivers see a cyclist wearing a helmet, they read it as a sign that the rider is more experienced and predictable, so they give themselves narrower margins of error when passing. Walker's work suggests that just by wearing a helmet, cyclists make collisions *more* likely. What's remarkable is how drivers tend to adjust their behavior according to less-than-logical assumptions. For example, when Walker wore a wig of long hair, suggesting that he was female, drivers gave him much more room. Walker offers fascinating graphs on his home page: [www.drianwalker.com/overtaking/overtakingprobrief.pdf](http://www.drianwalker.com/overtaking/overtakingprobrief.pdf).

## The Worst Journey in the World

In the last few years, pundits and lawmakers across North America have fretted about what seemed to be an epidemic of dangerous behavior on roads and highways: namely, the habit of texting while driving. A flurry of anti-gadget-play laws resulted, but not before *Wired* columnist Clive Thompson noted, "When we worry about driving and texting, we assume that the most important thing the person is doing is piloting the car. But what if the most important thing they're doing is texting?"

Indeed, the act of driving one's own vehicle has become a serious impediment to our ability to text, tweet, post Facebook updates, watch mobile TV, or get work done. Marketing analysts suggest that this conflict is one of the reasons that young people just aren't as interested in driving or even getting their licenses as they used to be. Almost half of eighteen- to twenty-four-year-olds say they would choose Internet access over owning their own car. And the number of young people applying for driver's licenses is plummeting. But the second we hop on a bus or a train—at least in a favorable wireless environment—the problem disappears. This is one of many compelling reasons to use public transit. It's usually cheaper than driving, and it erases the hassle and worry of car storage. Transit riders travel free from the stress of navigating through traffic. From this narrow perspective, public transit should be a natural and popular choice.

In most cities, it is not. Surveys in the United States and Canada reveal that transit riders are the most miserable commuters of all. American transit users—the bulk of whom rely on buses—are the most likely to feel that their trips take too long and the most likely to be depressed by their journeys. It's not that the experience of public transportation is inherently miserable. It's just that decades of underinvestment mean that the typical transit journey is crowded, slow, uncertain, or uncomfortable. When you starve a system of resources and consistently place it behind other mobility priorities, the experience of using it is bound to disappoint.

Transit riders aren't much happier in train-dependent Britain, where one in five British trains are late. But at least British train commuters can expect a relatively speedy journey. In the United States and Canada, most transit users take double or more the time drivers need to get to work. Bus riders have it the worst. They are generally

forced to endure the congestion caused by car drivers, but unlike drivers, they have almost no control over their fate. They experience the stress of uncertainty with every minute of waiting by the side of the road and with every transfer, not to mention the discomfort that comes with unmediated social proximity. There is nothing quite like the beer breath, scowl, or touch of a total stranger to get you thinking about purchasing a car. In cities where transit is meant only as a service for the poor, riding the typical urban bus can be hell on your self-esteem. General Motors actually ran newspaper ads in Canada characterizing bus passengers as "freaks and weirdos" who smelled bad. But transit systems actually go out of their way to ensure the drabness of their infrastructure. The inside of most North American buses and subway cars tends to have all the charm of prison toilets. Planner Jeffrey Tumin, author of *Sustainable Transportation Planning*, told me that administrators typically choose the most utilitarian-looking materials for bus interiors and stations—even when attractive finishes are no more expensive—simply to avoid the *appearance* of having wasted money. The result are systems that repel wealthier commuters and depress those who have little choice.

Later I will lead you to cities that have inverted the public transit status equation. But my point here is that we all live in systems that shape our travel behavior. And most of us live in systems that give us almost no choice in how to live or get around. Americans have it worst. Even though a majority of Americans now tell pollsters that they would like to live in walkable communities where shops, restaurants, and local businesses are within an easy stroll and jobs are a short commute away, these places are in massive undersupply. Most people live so far beyond the five-minute walk to a frequent bus stop or the ten-minute walk to a rail station that public transit lies beyond imagination.

If you woke up this morning and decided to try a completely different method of getting to work, could you do it? Could you walk there? Ride a bicycle? Or catch a bus or a train that would get you there in the time it took to read the paper? Could you mix and match your modes? Now take it further. Does getting to a grocery store or a doctor's office or a restaurant without a car seem like a pretty big chore? Can your children walk or cycle to school safely on their own? If you think these are unreasonable questions, then chances are, real choice has

been designed out of your city. You may still benefit from the tremendous utility of your automobile, but the system is impoverishing you and your family and friends in ways you may never have imagined. How do we build systems that truly make us free in cities? Sometimes it takes a radical shift in the urban imagination to point the way.