On the Road to People-Friendly Mobility

A Progress Report from Europe and America

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DEDICATION

To Adrian, Jay, Erica, Gena, Jeromy, Joshua, Kayla, Cate, Evie, and Sienna

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CHAPTER 1

On the Road to People-Friendly Mobility

People-friendly mobility enables people of all ages, abilities, and incomes to reach worksites, schools, parks, stores, and other everyday destinations by walking, cycling, or transit. People-friendly mobility improves roadway safety, health, equity, quality of life, local economies, governmental finances, and the opportunity for people to choose whether or not to liberate themselves from the expense of car ownership.

Many European cities began building (or rebuilding) people-friendly mobility as early as the 1960s. In contrast, most American cities had largely built car-centric transportation systems before belatedly realizing, (or perhaps admitting), that they were facilitating the convenience and speed of motor vehicles at the expense of human beings. More recently, many US cities have pledged to build transportation systems for pedestrians, cyclists, and transit riders as well as drivers.

As of 2025, the US federal government now threatens to turn back the clock by withdrawing financial support for people-friendly mobility and doubling down on car dependency. However, the funding shortfall can be overcome by convincing voters that people-friendly mobility is a sound investment in their cities and themselves.

This book profiles 30 European and American cities that are on the road to people-friendly mobility. These profiles recognize hard work and high ambitions. They offer inspiration and workable strategies for planners, advocates, elected officials, transportation professionals, and concerned citizens to generate widespread public support for policies, plans, and infrastructure projects that prioritize people over motor vehicles.

But before going to the municipal level, consider how *your* life might be better in a people-friendly city.

Envisioning a People-Friendly City

Imagine waking up tomorrow morning to birdsong instead of traffic noise. A bit of nature has returned to your neighborhood since your street was closed to through traffic and tamed by traffic-calming measures.

You leave the house to get a gallon of milk. No need for a car. The store is right down the block. A ten-minute walk is just what you need to get your day started on the right foot.

On the way, you pass the car-share station at your local mobility hub. Seeing it reminds you to visit your sister. In the past, you wouldn't have stopped to think of how you would get there. You were already paying for the car in your garage. Naturally, back then, you would drive.

But you are no longer paying for a car. You are free to choose. Your mobility app shows all the options. You could rent one of the car-share cars that you are walking past. But your mobility app shows you that it would be much cheaper and possibly faster to take a walk-train-walk combination. In the past, you would have fretted about how and where to pay for the train. But now the app helps you transfer seamlessly between all travel modes in your region and pay with a single, all-in-one travel card. You also trust the travel time estimates in your app because public transportation has gotten much more reliable now that all travel modes get their fair share of funding.

Your mobility app reminds you that you could also bike to your sister's house. It would take over an hour each way. But you could use the exercise. In the past, you didn't even own a bike. But now you confidently bike to many places, including work. According to your app, you can take a protected bike lane to the greenway trail along the river. Biking there would be pleasant as well as invigorating.

Walking back from the store, you say hello to the young couple renting your granny flat. After you went car-less, it made perfect sense to replace your garage with an income-generating property. That rental produces more money than you saved by not having to make car payments or pay for fueling, insuring, registering, and repairing your car. You now spend much of that extra money locally. Your neighbors are doing the same.

The combination of extra people and local spending has attracted new stores, cafes, and brewpubs to the commercial area down the block. You realize that you travel outside your

neighborhood less because most of your everyday needs are nearby and you can easily reach them without a car. The reduced speed limits and improved design of intersections and crosswalks have made walking safer. You are no longer worried about having to move to a retirement home as you grow older.

In the past, you had to leave your neighborhood in order to get to somewhere else. Previously, drivers only wanted to travel through your neighborhood and pressured elected officials to widen roads so they could go even faster. Today, many of those drivers want to move into your neighborhood rather than speeding through it.

This imaginary journey may seem like sheer fantasy to many people, particularly Americans. But it comes close to reality within neighborhoods in many European cities. And some cities in the United States are emulating the successes accomplished in those European neighborhoods.

Symbolic of the rethinking of car-dependency, Paris replaced the Pompidou Expressway with this shared-use trail along the Seine.

A Brief History of People-Friendly Mobility

This book is a progress report on the journey to create people-friendly cities. It may sound crazy to think of cities as anything other than "people-friendly". After all, cities are built by and, supposedly, *for* people. How could they be anything but people-friendly?

But consider the well-worn thought experiment of extraterrestrials observing one of Earth's cities for the first time. The extraterrestrials might easily assume that motor vehicles are our overlords. We build elaborate highways so they can bypass our cities at high speeds. We keep people pressed against the sides of streets so we don't get in the way of cars. We designate roughly half of the area of our cities for the exclusive enjoyment of motor vehicles. We make people pay fines when they trespass in these sacred spaces. We have built roadways with designs that we know will let cars injure and kill thousands of us. We let them spew exhaust that degrades the health of the young, old, and those with compromised respiratory systems. We allow them to release heat-trapping gases into the atmosphere that change our climate, worsening heat emergencies, wildfires, extreme weather events, and sea level rise. We give our tax revenues to multi-national corporations in an effort to ensure that our cars will keep running. Considering our subservience to cars, who could blame extraterrestrials for thinking that people are the second-class citizens on Earth?

The Rise of Car Dominance - Car-friendly cities did not spring up overnight. Through the Great Depression and World War II, most cities experienced relatively peaceful coexistence between people and cars. But once the war was over, American car manufacturers were eager to put one or more cars in every garage. The President of General Motors stated that what was good for General Motors was good for America. The US government obliged by launching the Interstate Highway System. Federal, state, and local transportation agencies went on a building spree that not only connected the country but plowed highways into and through cities. These urban highways removed billions of dollars of property value from tax rolls, severed viable neighborhoods, allowed middle-class workers to easily commute to downtown jobs from sprawling, car-dependent suburbs, and left future generations with the bill for maintaining these roadways.

Transportation engineers in Europe initially drafted plans to import roadway-mania from the US. The devastation of World War II sometimes created opportunities for the realization of these highway dreams in some cities. But in many cases, basic recovery from the war kept fragile European economies from going on the kind of highway-building binge ramping up in America.

It is convenient to assume that something in their DNA kept Europeans from paving over their cities to make way for cars. Yes, these cities had robust public transport systems before the war. But so did many US cities. European cities generally had more compact urban boundaries, higher densities, and centuries of development built for walking, all of which supports the ongoing viability of public transportation and people-powered

mobility.

Yet, as incomes started to rise in the 1950s and 1960s, many Europeans were able to buy cars, and did. That occurred even though car ownership was more of a status symbol than a convenience in cities where walking and biking remained a faster way of getting around than trying to drive down narrow streets clogged with buses and bikes as well as other cars. In Amsterdam, car ownership per person more than tripled between 1957 and 1965. In Antwerp, the percent of trips taken by bicycle dropped from 70 percent in 1935 to less than 20 percent in 1970.

In Antwerp, Belgium, bicycling dropped after World War II but now accounts for almost 40 percent of all work trips, over 50 percent of trips to school, and 42 percent of non-work/ non-school trips.

The European Turning Point - In the 1960s, Americans and Europeans protested over war, civil rights, and the environment. But Europeans also demonstrated against rising traffic injuries and deaths, particularly of children. In 1972, 457 of the 3,264 victims of traffic fatalities in the Netherlands were under 15 years of age. Protests by the *Stop de*

Kindermoord (Stop Child Murder) movement and similar organizations slowed and, in some cases, stopped cars from completely overrunning European cities.

In the 1970s, Americans became painfully aware of their car dependency by severe gas shortages and price spikes. But instead of rethinking the nation's oil addiction, President Ronald Reagan vowed to keep the automotive juggernaut moving full speed ahead. As a result, Americans continued to convert farms and forests into sprawling subdivisions despite the fact that these suburbs were sucking the life out of their cities.

For many Europeans, the oil shocks of the 1970s joined the preexisting alarm about traffic deaths to increase opposition to car domination of cities. In addition, Europeans literally did the math. People wanted to move to their cities and there simply was not enough room if they wanted to bring their cars with them. This was most obvious in older city centers like Amsterdam and Bern where roadway widenings would require the demolition of historic buildings and the loss of community character. In Amsterdam in particular, the historic preservation movement was on the rise during this period, which presented a speed bump for any politicians hoping to put their names on a new urban highway. In contrast, by 1980 Robert Moses had already built hundreds of miles of highways around and through New York City.

In Europe, advocates for people-friendly mobility did not vanish after the 70s. In some cities, like Amsterdam, they formed long-lasting organizations that opposed the kind of highway mania that created car-dependent America. In addition to watchdogging and sounding alarms, these organizations gained political strength and helped elect kindred spirits to government offices. In some cities, these organizations joined with public officials to develop policies and even design specific solutions to improve walking, cycling, and transit.

European activists also used mobility justice to slow the automotive takeover of their cities. They questioned the fairness of car-centric development when it was often minorities and low-income households that were uprooted so that motorists could effortlessly speed through what used to be their intact neighborhoods. They questioned how the people who were most impacted by these projects might benefit from them, particularly if they could not afford a car.

When the car boosters in Amsterdam complained that bikes hinder traffic, the cycling advocates countered that bikes *are* traffic, and in fact a less polluting, more efficient, and less dangerous form of traffic than cars.

Better Late Than Never **-** Many Americans were on the same page as their European counterparts in advocating for roadways that make room for pedestrians, cyclists, and transit as well as cars. But it took longer for this message to gain traction in the US. In the

1990s, many planners and architects recommended shared roadways as part of compact, mixed-use development under names like New Urbanism and Smart Growth. But it has taken decades for these ideas to become a widespread reality. In 2005, the Complete Streets Coalition began advocating for people-friendly mobility. The Vision Zero Network was launched in the US in 2015, almost two decades after this movement to eliminate traffic deaths and serious injuries first started in Sweden.

By 2016, over 1,000 US communities had adopted Complete Streets policies and were beginning to rebuild public infrastructure with people in mind. In 2021, President Joe Biden signed the Bipartisan Infrastructure Law which dedicated $5 billion to the Safe Streets and Roads for All Program. The grants available under this program were aimed at building infrastructure emphasizing safety for pedestrians, cyclists, and public transit users in line with Vision Zero and Complete Streets policies.

In 2025, the US Department of Transportation (USDOT) of President Donald Trump slow-walked the Safe Streets and Roads for All Program and clawed back previously-approved grants for roadway projects that were considered "… hostile to motor vehicles" or that "… could impede vehicle capacity and speed". As of 2025, American cities and states must search for other funding sources in order to build projects that USDOT regards as 'anti-car'.

Fortunately, over 60 US cities have now joined the Vision Zero Network. As of 2025, more than 1,700 US communities have adopted Complete Streets policies and these communities are home to over 200 million people, or 60 percent of the US population. Will these communities be able to maintain momentum regardless of federal funding cuts? Perhaps the experiences of the cities profiled in this book can generate some ideas and inspiration for continued progress on creating safer streets, sustainable transportation, and people-friendly cities.

Lyon, France built Pont Raymond Barre exclusively for pedestrians, cyclists and public transit.

Common Threads of Success

The success factors that appear repeatedly in the 30 profiles in the book are not that surprising. But it's still worthwhile to remember them when pursuing progress toward people-friendly mobility.

Political Will – From Anne Hidalgo in Paris to Greg Ballard in Indianapolis, strong mayoral leadership proved essential. Ursula Wyss in Bern faced opposition but pushed back: "There is no such thing as 'we have no space for bicycle infrastructure.' It's just a matter of changing the paradigm and reallocating the existing space." Berlin's Transport Senator, Regine Gunther did not mince words either: "The old mobility concept of the car-friendly city is reaching its limits… we want people to get rid of their cars."

Grassroots Advocacy - The Cyclists Union in Amsterdam, the Stop de Kindermoord movement in the Netherlands, Friends of the Atlanta BeltLine, and the Community Cycling Center in Portland all demonstrate that sustained citizen activism is crucial. These groups provide permanent advocacy, expertise, and watchdog functions that help cities get on the right path and stay on it.

Long-Term Commitment – Building a people-friendly mobility network does not happen overnight. Success requires sustained investment over years and decades. Cities that give walking, cycling, and transit as much (or more) priority as cars see results. As demonstrated by cycling infrastructure superstars, after initial plans have been completed, cities often have to launch whole new rounds of investment to accommodate the increased demand generated by the success of previous phases.

Connectivity – Bikeways should go where people want to go. Ridership will suffer if bike lanes start and stop, use circuitous routes, or exist primarily because they were easy or cheap to build. Copenhagen keeps perfecting a network of uniform, well-designed lanes that allow even first-time users to reach their destinations intuitively. Many of the other profiled cities are also planning and building these comprehensive and fully-connected networks including Bern, Hamburg, Lyon, Paris, Toulouse, Philadelphia, Portland, and St. Louis.

Multi-Modal Integration – Success stories like Hamburg, Seattle, and Zurich show that people-friendly mobility thrives when walking, cycling, and transit are mutually reinforcing. Ridership also flourishes in cities and regions where mobility apps simplify routing and payment across all transportation modes as demonstrated in the profiles of Bordeaux, San Francisco, and Seattle.

Supportive Infrastructure – Successful cycling networks require plenty of bicycle parking as seen in the profiles of Amsterdam, Antwerp, Copenhagen, Hamburg, Lyon, Paris, San Francisco, and Utrecht, where the central rail station sees 125,000 cyclists per day and is served by the largest bike parking structure in the world. In addition, most of the cities profiled in this book have bike-share systems including Paris, where the Velib network is the world's largest with 1,480 stations, 20,000 bikes, and over 49 million trips per year.

Reduced Speed Limits – Low speed limits make roadways safer for everyone and also boost the numbers of people who walk and bike. Most of the European cities profiled in this book have lowered speed limits on many or most of their roadways to 30km/h, or roughly 19mph. Some have reduced speed to 20 km/h or 13 mph including Copenhagen which, not coincidentally, is one of the world's leaders in high bike mode share, meaning the percent of all trips taken by bicycle.

Utrecht, Netherlands built the largest bike garage in the world at its central train station.

Recognition – Like all of us, cities like to be recognized for doing good work. The League of American Bicyclists runs a bike-friendly community program that not only rates the accomplishments of cities but also describes the improvements needed for each city to advance to the next rating level. Some cities develop bicycle plans with the explicit goal of moving up this ladder including Dublin, Ohio, Indianapolis, Indiana, and Davis, California, which aims to be the first city to advance from Platinum to Diamond.

The Benefits of People-Friendly Mobility

The most exciting examples of people-friendly mobility are explored in the profiles of European cities found in the first half of this book. Progress has been more difficult for American cities and the US federal government recently created another roadblock. As detailed above, the Trump Administration has withdrawn funding for building roadway configurations it considers hostile to cars.

Hopefully, US cities, counties, regions, and states will continue building people-friendly mobility networks despite the elimination of federal grants by using locally-generated tax revenues. To get taxpayers on board, it may help to remind people of the multiple benefits gained by balancing the distribution of public space for pedestrians, cyclists, and transit as well as cars.

Safer Mobility - Many communities are rejecting the long-held opinion that traffic deaths and injuries are the inevitable price we have to pay for mobility. When a motor vehicle hits a person, the difference between life and death is largely determined by the speed of the vehicle. As early as the 1960s, many European cities began designing safer streets and lowering speed limits on a huge percentage of their roadways to 30km/h and even 20km/h.

Despite advances in automotive safety features, American roads remain deadly. Almost 40,000 people died in US traffic crashes in 2024 including 7,148 pedestrians. Traffic fatalities here are higher than a decade ago and surpass the rates found in peer countries.

Americans have been slower to acknowledge the needless carnage caused by car-centric roadway configurations and high vehicle speeds. But the Vision Zero Network was launched in the US in 2015 and, so far, over 60 US cities are aiming to completely eliminate traffic deaths and serious injuries. That is an extremely ambitious goal. But eliminating or at least reducing traffic death is an effective motivator, as proven by the European experience.

Climate Action – Whether or not some people want to admit it, the planet is in a climate crisis caused by human generated greenhouse gas (GHG) emissions. The transportation

sector is responsible for 29 percent of these emissions nationwide and the percentage is much higher in car-dependent states. Many cities are using people-friendly mobility as part of their strategy to reduce GHG emissions and ultimately become net zero, meaning the GHGs released to the atmosphere are equal to or less than the GHGs removed from the atmosphere. To reach its goal of net zero by 2030, London is aiming for 80 percent of all trips to be made by walking, cycling, or public transit. To reach its goal of a completely carbon-free transportation system, Seattle wants reliable public transportation, ride sharing, and active transportation strategies to make it safe, easy, and affordable for people to get where they need to go without relying on a car.

It can be hard to motivate people using abstract numbers. But more and more Americans are seeing the reality of climate change in daily headlines and in their lives. The ten warmest years on record occurred in the last decade, with 2024 being the hottest ever … so far. Weather patterns are shifting, creating drought, increasing highly destructive wildfires, and worsening extreme weather events. As the ocean warms, the expanding water keeps rising and threatening human settlements all over the globe.

People might shrug it all off if they think climate change has not directly impacted them. But climate change is already hitting people in their wallets, beginning with rising insurance premium costs. Counties most at risk from climate-driven storms and wildfires saw home insurance premiums jump by 22 percent between 2020 and 2023. Pressure to accelerate people-friendly mobility can and will be generated as more people recognize the connection between car-dependency, climate impacts, and the cost of living in the age of climate change.

Economic Development – Many US cities have struggling economies and poor fiscal health. Remote work has emptied offices, sapped office-dependent businesses, and drained the vitality of many downtowns. Online shopping is creating vacancies in shopping malls and commercial strips. The drop in the taxable value of these properties causes a reduction in the property tax revenues needed to pay for public services and the maintenance of infrastructure, including sprawling roadway networks.

Many cities are viewing these vacancies as an opportunity to lure entrepreneurs, employees, retirees and others who prefer people-friendly mobility over car-dependency. And in the age of Zoom, many cities are vying for remote workers who are likely to move to cities with attractive amenities, including the ability to get around on foot, by bike, or on transit without the need to use or even own a car.

Car owners spend over $10,000 per car per year on average for payments, repairs, fuel, insurance, registration, and parking. People who live in cities with people-friendly mobility can drive less and even eliminate the cost of car ownership altogether. These savings benefit the city economy as well as individual residents. That's because car expenses often

go to companies outside the local economy like car manufacturers, insurance companies, and, of course, oil corporations. Consequently, households that forego at least one car are more likely to spend that $10,000 saving on locally-produced goods and services. Thanks to the multiplier effect, these increased local expenditures generate even more local economic activity. As discussed in the profile of Portland, one study estimates that people-friendly mobility creates a $1.1 billion green dividend for that city.

Most Americans prefer to live where they can easily walk to community amenities and believe that walkability contributes to quality of life. Walk Score rates the walkability of neighborhoods and entire cities on a scale of one to 100 based on ease of access to everyday destinations like schools, parks, grocery stores, restaurants and retail. The safety and comfort of pedestrian infrastructure can determine whether the diversity of destinations used to create a Walk Score actually motivates more people to walk. In other words, pedestrian infrastructure is essential to achieving the economic benefits of high Walk Scores. A 2016 study estimated that every Walk Score point can increase the value of a home by 0.9 percent. Consequently, a dwelling unit in downtown San Francisco, which has a walk score of 99, should be 45-percent more valuable due to walkability than a dwelling unit in a typical US city where the average Walk Score is 49.

Bike trails also increase the value of nearby properties. Tucson's 131-mile loop trail was estimated to increase the tax base by $300 million, creating an additional $3 million in tax revenue for the metro area every year. A 70-mile stretch of the East Coast Greenway was estimated to add $164 million of property value in the Raleigh-Durham Region of North Carolina.

In addition, bike trails spur economic activity that supports property value and increases sales and other tax revenues. The 61-mile Silver Comet Trail northwest of Atlanta creates a total annual impact of almost $120 million within the State of Georgia while supporting roughly 1,300 jobs and producing $37 million in earnings plus $3.5 million in income tax, sales tax and business tax revenues. Similarly, the 335-mile Great Allegheny Passage/C&O Canal Trail between Pittsburgh and Washington, DC was estimated to generate an impressive $40 million in direct spending and $7.5 million in wages per year.

In the future, more cities can and will convince taxpayers that building pedestrian, cycling, and transit infrastructure is a good investment in the local economy.

Health – Sedentary lifestyles have created a medical crisis in the United States. Half of all American adults do not get enough of the physical activity needed to help reduce and prevent chronic diseases. In 2018, less than a quarter of American adults met the guidelines from the Center for Disease Control for aerobic and muscle strengthening activity. Inadequate physical activity is associated with $177 billion in healthcare costs nationwide every year. These metrics will not improve if cities don't continue building

infrastructure that makes walking, cycling, and other forms of active transportation a safe option for people of all ages and abilities.

Mobility Justice - Owning and operating a car is vastly more expensive than owning and operating a bicycle. Despite this obvious fact, governments continue to subsidize motor vehicles while investing relatively little in bicycling and pedestrian infrastructure that everyone can use regardless of car ownership. In addition, pedestrian and cycling infrastructure costs far less than building and maintaining roads and bridges for cars.

The public right of way theoretically belongs to the entire public. But personal cars occupy much more of this space than pedestrians and cyclists, causing roadways to be congested, inefficient and unpleasant. Switching from driving to cycling reduces traffic congestion, so even motorists get a benefit from improved cycling infrastructure.

Several studies confirm that people-friendly mobility promotes economic resilience - the ability to overcome unanticipated financial reversals including reduced incomes or unexpected expenses. Walkable cities also advance intergenerational upward economic mobility – the ability of children from lower income households to move up the economic ladder in adulthood. A 2018 study documented a strong relationship between walkable cities and economic mobility. In these cities, the lack of an automobile is less of a barrier to upward mobility. In fact, the ability to accomplish things without a car was found to be a key factor in upward mobility. In addition to decreased reliance on cars, people living in walkable cities have a greater sense of belonging to their communities, a feeling associated with documented changes in social class.

Paris has redistributed Rue de Rivoli for cyclists and buses as well as cars.

Lessons from Europe and America

This book uses profiles of 17 European cities and 13 US cities that I visited between 2021 and 2025. They illustrate how some cities have made progress on the road to people-friendly mobility and provide a more detailed picture of the history, success factors, and benefits outlined above. Readers can scan the following thumbnails to discover which profiles might be most relevant to them.

Amsterdam, Netherlands - This profile offers a detailed history of how Amsterdam became a world-class bike city with the help of protesters, political leaders, and a cycling organization that continues to collaborate with as well as watchdog the government. After decades of adding and improving its infrastructure, Amsterdam has a total cycling network of 1,242 kilometers, including 858 kilometers of bike paths completely separated from other traffic. In 2017, 68 percent of all work and school trips were by bike. That year, Amsterdammers bicycled a total of two million kilometers every day and averaged 900

kilometers per person per year.

Antwerp, Belgium - In 1935, bicycles accounted for 70 percent of all trips in Antwerp but dropped to less than 20 percent by 1970 as car ownership became more affordable and more families moved to single family homes on the urban fringe. However, the city began upgrading the cycling network through intersection improvements, management of traffic signals, and a reduction of speed limits on 95 percent of all of its streets to 30km/h. As of 2023, almost 40 percent of all work trips occurred by bike, surpassing the percent taken by car. In that year, bikes accounted for over 50 percent of trips to school and 42 percent of non-work/non-school trips.

Berlin, Germany – The Berlin Mobility Act calls for a cycling network of 2,376 kilometers in the urban center plus 100 kilometers of ten, high-speed cycleways radiating from the city center, extending through jurisdictions adjacent to Berlin, and ending in the countryside. There appears to be strong political support considering this quote from Berlin's Transport Senator, Regine Gunther: "The old mobility concept of the car-friendly city is reaching its limits… we want people to get rid of their cars."

Bern, Switzerland – Bern is making notable progress with implementation of its Velo-Offensive plan thanks to public support and strong political will as exemplified by this statement from Ursula Wyss, the city's former Director for Civil Engineering, Transport and City Greenspace: "In the past, cars were the dominant mode of transport. This no longer meets the needs of the citizens of Bern. There is no such thing as 'we have no space for bicycle infrastructure'. It's just a matter of changing the paradigm and reallocating the existing space."

Bordeaux, France - Under its Peaceful City plan, Bordeaux aims to transform 260 hectares within its UNESCO World Heritage sites to car-free pedestrian zones by 2026. As of 2022, 89 percent of the city's streets were limited to 30 km/h in order to improve safety, reduce noise, and allow for people-friendly mobility through a better allocation of public space. The city's 1000-kilometer bicycle system is also being linked to a metropolitan-wide network called The Dream, offering 14 bikeways connecting outlying communities with each other and the central city. In 2019, the bicycle consultancy named Copenhagenize ranked Bordeaux as the sixth most bike friendly city in the world. based on its progress in reducing space for cars and adding space for bikes.

Bremen, Germany – Despite Germany's continuing love affair with automobilia, bicycling accounts for 25 percent of all trips in Bremen, the highest mode share in the country. The total mode share for walking, transit, and cycling is almost 60 percent. Bremen was the first German city to create bicycle boulevards and bike districts. Bremen also uses mobility hubs to reduce parking demand and private car ownership by offering various alternatives including bike sharing, public transit, and pedestrian infrastructure as well as car sharing.

As of 2020, Bremen had 43 mobility hubs and 20,000 users. The city aims to ultimately have 100 mobility hubs with a hub every 300 meters to maximize access.

Bremen's Green Network links destinations throughout the city's extensive park system.

Brussels, Belgium – In 2024, Brussels adopted a plan aimed at reversing 50 years of prioritizing cars by freeing streets and other public spaces for people-friendly mobility. The city aims to create dense, diverse neighborhoods in which all inhabitants can reach essential facilities and services with a 10-minute walk or bike ride. Creating a 10-minute city is ambitious, but walking, cycling, and transit already account for over two thirds of all travel here (35.9 foot, 8.6 bike, 23.8 transit).

Copenhagen, Denmark – "Cycling is not a goal in itself but rather a highly-prioritized political tool for creating a more livable city." That quote from Copenhagen's bike plan largely explains why this city was able to change course as bike mode share fell in the 1950s and 1960s when Denmark, like most developed countries, started removing its transit and bike infrastructure to make room for cars. Copenhagen has since become a

model city, or perhaps the model city for people-friendly mobility. Using trial and error, the city developed a template for safe, connected, cycleways. In the 21st Century, Copenhagen combined political will and a steady funding stream to take its infrastructure to the next level with innovations like green waves, pacer lights, countdown clocks, real-time informational signage, and bike path traffic signals that prioritize cyclists. Copenhageners responded by cycling 1.44 million kilometers daily and making almost half of all school and work trips by bike as of 2018. Thanks to an annual budget of $12 million reserved exclusively for bikes, by 2022, the city had 388 km of cycle tracks, 33 km of cycle lanes, 65 km of Green Cycle Routes, 60 km of Cycle Superhighways, and 18 bicycle/pedestrian bridges.

Hamburg, Germany – The overriding transportation goal of Hamburg is simply "fewer cars" according to Anjes Tjarks, the city's Minister for Transport & Mobility Transition. That title alone demonstrates Hamburg's commitment to reduce car traffic and reclaim streets for people-friendly mobility. By 2030, the city wants 80 percent of all trips to be made by public transport, cycling, or walking compared with 64 percent in 2017. That may sound optimistic. But Hamburg was an early adopter of reduced speed limits and, today, roughly 80 percent of the city's street system is limited to speeds of 30km/h or less. Hamburg is building cycle paths at the rate of 60km per year to keep up with demand. As of 2022, cycling accounts for 22 percent of all traffic and is Hamburg's fastest-growing transportation mode. In contrast, car traffic decreased by 17 percent between 2000 and 2024 even though the city grew by ten percent and is now home to almost two million people.

Hanover, Germany - In the late 1940s, almost 90 percent of all trips in Hanover were accomplished by bicycle. Cycling then slid from that peak to a low point of about ten percent before Hanover pledged to rebuild its cycling culture. Mode share for private cars went from 44 percent in 2002 to 36 percent in 2017. By 2019, cycling accounted for 19 percent of all trips. To motivate even more people to return to cycling, Hanover's 'Lust for Cycling' initiative aims to boost bicycling's mode share to 25 percent of all trips by 2025.

London, United Kingdom - London aims to become the world's best big city for cycling. That goal might have seemed overly ambitious at one time. But voters here have elected several pro-bike mayors and seem to agree that cycling does not just help cyclists, but creates better places for everyone. By 2023, the city had more than tripled its cycleway network, imposed a 20-mph speed limit on over half of all roads, increased cycling trips to over 1.2 million per day, and launched what is now one of the largest congestion charge zones in the world in order to reduce congestion, decrease pollution, and raise funds for the city's transportation system. The 2023 *Cycle Action Plan 2* aims to increase bike use over 33 percent to 1.6 million bike trips per day, bring the Cycleway network to within 400

meters of 40 percent of all residents, and reduce car kilometers travelled by 27 percent by 2030. Looking even further ahead, London wants sustainable modes to complete 80 percent of all trips by 2041, up from 63 percent in 2015.

Ljubljana, Slovenia - Ljubljana is recognized for sustainable mobility accomplishments including the pedestrianization of the city center, the transformation of its parking-clogged riverbanks into a walkers' paradise, and the creation of a cycle-pedestrian path encircling the city. The city has now joined with 25 surrounding municipalities in a plan aimed at extending people-friendly mobility throughout the metro area. The region's overriding goal can be seen in this quote from the plan: "If you plan cities for cars and traffic, you get cars and traffic. If you plan for people and places, you get people and places"

Lyon, France - In 1974, Lyon removed cars from streets headed north and south of Place Bellecour, the largest pedestrian square in Europe. The city now has plans to pedestrianize much of its historic center. Lyon has also gained recognition for removing parking from the banks of the Rhone River and creating a mixed-use trail linking many of the city's parks and cultural venues. The Green Party took the reins of the city in 2020 and aims to transform Lyon into one of the top bike cities in the world. As of 2023, the Greater Metropole of Lyon had 1,200 km of cycling infrastructure including 450 km of cycle tracks separated from traffic.

Paris, France - Paris has always been known as a great walking city and its public transit system is considered one of best in the world. Recently, Paris has been capturing attention for reducing car dominance and using pollution regulations, speed limits, and road diets that are freeing public space for wider sidewalks, safer bikeways, street trees, and people. Mayor Anne Hidalgo has remained reasonably popular while making dramatic changes that have cut car use by 45 percent, increased public transportation ridership by 30 percent, and boosted cycling roughly 1,000 percent over the mode share statistics of the early 1990s. Only 30 percent of Parisians own cars, compared with 90 percent of the French population as a whole. The credit for that statistic goes partly to improvements in alternative modes and partly to the fact that it is increasingly difficult to own or drive a car in Paris.

Toulouse, France - In the City of Toulouse, transit, walking, and other modes (like biking) account for over two thirds of all trips. Transit alone represents 21 percent of trips within the central city, giving Toulouse third place among French cities behind Paris and Lyon. In 2017, 14.1 percent of all employees commuted to work by bike, putting Toulouse in third place in France for cycle commuting behind Strasbourg and Grenoble. The 2023 Street Code promotes coexistence between all users by adding pedestrian zones, widening sidewalks, reducing speeds, and reconfiguring roadways for better balance between travel modes. The main message of the Toulouse *Code de la Rue* is "we are taking our foot off the gas". As of 2025, 53 percent of all city streets were limited to 30 km/h and Toulouse

ultimately wants 80 percent of its streets to have maximum speeds of 30 km/h.

Utrecht, Netherlands – After starting down the road to car-dependency in the 1950s and 1960s, Utrecht is now ranked by Copenhagenize as the third most bike-friendly city on the planet after Copenhagen and Amsterdam. Roughly 120,000 people bicycle to work, school, shopping, and public transit nodes every day. Utrecht's central rail station is the largest public transportation hub in the country and is supported by the world's largest bike parking structure. Utrecht has added spacious cycle tracks to many roadways including the Vredenburg corridor that is now the busiest cycle route in Holland with 33,000 cycle trips per day. Approximately 60 percent of trips into central Utrecht occur by bike while only 15 percent are by car. A fitting summation of Utrecht's priorities came from Lott van Hooijdonk, Utrecht's Vice Mayor: "You really have the idea that people are the boss of the city, not the machines."

Utrecht's Vechtdijk fast cycling route is paved and lighted, allowing cyclists an enjoyable way to pedal from the city center to the rural countryside and vice versa.

Zurich, Switzerland – Zurich's mobility plan declares that public transport, walking, and cycling are the pillars of mobility while private motor vehicle use will continue to be "reduced to an acceptable level". In 1996, Zurich capped the number of car parking spaces in the city. In 2014, Zurich had 340 km of cycling tracks and lanes. By 2025, the city had increased the cycling network to at least 500 km. The city's Transport Plan 2025 aims to rebalance mode share, reduce private car trips by ten percent, and double the proportion accomplished by bike and on foot.

Atlanta, Georgia - Atlanta is not known for bike-friendliness. But it has the Atlanta BeltLine, an ambitious project to redevelop and connect 45 neighborhoods encircling downtown by transforming 22 miles of abandoned rail corridors into a shared-use trail. As of 2016, the BeltLine had created seven parks and hundreds of affordable housing units as well as spurred the development of $3 billion worth of residential complexes, commercial buildings, affordable housing and other forms of private investment.

Boise, Idaho - "A street is much more than a street. It is where life happens." That quote from Boise's 2016 transportation plan supports the city's shift to treating the automobile as one of many transportation choices. In 2019, Boise completed its 25-mile portion of a shared-use trail called the Boise River Greenbelt along the banks of the Boise River. The Greenbelt is so beloved that Boise adopted a new plan to expand this trail into a 160-mile network of pathways extending throughout the city. Once the entire 160-plus mile network is completed, a majority of Boise residents will be within one-half mile of a pathway. As Mayor Lauren McLean stated: "The robust network will connect our residents to economic opportunities, recreation and everywhere in between, without reliance on a vehicle."

Boulder, Colorado – The League of American Bicyclists recognizes Boulder as one of five Platinum-level bike-friendly cities. Between 1990 and 2020, Boulder built almost 60 miles of shared-use paths, created 80 trail underpasses, and established a bike share system with 47 stations and 300 bikes. In its 2019 Transportation Master Plan, Boulder committed to reallocating the public right of way to prioritize the movement of people rather than cars. By 2030, Boulder wants people-friendly mobility to account for 80 percent of all trips: 10 percent transit, 15 percent multiple-occupant motor vehicles, 25 percent pedestrian, and 30 percent bicycle. As additional measures of progress, Boulder wants a 20-percent reduction in VMT by 2030 and the elimination of fatal and serious-injury traffic crashes in keeping with its Vision Zero commitment.

Charlotte, North Carolina - Charlotte realizes that it cannot continue to pave its way out of its mobility needs. It wants to change from a car city to a car-optional city. Transportation planning here is based on the following policy: We can't keep widening our roads so we have to broaden our thinking about how to accommodate growth and give residents more transportation choices like walking, bicycling and public transportation. The city aims to concentrate these options in five radial corridors planned for more intensive urban development. For example, the South End corridor is transitioning to a higher-density, mixed use district centered on the LYNX Blue Line light rail. Along this rail line, Charlotte has created a linear park with a multiuse trail.

Davis, California – This college town, with a population of 66,000, has largely earned its self-proclaimed title as the 'Bike Capital' of the United States. Davis has been building cycling infrastructure and bike culture for over half a century. In 1966, the voters elected

pro-bike candidates to the Davis City Council, which led to the installation of the nation's first bike lanes a year later. In 1986, the city's General Plan required developments to incorporate greenways, which generated two-thirds of the city's greenways network by 2007. People can live car-free in Davis and developers can build residential complexes without any car parking spaces. In 2005, Davis became the nation's first Platinum-level bike-friendly community and it aims to become the first city in the US to get a Diamond rating from the League of American Bicyclists.

Indianapolis, Indiana - Despite its association with car culture, Indianapolis has been steadily building a greenway system that includes eight regional shared-use trails. The city pledged to become one of the most bike-friendly cities in the country and, by 2013, it had a 100-mile network of bike lanes to supplement its 40-mile system of greenways. The city's eight-mile Cultural Trail motivates pedestrians and cyclists to explore various downtown attractions. At the regional level, Central Indiana has 1,217 miles of bicycle infrastructure including 457 miles of trails and shared-use paths.

Madison, Wisconsin – Between 2000 and 2015, the combined length of off-street bike paths in Madison grew from 295 to 425 miles and the city was installing innovative bike infrastructure including green lanes, bike boxes, buffered bike lanes, and bike signals. The League of American Bicyclists recognized Madison as a Platinum-level bike-friendly community and specifically praised the city's progress on its low-stress bike network, bike parking program, and reduced speed limits. Due to these accomplishments, the National Complete Streets Coalition named Madison as the second-safest city for pedestrians out of the 101 largest metro areas across the nation in 2024.

The graceful Dublin Link, in Dublin, Ohio, allows pedestrians and cyclists a car-free way to cross the Scioto River and has become the heart of the community.

Miami-Dade County, Florida – Various partners have joined with Miami-Dade County to complete and connect twelve trails that will ultimately form a 225-mile active transportation network throughout Southeast Florida called the Miami Loop. The East Coast Greenway Alliance advocates for five segments of the Miami Loop that form part of the East Coast Greenway, the monumental trail linking 450 communities along a 3,000-mile route across 15 states from Florida to Maine. More than half of the Miami Loop is already in use.

Philadelphia, Pennsylvania - Under its Great Streets plan, Philadelphia wants people of all ages and abilities to be able to bike around the city on a 543-mile High Quality Bicycle Network that includes protected bike lanes. Philadelphia and dozens of partners have also launched a project called The Circuit Trails that aims to build an 800-mile network of multi-use trails in and around Philadelphia within both Pennsylvania and New Jersey. As of 2025, 500 miles of the Circuit Trails were completed or fully funded.

Portland, Oregon – The League of American Bicyclists has rated Portland as a bike-friendly community at the Platinum-level, the highest designation at this time. Portland is also home to more people than the combined population of the other four Platinum-level cities, making it arguably the most bike-friendly large city in the United States. By 2030, Portland wants 25 percent of all trips to be by bicycle. To reach that goal, Portland now limits motor vehicle speeds to 20 mph on most residential streets and is in the process of building a 962-mile bike network expected to be 80 percent complete by 2030. Portland is also completing a 40-mile Loop that circumnavigates the metro area and links with an inner loop featuring a 1,200-foot-long floating bike/walkway, the longest one of its kind in the United States.

St. Louis, Missouri – In 2000, the voters of the City of St. Louis, St, Louis County, and St. Charles County overwhelmingly approved the creation of the Great Rivers Greenways District funded by a one-tenth of one cent sales tax that generates $10 million per year dedicated exclusively to parks and greenways. In 2012, Great Rivers Greenways and its many partners completed a plan for over 1,000 miles of on-street bikeways throughout the region. These greenways will link to the State of Missouri's Katy Trail which stretches for 240 miles across the state and will ultimately form a loop with the 144-mile Rock Island Trail.

San Francisco, California - This is one of the few cities in the United States that resisted and even removed freeways. San Francisco forms the hub of a highly-successful regional transit system and operates the third busiest light-rail system in the nation plus a wide array of public transport modes including cable cars and historic street cars. Along with New York City, San Francisco ranks as the nation's most walkable city. San Francisco is also considered one of the most bike-friendly big cities in the country, earning a Gold rating from the League of American Bicyclists. As of 2019, the San Francisco bike network totaled 447 miles including 120 miles of protected bikeways and off-street paths. By 2050, San Francisco aims for 80 percent of all trips to occur on foot, by bike, or on public transportation. At the regional level, various coalitions are completing the 500-mile San Francisco Bay Trail which is planned to connect over 130 parks and thousands of other destinations within 47 cities around the San Francisco Bay. Over 350 miles of this network were open as of 2025. An even more ambitious plan envisions a 2,604-mile regional network of connected trails within nine counties, of which 1,409 miles are already completed.

The Scioto Mile gives walkers and cyclists car-free access to downtown Columbus, Ohio while also serving as the hub of a regional greenway network.

Seattle, Washington – This city acknowledges that it gave motor vehicles an "outsized portion of urban space" in the past. Its recent plans call for redistributing roadways to encourage walking, cycling, recreating, and just hanging out with other people in a safe and pleasant public space. Seattle wants nine out of ten personal trips to be zero-emission by 2030 and a completely carbon-free transportation system by 2050. The city aims for transit ridership to double between 2019 and 2030, a goal given a boost when the voters approved an additional sales tax that generates roughly $50 million of sales tax revenue per year to fund capital investments, additional service, and improved access for transit. In 2023, the League of American Bicyclists rated Seattle as a bike-friendly community at the Gold level. Seattle has also scored well in other rankings due to its 500-mile network of bike paths, its City Center Bike Network, and for setting the default speed limit for motor vehicles at 20mph on residential streets and 25 mph on arterials.

The Road Ahead

The cities profiled in this book demonstrate that people-friendly mobility is possible. Although the superstar European cities are farther ahead than their American counterparts, many cities in the US have achieved remarkable progress in giving people mobility options with excellent transit and by making it safer and more comfortable for people of all ages and abilities to reach everyday destinations on foot or by bike. The loss of federal funding will require local governments to remind their constituents of the benefits of people-friendly mobility including fewer traffic fatalities, climate action, better heath, economic development, and the ability for people of all ages, abilities, and incomes to reach jobs, school, shopping, and other everyday destinations regardless of whether or not they own a car.

This not a "how-to" book. But hopefully, the profiles of these 30 European and American cities will give readers some ideas, some inspiration, and maybe some hope. It won't be easy to transition to people-friendly mobility. But it will be well worth the effort.

CHAPTER 2

Amsterdam, Netherlands

Amsterdam has been called the bicycle capital of the world. Although Copenhagen and a few other cities might dispute this claim, it is hard to argue with some of the statistics. Roughly two thirds of all trips in the city center occur on bicycles. Only 19 percent of residents use cars on a daily basis. The city continues to reduce places where cars can travel or park while expanding opportunities for bicycling and public transportation. This did not happen overnight or automatically. It took hard work over the course of a half-century from grassroots advocates as well as city leaders. Yet the work is not done. And in fact, it will never be done.

Amsterdam's Preconditions

As they marvel at the waves of cyclists rolling through this city of 916,000 people, many visitors may assume that the popularity of bicycling here is primarily a continuation of long-standing traditions. That's only partly true. Velocipedes were seen in Amsterdam as early as 1868. But bicycles did not become commonplace here until relatively inexpensive models were introduced after World War I.

Amsterdam had many preconditions that allowed cycling to flourish in the 1920s. The city is flat, which makes cycling a possibility for young, old, and everyone in between. Furthermore, the city center is a maze of narrow streets and canals that defy highways. And, through good fortune, Central Amsterdam was largely spared the large-scale redevelopment and transportation projects conducted in many other cities.

Proponents of roadway expansion floated plans to fill in Amsterdam canals in the 1800s, a strategy that seemed easier than taking private property since the city owned the canals. This happened to a few of Amsterdam's canals in the 19th Century. But the path of canals seldom matched transportation needs. Furthermore, when the government started

thinking about such monumental projects in the 20th Century, an emerging historic preservation ethic stymied plans to fill in canals or make other changes that might degrade the city's historic character. By retaining its narrow streets, Amsterdam significantly thwarted the automobile juggernaut and consequently created a better environment for cycling.

Amsterdam did not follow the example of Paris and other cities that cleared entire corridors of older structures to run wide boulevards through the heart of the city. While done with the best of intentions, these boulevards essentially made it possible to accommodate cars and all of their negative outcomes in the 20th Century.

Most plans for inserting grand boulevards through historic Amsterdam were never implemented. In his book *Bike City Amsterdam*, Fred Feddes writes that such widenings would have been more likely if Amsterdam had been bombed like Rotterdam and other European cities during World War II. But in the first few decades after the war, Amsterdam focused its limited resources on housing the population boom rather than funding major transformations of roadway networks in older parts of the city. Furthermore, the more democratic sensibility of the 20th Century had replaced the autocratic rule of the 19th Century, which limited the ability to take private property to widen public roadways.

Cyclists can travel in either direction on many of Amsterdam's one-way streets.

Cities in the Unted States and other countries have struggled to keep cars from hogging public space in the face of powerful lobbying initially from car manufacturers and oil companies. This pressure for car dominance worsened as more and more people moved into car-dependent US neighborhoods and found themselves with few options other than driving. Writing for Bloomberg's CityLab, David Dudley observes that The Netherlands has no domestic automobile manufacturers and consequently experiences less pressure from lobbyists to build transportation infrastructure for the sole or primary benefit of privately-owned cars.

In the 1920s, as bicycles became more affordable, city residents realized that bicycles were well suited to navigating a dense city consisting of 19th Century neighborhoods surrounding the city center's canal rings dating to the 17th Century. By 1930, one third of all trips occurred on bikes, one third on foot, and one quarter by public transportation, leaving only five percent of trips made by cars. The Amsterdam plan for the year 2000, completed in 1935, called for bicycling to be the primary mode of private transportation. Although World War II delayed implementation of that plan, by the mid-1970s, Amsterdam had completed 160 kilometers of cycle paths.

Post World War II

Amsterdam's transportation engineers underestimated future car ownership because driving was uneconomical and unnecessary prior to World War II. But post-war prosperity motivated an unexpected rise in car ownership in the 1950s. By 1960, more miles were completed by car than by bike throughout Holland. According to Feddes, owning a car was largely a status symbol rather than a need or a practical, cost-effective means of getting around in Amsterdam.

Between 1957 and 1965, car ownership in the city more than tripled from 35 cars per 1,000 residents to 128 cars per 1,000 residents. Some of the most beautiful public spaces in Amsterdam were converted to parking lots. Increased car traffic was discouraging bicycle use and causing the development of plans that largely ignored cycling as a transportation mode despite the fact that cars were widely recognized as harmful in urban settings due to pollution, inefficient use of finite public space, environmental degradation, and what we now call road rage.

Plantage Middenlaan is one of the streets where Amsterdam removed cars to create a safe and pleasant corridor for trams, bicycles, and pedestrians.

Despite all this, a growing appreciation for historic character largely prevented the car craze from causing drastic changes to the developed parts of the city. Limitations in infrastructure funding also kept Amsterdam from making the kinds of horrible mistakes that were happening in the United States at this time.

Even though many Amsterdamers saw car ownership as a status symbol, quite a few were just as determined to continue bicycling to signal that they were still just regular people (even if they were rich enough to own cars). Feddes describes it as "conspicuous non-consumption".

Despite the lure of driving, biking remained more practical due to Amsterdam's urban form. The city retained its dense and diverse land use pattern that allows residents to reach most everyday destinations by bike in 30 minutes or less even in the 19th Century ring of districts that surround the historic city center.

The 1960s

In the 1960s, car owners were chafing at the constraints of Amsterdam's antiquated roads But the Baby Boomers were coming of age and began challenging assumptions about the future of the city. These urban pioneers viewed cars as dangerous and unnecessary. They preferred the individual freedom of bikes over public transportation because, in the days before dedicated lanes, buses and trams were stuck in traffic just like cars. In addition, many students drawn to city schools at that time came from places where cycling was routine and these newcomers had little trouble navigating the city on two wheels.

The Baby Boomers' rejection of car ownership was likely part of a more universal rejection of the values and obsessions of their parents' generation, including the idea of cars as a status symbol. In 1965, a growing youth population in the historic city center formed Provo, a political movement that was outwardly provocative yet scored points on serious issues including traffic crashes, which killed 93 people in Amsterdam in 1965 and rose to 114 deaths by 1970. This coincided with a new concept, unveiled at an international conference held in 1966 in Amsterdam, of the inner city as a place of recreation, relaxation, and interaction rather than a place geared primarily for commerce.

In the late 1960s, another counterculture movement named the Kabouters engaged in anti-car protests including a sit-down demonstration in Leidsestraat which prompted the government to permanently close the street to cars. When the Kabouters won five seats in municipal elections, the major political parties realized that they might have to entertain more of these ideas.

The 1970s

In the mid-1970s, the historic preservation movement joined with the counterculture in opposing a plan to demolish much of the old Nieuwmarkt neighborhood to build a metro line topped by a highway flanked by office towers. Following intense rioting in 1975 over this plan, the city built the subway but abandoned the proposed highway and redeveloped the area as a mixed-use neighborhood with social housing rather than a commercial district. As a symbol of this political U-turn, the original, narrow street above the subway line now has a shared bike-car lane in one direction and an exclusive bike lane in the opposite direction.

As more boomers had children of their own in the 1970s, many wanted to remain in the historic center and surrounding 19th Century districts rather than move to the suburbs as the old city plans expected. These young families wanted safer, people-friendly streets rather than car-dominated roadways and parked cars.

In 1972, 457 of the 3,264 nationwide victims killed in traffic crashes were under 15 years of age. The government position was that these deaths were the regrettable but inevitable price of progress. Writing in *The Guardian*, Renate van der Zee argues that these fatalities were key to reversing the country's love affair with the car. Politicians began to listen to activists who complained that the streets were being taken over by car traffic and no longer belonged to the people who lived there. The chillingly-named *Stop de Kindermoord* (*Stop the child murder*) movement fueled much of the protests that raged against car domination in the 1970s. The government ultimately subsidized this organization and it went on to recommend traffic slowing designs like the *woonerf*, a residential street with bends and bumps that is still seen in many towns throughout the country.

In 1973, the Arab oil boycott jolted The Netherlands along with many other nations that supported Israel in the Yom Kippur War. The national government banned car use on Sundays. Although dubious as an energy-saving strategy, these ten Sundays made a lasting impression of how people could move, relax, and enjoy the city without the noise, smell, and danger of car-choked streets.

In the following years, a movement named Car-free Amsterdam staged roads blockages and violent protests while demanding that Amsterdam completely ban all cars from the city. At the same time, a group of young architects adopted a less confrontational approach by developing recommendations for bike paths, cycleways, and other infrastructure designed to promote peaceful coexistence for all travel modes rather than the complete elimination of cars.

This better-design movement was supported by a political strategy that encouraged cyclists to band together to advocate for transportation justice. This group recognized that the creation of equitable mobility was a long-term struggle that would likely take as many decades as it took for cars to dominate the landscape. Its mantra was patience. The amount of time needed for bicycles to achieve a level playing field was less important than steering the transportation system in the right direction.

The Cyclists Union

Cycling advocates invited everyone to join in demonstration rides through Amsterdam as a way of building support for a bike-friendly city. These rides grew from 2,000 participants in 1973 to 15,000 cyclists in 1978. When car boosters complained that bikes hinder traffic, the cyclists countered that bikes *are* traffic, and in fact a less polluting, more efficient, and less dangerous form of traffic than cars.

Many couples with children do not want to move to Amsterdam's suburbs and fight for safer, people-friendly streets and public spaces.

The success of this nonviolent form of resistance prompted formation of the organization that would ultimately be named the Cyclists Union, creating a permanent home for advocacy and an umbrella organization embracing various factions ranging from zealots to pragmatists. The Cyclists Union published its Bottlenecks Memorandum which recommended specific solutions to cycling impediments from roadway classifications and cycleway design to intersection visibility and speed limits. The Cyclists Union hoped that city traffic engineers would use the Bottlenecks Memorandum for guidance in the event that political leaders chose to restore a balance between bikes and cars.

In 1978, three members of the city council released *Bicycles and Cycling in Amsterdam,* a memorandum in support of bicycling as a valid mode of urban transportation. The memorandum pointed out that cyclists had traditionally been the underdogs in transportation planning because moneyed interests had more clout when promoting the dominance of the car and the construction of large public works projects that politicians could brag about. It emphasized that bicycling was democratic as well as practical, a sentiment that played well in the 1970s.

Bicycles and Cycling in Amsterdam stated that if Amsterdam was to remain a compact city, future plans had to include provisions for bicycles. In Amsterdam, the Cyclists Union formally provided expertise as part of a city working group while also advocating for change wherever necessary. This cooperative arrangement led to the 1982 *Memorandum on Implementation of the Bicycle Policy*, which, among other things, identified main and secondary bike networks as well as connections between the two. This document also called for testing of two innovations which are now found in many cities: bikeshare and bicycle priority space ahead of cars at traffic lights.

The 1980s

Even though cycle infrastructure appeared in plans during the early 1980s, implementation typically had to wait for the normal cycle of roadway maintenance every 10 to 25 years. In addition, sometimes the city would implement a cycle improvement only to reverse course. In an effort to decentralize government, the city was transitioning from unitary control to district control. During this period, the Bicycle Working Group was disbanded and the individual districts were too new to manage bicycle policy along with all the other decisions thrust on them.

The Cyclists Union came to the rescue with *Make Way for the Bicycle,* a handbook designed to help the new sub-city districts prepare and implement bicycle plans for their neighborhoods. With help from the Cyclists Union, districts developed individual plans that meshed with plans for the city-wide network. In 1993, the City of Amsterdam and the Cyclists Union co-produced a new edition of the handbook. Nevertheless, progress was slow.

The heavily-used bikeway through the Rijksmuseum symbolizes Amsterdam's commitment to people-friendly mobility.

Out of concern for emergency vehicle access, the city started to install bollards and other features to prevent the illegal parking of automobiles, which helped liberate some of the public right of way. Amsterdam eventually improved paid parking and collection of fines for parking violations which generated revenue for investments in transportation improvements including cycling infrastructure.

In addition to illegal parking, Amsterdam substantially reduced the number of legal on-street parking spaces. Roughly half of the number of spaces removed from the streets are now within off-street parking structures, so there are still many car parking spaces in the city center. But the removal of the on-street spaces liberated considerable roadway area for cyclists and pedestrians.

Over the years, the city replaced its original plan for a two-tier bicycle network with a single Main Bicycle Network which, as of 2019, was considered 95 percent complete according to the original design standards. However, this network is so successful that parts of it are in need of expansion due to overwhelming bicycle counts.

Site Specific Solutions

Amsterdam evolved into a bicycle city street by street and even block by block. Site-specific conditions demanded flexibility in how much of each roadway could be assigned to which modes and under what conditions (such as one-way, shared tram/bike lanes, shared car/bike lanes etc.) Through it all, many retailers opposed any reduction in car dominance despite studies showing that cyclists are better for business than motorists.

Plantage Middenlaan, a street linking the city's east side with the city center, illustrates how Amsterdam first accommodated and then controlled the automobile juggernaut throughout the last 100 years. This street is the front door for many of Amsterdam's cultural destinations including the Botanical Gardens, the National Holocaust Museum, and the Amsterdam Zoo. A photo from 1928 shows this street with trolleys and bikes, but not a car in sight. By 1960, the onslaught of cars was causing a bottleneck where Plantage Middenlaan crossed the Niewe Herrgracht canal, prompting the city to build a wider bridge. By the 1980s, the city acknowledged that cars were a hazard for bicyclists and reclaimed some of the right of way to build a segregated bike lane. Finally, in 2015, the city banned cars entirely from Plantage Middenlaan, creating a landscaped tram corridor and a wide bike/walking path.

Before banning cars from streets entirely, Amsterdam tries to reduce congestion using one-way restrictions and *knips*, meaning street closures that discourage cross-town traffic by turning short cuts into circuitous routes through the city. Traffic has been notoriously hard to control on Damrak, the street linking the central train station with Dam Square,

which is the route that many visitors use when arriving in Amsterdam. Photos from 1970 show Damrak with traffic jams from curb to curb, including on the tram tracks, making the tram option considerably less appealing for anyone in a hurry. Amsterdam has been steadily working to wean traffic off this street, most recently by prohibiting northbound traffic with the exception of emergency vehicles, bicycles, mopeds, and delivery trucks during off hours. A 2020 photo of Damrak shows the street now filled with people rather than cars, an image that should be shown whenever retailers oppose traffic restrictions on the streets in front of their businesses.

The Main Bicycle Network works largely because of traffic calming in residential neighborhoods, a condition facilitated by extremely low speed limits and street designs that make motorists well aware that they are have the lowest priority in the competition for public space.

Enviable Problems

Amsterdam has the enviable problem of where to park thousands of bicycles. In the past, drivers illegally parked their cars partially or completely on sidewalks since drivers were concerned about blocking their fellow motorists but rarely worried about taking sidewalk space from pedestrians. Conflicts increased when cyclists had few alternatives to parking their bikes on the sidewalk and creating additional obstacles for pedestrians. The city launched a program to create thousands of bike parking spaces by encouraging the incorporation of bike parking during the redesign/rebuilding of structures as well as the provision of substantial public bike parking at train stations and public transit centers.

The erasure of borders within the European Union in 1992 motivated many cities to compete for residents and businesses. In addition to its attempts to create an equitable, neighborhood-empowered city, Amsterdam realized that its bike-centric policies created a good economic strategy in an era when footloose employers and employees were choosing where to locate based on quality of life. Amsterdam was able to offer a compact, vibrant urban environment with usable public space made possible by a bike-centric transportation system allowing people to move about in a free, planet-friendly way without a car. Its appeal was enhanced in 2010 when the canal zone was listed as a UNESCO World Heritage Site.

Damrak is now car-light from Amsterdam's Central Train Station to Dam Square, the city's largest public space.

The attraction of a vibrant, bike-friendly city also led to gentrification, particularly in the historic city center. Concurrently, immigrants from Suriname, Turkey, and Morocco who were moving into post-war neighborhoods were less likely to bicycle for many reasons including a lack of experience with bicycles, the difficulty of pedaling in traditional clothing, and a misperception that cycling was a sign of lower social status. However, the second generation of immigrants is now recognizing the advantages of bike-friendly Amsterdam.

Amsterdam wants to beautify public space as well as reduce car dominance and increase bike-friendliness. Sometimes these goals are in competition, as when the city applied a "carpet of pebbles" to Dam Square that succeeded in creating a unified aesthetic but generated a bone-shaking experience for cyclists. But fortunately, the city is usually able to find solutions that allow aesthetics and cycling to be mutually beneficial.

Cycling in Amsterdam is phenomenally popular because it is practical and safe. Moreover, the sheer number of cyclists here is a primary reason why it's safe. Cyclists have achieved sufficient critical mass to claim their fair share of public space.

Amsterdam began promoting its bike brand with the slogan "Amsterdam looks better on a bicycle." The city took a victory lap with a 1996 bicycle festival in Vodelpark that was followed by the Velo Mondial in 2000 which attracted over 600 participants eager to learn how Amsterdam had managed to build what seemed illusive for most cities.

The Rijksmuseum Passageway

Despite Amsterdam's success with its bicycling branding, controversies about bike-friendliness continued well into the 21st Century. One battleground concerned the bicycle passageway beneath the center of the Rijksmuseum. This opening has existed since the museum was first built in 1885. Cars were allowed to use the roadway here until 1931, after which the passageway was only available to bikes and pedestrians. It became a major bikeway link between the historic city center and the Zuid district to the south, accommodating over 10,000 cycle trips per day.

The bike passageway through the Rijksmuseum was the subject of a long and hard-fought battle.

Between 2003 to 2013, as major renovations were being made to the Rijksmuseum, art lovers and architectural buffs called for closure of the passageway to create a grand entrance and correct what some considered to be an aesthetic blunder in the exterior design. Opposing the closure was *Save the Passageway*, a coalition of the Neighborhood Center and the Cyclists Union speaking on behalf of bicyclists and Amsterdam's bicycle heritage. Those who wanted to close the passageway portrayed *Save the Passageway* as a group of narrow-minded obstructionists with no plan of their own even though its plan was the one approved in 2006.

As late as 2010, the close-the-passageway forces kept lobbying to change the approved plan. But fearing the extra cost associated with making last-minute construction contract changes, the national government reaffirmed the previously-approved design that retains the bike passageway. The sore losers commissioned a traffic study 2012 showing that it was safer to close the passageway. But *Save the Passageway* prepared a correction of that

study showing that it was safer to maintain their already-approved plan. To break this stalemate, the central City Council took responsibility for making this decision. Its conclusion was that there was no sound reason to remove the passageway from the Main Bicycle Network. In 2013, ten years after the start of this battle, the adopted plan was blessed once again and the passageway still carries an amazing number of cyclists under the Rijksmuseum to this day.

The underground bike garages at Amsterdam's Central Train Station can park 11,000 bicycles.

Dealing with Success

Biking has been steadily increasing in Amsterdam. Citywide, the average number of daily bike trips rose from 470,000 in 1991 to 600,000 in 2000 and then to 710,000 in 2015. These increases were attributed to the evolution of the bike network, better coordination of train-bike linkages, and increased public transport fares which made bicycling the more economical mode of travel. However, the growth in bike trips also increases the likelihood of conflicts stemming from this success such as inadequate bike parking facilities, inconsiderate behavior of some cyclists, and just the sheer volume of cyclists and its effect on the comfort level for young, old, and less-than-fearless bicyclists.

Amsterdam continues to address the bike parking issue by building bike garages. Garages with a total capacity of 11,000 bicycles were recently completely in front and behind Amsterdam's central train station. These are underground garages, which in this location means they are also underwater and required expensive construction and operational methods. By relocating bike parking below the entrance plaza to the train station and restricting car access in this area, Amsterdam has also created a more aesthetic front door to the city than the sea of black bikes that used to greet people as they got on and off the train.

Muscles versus Motors

As an unexpected ally, philosopher Ivan Illich's *Energy and Equity* explained why the bicycle is the epitome of energy efficiency both from the standpoint of physics and the household economy when compared with the privately-owned car which requires endless hours of work to pay for fuel, taxes, repairs, insurance, and parking as well as the cost of the car itself. His essay used physics and economics to add support for bike culture. Nevertheless, many residents and visitors cannot resist the lure of scooters, microcars, and e-bikes.

Motorized vehicles have always been a headache for the Amsterdam bike network. At times, the city required mopeds to use bike paths and at other times prohibited them from bike paths. When moped riders were required to wear helmets, a so-called limited-speed moped, which does not require a helmet, became popular. In addition to polluting the air and exceeding speed limits, these limited-speed mopeds were originally allowed to use bike paths. The number of limited-speed scooters in Amsterdam grew from 10,000 in 2008 to more than 35,000 in 2016. As of 2019, riders of limited-speed mopeds need to wear helmets and cities are allowed to regulate whether or not they can use bike paths.

Amsterdam is also trying to deal with microcars, which were originally designed to provide mobility for the disabled. Initially, many people without disabilities bought these vehicles to avoid parking fees, road taxes, and the congestion often found in car lanes. They are

too wide for cycle paths and sidewalks yet that is where they were often driven or parked until 2019, when a magistrate prohibited their use on sidewalks or cycle paths.

As of 2019, e-bikes represented seven percent of all Amsterdam bicycles and growing. E-bikes capable of reaching 45 kilometers per hour are banned from bike paths (although there are widespread violations of that prohibition.) However, e-bikes that theoretically cannot reach higher speeds are nevertheless going too fast on bike paths, creating stress at best and crashes at worst.

Like most arterials in Amsterdam, the road in front of the Concert Hall has more lanes for trams, buses, and bikes than for cars.

Cyclist Behavior

Amsterdam welcomes 20 million tourists per year and riding a bike tops the list of things

to do in Amsterdam. On the one hand, the city wants tourists. And putting tourists on bicycles is less problematic than having them on tour buses or trying to navigate the city in rental cars. But in addition to their sheer numbers, bicycling tourists have little knowledge of or perhaps regard for cycling rules and courtesies, consequently adding stress to Amsterdam's bikeways, sidewalks and squares.

Some critics claim tourists are simply mimicking the bad biking behavior of Amsterdam's anarchist cyclists. They argue that cyclists have become so arrogant that they are now the menace to pedestrians that cars at one time were for cyclists. These assertions have been countered by one study estimating that only six percent of cyclists fit the stereotype of the reckless Amsterdam cyclists who jump red lights, fail to yield, and generally exhibit aggression to everyone on the roadway, cycle path, and sidewalk.

Feddes admits that Amsterdam cyclists are often assertive, an attitude which he claims was necessary to survive in the city's roadway chaos of decades ago and has persisted to this day. But he excuses much of this behavior by writing that it is far less consequential than the bad behavior of a car driver: typical city cyclists have 0.1 horsepower compared to the 300 horsepower delivered by a Tesla S.

The Expanding City

As the original bike plan was nearing completion, new people-friendly mobility demands arose within new city districts and the need to link those districts with the rest of the city. IJburg, for example, is a new town being built on artificial islands in the IJmeer, the large lake east of central Amsterdam. On completion, IJburg will be home to 45,000 residents and 12,000 workplaces plus supporting retail, entertainment, and public facilities. Trams already serve IJburg and connect it with the rest of the city using bridges and tunnels. It was relatively easy to incorporate optimal bike infrastructure here in conjunction with the new public and private development. Amsterdam is also justifiably proud of the graceful, award-winning Nescio Bridge, which, at 800 meters in length, is the longest pedestrian/bicycle bridge in the country.

Recent Statistics

As of 2024, Amsterdam had a total cycling network of 1,242 kilometers, including 858 kilometers of bike paths completely separated from other traffic. In 2017, 68 percent of all work and school trips were by bike. That year, Amsterdammers bicycled two million kilometers every day and averaged 900 kilometers per year per person.

The Path Ahead

Amsterdam has earned its victory lap for being one of the most bike-friendly cities in the world. But even here, transportation planners may be tempted to prioritize motor vehicles rather than bicycles as new towns are built and the metropolis expands. To keep from backsliding, the city needs watchdogs that are able and willing to work within the system as well as protest when the establishment goes astray. It sounds like a lot of work. And it is. Hopefully, the grassroots activism of the last 50 years can be maintained for the next 50 years. If so, Amsterdam will continue to show the world that people-friendly mobility is possible.

CHAPTER 3

Antwerp, Belgium

Antwerp is considered the most bike-friendly city in Belgium and ranks number four in the world according to the Copenhagenize Index. Experts attribute this success to a mix of activism, expertise, and government action. The city's leadership in cycling is coupled with a first-class public transportation system and numerous public spaces geared to people instead of cars.

Welcome to Antwerp

Antwerpen-Centraal is often called the most beautiful train station in the world. Originally built between 1895 and 1905, it was heavily damaged by V2 rockets in World War Two but lovingly restored and reconfigured from a terminus to a through station. Arriving passengers now ascend to an atrium topped by a massive dome that inspires the building's nickname as *the railroad cathedral.*

Cyclists arriving by train can retrieve their own bikes from the ever-improving bike garage beneath Antwerpen-Centraal. Alternatively, they can grab one of the city's bike-share bikes and drop it at any of 309 Velo-Antwerpen locations throughout the city.

Antwerp invites people to walk or bike from Antwerpen-Centraal to the historic city center via De Keyserlei, where the city has combined public transit, sidewalk widening, and road diets that strongly discourage private cars. At a previously problematic intersection, the city built a tunnel for car traffic under De Keyserlei, and combined it with a metro station, a tram line, and an underground bike park to create the pedestrian-friendly Opera Square on the surface.

Antwerpen-Centraal is often called the most beautiful train station in the world.

After another half mile of car-free or car-lite streets, cyclists and pedestrians arrive at Groenplaats, a large public square featuring an underground metro station and an at-grade transit center linking bus and tram lines that radiate east, south, and west across the River Scheldt.

Just north of Groenplaats lies a web of narrow and often car-free streets that converge on Grote Markt, a huge, historic square largely surrounded by centuries'-old buildings including the 1561 City Hall listed as a UNESCO World Heritage Site. Weather permitting, outdoor cafes line the perimeter of Grote Markt, offering a place to relax and watch the comings and goings of cyclists and pedestrians within a peaceful, exhaust-free environment.

Speaking of exhaust, the entire area described above as well as most of central Antwerp is a Low Emission Zone (LEZ) that prohibits the most polluting vehicles. Cars must be registered as less-polluting vehicles in order to enter the LEZ. Under certain restrictions, cars that do not qualify as less polluting may enter the LEZ no more than eight days per year by buying a one-day pass for each entry at a hefty price. Violations can draw fines as high as $350 euros per infraction. On the web page explaining these rules, the Antwerp tourism agency helpfully suggests that tourists use the train to visit the city.

Fighting for Balance

Cycling was wildly popular in Antwerp between World War I and World War II. In 1935, bicycles accounted for 70 percent of all trips in Antwerp. Comparable to Amsterdam and some other European cities, that mode share dropped to less than 20 percent by 1970 as car ownership became more affordable and more families moved to single family homes on the urban fringe with help from state loans and grants.

Through steady development of bicycling infrastructure and culture, Antwerp has gradually brought cycling back into balance with cars. Grassroots activism played a key role in this turnround as illustrated by the fight over the remaining gap in the ring road, which actually goes through rather than around Antwerp. In 1996, the regional government of Flanders proposed closing the gap with a highway design that watchdogs argued would exacerbate Antwerp's poor air quality and cause further degradation of city living. Under pressure from a citizen's movement, the city held a referendum on the plan in 2009 and the people of Antwerp voted no. Since it was a non-binding referendum, highway advocates continued to propose alternative designs that failed to adequately address environmental concerns. After another 15 years of wrangling, the government ultimately approved a plan that puts most of the highway in underground and underwater tunnels, leaving the land on top to be restored as natural areas, parks, and bike paths.

Bikes and pedestrians have priority over cars on a woonerf, which translates to "living street".

Bike Planning

Antwerp's 2015 bike plan called for upgrading the cycling network through intersection improvements, management of traffic signals, and a reduction of speed limits on 95 percent of all of its streets to 30km/h. This plan links the design of its bicycle lanes to three types of roadways. Bikes can mix with cars on streets with a maximum speed of 30km/h. Streets with maximum speeds of 50km/h require dedicated bike lanes and those with speeds of up to 70km/h call for segregated and protected bike lanes or paths. The plan also called for the expansion of cycle highways linking Antwerp with adjacent cities as well as adding to its already impressive amount of bike parking.

Steen Castle, Antwerp's oldest preserved building, anchors the main cycle route along the River Scheldt.

A recent update indicates that the plan is working. As of 2023, almost 40 percent of all work trips occurred by bike, surpassing the percent taken by car. In that year, bikes accounted for over 50 percent of trips to school and 42 percent of non-work/non-school trips. The update also details the projects scheduled for implementation by 2030 in six categories: expanding/enhancing the cycling network; adding more bike parking; improving safety; ensuring everyone has access to a bike; applying smart technology; and encouraging people to choose cycling. The city made a big step in motivating cycling with a multimodal route planner that coordinates cycling trips with transit and train transportation.

Bike Antwerp

Antwerp makes it easy for visitors to experience the city by bike. The tourism bureau

provides beautifully illustrated maps and guidebooks for suggested trips including four that are coordinated with bike share stations allowing cyclists to pick up and drop off bikes at the most popular destinations. Steen Castle, the city's oldest preserved building, anchors the main cycle route on the right bank of the River Scheldt. Another mile or two on that route takes cyclists to the seven story MAS museum and further along to the Red Star Line Museum that tells the story of the two million emigrants who passed through Antwerp on their way to America. At the northern end of the Urban Jungle Route, cyclists can admire the Port House, an architectural gem designed by Zaha Hadid Architects that celebrates Antwerp's history as a world center for diamonds. These are just four of the almost 100 destinations on this cycle route alone.

Antwerp's Port House can be reached by tram or by pedaling the Urban Jungle cycling route, one of several in Antwerp.

The Path Ahead

Like other cities topping lists of the world's most bike friendly places, Antwerp's

rediscovery of cycling has motivated the city to double down on people-friendly mobility. After the positive response to its 2015 plan, Antwerp's most recent plan sets ambitious goals for 2030. This rebalancing of travel modes is also succeeding in making Antwerp a better place to live.

CHAPTER 4

Berlin, Germany

In 2015, 100,000 citizens of Berlin signed a referendum demanding better cycling infrastructure. The government responded by collaborating with advocacy groups on an ambitious Bicycle Plan adopted in 2018. The following year, Copenhagenize ranked Berlin as the 15th most bike friendly city in the world but cautioned that the network envisioned by the city was still a work in progress. However, the political will to succeed appears in the following quote by Berlin's Transport Senator, Regine Gunther: "The old mobility concept of the car-friendly city is reaching its limits… we want people to get rid of their cars."

The Plan

The German government proposes to double the number of bike and pedestrian trips nationwide by 2030 and double the distance traveled by bicycles *every day* to 224 million kilometers in 2030. The Berlin Mobility Act helps achieve that goal of increasing bicycling's share of traffic in Berlin from 18 percent in 2018 to 23 percent by 2030. The cycle component calls for a cycling network of 2,376 kilometers including a priority network of 871 km that requires cycle paths to be at least 2.5 meters wide in each direction to ensure speed and safety.

The remaining 1,505 km are part of a supplementary network requiring cycle paths to be 2.3 meters wide in each direction. Side streets are typically designated as fahrradstrasse, or cycle streets. On cycle streets, cyclists can use the entire right of way and the maximum speed for all vehicles is 30 km/h, creating a cleaner, quieter, and more people-friendly environment.

Unter der Linden, Berlin's most famous boulevard, is a Priority Bike Route.

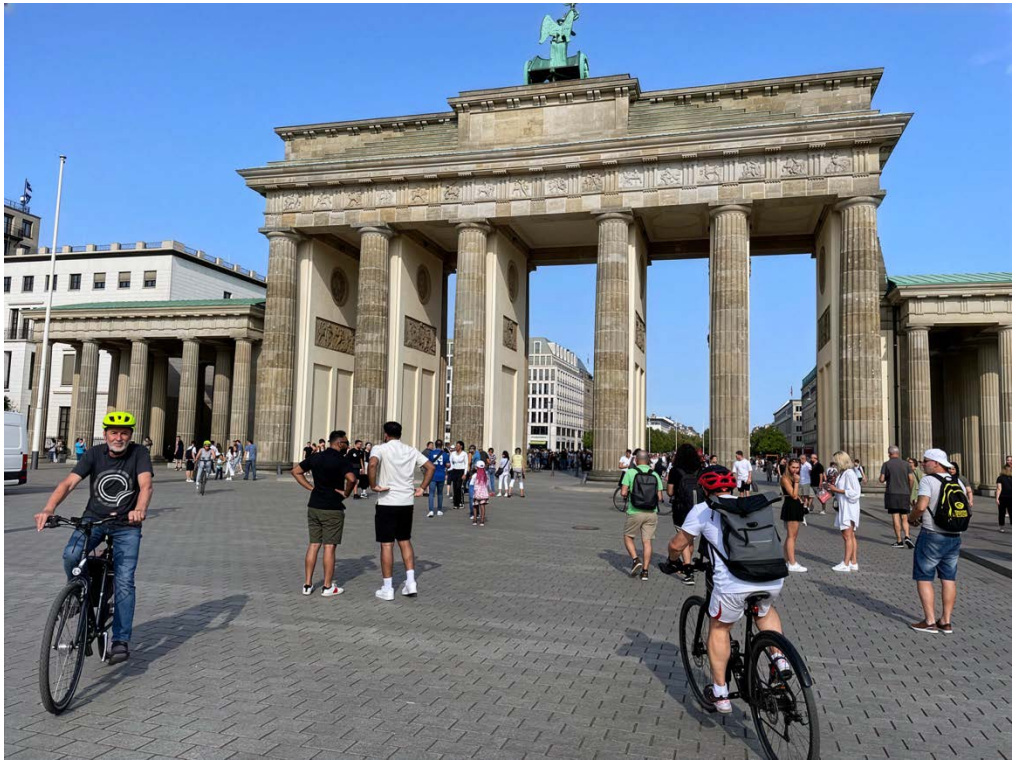
In addition to the cycling network and cycle streets, Berlin is developing at least 100 km of high-speed cycle connections to provide comfortable, long-distance cycling that improves air quality, safety, and health. The high-speed cycle connections will be wide, long, and typically give cyclists priority at intersections. The planned high-speed network features ten cycle highways radiating from the city center, extending through jurisdictions adjacent to Berlin, and ending in the countryside surrounding the metro area.

Berlin's 160-km Berlin Wall Trail passes white crosses remembering some of the over 600 East Germans who died in failed attempts to flee to the West across the Spree River.

Biking The Wall

The freedom of cycling around Berlin can be supercharged by pedaling the route of the former Berlin Wall. East Germany built the wall around East Berlin in 1961 in an attempt to prevent East Germans from escaping to the West. It was the world's most vivid example of oppression until it was overrun in 1989 and torn down after the reunification of Germany in 1990.

Berlin wants to remember its dark past. The tomb-like concrete shapes of the Memorial to the Murdered Jews of Europe occupies an entire block in the city center. Berlin also transformed the site of the Nazi Gestapo Headquarters into the Topography of Terror, a museum illustrating how Hitler seized control of Germany, started World War II, and ruthlessly crushed all resistance. In 2006, the city completed the 160 km Berlin Wall Trail allowing cyclists to travel the route of the wall that once encircled West Berlin. This trail invites cyclists to stop at various history stations to learn what happened at each location. Crosses on the banks of the Spree River include short biographies of some of the over 600 East Germans who died in failed attempts to scale the wall or swim to freedom.



The Brandenburg Gate, built in 1791 by King Frederick William II of Prussia, marks the start and end of the Berlin Wall Trail.

The Brandenburg Gate marks the beginning and end of the Berlin Wall Trail. This

neoclassical monument, built in 1791 by King Frederick William II of Prussia, was surrounded by the wall during the Cold War and served as the backdrop for US President Ronald Reagan when he famously told Soviet leader Mikhail Gorbachev to "tear down this wall". With the wall now gone, the bicycles gliding through the gate seem like the perfect symbol of mobility in all its forms

CHAPTER 5

Bern, Switzerland

Bern shall become the bike capital of Switzerland." That proclamation appears in the first paragraph of Bern's 2015 bike plan: *Velo-Offensive*. Bern, the capital of Switzerland, actively promotes cycling along with walking and transit as city-friendly mobility. As summed up by Ursula Wyss, Bern's former Director for Civil Engineering, Transport and City Greenspace: "The future belongs to cities with attractive public spaces – and those will be the pedestrian and bicycle cities."

Plan of Attack

In 2012, Bern projected a 20 percent increase in transportation demand by 2030 and recognized that its public transport system had already reached its peak-time capacity limits. Buses and trams were (and are) constantly streaming on the main route from the central train station, making major increases in frequency highly unlikely. In addition, opportunities to widen rights of way seem difficult or impossible within a historic old town designated as a UNESCO World Heritage Site. Consequently, the city chose to dramatically increase its reliance on cycling.

For years, cycling's share of city traffic stubbornly stayed at 11 percent despite the fact that Bern is well suited for cycling in many ways. Bern's compact urban form allows most destinations to be reached by relatively short trips. Cycling is often the most effective way to get around and the scenery is generally pleasant if not downright charming. Furthermore, Bern's hills are manageable and its weather is not less favorable for cycling than that in cycling superstars like Copenhagen and Amsterdam. The problem was not the city itself but the lack of a public policy that actively causes more people to choose cycling.

To add that missing ingredient, Bern adopted a bike plan in 2015 that tasks cycling with accommodating 20 percent of all city traffic by 2030. To reach that goal, the city will have to make cycling attractive, safe, and low-stress for people of all ages and abilities as well as hard-core cyclists. The plan calls for fast and comprehensive deployment of bicycle infrastructure and extraordinary community outreach aimed at changing travel behavior. The militaristic sound of the plan's name, *Velo-Offensive*, is intentional.

The plan acknowledges that the target of 20 percent mode share is ambitious. But it points to successes in other cities including Copenhagen, Munich, and New York City. It states that Bern, like other cities with successful bike systems, has the political will to promote healthy lifestyles, a safer environment, and better quality of life. In addition to building first-class cycling infrastructure, the plan calls for programs that promote cycling, particularly to children and young people. The overall vision is for cyclists of all ages and abilities to feel so comfortable using a bike that the decision to cycle is obvious.

Velo-Offensive established main bicycle routes based on coherence, directness, attractiveness, safety, and demand. These main routes generally radiate from Bern's central train station and extend into the countryside. A circular route connects the spokes of this wheel at anywhere from two to eight kilometers from its hub. The three other components of the plan are general cycling infrastructure, bike parking (particularly around the train station), and cycling promotion. The near-term budget for cycling promotion exceeded the near-term budget for bike infrastructure, an indication of just how serious Bern is about building a bike culture as well as bike infrastructure.

Bern has maxed out its transit capacity and aims to increase the portion of trips taken by bicycle in order to maintain mobility.

The Battle for Bikes

Velo-Offensive scored a quick win in 2016 when Bern opened the Wankdorf route which features a comfortably-wide, separated cycle track and a green wave (meaning traffic signals timed for those pedaling at 20 km/h so they can flow through a corridor without having to stop.) This demonstration project got noticed and four years after the launch of *Velo-Offensive*, bicycling's mode share had already grown from 11 percent in 2014 to 15 percent in 2018. According to Copenhagenize, bicycle infrastructure played a crucial part in boosting cycling's mode share but other factors were also important.

The Copenhagenize index primarily ranks the bike-friendliness of cities larger than Bern, which in 2022 had a population of 133,000. However, in a 2019 evaluation of the city by Copenhagenize, Bern's *Velo-Offensive* was recognized for cycling's significant increase in mode share between 2014 and 2018. The evaluation also gave Bern high marks for traffic calming on residential streets, noting that the city center was almost car free and that many neighborhood roadways had speed limits of 20 or 30 km/h. At the invitation of the city, local residents have added creative road markings and personal touches to hardscape, indicating that these communities are reclaiming their streets. Copenhagenize also likes that a single card applies to the bike share system as well as public transit.

Writing for Urban Future, Jo Helme attributes much of Bern's success to strong political will, particularly on the part of Ursula Wyss who served as the city's Director for Civil Engineering, Transport and City Greenspace from 2013 to 2020. She faced strong opposition from forces contending that Bern roadways lacked the space for bike infrastructure. She steadfastly pushed back: "In the past, cars were the dominant mode of transport. This no longer meets the needs of the citizens of Bern. There is no such thing as 'we have no space for bicycle infrastructure'. It's just a matter of changing the paradigm and reallocating the existing space."

The *Velo-Offensive* was also helped by a reorganization of Bern's administration, creating a cross-departmental working group and adding personnel and a budget capable of delivering the promise of an everyday bike culture. With adequate human resources and know-how, Wyss and her colleagues formed a bike-friendly atmosphere within the Bern government.

Importantly, the government tapped into the growing public awareness of environmental issues and support for bicycling, particularly among younger people. The *Velo-Offensive* maintained momentum by devoting significant funding for participatory events and engagement with political parties, transport representatives, businesses, and neighborhood groups. Residents were invited to talk about biking issues at workshops and were consulted about surveys and demonstration projects. Children helped design the ultra-low-speed (20 km/h) streets next to their homes.

Roadway sharing rather than roadway widening is clearly needed in Bern's dense and historic center.

Victory?

It's probably fair to say that Bern is winning the battle for bikes but that it cannot declare victory just yet. In 2023, the *Discerning Cyclist* web site ranked Bern number 20 in its list of the top 20 bike-friendly cities in Europe. Bern is still a long way from cycling superstars like Utrecht, Copenhagen, and Amsterdam. But this recognition shows that a city that previously was not considered bike friendly can make a U-turn with public support, political will, and a shamelessly aggressive approach to building bicycle infrastructure.

CHAPTER 6

Bordeaux, France

The streets of Bordeaux's city center are crowded with people rather than cars. That's due to this city's ongoing efforts to curb private automobiles and free up more public space for pedestrians, cyclists, and life in general.

Under its Peaceful City plan, Bordeaux is rolling out variations of pedestrian zones to streets, schools, and neighborhoods throughout the city. The city's robust bicycle system is also being linked to a metropolitan-wide network called The Dream that will encourage cyclists of all ages and abilities to access work, shopping, schools, and other destinations on their bicycles.

Pont de Pierre, the 19th-Century, stone-arch bridge over the Garrone River, carries only public transit, pedestrians, and cyclists.

For a Peaceful City

In 2020, Bordeaux's transport sector generated one quarter of its GHG emissions and two thirds of its air pollution. To meet its targets for GHG emission reductions, the city adopted its action plan *For a Peaceful City*, which redoubled the development of alternative mobility including pedestrianized streets, neighborhood calming, children's streets, and the promotion of walking, cycling and other forms of "soft mobility" with a program called *My Street Breathes*.

As of 2022, 89 percent of the city's streets were limited to 30 km/h in order to improve safety, reduce noise, and allow for soft mobility through a better allocation of public space. Within roadways, many car lanes have been narrowed or eliminated to widen cycleways and sidewalks. Under the moniker of *Calming Neighborhoods*, Bordeaux aims to slow traffic and "improve cohabitation between all users". Drivers must yield to pedestrians whether they are crossing at intersections or anywhere else. Car and cycling speeds are limited to walking pace.

Prior to its *Peaceful City* action plan, Bordeaux had already protected 79 hectares in pedestrian zones. These zones are open to walking and cycling but closed to car traffic with the exception of permanent residents of the zone, people with reduced mobility, and emergency and other public service vehicles. During limited hours, delivery vehicles may also access businesses within these zones. With the exception of bicycles, parking is prohibited within pedestrian zones. The plan aims to expand these pedestrian zones to 250 hectares by 2026, encompassing a large portion of the historic city center, a designated UNESCO World Heritage Site.

My Street Breathes

Bordeaux is rolling out a version of the pedestrian zones for neighborhoods in eight districts throughout the city under a program called *My Street Breathes*. The general idea is that streets will be restricted to pedestrians and cyclists (with the exceptions noted above) from 10 AM to 6 PM on the first Sunday of every month. The details are developed district by district. During these times, pedestrians and cyclists can use the entire roadway width and neighborhood events are encouraged in an effort to let people experience what a neighborhood can sound, smell, and feel like without constant car traffic.

Rue de Porte de Cailhou is one of many pedestrianized streets helping Bordeaux become 'a peaceful city.

The Children's Street

Bordeaux is implementing a program called *The Children's Street* which prohibits cars on streets in front of nursery and elementary schools either permanently or for designated periods of time before and after the school day. As of 2023, 60 schools had enrolled in this effort to increase safety, calm streets, and encourage walking, cycling, and other forms of soft mobility. For nine schools, the street closures were permanent. The city expects 80 percent of the city's schools to install children's streets by 2026.

The City in Great Strides

In another initiative of the *Peaceful City* plan, Bordeaux launched an operation dubbed *The City in Great Strides* aimed at making walking attractive by creating pedestrian routes with shade trees, fountains, benches, and obstacle-free pavement in an effort to get people to rediscover walking as a mode of transportation as well as a form of recreation and healthy living.

Bordeaux has created this multi-modal path on left bank of the Garrone River.

Cycling in Bordeaux

Bordeaux did not make it into the 2011 Copenhagenize Index of the world's most bike-friendly cities. However, by 2015, Copenhagenize ranked Bordeaux at number eight. In 2019, Copenhagenize moved Bordeaux up to sixth place based on the city's progress in reducing space for cars and adding space for bikes.

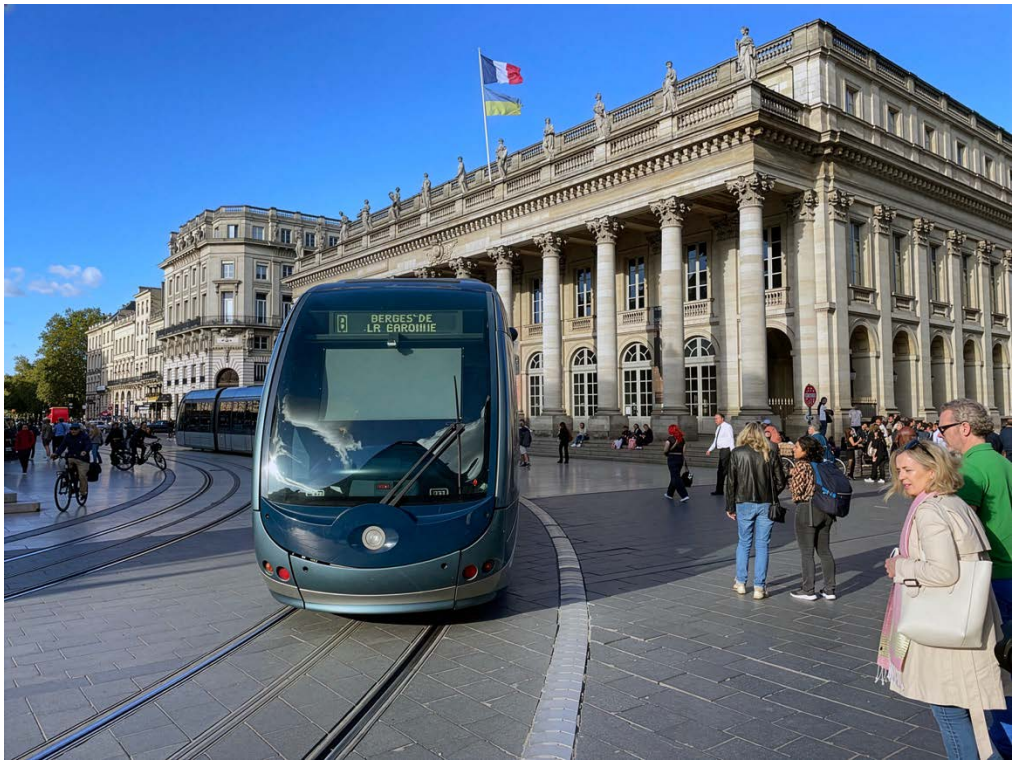
Copenhagenize highlighted the removal of all car traffic from Pont de Pierre, the 19th Century stone-arch bridge commissioned by Napoleon. This bridge is the only link between the right bank of the Garrone River and the city center. Today, the Pont de Pierre carries only public transit, pedestrians, and cyclists, arguably a statement about how serious Bordeaux is about becoming a peaceful city.

Bordeaux doubled down on cycling with a 2017 plan devoting 70 million euros to implementation, the highest per capita investment for cycling in France. Most of this budget was earmarked for improving the continuity of its cycle lanes and extending the bike share system. Another million euros were pledged for improving bike parking and allowing residents to test bikes for a month. The goal was to increase biking's share of traffic from four percent to 20 percent by 2020.

Mobility Plan Update

In 2024, public transit ridership in Bordeaux Metropole hit 110 million trips per year, a seven percent increase. Part of the credit goes to the new TMB (Transports Bordeaux Metropole) mobile app which is usable on multiple travel modes throughout the metropolis and the Gironde, the subregion surrounding the city that includes the coast of the Atlantic Ocean and the famous Bordeaux wine country.

The app simplifies trips across the entire TBM network including four tram lines, 70 bus routes, the new *Le Velo* bike-share system (described below), bike parking, river shuttles, park and ride, school buses, and a mobility system for the disabled. Passengers with reduced mobility ride free and over 86,000 people in total enjoy reduced pricing including 68,000 who pay nothing.



A mobile app useable on multiple transit modes throughout the Bordeaux Metropole and the surrounding subregion has helped ridership grow to 110 million trips per year.

Bordeaux has also been reserving lanes exclusively for buses, and recently held a "race" on its Express G line that carried passengers from a suburb to the train station ten minutes faster than a car. By extending one of its tram lines, riders can go from the city center to the airport in 35 minutes. In partnership with other levels of government, Bordeaux Metropole has been increasing regional train service. One line nearly doubled frequency from 23 to 41 trains per day between 2020 and 2024.

Le Velo

Le Velo by TBM is the new service that works through the multi-modal TBM app to offer complete services to cyclists throughout Bordeaux Metropole including bike share, free

bike loans, long-term rentals, and bike parking. The short-term bike share provides access to a system of 2000 muscle-powered and e-bikes at 186 stations. This system made 64,000 bike loans in May 2024 alone, a 30-percent jump in activity over the previous month.

Bordeaux Metropole also runs *Velo'c* for longer-term bike rentals of up to 12 months for e-bikes and electric-assist cargo bikes. Classic bikes can be used free of charge for 10 months and 2-month free loans are available for e-bikes, cargo bikes, folding bikes, tricycles, tandems and push bikes. *Velopark* offers numerous options for parking personal or *Velo'c* bikes in bike boxes, bike racks, or at bike shelters (such as the 700 spaces in the shelters at the Saint-Jean train station).

The Dream

In addition to the 1,000 km of cycle paths already in the metro area, Bordeaux Metropole is rolling out a network of cycle highways called The Dream aimed at offering fast, seamless, safe, and comfortable trips along with related support including lighting, bike service areas, wayfinding, and secure bike parking. The Dream is geared not to road warriors but to all users wanting bike access to employment sites, schools, and shopping as well as recreational trips.

The 14 lines of The Dream range from 5 km to 42 km in length, with an average length of almost 20 km. Many of these lines link outlying communities with the City of Bordeaux and its extensive cycleway network. For example, Line 5 will link the communes of Cenon and Lormont with the City of Bordeaux via the Pont de Pierre across the Garonne River. The pavement will incorporate an orange line from start to finish plus the line number at each intersection. Totems will help cyclists locate themselves and find nearby points of interest.

On the Path to a Peaceful City

Is Bordeaux becoming a peaceful city? The answer would have to be 'yes' if success is measured by the number of tourists flocking here to relax in the car-free pedestrian zones and pedal the low-stress cycle ways. Many of these tourists are from the United States and other countries where cars completely dominate the streets. Hopefully, some of these visitors will be sufficiently impressed by the accomplishments of Bordeaux to fight for a more balanced use of public space when they return to their home towns.

CHAPTER 7

Bremen, Germany

Bremen, Germany, a city of 568,000 people, rarely gets as much recognition for people-friendly mobility as Copenhagen, Denmark, or Amsterdam and Utrecht in The Netherlands. Nevertheless, Bremen was the first city in Germany to create bicycle boulevards and bike districts. Not surprisingly, 25 percent of all trips here occur by bike, the highest ratio in Germany. Copenhagenize recognized these achievements by ranking Bremen as the 11th most bike friendly city in the world.

The city also excels in transit and now offers eight tram lines, 38 bus routes, and an S-Bahn train serving the metro region. In an effort to revive walking as a viable mode of transportation, Bremen is putting traffic and parking on a diet and pedestrianizing public spaces, as illustrated by Groote Markt, a car-free square where families enjoy some peace and quiet next to Bremen's Town Hall, built in 1405.

Mobility Hubs

In 2003, Bremen recognized the need to reduce on-street parking, which was impeding mobility, blocking emergency vehicles, and occupying too much public space. In that year, the city became an early adopter of mobility hubs, which reduce parking demand and private car ownership by offering a wide array of options for sustainable mobility including bike sharing, public transit, and pedestrian infrastructure as well as car sharing.

Mobility hubs removed about 5,000 cars from the streets. Households that use Bremen's mobility hubs drive 50 percent fewer kilometers than the average Bremen household. As a result, new construction projects in Bremen need less parking and the mobility hubs are helping the city achieve its goals for GHG mitigation.

Bremen Town Hall, a UNESCO World Heritage Site, forms part of Marktplatz, one of several squares and streets pedestrianized by the city.

By 2020, Bremen had 10 large and 33 small mobility hubs and 20,000 users. The success is largely due to the proximity of mobility hubs to residences. The city aims to ultimately have 100 mobility hubs with a hub every 300 meters to maximize access. Bremen's success has also inspired Ghent, Dresden, and other cities to form mobility hubs.

Sustainable Urban Mobility Plan

The Sustainable Urban Mobility Plan, or SUMP 2025 notes that almost 60 percent of all Bremen trips occurred on foot, by bike, or on public transit when the plan was adopted in 2015. The city's reliance on bicycles was unusually high for Germany. The SUMP reports that there were 916 bicycles per 1,000 residents of Bremen in 2015. Bremen's bike

mode share of 25 percent was the highest in Germany. With this in mind, the plan aims to continue improving biking and walking infrastructure, optimizing public transport, and reducing car dependency.

In 2003, Bremen's Targeted Plan for Bicycles called for a network consisting of main, supplementary, and recreational cycleways. By 2015, the SUMP reported the completion of 674 km of separated cycle paths plus 19 km of on-street cycle lanes. However, the plan acknowledged that its standard cycleway width of 1.6 meters was inadequate given the rising popularity of e-bikes and cargo bikes. The SUMP also noted that walking had been overlooked as a mode of transportation in general and pointed to specific problems including long wait times at signalized intersections and potential conflicts between cyclists and pedestrians.

The SUMP's target scenario was projected to decrease car mode share and increase the percent of trips undertaken by people-friendly mobility. Walking would be promoted by adopting pedestrian-friendly designs aimed at encouraging sojourning particularly in Bremen's Green Network within the city's extensive park system. The bicycle component features seven main cycleways radiating from the city center past the city limits into the surrounding countryside connected by two concentric cycle rings. The plan also called for expansion of tram and bus service and continued development of Vision Zero and Mobility Points that link cycling, transit, pedestrian, and car sharing services.

In 2015, the European Commission gave its Sustainable Urban Mobility Plan Award to Bremen. The Commission was particularly impressed with Bremen's commitment to public engagement, monitoring, and a methodology comparing various scenarios to demonstrate that the option promoting active transportation was the most effective strategy for the city.

A path on Bremen's Green Network passes the 19th-Century, Am Wall Windmill.

Bike Districts

Bremen, the first city in Germany to create bicycle boulevards, was also the first German city to form a bike district. In the Alte Neustadt district, bikes and pedestrians have priority throughout the entire neighborhood. Some streets here prohibit cars altogether. Cars are allowed on other streets but the maximum speed limit is 30km/hour or 18.6 mph. Humans on foot or bike are much more likely to survive a crash when cars are traveling at these low speeds. In addition to safety, when cars proceed slowly and cautiously, the neighborhood is quiet and peaceful. The bike district also features bike-friendly pavement, sidewalk improvements, crosswalk upgrades, bike parking, and a bicycle repair café.

In 2018, the Alte Neustadt Bike District won the 2018 German Bicycle Award. Following the success of Alte Neustadt, Bremen has other bike districts in development.

Bremen's Alte Neustadt bike district is safe for pedestrians, cyclists, and dogs.

Toward Balance

The automobile industry led Germany back to prosperity after World War II. To this day, the privately-owned car has a strong grip on German cultural and economic life, which is not surprising in a country where companies like Mercedes-Benz, BMW, and VW directly employ more than 750,000 workers. The number of cars per person is well above the European average and far higher than the percentage in Spain, France, The Netherlands, and Sweden. Despite Germany's continuing love affair with automobiles, Bremen is making remarkable progress in rebalancing the use of public space so that the optimum mix of all travel modes achieves the city's goals for equity, environmental protection, climate action, and the building of a livable city.

CHAPTER 8

Brussels, Belgium

Brussels, the capital city of Belgium, with a population of 1.3 million people, has an enviable public transportation system featuring frequent train service and 19 tram lines. It has also started to improve walkability by banishing cars from inappropriate areas such as public squares and selected roadways.

Its cycling infrastructure has not kept pace. But in 2020, Brussels adopted a sustainable urban mobility plan aiming to reduce car dependency, manage delivery vehicles, facilitate walking, encourage bicycling, and lower speed limits on most roads in an effort to create safe, peaceful neighborhoods.

In 2024, Brussels topped its previous ambitions with a plan that aims to create dense, diverse neighborhoods in which all inhabitants can reach essential facilities and services with a 10-minute walk or bike ride. The plan also calls for the liberation of public space by reversing 50 years of prioritizing cars over people-friendly mobility.

Street Fights

As in many US cities, there is great resistance here to the removal of car lanes and on street parking, particularly if street trees are located in the parking lane. Nevertheless, between 2003 and 2013, Brussels went from a cycling mode share of one percent to four percent. Credit for the increase in cycling during this period goes mainly to relatively simple fixes. Bikes are often allowed to travel in either direction on streets that are one-way for cars. At over 400 intersections, the city installed bike boxes at the head of travel lanes to give cyclists priority when traffic signals change. The city typically installed sharrow lanes or allowed bikes to use bus lanes rather than creating separated cycleways.

Tram service is frequent and reliable on the Rue de la Regence leading to the Palais de Justice.

Good Move

Good Move, Brussels Regional Mobility Plan 2020 – 2030, acknowledged that prior plans produced disappointing results. Pledging to do better, *Good Move* aims to reduce the demand for travel through dense and diverse development and a reduction in the need for residents to own a personal car. Specifically, by 2030, trips in personal cars are targeted to shrink to 24 percent of all traffic with the remaining 76 percent accomplished by walking, cycling, and other forms of people-friendly mobility.

Additional goals of *Good Move* include reinforcement of MaaS (Mobility as a Service) using techniques like car-sharing and carpooling. The plan also aims to reduce on-street parking, particularly in public spaces. A good example of that last goal is the pedestrianization of Grand Place, which required the removal of a large surface parking lot on this square surrounded by historic buildings dating primarily from the 17th Century.

Brussels removed a parking lot to pedestrianize Grand Place, now listed as a UNESCO World Heritage Site.

Good Move's action plan begins with the goal of Good Neighborhood, which means neighborhoods that are peaceful, secure, diversified, and suitable for young and old due to the renovation of large iconic spaces, the pooling of off-street parking, and the establishment of 30 km/h as the default speed limit throughout the region. The plan also commits to reducing the nuisance of package delivery vehicles by establishing hubs allowing the final delivery to occur by cargo bicycle.

Good Move's second action plan component, Good Network, improves pedestrian links to transit hubs and improves access for to up to 70 public transport stops per year in keeping with designs established by Vision Zero, the movement that aims to use rational design to eliminate death and serious injury on roadways. The plan also transforms selected roads into multimodal urban boulevards. A good example of the last goal is the conversion of Anspach Boulevard to a completely car-free roadway in the center of Brussels.

The Good Service component of the action plan includes the development of a single digital platform that allows travelers to choose the best combination of modes needed to reach their destinations whether by walking, cycling, public transportation, or other forms of people-friendly mobility. The Good Choice component of the action plan aims to make users aware of the impact of their travel choices, possibly through the development of mobility budgets for businesses. The Good Partner component envisions intraregional cooperation on issues ranging from public transport improvements and the development of MaaS techniques to Vision Zero and coordination of delivery vehicles. Finally, the Good Knowledge component involves the collection of data on the results of plan implementation, dissemination of that information to the public, and monitoring results in order to make needed corrections in the budget and to the plan itself.

Brussels converted Anspach Boulevard to a completely car-free roadway in the center of Brussels.

The Ten-Minute City

In 2024, the City of Brussels adopted its BXL 2050 Sustainable Development Plan. Of this plan's seven 'ambitions', three are particularly relevant to people-friendly mobility. The ambition entitled "A City that Breathes" commits Brussels to limiting its impacts on the local and global environment. In "A City that Moves", Brussels pledges to apply "…principles that promote and ensure shared and low-carbon forms of mobility, and to accelerating the liberation of public space conceived and designed over the past 50 years based on the priority needs of the individual car." In its seventh ambition, "A City of Proximity", Brussels aims to make facilities and services essential to urban life and quality of life accessible to every inhabitant of every neighborhood.

To measure that last ambition, BXL 2050 uses the concept of a 10-minute city, meaning neighborhoods that are so dense and diverse that residents can reach everyday destinations with a 10-minute walk or bike ride. Brussels intends to use this tool to demonstrate to

citizens and public officials alike where specific needs must be met. Notably, Brussels has taken the 15-minute-city concept used in some cities and adopted the even more ambitious target of transforming neighborhoods so that essential destinations can be reached in only ten minutes on foot or by bicycle.

Ambitious Ambitions

The European Commission gave Brussels the 2020 Sustainable Urban Mobility Plan Award. The Commission praised the public engagement process that produced *Good Moves* and commended its ambitious approach to achieving air quality targets, incorporating Vision Zero, lowering dependence on privately-owned cars, reducing speed limits to 30 km/h on most streets, and developing safe and peaceful neighborhoods. It is promising that by 2023, Brussels' bike mode share had risen to 8.6 percent and people-friendly mobility accounted for over two thirds of all travel here (8.6 bike, 35.9 foot, 23.8 transit).

Brussels' ambition to become a 10-minute city is, in a word, ambitious. As the city's 2024 plan notes, Brussels, like most US cities, has been shaped by 50 years of prioritizing cars over other travel modes. It may take another 50 years to create an equitable, people-oriented, planet-friendly balance in every neighborhood. But that brings to mind the famous Daniel Burham: "Make no little plans. They have no magic to stir men's blood and probably will not themselves be realized."

CHAPTER 9

Copenhagen, Denmark

Cycling is not a goal in itself but rather a highly-prioritized political tool for creating a more livable city." That's a quote from the cycling plan of Copenhagen, Denmark.

Copenhagen pioneered many cycling infrastructure designs that are now commonplace throughout the world. Not surprisingly, bikes account for a huge portion of trips to work and school here and Copenhagen sits at or near the top of most lists of the world's most bike friendly cities.

Although this profile focuses on bikes, Copenhagen aims to create balance among all travel modes. By 2025, public transportation will accommodate 25 percent of all trips, thanks in part to Copenhageners' ability to take their bikes on trains, trams, and buses.

Copenhagen is also famous for walking. The city was an early adopter of pedestrianizing streets and arguably launched a streets-for-people movement that has spread throughout the world. The city banned cars from Stroget, a shopping street, in 1962. Today, car-free streets radiate from Stroget, creating a ped/bike/people-friendly environment for much of the downtown.

In 1980, Copenhagen also banned cars from Nyhavn, a street that has since become a mecca for outdoor cafes and strolling. By prioritizing transit and walking as well as cycling, Copenhagen has become a model city, or perhaps *the* model city for people-friendly mobility.

Copenhagen removed car traffic from Stroget in 1962, inspiring similar pedestrianization projects around the world.

Copenhagenize

The word "Copenhagenize" means using bicycling infrastructure to create a bike-friendly city like Copenhagen. The term was coined in 2007 by Mikael Colville-Andersen, the founder and CEO of an international consulting firm known as the Copenhagenize Design Company. It may seem odd that the firm's name does not include the word 'bicycle'. But perhaps it is Colville-Andersen's way of saying that when cities install easy-to-use cycling infrastructure, they are also improving the design of the city as a whole and not just the transportation system.

In addition to consulting, speaking, and creating a system for evaluating bike-friendliness called the Copenhagenize Index, (more on that below), Colville-Andersen has written an essential book entitled *Copenhagenize: The Definitive Guide to Global Bicycle Urbanism*. Much of this book traces the history of cycling in Copenhagen, a story that details how

Copenhagen's title as one of the top bike friendly cities in the world was not preordained.

The Ups and Downs of Cycling in Copenhagen

Like Amsterdam and Antwerp, bicycling in Copenhagen was growing in popularity before World War II and peaked in the 1940s at 55 percent of all trips. Then the city's cycling's mode share slid in the 1950s and 1960s as Denmark, like most developed countries, started removing its transit and bike infrastructure to make room for cars.

In the post-war years, Copenhagen was looking at the US and drawing plans to bulldoze motorways through urban areas. Between 1962 and 1976, the lord mayor of Copenhagen, with the ironic name of Urban Hansen, tore out the city's tram network to make room for cars. He also unveiled a plan for an urban expressway through Copenhagen, but a shortage of funding fortunately delayed this nightmare long enough to keep it from becoming a reality. Similar funding shortfalls prevented other motor-vehicles mistakes from being built in Amsterdam, Helsinki, and Oslo.

Even though they could not build their most destructive highways into the heart of Copenhagen, traffic engineers continued to look for ways to maximize the number of cars they could fit in a street when, of course, the correct metric is how many people can be moved.

The 1970s

The two oil crises of the 1970s were a wake-up call. As in other Scandinavian cities, Copenhagen instituted car-free Sundays and people once again started cycling despite the degraded cycling network. As cycling fatalities rose, people protested for safer infrastructure. By the 1980s, political will and budgets were finally strong enough that Copenhagen slowly began rebuilding protected cycle infrastructure.

At first, the city retained car-dominant arterials and tested a bicycle boulevard design that had less car traffic but assumed cyclists would be willing to take a more circuitous route to their destinations. When cyclists rejected this option, Copenhagen began to do the heavy lifting of rebalancing space on arterials, a task that is always difficult after drivers have been prioritized for decades. By trial and error, the city developed a template for safe, connected, cycleways capable of accommodating growing numbers of cyclists.

Iconic bike bridges like the Cycle Snake symbolize Copenhagen's leadership in bike friendliness.

Taking Cycling Infrastructure to the Next Level

Over the course of the 1980s and 1990s, Copenhagen fought the naysayers who claimed the city could not afford world-class cycling infrastructure. As Colville-Andersen points out, this canard was easily disproved by the fact that for the cost of five to ten kilometers of an urban highway, an entire city can be "Copenhagenized" with an interconnected network of wide, separated, and protected cycle tracks that go where cyclists want to go.

At the point where most cities would have throttled back on cycle spending, Copenhagen accelerated thanks to extraordinary political will. Andersen credits Klaus Bondam, mayor of the Technical and Environmental Administration and Lord Mayor Ritt Bjerregaard with taking Copenhagen's bike infrastructure to the next level starting in 2005. That's when Copenhagen began spending $46 per year per resident on bike infrastructure.

The combination of political will and adequate funding created a golden age of cycling

progress in Copenhagen. In 2006, Copenhagen chose to time traffic signals on corridors with cycleways to match the average speed of bikes, which in Copenhagen is 20 km/h or 12 mph. This concept, dubbed the green wave, was initially implemented on Norrrebrogade, the main artery through a dense neighborhood with many cross streets that caused cyclists to constantly start and stop before installation of the green wave.

The Norrebrogade green wave produced 70 percent fewer stops for cyclists and a 10 percent reduction in travel times. It was so successful that Copenhagen installed it on other arterials. When there are greater distances between traffic lights, the city has installed pacer lights and countdown clocks that let cyclists know whether they should slow down or speed up if they want to surf the green wave.

To go to the next level of bike infrastructure, Copenhagen installed traffic signals exclusively for bikes. These signals give bikes a green light ahead of cars so that cyclists can move far enough ahead to be clearly visible to motorists, particularly to drivers turning right. At many intersections, cars are required to stop behind bikes so that cyclists are visible to motorists at all times, a feature that has greatly improved safety and is now seen in many other cities.

On some routes, Copenhagen has installed informational signs telling cyclists the time needed to reach various destinations as well as reminders for cyclists to use hand signals to let others know what they are doing. Other digital signs prominently display real-time bicycle counts on major cycleways that give cyclists a sense of pride and remind all roadway users that bikes are a key component of urban mobility.

By 2018, Copenhagen was home to 40,000 cargo bikes, or as Colville-Andersen calls them, the SUV of bikes. Since cargo bikes are better for urban mobility than cars, Copenhagen will often remove on-street car parking and replace it with cargo bike parking as a way of facilitating the use of cargo bikes.

Copenhagen installed other features to let cyclists know that the city seriously wanted to promote cycling. The cycleway-adjacent repair station is a Copenhagen feature that has since been adopted in many cities around the world. Similarly, a chain of gas stations installed bike repair stations knowing that even though cyclists do not buy gas, they nevertheless do buy food and drinks at gas stations. The city is also able to change intersection signalization to speed cyclists to their destinations in bad weather.

Copenhagen recognizes that bike parking at destinations is essential. At transit stations, the city has established a bike-parking space ratio of ten percent of daily transit ridership. Colville-Andersen acknowledges that some places, like Antwerp, use a higher ratio. But he adds that Copenhagen also encourages cyclists to take their bikes on trains, reducing the need for bike parking at transit stations.

Copenhagen lowered the elevation of bike parking at the Norreport Station to improve streetscape aesthetics.

In order to increase the safety of intersections for cyclists, Copenhagen paints a blue guide through every intersection and reduces corner radii to slow down drivers and make sure that cyclists are clearly visible to motorists turning right.

Maintaining the Network

Colville-Andersen is concerned about letting e-bikes, which are typically twice as fast as bicycles, use cycle tracks. He mentions Groningen, Netherlands, which is dealing with safety concerns by building e-bike lanes adjacent to but separate from cycle tracks. As of 2018, Copenhagen is holding the line on e-bikes in keeping with Jan Gehl's admonition to use human speeds in city environments. Colville-Andersen also pushes back on the assumption that e-bikes are green by noting that lithium batteries power e-bikes and that lithium mining can cause significant environmental impacts. He questions how something can be truly green if it has to be charged by power plants and adds that e-bikes produce

up to 30 percent less health benefit than muscle-powered bikes. E-bikes are also expensive, and perpetuate the class divide that separates car owners from cyclists.

Copenhagen takes care of its bike network. Every kilometer of cycle tracks is regularly inspected to make sure it has not been compromised by tree roots or other obstructions. Construction vehicles and building materials are not allowed in cycleways unless the contractors have installed bike-friendly pathways past construction sites. Colville-Andersen claims that these temporary solutions are often better than the permanent cycle infrastructure found in other cities.

Copenhagen sweeps snow off cycle tracks before clearing car lanes. Colville-Andersen says he has seen sweepers do six or seven passes at a cycle track before the first plow clears an adjacent car lane. The goal is what Andersen calls A2Bism, meaning giving cyclists the most direct route to their destinations and maintaining a permanence that cyclists can rely on.

It's All About Infrastructure

In the opinion of James Thoem, the Director of Copenhagenize, this city's success has everything to do with safe, simple, and connected bicycling infrastructure rather than eco-consciousness, fitness concerns, or some inherent love of cycling. Writing in 2023, Thoem notes that Copenhagen offers four basic types of bike infrastructure that cyclists use intuitively: traffic-calmed roadways, painted bike lanes, separated cycle tracks, and green routes.

Thoem highlights how Copenhagen has calmed most of its streets by reducing speed limits to 30 km/h, and in many cases 20 km/h. To further promote slow speeds, the city narrowed car lanes and applied textured pavements so that cyclists can pedal comfortably when they have to share the road with cars. Busier intersections also have bicycle railings allowing cyclists to remain upright while stopped, a feature that makes cyclists more likely to wait for the light to change.

To maximize protection, Copenhagen pioneered a design which separates car travel lanes and cycle tracks with a parking lane, a design that has been adopted by many cities around the world. On major streets, Copenhagen uses curbs to separate moving vehicles from cyclists with one-way cycle tracks. On even busier streets, the city uses buffered cycle tracks that provide an additional gap between the cycle track and car travel lanes. Importantly, Copenhagen maintains continuity of this typology from block to block so that cyclists know where they are supposed to be at all times.

The city's green cycle network consists of off-street paths that run though parks, next to

rail lines, close to waterways, and along highways. Thoem adds that these paths connect with the rest of the network to give cyclists multiple ways of reaching their destinations in addition to just enjoying bike paths for exercise and/or recreation.

Copenhagen builds bike bridges in places that help people choose cycling rather than driving. As Thoem recounts, transportation engineers projected that 3,300 cyclists would use the Bryggebroen over the harbor. Within months after opening, almost three times that projected number were cycling over the bridge, including one third who previously drove a car to get to and from Brygge Island. Further south, the twisting, 280-meter bike bridge dubbed the Cycle Snake was carrying over 20,000 cycles per day over the Copenhagen harbor only four years after it opened in 2014.

Strategically-located bike bridges, like the Lille Langebro, help make cycling the fastest, most efficient, and most convenient way to get around Copenhagen.

Copenhagen's Bicycle Count

According to Thoem, the result of all this thoughtfully-designed bike infrastructure is that cyclists are safer and that they feel safer. And when people feel safer, they bike more often and the greater number of cyclists helps create a bike culture in which drivers realize the need to coexist with cyclists.

By 2016, the number of bikes entering the city center was higher than the number of cars for the first time since 1970. The bicycle mode share was back up to 28 percent prior to the 2020 COVID pandemic, exceeding the city's goal for 2025 of reaching 25 percent for each of four travel modes: cars, transit, walking and cycling. By 2018, 49 percent of trips to school and work occurred by bike, putting the city on track to meet its goal of 50 percent by 2025. Since 2020, the pandemic has led to erratic counts and the city, as of 2022. was unsure of whether or not these counts represented a temporary phase or a more permanent shift in travel behavior.

Atop the Copenhagenize Index

The Copenhagenize Design Company developed the Copenhagenize Index to recognize and rank the most bike-friendly cities in the world. For the 2019 index, the company focused on 115 cities with over two percent mode share for bicycles and applied scores in 14 criteria within three categories. The streetscape category includes traffic calming measures (such as low speed limits), bike infrastructure (including a robust network of protected and separated cycle tracks), and bike facilities (such as bike racks and wayfinding). The category of bike culture notes the percent of female cyclists, the mix of young cyclists, the cycle mode share, the use of cargo bikes, and other measures indicative of a city in which cycling is treated as a respected and accepted mode of transportation. In the ambition category, cities are evaluated for bike advocacy, political leadership, the installation of a widely-used bike share program, and urban planners who recognize that cycling infrastructure is essential to the development of livable cities.

It may not be surprising that Copenhagen is at the top of that index with a score of 90.2 percent thanks to superior statistics and a consistently high level of investments. Slightly behind Copenhagen are the Dutch cities of Amsterdam at 89.3 percent and Utrecht at 88.4 percent.

In crowning Copenhagen once again, the index noted that the city spends roughly 40 euros per capita annually on bike infrastructure including the bike bridges and cycle highways noted above. Copenhageners have responded by cycling 1.44 million kilometers daily.

The index highlights regional investments that are completing a network of cycle highways extending over 20 kilometers from the city center with wide cycle tracks, wayfinding,

lighting, and green wave signal timing. These improvements produced a 68 percent increase in cycle traffic including 14 percent being converts that previously commuted by car.

Doubling Down on Cycling

In addition to topping the Copenhagenize ranking, other lists of the top cycling cities always include Copenhagen. The Discerning Cyclist calls Copenhagen the cycling city of choice because of its network of connected bike lanes, bike bridges, and bike super highways as well as its traffic calming measures, including ultra-low speed limits in neighborhoods.

People for Bikes rated Copenhagen number two in Europe (behind Utrecht, Netherlands) for bike friendliness, calling cycling the easiest, fastest, and most convenient way to get around the city. This evaluation notes that Copenhagen began its transformation to a biking paradise more than a half century ago and now has 300 miles of cycle tracks, ample bike parking, and traffic calming measures that are routinely expanded and updated by an annual budget of $12 million reserved exclusively for bikes. Bicycles outnumber cars here six to one and over half of the city's inhabitants commute by bike. By prioritizing people over cars, Copenhagen has made itself into a cleaner, healthier, happier place.

Despite, or perhaps because of all the recognition for being the world's most bike friendly city, Copenhagen continues to double down on bicycle infrastructure. Between 2020 and 2022, the city opened five new Cycle Superhighways, completed another bike/pedestrian bridge, finished a bicycle street, added 4,400 bike parking spaces, and widened or installed multiple cycle tracks. As of 2022, the city had 388 km of cycle tracks, 33 km of cycle lanes, 65 km of Green Cycle Routes, 60 km of Cycle Superhighways, and 18 bicycle/pedestrian bridges. As of 2022, there were 15 Cycle Superhighway routes throughout 30 municipalities in the Capital Region of Denmark including 11 that run through the City of Copenhagen.

Copenhageners are using and liking Copenhagen's bike infrastructure. Every day, 42,600 cyclists cross the Dronning Louises Bridge alone. There are 745,000 bicycles in Copenhagen, which is more than five times the number of cars. On most week day mornings, there are twice as many bikes on the road than cars. Almost half of all city residents report that cycling is their favorite mode of travel and 75 percent say that cycling culture has a beneficial impact on life in the city. The city actively monitors satisfaction to make sure that public support remains high for the investment of US$121 million between 2012 and 2022.

After Copenhagen removed cars from Nyhavn, it became a magnet for biking and strolling.

The Power of Good Design

Colville-Andersen praises Copenhagen's cycling infrastructure as an example of Danish Design. He writes that good design is functional, practical, and ideally, elegant. You should not have to think about how to use things that are well designed, he writes. Yet you appreciate them subconsciously. Colville-Andersen even claims that the uniformity and intuitive design of the city's cycling infrastructure makes Copenhageners the most well-behaved cyclists in the world. He backs up this claim with monitoring data showing that only five percent of Copenhagen cyclists violate traffic laws. Colville-Anderson goes on to assert that it is wrong to scold bicyclists for bad behavior unless a city has given as much deference to cyclists as cars.

In perhaps his most provocative statement, Colville-Andersen asserts that good design has the ability to change human behavior. He writes that good design has the seductive power to generate an emotional bond. He even claims that the design of Copenhagen's

cycle infrastructure is so good and reliable that it has literally seduced the city's inhabitants. It seems hard to dismiss this belief considering the vast numbers of Copenhageners who use the city's cycling infrastructure and recognizing how that infrastructure has helped Copenhagen become one of the most sustainable and livable cities on the planet.

CHAPTER 10

Hamburg, Germany

Hamburg's overriding mobility goal can be summed up in two words: "fewer cars". Those words come directly from Anjes Tjarks, Hamburg's Minister for Transport & Mobility Transition, whose title alone underscores this city's commitment to change.

Hamburg's Mobility Transition aims to reduce car traffic and reclaim streets for transit, cyclists, pedestrians, and people. By 2030, this German port city, located 50 miles up the Elbe Estuary from the North Sea, wants 80 percent of all trips to be made by public transport, cycling, or walking, an increase from 64 percent in 2017. That may sound optimistic. But between 2000 and 2024, car traffic here decreased by 17 percent even though the city grew by ten percent and is now home to almost two million people within a region of 5 million people.

A key factor in this success is the D-Ticket, which is short for Deutschland-Ticket because it is valid throughout Germany on all local/regional trains, subways, trams, and buses. The D-Ticket cut the cost of using public transport almost in half. More than half of all Hamburg residents now use D-tickets. Today, over 250 million passengers ride Hamburg's metro every year. Hamburg supplements this progress in public transportation by continually improving its cycling and pedestrian infrastructure.

Bike-Friendly Hamburg

Hamburg already had 1,700 km of cycle lanes in 2008 when it launched a program to improve its cycling network and double bike traffic. The following year, the city introduced StadtRAD, a bike share program that generates over two million trips per year, making it the most heavily-used bike share system in Germany. Hamburg was also an early adopter of reduced speed limits and, today, roughly 80 percent of the city's street system

is limited to speeds of 30km/h (19mph) or less.

In 2016, Hamburg took cycling infrastructure to the next level by adopting the Alliance for Cycling aimed at further extending cycling infrastructure and improving safety and comfort by creating greater separation between cyclists and cars. The Alliance coordinates efforts between 28 partners including Hamburg's boroughs, ministries, authorities, utilities, and public service corporations. The Alliance for Cycling envisions a *Veloroute* network with a total length of 280 km, which was already two-thirds completed by 2023.

Twelve Veloroutes radiate from Hamburg's Rathausmarkt.

The hub and spoke network provides twelve *Veloroutes* from the Rathausmarkt in the city enter. Two circular routes connect these spokes at roughly 5 km and 15 km from downtown Hamburg. The city is building cycle paths at the rate of 60km per year to keep up with demand. Between 2011 and 2022, bike traffic in Hamburg doubled. As of 2022, cycling accounts for 22 percent of all traffic and is Hamburg's fastest-growing transportation mode.

Supplementing the *Veloroute* system, those seeking exercise, recreation, or just a more leisurely form of sustainable transportation can walk or bike the paths within *GrunesNetzHamburg*. This green network was conceived over 100 years ago as a way of connecting urban residents with the surrounding countryside. This network links Hamburg's abundant public greenspaces including 1,460 parks, 36 landscape protection areas (which constitute 19 percent of the city's total land area), and 31 nature preserves (which protect more than eight percent of the city's land area, the highest proportion in Germany).

In 2019, Copenhagenize recognized the city's progress by rating Hamburg as the 20th most bike-friendly city in the world. The rating noted that Hamburg is achieving remarkable success despite Germany's relative tolerance for cars and Hamburg's lower density compared with cities with higher scores on the Copenhagenize Index. The report card for Hamburg also predicted that the city would have to take more lanes away from cars if it wants to climb higher up the list of bike-friendly cities.

Pedestrian-Friendly Hamburg

In 2022, Hamburg and its partners expanded the cycling strategy to include pedestrian infrastructure. Under the new name, the Alliance for Walking and Cycling, this plan calls for further separation of cars, bikes, and pedestrians in order to promote greater safety and comfort.

As a model of pedestrianization, Hamburg has largely removed cars from Jungfernstieg, the street that borders half of the Inner Alster lake in the center of Hamburg. A total makeover has transformed this street into a transit corridor and cycle path with an exceptionally wide pedestrianized promenade that incorporates the iconic Alsterpavillon restaurant/cafe and docks for the fleet of boats that cruise the lakes, rivers, and canals of Hamburg. Jungfernstieg got its name in bygone days when it served as the setting for wealthy families to introduce their marriageable daughters to society. By reclaiming public space for people, Jungfernstieg is now a welcoming space for the entire community.

Hamburg gives its Jungfernstieg promenade ample room for cyclists, pedestrians, and socializing.

Hamburg is less densely developed than some of the more walkable cities in Europe. But it aims for compactness and walkability as it revitalizes brownfields and other areas that are obsolete due to changes in defense, manufacturing, and transportation, including HafenCity, the largest inner-city redevelopment project in Europe.

HafenCity is a former port area within an easy walk of downtown Hamburg. This 196-hectare district is transforming into a diverse, multi-use neighborhood with 8,000 residential units, 35,000 worksites, commercial space, and a system of parks and squares covering almost one quarter of the district's total area. The tallest building in HafenCity, and all of Hamburg, is Elbphilharmonie, a wave-inspired concert hall perched atop an old warehouse that has become the city's number one architectural attraction.

Elbphilharmonie towers over pedestrian-friendly HafenCity.

Recently, many cities are pursuing the goal of becoming 15-Minute Cities, meaning cities composed of neighborhoods where residents can walk or bike to parks, shops, schools, and other every day destinations within 15 minutes. This compact, diverse land use pattern reduces dependence on motor vehicles while improving environmental quality, social cohesion, local economies, health, and well-being. Cities like Paris, Barcelona, and Milan are finding the 15-minute city to be a useful tool for benchmarking progress toward sustainability. It can be hard to achieve proximity in existing car-dependent neighborhoods. But large redevelopment areas have greater latitude to create the density and mix of uses needed to put most destinations within easy reach of one another. That may explain why HafenCity has the opportunity to continue evolving into a 10-minute neighborhood.

The Future

Looking to the future, Hamburg will open 36 new transit stations by 2044. The city plans to build and deploy a fleet of autonomous shuttles to create better first-mile/last-mile connections. By 2030, Hamburg aims to have bike-and-ride facilities at every metro, regional-train, and ferry station, which will increase the number of bike parking spaces from the current number of 24,000 to 40,000 at transportation stations alone. Another 10,000 bike parking spaces are planned for residential districts.

The goals of Hamburg's Mobility Transition are ambitious. But the city is making steady progress largely because of the philosophy that the Mobility Transition must be for everyone. The streets are not just for cars. Everyone has a right to freedom of movement.

CHAPTER 11

Hanover, Germany

"Our once 'car-friendly city' will not declare war on cars, but will become more environmentally sustainable and livable yet modern." That carefully crafted sentence appears at the start of the Hanover 2030 Plan, adopted in 2016. It illustrates the tightrope that some political leaders have to walk when trying to rein in greenhouse gas emissions and rebalance mode share in a country that builds lots of cars and has accommodated automobiles for over a century. In fact, it sounds much like the street fight now going on in many US cities.

Hanover wants to reduce car usage for lots of reasons including climate action. Transportation here accounts for 16 percent of GHG emissions, making the switch to sustainable transportation essential to achieving the city's goal of becoming carbon neutral by 2035.

Between 2002 and 2017, private motorized transport dropped from 44 percent to 36 percent of all traffic, public transport rose from 16 to 19 percent, cycling increased from 12 to 19 percent, and walking declined slightly from 28 to 26 percent. During this period, the number of public transport passengers increased from 165 million in 2013 to 172 million in 2019.

It seems likely that public transportation will continue to account for an increasing portion of Hanover traffic due to Germany's launch of the D-Ticket. The D-Ticket, or Deutschland-Ticket, is valid throughout Germany on all local/regional trains, subways, trams, and buses. The D-Ticket greatly reduces the cost of using public transportation and simplifies the process of transferring from one form of public transport to another.

Lust for Cycling

In the late 1940s, almost 90 percent of all trips in Hanover were accomplished by bicycle. Cycling then slid from that peak to a low point of about ten percent before the oil shortages in the 1970s prompted Hanoverians to take a second look at cycling. By 2002, bikes had risen to a mode share of only 12 percent.

The Hanover Opera House is one of many destinations on the city center cycle ring.

In 2016, the Hanover 2030 Plan aimed for bikes to account for at least 25 percent of all trips by 2025 and called for bicycling to become one of the fastest ways for people of all ages and abilities to travel up to ten kilometers. To achieve that goal, Hanover has been completing twelve cycling routes linking the cycling ring around the city center with city

neighborhoods.

Cycling paths are also planned to motivate cycling within and between neighborhoods. These routes feature uniform signage, high-quality surfaces, lighting in urban areas, traffic signal timing that maximizes cycling speeds, foot rests that provide comfort for cyclists waiting for traffic signals to change, and bike lanes with standardized widths of 2.5 meters for one-way traffic and 3.0 meters for two-way traffic.

To motivate people to use this expanding and improving infrastructure network, Hanover launched an initiative in 2016 known as 'Lust for Cycling' that aims to rebuild bicycling culture for the long-term future through bike safety, innovation, and creativity. Energized by a catchy pop song, Lust for Cycling reminds people of cycling's benefits for health and well-being. With the help of bicycle organizations and shops, the program offers cycling events, competitions, inspections, training, and safety classes. Hanover also recognizes companies that promote cycling with an award for the most-bike-friendly employer.

These efforts seem to be paying off. The German Bicycling Club rates Hanover as the second-most bike friendly city in Germany, behind Bremen. Automatic bike counting stations here indicate that more than a million cyclists pass nine locations every month in summer. A total of over 10 million cyclists were counted in 2018, up 12 percent from the 2017 totals. By 2019, cycling had risen to a mode share of 19 percent which makes the goal of 25 percent by 2025 seem achievable.

Model New Town Kronsberg

In advance of hosting EXPO 2000, Hanover designed and oversaw construction of the model new town of Kronsberg as a showcase for all things sustainable including people-friendly transportation. Hanover envisioned Kronsberg as a future-oriented residential development embodying the goals of the United Nations' Agenda 21. The plan calls for a mix of 6,000 dwelling units with 90 percent in multi-story rented apartments and ten percent in owner-occupied terraced housing. The development features eight-block neighborhoods surrounding a neighborhood park, providing residents with easy access to greenspace on foot or by bicycle.

Although built on former farmland roughly eleven kilometers from downtown Hanover, Kronsberg links to Hanover's entire public transportation network by a light rail line that takes residents to the city center in 15 minutes. According to the original plan, all dwellings are within 600 meters of a public transportation station. Internal streets are limited to 30km/h to promote safety for pedestrians and cyclists. A network of foot paths and cycleways create safe play spaces for children and link to the citywide cycling system as well as cycle routes into the surrounding countryside.

Kronsberg dwellings have fewer parking spaces than were common in the 1990s because Hanover aims to demonstrate that car ownership is not needed to live here. Residents are able to walk and bike within the neighborhood, take light-rail and other public transport to reach downtown Hanover and other places within the region, transfer to regional trains to reach other cities, and, finally, take advantage of a shared car service for trips to places that are not accessible on foot, by bike, or on public transit.

Most of downtown Hanover is already pedestrian- and bike-friendly.

Car-Lite Downtown

Much of Hanover's downtown is already off limits to private motor vehicles with the usual exceptions for residents, taxis, and deliveries. In 2023, Hanover's mayor announced that the entire downtown would become largely car-free through the elimination of surface parking and the closure of the few remaining roadways.

Despite international admiration for the car diet proposed for downtown, the Hanover City Council in 2024 overrode the mayor's plans. As of this writing it is not clear how much more car-lite the city center of Hanover will become in the foreseeable future. This apparent backlash may illustrate the difficulty of transforming car culture overnight. Nevertheless, Hanover has made great strides as demonstrated by the fact that mode share for private cars went from 44 percent in 2002 to 36 percent in 2017, an achievement that would make many cities very envious.

CHAPTER 12

London, United Kingdom

London aims to become the world's best big city for cycling. That will be an uphill climb. But a congestion charge has created a more welcoming environment for pedestrians and bicyclists in the city center. And progress on the city's ambitious Cycling Action Plan has made it possible for an increasing portion of Londoners to live a car-free life.

London is not one of the most highly-rated bicycling cities in the world, yet. But this capital city of over eight million people has elected (and reelected) pro-bicycling mayors who have been able to build a substantial bicycling system despite considerable push back. Boris Johnson, Mayor of London from 2008 to 2016, describes himself as a passionate cyclist. In *The Mayor's Vision for Cycling in London* (2013) Johnson called for "transformative change." "Cycling will be treated not as niche, marginal, or an afterthought, but as what it is: an integral part of the transport network, with capital spending, road space and traffic planners' attention befitting that role." Calling his proposed cycle network "the main cross-London physical legacy of the 2012 Olympic Games", Johnson unveiled a vision for infrastructure suitable for cyclists of all ages and abilities in the belief that: helping cycling will not just help cyclists: "It will create better places for everyone."

Sadiq Khan, who succeeded Johnson in 2016, is equally committed to cycling. During Khan's first term, London's 2018 *Cycling Action Plan*, doubled down on cycling infrastructure. By 2023, the city had more than tripled its cycleway network, imposed a 20-mph speed limit on over half of all roads, and increased cycling trips to over 1.2 million per day. In advance of the 2024 mayoral campaign, the 2023 *Cycling Action Plan 2: Building on Successes* reiterated the goal of making London the best large city in the world for cycling.

London more than tripled its cycling network between 2016 and 2023.

When Khan won an unprecedented third term in 2024, the London Cycling Campaign, avid advocates for bike infrastructure, proclaimed that this victory "…clearly demonstrates London does indeed love cycling and more, is fairly in favor overall of measures such as ULEZ [Ultra Low Emission Zone] expansion to reduce overall motor vehicle use and tackle associated crises of climate, pollution, inactivity, road danger, congestion etc." Since then, Khan has forged ahead on implementing plans for active transportation, cycling, and achieving Net Zero by 2030.

London promotes active transportation partly by curbing the use of private cars. In 2003, London launched what is now one of the largest congestion charge zones in the world in order to reduce congestion, decrease pollution, and raise funds for the city's transportation system. Non-exempt vehicles are charged 15 pounds to drive within the congestion charge zone between 7am and 6pm. Electric vehicles are currently exempt. Between 2000 and 2012, traffic declined by over 10 percent and traffic speeds slowed. The slower speeds result from interventions that reduce capacity for motor vehicles but increase safety, improve urban environments, and prioritize access for cyclists, pedestrians, and public transportation. Between 2003 and 2018, the charge generated 2.8 billion pounds and funded 1.2 billion pounds in roadway improvements, public transportation, and new infrastructure for cyclists and pedestrians.

Pedestrians can be motivated to navigate London on foot with the help of self-guided routes that Transport for London calls one of the largest walking networks of any city in the world. This network totals 379 miles divided into seven routes further broken into 79 bite-sized walks. These routes link destinations within the congestion charge zone including walks along the banks of the River Thames and the Jubilee Walkway that connects the Tate Modern Art Museum, Shakespeare's Old Globe Theater, Buckingham Palace, Tower Bridge, Trafalgar Square, St. James Park, Westminster Abbey, Big Ben, and the Houses of Parliament.

In its quest to become the world's best big city for bicycling, London's Cycling Action Plan argues that cities in the Netherlands and Denmark are bicycling havens not because of their culture or their climate but because their transportation infrastructure prioritizes people, not cars. Active transportation infrastructure is part of London's Healthy Streets Approach, which aims to make walking and cycling more attractive by making roadways safer and more accessible to people of all ages and abilities.

On the Thames Path, part of what London calls one of the largest walking networks of any city in the world.

London has used the term Cycle Superhighways for longer-distance cycle routes that accommodate significant bicycle traffic and connect with key destinations as well as the rest of the cycle network. Segregated cycle lanes were opened on Blackfriars Road and Bridge in 2016, contributing to a 127-percent increase in the number of people on this Cycle Superhighway over 2014 levels. An increase of this magnitude is only possible using space-efficient travel modes. Not surprisingly, 180 major London businesses voiced their support for Cycle Superhighways as an essential way to attract and retain employees.

London's Mini-Holland program makes roadways more pedestrian- and bicycle-friendly in London's outer boroughs using techniques tested in the Netherlands including segregated lanes, safer intersection design, and reduced traffic on residential streets. As a result, cycling increased by 18 percent and walking grew by 12 percent in Waltham Forest, Kingston, and Enfield.

Since the 1970s, London has also established Low Traffic Neighborhoods (LTNs) that prevent cars and trucks from taking shortcuts on quiet roads. Additional LTNs were created during the pandemic and are seen as a key element in achieving the Mayor of London's goal of making active transportation and other sustainable modes responsible for 80 percent of all trips by 2041, as well as creating a greener, cleaner, healthier, and safer city.

The Millennium Bridge joins the banks of the River Thames with St Paul's Cathedral in the background.

Under the first Cycling Action Plan, London doubled the high-quality routes under its unified Cycleways brand by over 340 km, increased cycle trips to 1.2 million per day, and brought the Cycleway network to within 400 meters of 22 percent of all Londoners. Additional actions included a new Cycle Parking Strategy, improved bike infrastructure standards, expansion of the highly successful bike share program, and new digital wayfinding using cycle maps powered by the world's first Cycling Infrastructure Database.

The 2023 *Cycle Action Plan 2: Building on Success* promises to maintain the momentum of the 2018 cycle plan. By 2030, London aims to increase bike use over 33 percent to 1.6 million bike trips per day, bring the Cycleway network to within 400 meters of 40 percent of all residents, and reduce car kilometers travelled by 27 percent.

Looking further ahead, London wants sustainable modes to complete 80 percent of all trips by 2041, up from 63 percent in 2015. The plan illustrates (and in many cases quantifies) the benefits of achieving these goals including less air pollution, better health, safer roadways, improved economy, attracting cyclists of all ages and abilities, and reducing the need for Londoners to buy, store, fuel and fix a privately-owned car.

People for Bikes names London as the leader in the United Kingdom for safe and connected bike infrastructure but qualifies that assessment by adding that the bike-friendliness of the UK, as a whole, lags behind many European countries. However, the commitment to the ambitious goals of The Cycle Plan 2 and the reelection of Sadiq Khan for a third term suggests that London is serious in its quest to become the best big city for cycling in the world.

CHAPTER 13

Ljubljana, Slovenia

If you plan cities for cars and traffic, you get cars and traffic. If you plan for people and places, you get people and places" (Fred Kent). That common sense quote comes from the Sustainable Urban Mobility Plan of the Ljubljana Urban Region and inspires the goals of that plan.

The center of Ljubljana is a car-free ecological zone reserved for walking, cycling, public transit, and people-friendly activities.

Ljubljana, the capital city at the center of this region has been recognized for sustainable mobility accomplishments in the past including the pedestrianization of the city center, the transformation of its parking-clogged riverbanks into a walkers' paradise, and the creation of a cycle-pedestrian path encircling the city. The city has now joined with 25 surrounding municipalities in a plan aimed at extending people-friendly mobility throughout the region.

The City of Ljubljana won the title of 2016 European Green Capital by excelling in twelve environmental indicators including people-friendly mobility. The jury for this competition was particularly impressed that this city of almost 300,000 people had declared its city center as an ecological zone in 2007, closed to motor vehicles with the exception of early-morning deliveries.

Over the five-year period ending in 2013, the city expanded the public space reserved for pedestrians and bicyclists to more than 30 streets, a 550-percent increase. In addition to the obvious benefits of safety, air quality and reduction of GHG emissions, establishment of the ecological zone has reduced noise levels by almost 6dB(A), creating a large, peaceful place in the heart of the city.

The revitalization of the Ljubljanica River restored and interconnected an iconic riparian environment through a part of downtown that had been degraded by traffic and parking. This project included the construction of paths along the river and four new bridges for bicyclists and pedestrians, improvements that extended the downtown ecological zone and created public spaces allowing people to reach as well as cross the water. These interventions earned the 2012 European Prize for Urban Public Space and restored the riverfront to its former glory as the city's preeminent public space.

Ljubljana created an inner green ring by retooling the strip of land that encircled the City during World War II where barbed wire fences and guard towers literally separated Ljubljana from its surrounding countryside for over three years. When the City was liberated on May 9, 1945, the citizens used this former no-mans-land to build a path which is now used for a memorial walk held every year on May 9 attended by more than 30,000 people. Over the years, the city and its volunteers planted 7,400 trees on what is now a 33-kilometer recreational trail known as the Path of Remembrance and Comradeship. The path is used by walkers, joggers and bicyclists for exercise and recreation. In addition, it provides a non-motorized way for residents to reach many of the city's major destinations including the zoo, the Ljubljana Architectural Museum, Fuzine Castle, and several green areas.

Ljubljana removed parking and revitalized its riverfront to create Riverwalk.

Ljubljana's tree-lined, 33km Path of Remembrance and Comradeship.

Ljubljana has greatly improved public transport reliability by rebuilding its major downtown arterial street exclusively for buses and bikes. The City's bike share system, with 58 docking stations, offers 5,800 bikes that can be rented using the URBANA City Card, useable by all users for all city transportation services. These people-friendly mobility efforts, coupled with plans for compact growth and energy conservation, have prompted Ljubljana to target a 50- to 80-percent reduction in greenhouse gas emissions between 2008 and 2050.

Perhaps inspired by the achievements of the City of Ljubljana, the 26-municipality Ljubljana Urban Region (LUR) adopted a Sustainable Urban Mobility Plan (SUMP) in 2019 that aims to deliver people-friendly mobility on a regional scale. The plan acknowledges that past improvements facilitated personal vehicles at the expense of public transportation, cycling, and walking. The new SUMP corrects that mistake by rebalancing and integrating all travel modes.

The SUMP calls for other municipalities in the region to replicate the example set by the City of Ljubljana and pedestrianize their centers to encourage walking, cycling, and

people-friendly uses. It proposes significant expansion of the regional network of bicycle infrastructure, which totaled 230km when this plan was adopted. It tasks municipalities throughout the region with creating bike share systems like the one succeeding in the City of Ljubljana. It doubles down on a national initiative called *bring happiness to work* that uses competitions, team building, and rewards to motivate commuting by bicycle. It also encourages more municipalities to use discounts and support services that promote cycling tourism.

As summed up in the SUMP: "Sustainable mobility planning is therefore planning for people, not for cars and increasing traffic. Improving the quality of public spaces, the positive effects on the environment, health, and safety are at the forefront – especially for the most vulnerable groups of road users." The growing list of accomplishments in the City of Ljubljana suggests that the region as a whole will make meaningful progress toward that goal.

CHAPTER 14

Lyon, France

Lyon was founded by Romans in the 1st Century BCE at the confluence of the Rhone and Laone rivers in what is now the Auvergne-Rhone-Alpes region. In recognition of its long history, Lyon has formed four UNESCO World Heritage Districts. Today it is home to 520,000 people, making it the third most populous city in France. Lyon has also been at the forefront of street pedestrianization, the transformation of riverbanks for active transportation, and, more recently, the creation of ways to get around the city and region without a car. These efforts demonstrate how cities can use people-friendly mobility to protect their past while also building a sustainable, equitable, and enjoyable future.

The Lyon Protocol

In 1974, Lyon pedestrianized Rue de la Republique, a major shopping street, north of Place Bellecour, the largest pedestrian square in Europe. Shortly after that, the city pedestrianized almost a mile of Rue Victor Hugo from Place Bellecour south to Place Carnot and the Perrache Train Station. In 1997, the "Toward Car-Free Cities" conference was held in Lyon and used these two pedestrianized streets as examples of how cities throughout the world could achieve a better balance between automobiles and people. The conference resulted in the Lyon Protocol, a guide to the process of street pedestrianization with the overriding takeaway that success requires the full involvement of all stakeholders in planning and design from beginning to end.

The 1997 conference demonstrated how these principles could be used to pedestrianize the entire Presqu 'Ile, Lyon's three-mile-long peninsula between the Rhone and Laone rivers. Presqu'Ile's narrow streets are heavily impacted by cars. Roadway widening would destroy the historic character of the peninsula, which is one of Lyon's four UNSECO World Heritage districts. However, the authors of the Lyon Protocol cautioned' "Lyon

could become a model for all Europe, but a change to a car-free Presqu'Ile will not be accomplished overnight."

The 1974 pedestrianization of Rue de la Republique is being replicated in other parts of Lyon and the world.

Fast forward to today, Lyon has announced the launch in June 2025 of a Limited Traffic Zone (LTZ) that will transform roughly one third of the peninsula into a greener and more peaceful place dedicated entirely to cyclists and pedestrians. The plan calls for pedestrian/bike-friendly modifications to every street within the portion of Presque'Ile north of Place Bellecour, roughly one half the area envisioned in the Lyon Protocol. Retractable bollards will allow access by authorized motor vehicles including residents of the district, hotel guests, emergency services, and deliveries between 6AM and 1PM. The new ZTL aims to create a safer, cleaner, greener, quieter, and more beautiful experience for cyclists and walkers. As of 2025, Lyon is promising to expand the pedestrianized zone to other parts of the city.

Banks of the Rhone

In 2007, Lyon removed parking from the quays on the Left Bank of the Rhone River and transformed this grossly-underutilized zone into a multi-use trail with various recreational/cultural facilities including playgrounds, a sport field, skatepark, amphitheater, nautical center, and quiet places for contemplating views of the peninsula on the opposite shore. Walkers, cyclists, roller bladers, and dog walkers flock to the trail which is called the Berges du Rhone, or Banks of the Rhone. Some come for relaxation or exercise. Others find it to be the fastest as well as the most planet-friendly way to navigate this part of Lyon.

The Banks of the Rhone trail links Tete d'or, Lyon's largest park and the home of Lyon's zoo and botanical gardens, with Gerland Park over 4.4 miles downstream. Along the way, the trail passes classic bridges over the Rhone including Pont Lafayette and Pont Wilson, arguably the most beautiful bridge in Lyon.

The trail improved a portion of the Velo-rout Leman-Mer, the European cycle path linking Geneva with the Mediterranean Sea. The Banks of the Rhone is now home to bike rental shops, cafes, and bars, often located on the barges that dock along the path. This project has inspired many other French cities to reconnect people with their waterways. As of 2012, similar projects have been completed or were underway in Paris, Angers, Bordeaux, Toulouse, and Nantes.

The Berges du Rhone is a good place to exercise as well as quickly access many destinations in Lyon.

Near the southern end of the Berges du Rhone, Lyon has built Pont Raymond Barre, a sleek, new bridge exclusively for trams, cyclists, and pedestrians. This bridge touches down in what used to be a dilapidated district of abandoned dock facilities and empty industrial buildings. A public redevelopment company owned primarily by Greater Lyon is retooling this area at the confluence of the Rhone and Laone rivers with the largest regeneration project in Europe. Private developers must win design competitions to build here. Dominating the tip of the peninsula, Lyon itself set a high bar for architectural excellence with the Musee des Confluences, a futuristic building that has become one of the city's iconic landmarks.

Pont Raymond Barre bridges the Rhone River exclusively for pedestrians, cyclists and public transportation.

Les Voies Lyonnaises

In 2023, People for Bikes reported that the Greater Metropole of Lyon, which incorporates 59 municipalities including the City of Lyon, had 1,200 km (745 miles) of cycling infrastructure, including 450 km (279 miles) of cycle tracks separated from traffic. Bike-friendliness got a boost when the Green Party took the reins of the city in 2020 and turned to people-friendly mobility as one of the keys to meeting its goals for creating a greener economy, reducing CO2 emissions by 40 percent, and transforming Lyon into one of the top bike cities in the world. To accomplish these ambitious targets, Lyon launched a $290 million-dollar program called *Les Voies Lyonnaises* (the Lyon Routes). The *Les Voies* cycle network centers on the heart of Lyon with twelve, wide cycle tracks that radiate in all directions linking destinations within the city and extending into the surrounding peripheral municipalities and the countryside beyond. In addition to using designs that maximize safety, the plan provides ample landscaping to create shade and a comfortable riding experience. It aims to encourage people to abandon their sedentary habits and switch to a healthy, planet-friendly mode of transportation. People adjacent to these cycle tracks also benefit from reduced car traffic, noise, and air pollution.

Roughly 250 km of the network were scheduled for completion by 2026 and 355 km by 2030. Hesitation from some of the other municipalities in the metropole might result in slippage of that timeline. Nevertheless, Lyon has seen its cycling counts soar to 42 million trips in 2022. Between 2012 and 2022, bike trips grew by 10 to 20 percent every year, creating a 370 percent increase within this decade. The city is now matching that growth by adding 45,000 bike racks by 2026. Bike parking spaces in garages and other secure locations are planned to grow from 1,500 in 2020 to 15,000 in 2026.

In 2025, People for Bikes rated Lyon as the fourth most bike-friendly large city in its data base of 170 large cities. That is quite an accomplishment for a city that was considered relatively car-centric throughout the 20th Century.

CHAPTER 15

Paris, France

Paris has always been known as a great walking city thanks to its wide, pedestrian-friendly sidewalks, boulevards, and public spaces. Its public transit system is considered one of best in the world, with the Paris Metro system alone carrying more than 1.5 billion passengers per year, second in the world behind Moscow.

Until recently, the City of Light was not considered to be in the same company as cycling superstars like Amsterdam, Utrecht, Antwerp, and, of course, Copenhagen. However, under Mayor Anne Hidalgo, Paris is reducing car dominance using pollution regulations, speed limits and road diets that are freeing public space for wider sidewalks, safer bikeways, street trees, and people.

The Car-Lite City

Paris has instituted many changes to reduce the harmful impact of cars. Some took a while to implement. In 1967, the Pompidou Expressway was built next to the Seine, creating noise and pollution through the heart of Paris and separating people from the river banks that are now listed as a UNESCO World Heritage Site. Between 2002 and 2010, then Mayor Bertrand Delanoe closed the expressway to cars for one month every summer to create a temporary beach. Plans to make the closure permanent were developed and finally approved in 2012. The expressway was replaced with a wide pedestrian/bicycle trail that passes beneath the bridges over the Seine. Today, this public space is car-free and features play areas, picnic tables, as well as places for games, exercise, sunning, and, every summer, a beach.

Cyclists and pedestrians on Promenade du Cours-de-la-Reine no longer have to contend with noise and pollution from the George Pompidou Expressway.

In Europe, motor vehicles generate roughly 20 percent of carbon dioxide emissions, with cars accounting for the majority of that impact. In 2017, Paris required the owners of older vehicles to get a permit to drive in the city and banned the oldest and dirtiest cars entirely. Diesel automobiles were prohibited throughout the Paris region. Streets were put on a diet to give more space to trees and sidewalks. Car lanes were replaced with cycle tracks. Most streets were limited to speed limits of 30km/h and streets were pedestrianized next to 200 primary schools throughout Paris. Parking regulations were used to discourage SUVs and other large vehicles.

In 2022, most motor vehicles were banned from Rue de Rivoli, the primary east-west axis of central Paris, to create a major bicycle highway and pedestrianized environment. In 2024, Mayor Anne Hidalgo imposed a Limited Traffic Zone (ZTL) aimed at eliminating at least half of the car traffic passing through the heart of Paris. The ZTL includes the 1.5 square miles within the four central arrondissements. Motor vehicle access is prohibited

except for buses, taxis, emergency services, delivery vehicles, health care workers, essential employees, and the roughly 100,000 residents who live in this area. In 2024, speed limits on the outer ring road were lowered to 30 mph which was credited with improving air quality and lowering traffic crashes. These actions have created a more equitable balance between cars and people in the city center.

There has been pushback. Allowing sightseeing busses in central Paris has led to complaints that Hidalgo cares more about tourists than residents. Some critics claim that the creation of a car-light center is exacerbating traffic problems and pollution elsewhere in the city. Others say that these changes could impact the local economy and that the administration is favoring the wealthy city center at the expense of the surrounding arrondissements.

Nevertheless, polls indicate that Hidalgo has remained reasonably popular despite making dramatic changes that have cut car use by 45 percent, increased public transportation ridership by 30 percent, and boosted cycling roughly 1,000 percent over the mode share statistics of the early 1990s. Only 30 percent of Parisians own cars compared with 90 percent of the French population as a whole. The credit for that statistic goes partly to improvements in alternative modes and partly to fact that it is increasingly expensive to own as well as increasingly difficult to use a car in Paris.

The City of Bikes

Paris came in at 19th when the cycling gurus at Copenhagenize developed its index of the world's most bike-friendly large cities in 2013. Then in 2019, the updated Copenhagenize Index ranked Paris as the eighth-most bike-friendly large city in the world. In 2024, People for Bikes ranked Paris as the planet's second-best big city for cycling, right behind The Hague, Netherlands, and just ahead of Utrecht, Netherlands. Much of the credit for this leapfrogging of other cities goes to the leadership of Mayor Anne Hidalgo and successive cycling plans initially launched in 2015.

Anne Hidalgo became the Mayor in 2014 and soon after began work on transforming Paris into a city that is friendlier to pedestrians, cyclists, and people in general. An estimated 180,000 parking spaces had to be removed from streets in order to widen sidewalks, add landscaping, and create public spaces as well as install bike lanes.

Plan Velo (2015-2020) aimed to double the cycling network. Paris committed $150 million euros toward its implementation. Most of this funding was spent on cycle paths but six million euros were pledged to bike parking and 10 million euros were earmarked for helping people buy bicycles.

The freeway-free banks of the Seine are a UNESCO World Heritage Site.

The plan called for a web of wide cycleways known as the Express Bicycle Network (REVe) primarily within reconfigured roadways supplemented by cycle paths on the banks of the River Seine. The REVs connect with two ring roads and a loop formed by Boulevard Sanit-Germaine and the Grand Boulevards. A secondary network adds fine coverage between the REVs.

25,000 cyclists and scooters per day use the Rue de Rivoli, which has been prioritized for bikes, pedestrians, and public transportation.

As of 2021, 1,094 km of cycle lanes were in operation, a more than five-fold increase from the 200 km in in existence in 2001. As of that year there were 2,800 km of bike infrastructure within the metro region with 39 percent of that total within Paris alone. Almost one million trips per day used a bike for some or all of the journey. Counts of 25,000 cyclists and scooters per day were achieved on the Rue Rivoli. The Boulevard de Sebastopol saw peaks of over 15,000 per day. In fact, by 2022, there were more cyclists than motorists on many boulevards during peak hours in Paris. The city was particularly proud that more women were traveling by bike and that the length of the average trip by bike had increased from 19 minutes in 2010 to 33 minutes. Although residents were responding to these improvements, a study found that even more people could get around by bike considering that the average trip in Paris is 2.8 km.

Paris doubled down on the success of the 2015-2020 *Plan Velo* with an equally ambitious 2021-2026 plan aimed at making Paris a 100 percent bikeable city. Bicycle Plan Act 2 is made possible by a budget of 250 million euros, 100 million euros more than the 2015-2020 plan.

Plan Velo 2021-2026 is best visualized in the map of bicycle infrastructure slated for Paris over this five-year horizon. The primary network includes extensions of existing bikeways along the River Seine, connecting the Eifel Tower and points west with key destinations to the east such as the Notre Dame Cathedral and the d'Orsay, l-Orangerie, and Louvre art museums. Bikeways expand radially northwest on the Champs-Elysees toward the Arc de Triomphe, north to Pompidou Center, and south toward the Sorbonne, Luxemburg Gardens, the Pantheon, and Montparnasse. These radial axes are connected by concentric circles of bikeways with the innermost ring using Boulevard San Germain south of the river and a chain of streets north of the river linking famous landmarks like the Place de la Concorde, the Garnier Opera House, and the Place de la Bastille.

The 2021-2026 plan includes 180 km of new secure bike routes with special attention paid to linking the bike infrastructure of the city with the networks beyond the ring roads in the metropolitan region. Instead of prioritizing traffic signals for motorists, the plan calls for "green wave" timing to allow cyclists to proceed with minimal delays.

The plan calls for 130,000 new bike parking places. This total includes 40,000 new secure parking spaces by 2030 at public train stations and mode-change locations. In addition to 80,000 public spaces, the plan aims to add 50,000 new secure spaces to private residences and businesses.

The 2021-2026 plan gives Parisians additional encouragement to use bicycle infrastructure by increased enforcement of safety regulations, improved signage, and protocols to quickly remove snow from cycle paths. To support the cycling ecosystem, the plan calls for bicycling education in the schools as well as classes on bike maintenance and repair. A

cyclo-logistics strategy aims to increase deliveries by cargo bikes.

Four national or transnational long-distance cycle routes cross Paris, converging on the square outside Notre Dame Cathedral. The 2021-2026 plan encourages cycling tourism by improving signage on these routes and requiring tourist accommodations to include bike storage facilities. Within the region, the plan also calls for improved cycling access to nearby tourist attractions like Versailles and Giverny.

The Paris bike share system, *Velib*, is the largest in the world. There are 1,480 stations in Paris and the Ile-de-France offering 20,000 bikes, including 8,000 e-bikes. In 2024, *Velib* had 470,000 subscribers and logged 157.8 million kilometers over 49.3 million trips.

The growth of micro-mobility in general has spawned something of a backlash in Paris. Whether because of the greater number of bicycles on roadways or a perceived recklessness on the part of cyclists, the 2021-2026 plan recommends greater separation between cycling and pedestrian space as well as better training, particularly for children, so that cyclists know and observe the rules of the road. Despite pushback from motorists accustomed to dominating the public right of way, the administration of Mayor Anne Hidalgo has remained steadfast to the goal of making Paris "100 percent cyclable".

Despite efforts to create a peaceful co-existence with e-scooters, the citizens of Paris voted by an 89-percent margin to ban e-scooter rentals in 2023. This U-turn occurred even though the city had imposed a 6-mile-per-hour limit on rental scooters and threatened to fine riders for leaving e-scooters anywhere but in dedicated parking spaces. The vote may have been partly influenced by findings that e-scooters predominantly replace public transportation and walking rather than car travel, although one study estimated that scooters reduce car and taxi trips by seven percent. However, reckless riders likely prompted voter rejection. Fortunately, a negative reaction to rental e-scooters does not seem to have dampened Parisian enthusiasm for cycling.

Velib, the Paris bike share system, is the largest in the world.

The ultra-wide sidewalks on some Parisian streets, including the Champs Elysees, take pedestrian-friendly to a whole new level.

The Bikeable Country

The 100 percent bikeable city is an unqualified success for Paris. Bike counts doubled between 2022 and 2023. Cycling has become a normal mode of transportation for a diverse cross section of people even in cold and rainy weather.

The response has been so enthusiastic that France has committed to spend 2,2 billion euros between 2023 and 2027 to building cycling infrastructure throughout the country. This campaign will double the country's bike lanes from 50,000km to 100,000 km, help people buy bikes, and provide bike training in schools. According to Transport Minister Clement Beaune, France wants to make cycling a useable means of mobility for people of all ages and abilities and an attractive alternative to cars. Apparently, the Paris revolution has become an inspiration for the entire nation as well as other cities around the world.

CHAPTER 16

Toulouse, France

The car is still king in Greater Toulouse. Sprawl in this region of 1.5 million people resulted from its rapid growth since the 1980s when many cities still thought that more roads were the answer to traffic congestion. However, in the City of Toulouse at the center of this region, transit, walking, and other modes (like biking) account for over two thirds of all trips. Even the larger metropolis as a whole is steadily moving toward people-friendly mobility.

Tisseo

The Toulouse metropolitan transport system, named Tisseo, serves more than 100 jurisdictions in and around the City of Toulouse with two metro lines, two tram lines, 135 bus lines, various shuttles, on-demand mobility services, and one cable car system. The two metro lines are relatively short yet they provide roughly 400,000 rides daily. Transit accounts for 21 percent of trips within the central city, giving Toulouse third place among French cities behind Paris and Lyon.

Tisseo also operates *veloToulouse*, a bike share system offering 3,300 bikes at 400 stations. Tisseo's *Pastel* card can be used to transfer between these modes, including bike share, throughout the Toulouse Metropole, an intergovernmental structure consisting of 37 communes with a population of 783,000. In 2017, 14.1 percent of all employees commuted to work by bike, putting Toulouse in third place in France for cycle commuting behind Strasbourg and Grenoble.

A protected bike lane follows the Canal du Midi, the historic waterway that links the Mediterranean Sea with the Atlantic Ocean and passes through Toulouse.

Reseau Express Velo

Tisseo is also building out Reseau Express Velo (REV), a cycling network offering comfort and safety, featuring trail lighting and secure bike parking. With a budget of 250 million euros, REV aims to complement existing bike infrastructure by making connections that facilitate longer trips and continuous cycling access to transportation hubs and destinations in 54 municipalities throughout the region.

The REV plan calls for 12 lines that radiate from the center of Toulouse and are linked by one ring at the heart of the city and a second loop around the city. On completion, 80 percent of all city dwellers will be one kilometer or less from the REV network. Roughly 60 percent of the 370-km REV has already been completed. In 2021, all bike infrastructure in Toulouse Metropole totaled 1,686 km, up from 1,348 km in 2020. Between 2016 and

2021, cycling increased by over 77 percent in the Metropole.

In 2023, the French government pledged two billion euros to double the length of bike lanes and trails throughout the country. In making this commitment, the nation's Transport Minister Clement Beaune explained that roughly 50 percent of car trips are 5km or less, creating a promising opportunity to switch from motor vehicles to cycling. In addition to bicycling's multiple benefits of affordable, planet-friendly transportation and healthful exercise, France considers people-friendly mobility as essential to meeting its climate action goals.

Many streets have been pedestrianized in central Toulouse including Rue du Taur.

Pedestrianization

Wide sidewalks flank many boulevards in Toulouse, making them pedestrian-friendly despite being next to roadways filled with motor vehicles. In addition, the city has removed cars from some wide, commercial streets as well as narrow streets dating from the Middle Ages. Motor vehicle access has been minimized on roughly 30 blocks surrounding Place du Capitole in the heart of the historic center. This strategy has generated massive pedestrian activity.

There are also examples of multi-mode makeovers such as segments of Allees Jules Guesde where space for cars has been replaced by a grassy corridor accommodating bikeways and walking paths as well as tram lines.

Trams and bikes share a wide, landscaped corridor on Allees Jules Guesde.

Toulouse has assembled muti-use pathways along the Garonne River, a major waterway that originates in the Pyrenees and has caused numerous floods over time. This network, known as the Grand Parc Garonne, links bike/walkway combinations near the water level as well as on top of the huge dykes that contain the river. Linking the two sides of the river, Toulouse has transformed Pont Saint-Pierre into a combination bikeway, pedestrian promenade, and recreational space complete with outdoor furniture inviting people to take time to relax and contemplate the water.

Additional opportunities for multi-use trails appear along three canals built during three different centuries when water transport made Toulouse a transportation hub. The Canal du Midi, which dates from the 17th century, was built as one link in the Canal de Deux Mers, a 360-km short cut between the Atlantic Ocean and the Mediterranean Sea. Within Toulouse, cycle lanes and muti-use trails follow portions of the Canal du Midi, which is now a UNESCO World Heritage site. Today, a cycle route uses the former tow paths of these canals allowing ambitious cyclists a way to pedal from Bordeaux to the Mediterranean.

A Safer Future

In 2023, Toulouse adopted a Street Code to improve roadway safety, particularly for pedestrians and cyclists. As with the Paris Street Code, the Toulouse version promotes coexistence between all users by adding pedestrian zones, widening sidewalks, reconfiguring roadways for better balance between travel modes, and reducing speeds. The main message of the Toulouse *Code de la Rue* is "we are taking our foot off the gas". By 2026, Toulouse wants 80 percent of its streets to have maximum speeds of 30 km/h (19 mph). As of 2025, 53 percent of all city streets were limited to 30 km/h. Considering the progress already made, Toulouse is likely to reach that goal in its pursuit of greater safety and quality of life in the public realm.

CHAPTER 17

Utrecht, Netherlands

Utrecht – a bicycle-friendly city begins with the following quote: "A medieval city that was originally built at a human scale, Utrecht refuses to set aside enormous amounts of space for cars. Instead, our goal is to create room for commerce, community, and social connection." With projections that the city could almost double in population by 2040, Utrecht will be challenged in its commitment to retain its human scale. But based on its success to date, Utrecht appears more than able to meet that challenge.

Utrecht's Vredenburg cycleway is the busiest bike route in The Netherlands.

The Path to Bicycle City

As in Amsterdam and other northern European cities, Utrecht was gradually allowing cars to dominate its streets in the 1950s and 1960s. But the city reversed course beginning with the oil crises of the 1970s. At the same time the environmental movement was gathering strength. In addition, traffic related fatalities, particularly involving children, were causing many to question the wisdom of designing streets for motor vehicles instead of people.

Utrecht reversed course. Bicycling is now the most common way to get around the city as demonstrated by the fact that 98 percent of all households here own at least one bike and three or more bikes can be found in half of Utrecht's households.

By 2021, Utrecht had 420 km of bike paths, over 30,000 bike parking spaces near its Central Train Station, and 21 bike parking facilities citywide including 18 that are manned and monitored. Survey results revealed that over half of Utrecht residents visit the city center by bike, making it the most frequently used way to travel to and around central Utrecht. Almost 90 percent of Utrecht residents report being satisfied with bike access to the city center as well as the bike parking facilities available within central Utrecht.

Utrech has worked with residents and merchants to remove street parking and create pedestrian places with minimal car traffic, like Mariaplaats.

Infrastructure Highlights

Utrecht's central rail station is the largest public transportation hub in country. An estimated 125,000 cyclists access the city center daily. On the east side of the station, the city has transformed what used to be a chaotic sea of bike parking into the world's largest bike parking structure with 12,500-spaces initially and an ultimate capacity of 22,000 bikes. On the west side of the station, another bike parking facility accommodates another 5,000 bicycles.

To provide bike access to this area, Utrecht has added spacious cycle tracks to many of the surrounding roadways including the Vredenburg corridor that is now the busiest cycle route in Holland with 33,000 cycle trips per day. Not surprisingly, a remarkable 60 percent of trips into central Utrecht occur by bike while only 15 percent are by car.

Utrecht's "P-route Bicycle' guides cyclists to available cycle parking using digital signs on the main cycling routes that are monitored in real time. A smartphone app can also be used to show cyclists where to park.

In the historic center, Utrecht has collaborated with residents and merchants to remove parking spaces on many streets and make them inviting to pedestrians and cyclists. For example, Mariaplaats is now a public square with minimal motor vehicle traffic.

In addition, the city has restored its historic canal system and built pedestrian pathways along its banks for a more leisurely mode of travel in and around the city center.

Many pedestrian trails follow the canals of Utrecht.

Utrecht has built fast-cycling routes to facilitate longer distance trips for daily commuting as well as recreation. The Vechtdijk fast cycling route is paved and lighted, allowing cyclists an enjoyable way to pedal from the city center to the rural countryside with its occasional working windmills.

Since 2000, Utrecht has been creating *fietsstraats* or cycle streets where cyclists command the roadway and cars are treated as guests. As shown in the photo of Nachtegaalstraat Fietsstraat, these cycle streets often feature gateway elements that put motor vehicle drivers on notice that they must slow down and yield to cyclists.

Bikes command the roadway on Utrecht's fietsstraats.

Utrecht's success with bicyclization and pedestrianization has not gone unnoticed. In 2019, Copenhagenize ranked Utrecht as the third most bike-friendly city on the planet after Copenhagen and Amsterdam. The experts at Copenhagenize reported that Utrecht scored high on the mode share accomplished by bike, the provision of record-breaking bike parking, world-class cycling infrastructure, and the linking of this infrastructure with public transportation. They were particularly impressed that Utrecht truly walks the walk by prioritizing bicycling over cars in order to maximize the potential for cycling mobility.

In 2021, People for Bikes ranked Utrecht the number one bike-friendly city out of 30 cities in nine European countries. That choice reflected the fact that 120,000 people were bicycling to work, school, shopping, and public transit nodes every day. At the time of this ranking, the city was spending $55 million per year on bike infrastructure, which is sizeable for a city which at that time had a population of 360,000 people. People for Bikes noted that Utrecht improves not just bike lanes but the entire experience of bicycling as

exemplified by its massive bike parking facilities.

Cyclists pedal from the city into the rural countryside on Utrecht's cycleway network.

Priorities

Utrecht is justifiably pleased with the results of bike prioritization. The reduction in air pollution is estimated to reduce healthcare costs by $300 million per year. Traffic fatalities of cyclists and pedestrians have dropped dramatically. And Utrecht has no intention of slowing down in its drive to to create room for commerce, community, and social connection. Perhaps the best summation of Utrecht's priorities came from Lott van Hooijdonk, Utrecht's Vice Mayor: "You really have the idea that people are the boss of the city, not the machines."

CHAPTER 18

Zurich, Switzerland

The 2000-Watt Society is a concept developed in 1998 at the Swiss Federal Institute of Technology in Zurich, Switzerland. A 2000-Watt Society is one in which citizens consume no more than 2000 watts of energy per person per year. In 2008, Zurich voters overwhelmingly approved a principle in the city's constitution to reach that goal by 2050.

This city of almost a half million people aims to become a 2000-Watt Society by building energy-efficient buildings, more than doubling renewable energy sources from 11 percent to 25 percent, and reducing energy consumption in the transport sector by 13 percent.

To make further progress toward the 2,000-watt goal, the city's mobility plan, *Strategies Zurich 2040*, declares that public transport, walking, and cycling are the pillars of mobility while private motor vehicle use will continue to be "reduced to an acceptable level". To do that, Zurich plans to continue building people-friendly mobility alternatives including public transport, cycling, and walking.

Public Transport

Zurich's 2040 public transportation plan proposes significant expansion of service in order to accommodate projections for 100,000 more residents, 40,000 additional jobs, and a shift away from private motor vehicles as part of the city's goal to reach net zero greenhouse gas (GHG) emissions by 2040. The three-stage plan, with a price tag of between 1.9 and 2.5 billion Swiss francs, calls for improvements to the inner and outer transit rings, fleet electrification, and extensions of Zurich's already robust tram and bus networks. In addition to building infrastructure, Zurich motivates people to use transit through *ZuriMobil*, an integrated smart phone app providing trip planning, booking, and payment across multiple public transport modes.

Zurich's public transport system is considered one of the best in the world.

Zurich has gained international recognition for its public transport network. In 2024, the Oliver Wyman Forum ranked Zurich ninth out of 70 cities worldwide in its Urban Mobility Readiness Index. Developed in partnership with researchers at the University of California – Berkeley, this index considers 71 performance indicators across five dimensions: infrastructure, social impact, market attractiveness, systems efficiency, and innovation.

The researchers were particularly impressed by the integration of Zurich's multimodal public transport system with the national rail service and the fact that most stations are easily reached on foot. Zurich also did well on mobility-related environmental outcomes, including air quality and noise, due to the city's implementation of 30 km/h speed limits, installation of noise-reducing road surfaces, and expansion of car-free zones.

Trams serve Zurich's highly-walkable Limmatquai pedestrian zone.

Cycling

The Urban Mobility Readiness Index acknowledges that Zurich is not a top city for bicycling infrastructure. As recently as 2014, cycling only accounted for a modest four percent of trips. The Transport Plan 2025 aimed for a rebalancing of mode share, reducing private car trips by ten percent and doubling the proportion accomplished by bike and on foot.

In 2014, Zurich had 340 km of cycling tracks and lanes. By 2025, the city had increased the cycling network to at least 500 km. The city is giving cyclists priority at traffic signals and adding bike parking at train stations. Zurich also made a significant network improvement in 2025 by opening a 440-meter-long, bike-only tunnel beneath its central train station.

PubliBike Velospot, Zurich's bike share system, facilitates subscriptions, bookings, and payment through its *Zurivelo* app. In 2025, this system maintained about 2,500 bikes and e-bikes at 177 stations and logged roughly one million rides per year. In response to demand, *PubliBike Velospot* planned to double the number of stations. In addition, bikes can be rented free of charge from *Zuri Rollt* at Zurich's central train station.

Pedestrianization

In 1996, Zurich adopted a "historic compromise" that capped the number of car parking spaces in the city. Whenever a parking space was added, another space had to be removed. The new spaces were generally built in underground structures, creating car-free streets and squares.

Zurich restricts all but essential motor vehicles in Old Town, the Medieval heart of the city on the west bank of the Limmat River. On the east side of the river, the Limmatquai pedestrian zone also forms a primarily car-free environment.

As of 2025, pedestrianization advocates are looking for voter approval to restrict motor vehicles throughout Zurich except for public transport, tradespeople, drivers with reduced mobility, and emergency services. Supporters of this proposal point out the benefits of car-free zones for air quality, safety, economic development, and quality of life. Opponents argue that what they consider to be radical pedestrianization is impractical and unnecessary since Zurich has already approved plans to lower speed limits, reduce parking spaces, and expand the cycling network. The public's acceptance of this idea may be influenced by the performance of the huge car-lite zone in central Paris.

Lindenhof is one of many people places in Zurich's Old Town pedestrian zone.

On the Path to 2000 Watts

So far, Zurich has reached a 2020 interim goal of 4,000 watts per person per year by building energy-efficient buildings, more than doubling renewable energy sources from 11 percent to 25 percent, and reducing energy consumption in the transport section by 13 percent. Further improvements to public transit, cycle-friendly infrastructure, and pedestrianization will increase the chances of Zurich becoming a 2000-Watt city by 2050.

CHAPTER 19

Atlanta, Georgia

Atlanta is not known for bike-friendliness. In 2022, one report ranked it the third worst of the 50 largest cities in the US. In 2024, Atlanta came in at number 668 in the United States according to the methodology used by People for Bikes. But Atlanta has the Atlanta BeltLine, the city's ambitious project to redevelop and connect 45 neighborhoods encircling downtown by transforming 22 miles of abandoned rail corridors into a muti-use trail.

A well-designed urban trail connects homes, retail, parks, and other everyday destinations that people can reach by walking and cycling. The BeltLine goes the extra mile by attracting as well as linking these destinations. It has become a huge hit with Atlanta residents and a model that many other cities would love to copy.

Atlanta BeltLine

In 1999, the BeltLine concept was first proposed in a thesis written by Ryan Gravel, a Georgia Tech graduate student. Grassroots support for the idea was nurtured by Friends of the BeltLine and a 2004 Trust for Public Land study demonstrating the feasibility of the project using a Tax Allocation District (TAD). By 2005, a plan and a TAD were approved. The first trail segment was open by 2008.

As of 2016, the BeltLine had created seven parks and hundreds of affordable housing units as well as motivated the development of $3 billion worth of residential complexes, commercial buildings, affordable housing and other forms of private investment. At the end of 2024, 85 percent of the 22-mile multi-use loop was either open to the public or under construction and the longest remaining gap was on schedule to be finished in 2025.

The Atlanta BeltLine connects homes, retail, parks, and other everyday destinations that people can reach by walking and cycling.

The BeltLine is all about connecting Atlanta. While the region is famous for sprawl, the older parts of the city of Atlanta concentrate many recreational, cultural, residential and commercial destinations within easy bicycling distance via the BeltLine. The Eastside Trail segment of the BeltLine passes through 185-acre Piedmont Park. In 1887 and again in 1895, this park was the site of international expositions, two of many reasons why the park is now listed on the National Register of Historic Places. Some elements from this era still survive, including Lake Clara Meer, which once featured water slides and diving platforms. A 1912 Olmstead Brothers plan influenced the park's current look, which includes the Atlanta Botanical Garden, a swimming pool, a tennis academy, ball fields, playgrounds, dog parks, a community garden and a farmers' market.

Anchoring the Eastside Trail is Ponce City Market. Once a Sears & Roebuck regional distribution center built in the 1920s, this two million square-foot 1920s building has been repurposed as a multi-use complex with 259 apartment units, 550,000 square feet of office

space and 330,000 square feet of retail including a Central Food Hall featuring famous chefs and international cuisine. Ponce City Market incorporates bike storage, showers, and bike-friendly elevators in order to take maximum advantage of its location on the BeltLline.

On completion, the Beltline will connect 2,400 acres of parkland with a 22-mile streetcar loop and 33 miles of multiuse trails. Atlanta BeltLine estimates that the project will ultimately remediate 1,100 acres of brownfields, build 5,600 affordable housing units, generate $10 to $20 billion in economic development, create 30,000 permanent jobs and support 48,000 one-year construction jobs. Considering the huge success of the BeltLine segments finished so far, these estimates might actually be conservative.

Moving Atlanta Forward

In 2022, Atlanta voters approved a $750 million package called Moving Atlanta Forward. Although a big chunk of this money will be spent on roads and police/fire facilities, some will also go to parks, trails, and pedestrian infrastructure including sidewalks. Specifically, $28 million has been pledged to add ten miles to the existing trail network by building or extending eleven trails. More than $16 million in this package is earmarked for seven projects involving the BeltLine. Implementation of this package should help Atlanta move up in the ranking of bike-friendly cities.

CHAPTER 20

Boise, Idaho

Boise's transportation plan promotes great places with this simple reminder: "A street is much more than a street. It is where life happens." Establishing this mindset involves changing the way people think about the public right-of-way. It requires a cultural shift that treats the automobile not as the primary mode of transportation but as merely one of many transportation choices.

In 2019, Boise completed its 25-mile portion of a multi-use trail called the Boise River Greenbelt along both banks of the Boise River linking many recreational, cultural, and educational destinations. The Greenbelt is so beloved that Boise adopted a new plan to expand this trail into a 160-mile network of pathways extending throughout the city.

The Boise River Greenbelt

The roots of the Boise River Greenbelt date back to 1969 when Boise adopted a plan to clean up the waterway and transform the surrounding area into a linear park and pathway system. After 50 years of assembling land, building segments, and closing gaps, Boise has completed its portion of the Greenbelt, which is now a 25-mile network of multi-use trails that largely follow the banks of the Boise River as it tumbles out of the Sawtooth Mountains in southwestern Idaho and greens the towns and farms of southern Idaho in its 102-mile journey to the Snake River.

Since 1969, the city has also been growing a vibrant downtown and university adjacent to the Greenbelt as well as locating key destinations with access from the trail including Zoo Boise, the Boise Art Museum, the Anne Frank Human Rights Memorial, the Discovery Center of Idaho, two golf courses, three nature centers, and 15 parks.

The Boise River Greenbelt has been such a success that the city plans to expand its pathway network to 160 miles.

When Boise's portion of the Greenbelt was completed in 2016, this city of almost 240,000 people was ranked as the fifth most physically active city in the United States. This recognition was partly due to the various outdoor recreational opportunities available here from rafting on the Boise River, mountain biking in the foothills, and downhill skiing at Bogus Basin as well as the opportunities for recreational exercise on the Boise River Greenbelt. At that time, Boise also ranked 4th for the percentage of commuters who bike to work among 114 large cities in the United States. Furthermore, walking, bicycling, and other forms of active transportation had been rising since 2000.

Roadways to Bikeways

Deciding to double-down on its success, Boise and Ada County completed a 2016 Transportation Action Plan (TAP) in partnership with Gehl Studio, the international consulting firm founded by Jan Gehl, the legendary pioneer in livability as well as people-friendly mobility. The 2016 TAP involves six major initiatives or 'moves': 1) Safety for all; 2) Walk and bike to work and store; 3) All-ages bike network; 4) Active routes to school; 5) Park once; and 6) State-of-the-art transit.

Under Move 2, the TAP observes that almost every city resident is within bicycling distance of an area that either is or has the potential to become an Activity Center. By making pedestrian and bicycle improvements within one-quarter mile of activity centers, more people will be able and willing to reach these local destinations on foot or by bicycle, thereby increasing sales for these businesses. As these activity centers grow increasingly vibrant, more people will be motivated to patronize them on foot or by bike, creating a self-reinforcing improvement loop fittingly called a virtuous cycle.

The Roadways to Bikeways Plan specifies infrastructure improvements to and around activity centers, including the Idaho State Capitol.

Boise Pathways

The 2016 TAP laid the groundwork for Boise's Pathways Master Plan which aims to expand the city's already impressive trail network by over 110 miles, from its current length of 50 miles to over 160 miles.

The Pathways Plan recognizes that the Boise River Greenbelt and pathways in general create planet-friendly transportation options for households of every income level, provide opportunities for healthful activity, and generate economic impact by attracting trail-related businesses, spurring development, increasing property values, and offering an amenity that helps local companies attract and retain employees.

In addition to adding almost 30 miles of trails through parks, the plan adds 12 more miles of trails within riparian corridors to the 25 miles that already constitute the Boise River Greenbelt. The plan also calls for 53 miles along the various irrigation canals that carry water from the river to properties throughout the Treasure Valley. The plan proposes another 12 miles of rail-with-trail paths next to an active rail line and a total of 11 new grade separations including six new bike/pedestrian bridges over the Boise River.

Once the entire 160-plus mile network is completed, a majority of Boise residents will be within one-half mile of a pathway. "The planned expansion of the pathways takes the idea of the Greenbelt and extends it to every neighborhood in the city so all Boiseans can enjoy connections and the improved quality that brings," remarked Council President Elaine Clegg. Boise Mayor Lauren McLean added: "The robust network will connect our residents to economic opportunities, recreation and everywhere in between, without reliance on a vehicle."

Cyclists and pedestrians flock to the bistros on car-free Eighth Street in downtown Boise.

Recognition

The League of American Bicyclists now ranks both Boise and surrounding Ada County as Gold-level bike-friendly communities and rates Boise State University as a Platinum-level bike-friendly university. Considering the transformative scale of the Boise Pathways Plan, the city is likely to attract even greater recognition in the future.

CHAPTER 21

Boulder, Colorado

Boulder, Colorado is nationally recognized for leadership in open space preservation. However, this city of 105,000 people, 25 miles north of Denver, also excels at people-friendly mobility, earning a Platinum-level ranking for bike friendliness and pursuing goals for climate action as well as safer pedestrian and cycling routes for people of all ages and abilities. It's latest transportation plan aims to rebalance public roadways to minimize the need for cars and increase the portion of trips taken on foot, bike, and public transit.

Olmsted's Legacy

In his 1910 plan for Boulder, Frederick Law Olmstead Jr. recommended the creation of a city forest and cautioned to "… not spoil what a bountiful nature has provided." Boulder proceeded to heed his words by making many early park acquisitions, prohibiting hillside development, and becoming the first US city to adopt a voter-approved sales tax for open space preservation. Today, over 68 percent of the land area of Boulder and Boulder County is permanently preserved by the combined efforts of governments at every level.

Boulder's Open Space and Mountain Parks system incorporates trails and multi-use paths that create a scenic as well as planet-friendly way for walking and cycling around town. Perhaps the prime example is the 5.5-mile multi-use path that follows Boulder Creek as it meanders through downtown, linking homes and coworking spaces with the Boulder County Courthouse, a performing arts theater, the main library, downtown, the arboretum, Boulder High School, the University of Colorado campus, seven parks, and several other destinations in central Boulder. Other multi-use paths and bike lanes lead to mountain trailheads, like that in Chautauqua Park, with its commanding view of the Flatirons, the rust-colored sandstone formations that have become the symbol of Boulder.

Bike lanes access the trails of Chautauqua Park with the Flatirons as a backdrop.

Platinum Bike Town

Boulder is one of the five US cities ranked as Platinum-level bike friendly communities by the League of American Bicyclists. As in other Platinum-level college towns like Davis, California, Madison, Wisconsin, and Fort Collins, Colorado, Boulder aims for people of all ages and abilities to safely and comfortably get around by bike.

Between 1990 and 2020, Boulder built almost 60 miles of multi-use paths, created 80 trail underpasses, and established a bike share system with 47 stations and 300 bikes. In its 2019 Transportation Master Plan, Boulder declares that transportation investments are needed to achieve the city's goal of cutting GHG emissions in half by 2030. To meet that target, Boulder commits to reallocating the public right of way to prioritize the movement of people (as opposed to private cars) using placemaking, transit improvements and bicycle/pedestrian infrastructure.

By 2030, Boulder wants people-friendly mobility to account for 80 percent of all trips: 10 percent transit, 15 percent multiple-occupant motor vehicles, 25 percent pedestrian, and 30 percent bicycle. As additional measures of progress, Boulder wants a 20-percent reduction in VMT by 2030 and the elimination of fatal and serious-injury traffic crashes in keeping with its Vision Zero commitment.

In some transportation plans, Boulder uses the term "complete neighborhoods" rather than "complete streets". That term reminds people that complete streets (meaning right of way allocation that provides for the safe mobility of pedestrians, cyclists, and transit as well as cars) have their greatest success in complete neighborhoods, where there are schools, stores, parks, and other everyday destinations that can be reached quickly by bike or on foot.

The Boulder Valley Comprehensive Plan (BVCP) in effect in 2025, used the more common name of '15 Minute Neighborhood". But, like the term 'Complete Neighborhood', '15-Minute Neighborhood" means a neighborhood where people find it easy to go about their lives without always using a car and where those without any car can reach everyday destinations on foot or by bike. Although a 15-minute neighborhood policy appeared in the earlier BVCP, implementation was admittedly slow.

As part of the development of a new BVCP, the city formed a Community Assembly in early 2025 that began the task of sharpening the vision of what 15-minute neighborhoods should look like in Boulder and deciding how to bridge potential disagreement within the community about how or even whether to continue pursuing this policy. The Community Assembly is scheduled to present its recommendations to the City County by the end of 2025. This process will influence whether or not Boulder retains its goal of creating 15-minute neighborhoods for 80 percent of the city's total population.

CHAPTER 22

Charlotte, North Carolina

Charlotte wants to change from a car city to a car-optional city. It won't be easy. With a population of 2.6 million, greater Charlotte is the 5th most sprawling metro area in the United States. Over 80 percent of commuters here drive alone to work. The city will absorb another 400,000 residents by 2040, the equivalent of adding the entire current population of the City of Raleigh.

Charlotte realizes that it cannot continue to pave its way out of its mobility needs. In addition, the public prefers to be free from car dependency. As a result, the city has adopted a suite of plans based on the following policy: We can't keep widening our roads so we have to broaden our thinking about how to accommodate growth and give residents more transportation choices like walking, bicycling and public transportation.

In the 1990s, Charlotte adopted a comprehensive plan which was subsequently updated in 2010 as the *Centers, Corridors, and Wedges Growth Framework,* designating five radial corridors planned for more intensive development served by multiple transportation modes. A good example of this template can be seen in South End where a former industrial area is transitioning to a higher-density, mixed use district centered on the LYNX Blue Line light rail and the multi-use trail next to it.

When the LYNX Blue Line light rail began operating in 2007, the path paralleling the tracks was seen as a way of simply getting passengers to and from the stations in Charlotte's South End. However, a 2012 plan re-imagined this corridor as a linear park with a trail that people could use for active transportation, recreation, exercise, people-watching and pedestrian/bike-friendly access to and from the bars, restaurants, stores and residential complexes that are sprouting up along this corridor.

A walking/bicycling trail parallels the LYNX Blue Line light-rail tracks in Charlotte's South End.]

Between 2005 and 2017, 10,000 new housing units were built in this corridor. Public art abounds here as well as craft beer. The Sycamore Brewing Beer Garden abuts the trail, attracting crowds with food trucks and live music. As of 2017, 14 breweries, distilleries, taprooms and brewpubs were located on or near the rail trail.

Bike lanes connect the South End Rail Trail with Charlotte's Sugar Creek Greenway, which currently begins just east of downtown in Elizabeth Park. The Toby Creek Greenway adds another three-mile segment of completed multi-use trail to Charlotte's bicycle network, bisecting the 1,000-acre campus of the University of North Carolina at Charlotte, with an enrollment of roughly 30,000 students, and connecting with the Mallard Creek Greenway and the Clark's Creek Greenway which create a meandering linear park through several residential neighborhoods.

In addition to success stories like South End, Charlotte is expanding people-friendly mobility initiatives throughout the city. As a pioneer of Complete Streets in North Carolina, Charlotte adopted Urban Street Design Guidelines in 2007 which won the 2009 National Award for Smart Growth Achievement in Policies and Regulations from the U.S. Environmental Protection Agency. Under these guidelines, the city began analyzing level of service for pedestrians and bicyclists as well as motor vehicles to build transportation infrastructure that serves all travel modes. By the end of 2009, Charlotte had completed

$400 million in roadway improvements entirely consistent with these guidelines.

Charlotte's history with complete streets paved the way for the city's 2017 *Charlotte WALKS Pedestrian Plan* aimed at "… making walking safe, useful and inviting". As to safety, the plan calls for infrastructure that provides greater separation between pedestrians and traffic, installs 1,890 miles of missing sidewalks, and improves crosswalks throughout the city.

In 2019, Charlotte strengthened its safety commitment by adopting a Vision Zero plan designed to eliminate traffic-related deaths and serious injuries by 2030. The Vision Zero plan and the *Charlotte WALKS* plan both address the deadliness of traffic accidents by various means including redesigned infrastructure and reduced speeds, noting that five percent of car-pedestrian collisions result in death at 20 miles per hour versus 85 percent at 40 miles per hour.

Making walks useful is difficult in Charlotte, a city with a Walk Score of 26 out of 100. That means that most everyday destinations in a typical Charlotte neighborhood are so far away that residents will probably choose to drive if they have a car. Charlotte also has low intersection density (intersections per square mile) which forces pedestrians to take longer routes even to places that may be relatively close 'as the crow flies'.

To get people back on their feet, the city aggressively pursues pedestrian access to schools, transit, parks and greenways. The plan also calls for updating Charlotte's Unified Development Ordinance to promote more mixed-use developments that allow residents to reach grocery stores, restaurants, and other everyday destinations within a ten-minute walk.

The pedestrian plan acknowledges that making walking inviting is even more elusive than making it safe and useful. But since streets account for over half of Charlotte's public space, the city is committed to making them into great places using a context-sensitive approach that differs between residential neighborhoods and commercial districts. The strategies include wide sidewalks, ample landscaping, and a return to alleys for motor vehicle access in order to reduce the pedestrian-inhibiting presence of driveways. In addition, Charlotte pledges to reach 50-percent tree-canopy coverage by 2050 to improve air quality and storm water management as well as enhance the walking experience. The city also promotes recognition of streets as civic space through the addition of parklettes and creative place-making projects proposed by non-profit organizations and neighborhood groups.

Restaurants, pubs, and beer gardens line the trail in Charlotte's South End.

Charlotte Bikes

In 2017, the city adopted *Charlotte BIKES*, a bicycling plan with the goal of promoting health and happiness by making streets safe and comfortable enough for cycling to become a normal way of getting around. Between 2001 and 2017, Charlotte went from one mile to 90 miles of bike lanes plus 40 miles of off-road paths and greenways. To make cycling appealing to "all ages and abilities", this plan advocates for protected bike lanes and commits the city to spending $4 million per year on "world class bicycling projects, programs and a bicycle-friendly community". In recognition of its progress, the League of American Bicyclists named Charlotte a Bronze Level Bicycle Friendly Community.

Equity is a key goal of Charlotte BIKES. Car ownership here costs nearly $9,000 per year per vehicle. A well-connected cycle network can allow more households to forego car expenses and apply this money to housing, food and other goods that support local businesses instead of spending it on car payments, insurance, gas, and other expenditures more likely to leave the Charlotte economy.

Charlotte recognizes that a well-developed cycle network helps attract employers to the

city and make neighborhoods more attractive to potential homebuyers. Restaurants, brew pubs and other bicycle-oriented businesses also vie for locations on bike trails as evidenced by the fact that the Sugar Creek Greenway alone generates over $5.2 million in sales revenue, supporting 73 jobs, over $2 million in labor income and $179,000 in state and local tax collections.

The success of Charlotte's existing multi-use trail segments has motivated the city and Mecklenburg County to complete the 30-mile Cross Charlotte Trail linking the destinations already served by greenways with additional parks, commercial centers and other special places including the NoDa arts district known for outdoor murals, galleries, live music venues, offbeat eateries and, of course, craft beer breweries and pubs. When completed, over 140,000 residents and 130,000 jobs will be located within walking distance of the Cross Charlotte Trail, putting Charlotte in the top 25 US cities for most multiuse trails.

Charlotte is still far from its goal of becoming a car-optional city. But by broadening its thinking rather than widening its roads, it is at least on its way to getting there.

CHAPTER 23

Davis, California

Davis has largely earned its self-proclaimed title as the 'Bike Capital' of the United States. This college town, with a population of 66,000, has been building cycling infrastructure and bike culture for over half a century. It is a Platinum-level bike-friendly community that wants to become the first city in the US to get a Diamond rating from the League of American Bicyclists.

The University of California – Davis is also rated Platinum by the League of American Bicyclists.

Ecomobility options allow residents here to live car-free in Davis. Housing developers are happy to accommodate this lifestyle by reducing the number of car parking spaces (which can add about $30,000 per space to building costs) and instead offering bike-oriented amenities such as ample, secure bike parking and bike-repair facilities. Car-less tenants can be doubly motivated to choose bike-friendly apartments located near the Amtrak station in downtown Davis.

The Path to Platinum

In 1966, the voters elected pro-bike candidates to the Davis City Council, which led to the installation of the nation's first bike lanes a year later. In 1986, the city's General Plan required developments to incorporate greenways, which generated two-thirds of the city's proposed greenways network by 2007. In the 1990s. Davis installed bike signalization, a US first, and a decade later formed the first US bicycle advisory commission to assist with bike planning and implementation. In 2005, the League of American Bicyclists recognized Davis as the first Platinum-level bike-friendly city in the country.

In 2012, Davis partnered with the League of American Bicyclists and other Platinum-level bike-friendly communities to develop a Diamond-level designation based on criteria comparable to those achieved by world-class bike-friendly communities like Copenhagen and Amsterdam. Davis aims to meet that goal partly to improve crash rates and mode share but also to reach its target of being carbon neutral by 2050.

In 2014, between 20 and 25 percent of all trips in Davis were by bicycle. The 2014 plan aimed for bikes to reach a 30 percent share by 2020 by focusing on the League of American Bicyclist's five strategies: engineering, education, encouragement, enforcement, and evaluation-planning. Plus, Davis adds a sixth "E", equity and also notes that a seventh "E", enjoyment, is also a proven motivator to bike. As one example of that last strategy, Davis holds a fun ride every year called Loopapalooza, so named because it takes place on the 12-mile bike loop encircling Davis.

The vision statement for the 2014 plan, *Beyond Platinum*, reads as follows: "Davis will become a world-class bicycling city where a majority of people of all ages and abilities choose bicycling as their primary mode of transportation for everyday trips." As an interim goal, the city aimed for 30 percent of all trips to occur by bicycle by 2020. To succeed, Davis planned to make cycling safer, more comfortable, better integrated with public transportation, and consistent with the standards needed for a Diamond-level rating.

To get people of all ages in the saddle, Davis runs programs to motivate cycling by grade school children, adolescents, college students, women, and seniors. *Beyond Platinum* also committed Davis to enforcing the rules of the road for cyclists as well as motor vehicle

drivers. In addition, the city launched a drive to get more local employers to pursue recognition from the League of American Bicyclists as bike-friendly businesses.

Beyond Platinum pledged Davis to upgrading bicycle infrastructure to best practice standards, improving bike lanes, installing better wayfinding, integrating bicycling with public transit, adding bike parking, and creating linkages between bike lanes and off-street multi-use paths (which totaled 50 miles in 2014).

Steps To Diamond

In 2020, the League of American Bicyclists reaffirmed Davis as a Platinum-level bike friendly community. To reach Diamond, the league recommended continuing progress in bike safety, bike parking, bike sharing, bike counters, and bike education as well as the return of a public bike share system.

As of 2025, Davis had not yet reached Diamond status. But then, neither have any of the four other Platinum-level communities – Boulder, Colorado; Fort Collins, Colorado; Madison, Wisconsin; and Portland, Oregon.

CHAPTER 24

Indianapolis, Indiana

Indianapolis is famous for a car race that happens every Memorial Day weekend. But despite its association with car culture, this capital city of 880,000 people has been steadily building a greenway system first envisioned more than a century ago. In 2009, it adopted a goal of becoming one of the most bike-friendly cities in the country. Indianapolis has also gained attention for its downtown Cultural Trail, a world-class model of using people-friendly mobility to build a sense of place and encourage people to explore their community at a human scale and pace.

Greenways and Bikeways

Over a century ago, John C. Olmstead recommended a network of parks and waterways linked by greenways throughout Indianapolis and surrounding Wayne County. Today, the metro area is home to eight regional bike trails which generally radiate from downtown Indianapolis, often following waterways like the White River, Fall Creek, Pogue's Run, Pleasant Run, and Eagle Creek.

These trails offer cyclists a car-free way of getting around the city and even out into the countryside. For example, cyclists can begin on the Cultural Trail in downtown Indianapolis, continue north on the White River Trail, and then pedal further north on the Central Canal Trail. After stopping for a break in the Board Ripple Cultural District, cyclists can continue into the next county on the 27-mile Monon Trail, an economic development success that attracts more than 1.3 million riders annually. In 2009, the Rails to Trails Conservancy inducted the Monon Trail into the Rail Trails Hall of Fame.

Bikeway Aspirations

In 2007, Indianapolis Mayor Greg Ballard launched a new era of bike-friendliness in the "Racing Capital of the World". Ballard agreed with professor Richard Florida that the economic health of cities largely depends on the creative class, meaning college-educated people who build and/or work in creative fields like science, engineering, architecture, and the arts. In addition to lively bars and restaurants, the creative class prefers diverse, walkable/bikeable communities as opposed to car culture. By 2013, Indianapolis had built a 100-mile network of bike lanes to supplement its 40-mile system of greenways.

In 2009, Indianapolis was recognized as a bicycle-friendly community at the Bronze level by the League of American Bicyclists. In its 2012 Bicycle Master Plan, the city stated its goal of attaining the Silver and ultimately the Platinum designation. To become one of the country's most bike-friendly cities, the 2009 plan aimed to build a 200-mile bicycle infrastructure network by 2020.

In the Glick Peace Walk section of the Indianapolis Cultural Trail, pedestrians and cyclists pass luminescent sculptures of human rights heroes such as Jonas Salk, Martin Luther King, Jr., and Susan B. Anthony.

The Cultural Trail

The Indianapolis Cultural Trail loops around the downtown, creating as well as linking places of significance in history, art, and community. Brian Payne, then president of the Central Indiana Community Foundation, began promoting the idea in 2000 primarily as a means of placemaking and economic development. But the city used the building of this trail as an opportunity to encourage planet-friendly mobility, restore native greenery and add 25,000 square feet of bioswales capable of capturing millions of gallons of stormwater expected from increasingly extreme weather events. Considering Indy's fondness for cars, it seems particularly noteworthy that the Cultural Trail required substantial reductions in travel and parking lanes on adjacent streets.

By 2012, the city had completed the first phase of the Cultural Trail consisting of eight miles of wayfinding pavers guiding cyclists and pedestrians to six neighborhoods of significance in sports, entertainment, heritage, art, and, of course, culture including the Old National Centre, the Indianapolis City Market, and the Glick Peace Walk featuring luminescent sculptures of human rights heroes such as Jonas Salk, Martin Luther King, Jr., and Susan B. Anthony.

The Cultural Trail also incorporates Canal Walk which loops into the city's former industrial district where the canals that provided water power to 19th Century factories have been restored to create a peaceful place to bike, stroll, kayak, or pedalboat between various attractions including White River State Park, the Indiana State Museum, the Indiana History Museum, the NCAA Hall of Fame, and the Eiteljorg Museum, featuring Native American/western art, culture and history.

The Cultural Trail is succeeding in boosting human-powered activity as residents and visitors alike take the multi-use path to discover and enjoy the diversity and richness of downtown life. Over half of the owners of businesses on the trail reported an increase in customers with anticipated spending in some trail segments estimated to be as high as $3.2 million. New establishments and additional jobs have been attracted to the trail, with 25 percent of these new businesses choosing their locations because of the trail. Between 2008 and 2014, assessed value of properties within 500 feet of the trail rose by over $1 billion.

The Cultural Trail incorporates Canal Walk which loops into the city's former industrial district where the canals that provided water power to 19th Century factories have been restored to create a peaceful place to bike, stroll, kayak, or pedalboat.

The Project for Public Spaces reports: "Today, the Cultural Trail has become a global model of how cities can magnify the impact of their public spaces and cultural assets by focusing on the journey and the destination when connecting people to the places they love most."

Today and Tomorrow

As of 2024, Central Indiana had 1,217 miles of on- and off-street bicycle infrastructure including 102 miles of bike lanes, nine miles of protected bike lanes, 16 miles of sharrows, 633 miles of side paths, and 457 miles of trails/shared use paths.

Indianapolis continues to routinely invest in muti-use trails. For example, in 2021, the city earmarked $25 million for the design and/or construction of nine trail and greenway projects. In 2024, the city pledged an additional $50 million for trails and greenways.

Indianapolis has not yet become one the nation's most bike friendly cities. But it does not seem to have given up on reaching that ambitious goal. Perhaps the accolades the city is getting for the downtown Cultural Trail will motivate Indianapolis to double down on people-friendly mobility.

CHAPTER 25

Madison, Wisconsin

Wisconsin pioneered long-distance bike trails starting with the 33-mile Elroy-Sparta Rail Trail which opened in 1965. Today, Wisconsin's capital city, Madison, sits at the hub of a number of trails which will eventually connect to form the 500-plus-mile Route of the Badger, crossing from the Mississippi River on the western border of the state to Milwaukee on the shore of Lake Michigan. Meanwhile, Madison has been gaining recognition as a national-class bike friendly city and as one of the safest major US cities for pedestrians.

Platinum Bike City

Between 2000 and 2015, the combined length of off-street bike paths in Madison grew from 295 to 425 miles. By 2015, Madison and its partners were installing innovative bike infrastructure including green lanes, bike boxes, buffered bike lanes, and bike signals.

The 2015 Bicycle Transportation Plan for the Madison Metropolitan Dane County region closely followed the recommendations of the League of American Bicyclists. In 2015, the League elevated Madison from a Gold-level bike friendly community, a rating it gave Madison in 2006, to Platinum. The League has awarded Platinum recognition to only four other US cities: Boulder, Colorado, Davis, California, Fort Collins, Colorado, and Portland, Oregon. In 2023, the League reaffirmed the city's Platinum rating, noting that Madison earned the highest score in the nation for bike Education and came very near the top in the categories of Equity, Encouragement, and Engineering. In the 2023 report card, the League specifically praised Madison's ongoing progress on its low-stress bike network, bike parking program, and reduction of speed limits.

Madison launched bikeshare in 2011 and in 2019 upgraded to an all e-bike system. It currently offers more than 500 e-bikes at 90 stations throughout the greater Madison

region.

Madison's bikeshare system launched in 2011 and now offers over 500 e-bikes at 90 locations.

Walk-Friendly Madison

Madison has joined the Vision Zero movement and pledged to eliminate all traffic fatalities by 2035. Vision Zero rejects the traditional view that fatalities are inevitable and instead promotes roadway designs that minimize the impact of human error. Vision Zero activities from 2020 to 2022 reconfigured streets and intersections and lowered speed limits on eleven miles of residential streets in two neighborhoods under its "Twenty is Plenty" program. Speed limits were also reduced on 18 roadways totaling over 31 miles. The appendix to the city's 2024 Vision Zero report confirmed that these reduced speed limits succeeded in slowing traffic and making these streets safer, particularly for pedestrians and cyclists. Between 2019 and 2022, crashes, serious injuries, and traffic fatalities dropped significantly.

The pedestrianization of Madison streets dates back to 1976 when the city prohibited motor vehicles on two blocks of State Street, the arterial linking the University of Wisconsin campus with the Wisconsin State Capitol. In 2022, the city council gave the green light to extending that pedestrian zone noting how street closures benefited Pearl Street in Boulder, Colorado and Church Street in Burlington, Vermont. In 2024, the city tested an extension of the pedestrian mall for three more blocks of State Street and concluded that this pedestrianization increased overall activity.

This progress has not gone unnoticed. Smart Growth America and the National Complete Streets Coalition named Madison as the second-safest city for pedestrians out of the 101 largest metro areas across the nation in its 2024 report.

Transportation for a City of Choice

In the next 40 years, Madison is projected to gain 100,000 residents and 70,000 jobs. The city's transportation plan reflects Madison's determination to rebalance the city's public realm to work for those who prefer to (or who must) get around in ways that are safer and more economical, healthy, and planet-friendly.

In 1976, Madison pedestrianized part of State Street and is experimenting with an extension of this car-free zone in 2025.

CHAPTER 26

Miami-Dade County, Florida

Miami-Dade County and numerous partners are completing and connecting twelve trails that will ultimately form a 225-mile active transportation network throughout Southeast Florida. This network, called the Miami Loop, is a collaborative vision of the Miami-Dade Trails Alliance and Rails-to-Trails Conservancy's Trail Nation program.

Collaboration

Many of the trails that form the spine of the Miami Loop have their own local advocates. Friends of the Underline champions completion of the 10-mile Underline Trail, which is retooling an underused path beneath a Miami Metrorail line into a linear park with gathering places as well as bicycle and pedestrian trails. In addition to advancing people-friendly mobility and creating opportunities for recreation and exercise, the Underline delivers remarkable economic impact: over $300 million of increased property value in adjacent neighborhoods; over $6 million in additional tax revenue annually; and over 400 permanent jobs.

The Miami River Commission orchestrates development of the Miami River Greenway, planned to link the neighborhoods and businesses along ten miles of this waterway into downtown Miami. Creation of this greenway partly involves connecting and improving existing sections of the Miami Riverwalk.

The Miami River Greenway is one of the more urban segments of the 225-mile Miami Loop.

Friends of the Flagler Trail watches over development of a 14-mile rail-with-trail segment using the corridor that Henry Flagler assembled to bring the Florida East Coast Railroad to Miami in 1896. This organization sees tremendous opportunity for community building as well as people-friendly mobility considering that over 130,000 people live within a quarter mile of the Florida East Coast Railroad corridor.

The East Coast Greenway Alliance advocates for five segments of the Miami Loop that form part of the East Coast Greenway, the monumental trail linking 450 communities along a 3,000-mile route across 15 states from Florida to Maine. One of these segments will link the Miami Loop to Key Largo and the start of the Florida Keys Overseas Heritage Trail planned to eventually travel 106 miles through the Florida Keys to Key West. This state trail incorporates 23 historic bridges originally built more than a century ago for Henry Flagler's Florida East Coast Railroad.

The Miami LOOP connects inland communities with the Art Deco landmarks of Miami Beach by way of the Atlantic Greenway, also known as the East Coast Greenway.

The Atlantic Greenway portion of the LOOP travels the length of Miami Beach. In addition to iconic palm trees and surf, this segment is famous for its preserved historic landmarks in three architectural styles: Art Deco, Mediterranean Revival, and Miami Modern. The historic districts of Miami Beach are home to over 2,600 buildings.

Status

As noted by the Trails Nation Project of the Rails-to-Trails Conservancy, the Miami LOOP will make it possible for people to reach many important destinations throughout the region without the need for a car, a significant benefit considering that many residents here cannot afford to own and maintain a car. Specifically, the LOOP will connect Floridians with Downtown Miami, the Atlantic Ocean, the Port of Miami, museums, cultural centers and numerous parks including Everglades National Park and Biscayne National Park. With closure of the remaining gaps, the LOOP will increasingly reduce greenhouse gas emissions, allow affordable, planet-friending transportation, and promote

economic development.

More than half of this 225-mile network is already in use and 86 percent of the proposed route is located on publicly-owned land, a fact that bodes well for successful completion of this ambitious project.

CHAPTER 27

Philadelphia, Pennsylvania

Visitors have historically been drawn to Philadelphia by attractions like the Liberty Bell, Independence Hall, and the Franklin Institute. The international significance of Philadelphia's legacy was recognized in 2015 when it became UNESCO's first World Heritage City in the United States. Recently, the City of Brotherly Love pledged to create a city of Great Streets by building safe, attractive pedestrian infrastructure and constructing a 543-mile High Quality Bicycle Network. Also, in the spirit of Daniel Burnham's advice to "make no little plans", Philadelphia and dozens of partners have launched a project called The Circuit Trails that aims to build an 800-mile network of multi-use trails in and around Philadelphia within both Pennsylvania and New Jersey.

Great Streets

Philadelphia aims to create a city of Great Streets, which it defines as streets where everyone is welcome: pedestrians, cyclists, and transit riders as well as motorists. Fortunately, Philadelphia is well positioned to succeed.

Walk Score considers the city as a whole to be very walkable, with some of its neighborhoods achieving the status of Walker's Paradise. Yet the city recognizes that many neighborhoods lack a quality walking environment.

Philadelphia also has the highest percent of bike commuters of all large US cities. But its 2018 transportation plan acknowledges that the city's mode share for bike commuting stayed constant in prior years while those of other major cities were growing.

In addition to standard prescriptions, the city's transportation plan aims to make Philadelphia a city of Great Streets by working with neighborhoods to apply various Slow Zone measures including traffic circles, speed cushions, and traffic diverters.

Philadelphia and its partners spent $86 million on bike-friendly improvements to the Schuylkill River greenway including the Schuylkill Banks Boardwalk spanning the river.

As of 2018, the city's bike network totaled 250 miles. Under its Great Streets plan, Philadelphia wants people of all ages and abilities to be able to bike around the city on a 543-mile High Quality Bicycle Network that includes protected bike lanes. The detailed goals include: increasing the percent of people living within one-quarter mile of a trail or protected bike lane from 16 percent to 28 percent; doubling the percent of commuting by bicycling; and increasing the mode split for walking, cycling and public transit from 36 percent to 41 percent. As of 2021, 84 miles of the High Quality Bicycle Network had already been completed.

The Circuit Trails

In the 1800s, docks, rail yards, slaughterhouses, and dumps lined the banks of the Schuylkill River as it meandered through Philadelphia and merged with the Delaware River. By the late 1900s, freeways and rail lines remained after other uses had largely abandoned the waterfront. Transformation began in 1992 when the city cleaned up the area and built a paved trail. Over the next ten years, the Schuylkill River Development Corporation, the city, and partners spent $86 million improving the greenway and its adjacent neighborhoods, winning several awards in the process. Arguably their crowning achievement came in 2014 with the opening of the Schuylkill Banks Boardwalk, the 15-foot-wide concrete pathway that spans a segment of the river where the banks were too narrow to accommodate the trail.

North of the Schuylkill Banks Boardwalk, the Schuylkill River Trail passes many Philadelphia institutions like the Philadelphia Museum of Art, the Fairmont Water Works, and the 1887 Turtle Rock Lighthouse. Further north, the trail links several landmarks from the American Revolution and Industrial Revolution within the Schuylkill River Greenways National Heritage Area which encompasses parts of five Pennsylvania counties. Planned to ultimately reach 130 gap-free miles, the southernmost trail segment currently extends for 30 miles from southwestern Philadelphia to Valley Forge National Historic Park which preserves the site where George Washington and the Continental Army were encamped through the winter of 1777-1778.

The Schuylkill River Trail incorporates a section of the East Coast Greenway, the corridor envisioned to extend for 3,000 miles from Florida to Maine. The Schuylkill River Trail also forms part of the September 11th National Memorial Trail connecting the Pentagon Memorial in Washington DC with the Flight 93 Memorial near Johnstown, Pennsylvania.

In addition to the Schuylkill River Trail, the Philadelphia region is home to 29 other trails. To capitalize on those assets, Philadelphia and more than 40 partner organizations are collaborating in a project to extend and link these trails to make an 800-mile network

through nine counties in Pennsylvania and New Jersey known as the Circuit Trails.

The Circuit Trails promises to improve health, business, property values, and quality of life as well as active transportation options. The Circuit Trails Coalition is fortunate to have financial support from many sources, including the William Penn Foundation, as well as political leadership, as illustrated by this 2015 statement from Michael Nutter, the former mayor of Philadelphia: "Bicycling is a fundamental aspect of this city's mobility, economic development, public health, and environmental sustainability".

Circuit Trails set an interim goal of completing 500 miles of the envisioned 800-mile network by 2025. As of 2020, the organization was confident of meeting that deadline considering that 330 miles already existed in 2020 and 171 miles were either deemed "in progress" or in the "pipeline".

In 2025, the Coalition opened a 650-foot bike bridge over the Schuylkill River in Pennsylvania and a nature-preserving boardwalk in New Jersey. By the end of 2025, the organization reports that the 500-mile interim goal will be completed or fully-funded.

CHAPTER 28

Portland, Oregon

Portland wants to grow up rather than out. Like all cities in Oregon, it has an Urban Growth Boundary and strives to make wise and efficient use of the land within those limits. The result is a compact form of development that lends itself to walking, biking and public transportation.

Portland is arguably the most bike-friendly large city in the United States. It also has excellent public transportation and a greenway network that allows healthy, pollution-free recreation as well as mobility. Consequently, many people here can get around quite well without a car. By reducing the expense of owning and maintaining a car, a larger percent of household income can be spent on locally-produced goods and services, generating significant benefits for the Portland economy.

Biketown USA

The League of American Bicyclists ranks Portland as a bike-friendly city at the Platinum level, the highest level (so far). There are only four other Platinum-level US cities and Portland, with a population of 636,000, is home to more people than the other four cities combined: Madison, Wisconsin (270,000); Ft Collins, Colorado (171,000); Boulder, Colorado (107,000); and Davis, California (67,000).

Portland's Bicycle Plan for 2030 aims to make bicycling more attractive than driving for short trips, meaning three miles or less. In terms of mode share, the city wants at least 25 percent of all trips here to be by bicycle. Portland subsequently adopted a transportation plan, comprehensive plan, Vision Zero plan, climate action plan, and development regulations that support these ambitious targets by prioritizing active transportation, transit, and other shared mobility options over single occupancy vehicles. Ten years after the adoption of that plan, a 2020 report card stated that 66 percent of the plan's action

items had been completed or were ongoing. The following paragraphs list some of these accomplishments.

Portland now limits vehicle speeds to 20 miles per hour on most residential streets and has corrected some of its most dangerous streets. These actions improve safety for motorists and pedestrians as well as cyclists.

A 2019 update of the Bicycle Parking Code requires new developments to provide ample and secure parking for a wide range of micromobility vehicles, (including cargo bikes, recumbent tricycles, and electric bikes), as well as traditional bicycles.

The Bicycle Plan for 2030 proposed adding 681 miles of bike infrastructure to the 281 miles that existed in 2009 to create a 962-mile network by 2030. As of 2020, Portland built 154 miles of this network and planned/funded another 70 miles, suggesting that about 80 percent of the goal will be achieved by 2030. These statistics understate the city's progress because many miles of conventional bike lanes were improved as buffered bike or protected bike lanes. As of 2015, protected bike lanes have been the city's preferred design. By 2020, Portland had built or funded 80 miles of lanes protected either by a painted buffer or physically separated by vertical elements including planters, bollards, and parked cars.

Between 2009 and 2020, Portland's commuting population grew by 76,745. In 2020, the city estimated that 15,000 were commuting by bike and consequently reducing traffic congestion for motorists as well as decreasing climate-warming emissions. The share of commuting trips taken by bicycle peaked in 2014 at 7.2 percent.

In 2016, Portland launched its Biketown bike share system with 1,000 bikes at 100 stations. By 2019, cyclists had used the service to ride over 1.7 million miles in over one million trips. According to surveys, 28 percent of Biketown bikeshare trips replace a car trip.

Every year, Portland performs manual bike counts at hundreds of locations that document the number of women riding, the riders on e-bikes and other forms of micromobility, and helmet use as well as the number of cyclists. As one measure of bike enthusiasm in Portland, 170 volunteers participated in the city's 2024 counts. Over the course of 30 years, these annual counts show that biking peaked in 2015. In 2024, 28,164 bike trips per day were counted. That is 40 percent lower than the 2015 peak, but still an impressive number for a large US city.

Portland prefers protected bike lanes including those physically separated from moving traffic by parked cars.

The 2024 Bicycle Count report predicts that cycling counts will return to their glory days and that Portland could still become a world-class cycling city because of ongoing network improvements and greater attention to enforcement of reckless driving. However, the report notes that federal policy and funding "… favors less travel choices, more car dependence, rising vehicle traffic, and more traffic fatalities". An independent observer more bluntly states that motorists believe they are entitled to dominate roadways and that aggressive driving is scaring many would-be cyclists from becoming routine cyclists. In other words, even in what is arguably the most bike-friendly large US city, deference to motorists remains a huge impediment to achieving the success achieved by the world-class bike cities of Europe.

Transit

Portland offers some of the best public transportation in the nation. Tri-Met, the transportation agency serving the three counties that make up most of the Portland metropolitan area, operates six light-rail lines that have steadily grown ridership and are credited with helping attract $29 billion of development to nearby locations.

Perhaps to demonstrate its commitment to people-friendly mobility, Tri-Met built a graceful, car-free bridge over the Willamette River named Tilikum Crossing. Tilikum is a Chinook Wawa word meaning "people" or "tribe". That name was selected to emphasize that this is a "bridge of the people", which is quite appropriate since it serves transit, cyclists, and pedestrians but not private vehicles.

Tilikum Crossing. or "bridge of the people", serves transit, cyclists, and pedestrians but not private vehicles.

In addition to the MAX light rail network, Portland launched the nation's first modern streetcar system in 2001. The original line links downtown, Portland State University, the Pearl District, and other key destinations. Two other streetcar loops create additional links

between these destinations as well as the Lloyd District, the Oregon Museum of Science and Industry, and Tilikum Crossing.

Multi-Use Trails

The 1903 Olmstead Brothers Plan for Portland proposed the 40-Mile Loop, a greenway connecting parks and other destinations while encircling much of what is now a metropolitan area with over 2.7 million people. Over the last 100-plus years, Portland has made much of that dream a reality.

A big step toward completion came in 1990 when the city acquired most of the right of way for the Springwater Corridor, now a 21.5-mile path inducted in the Rail Trail Hall of Fame. Connecting with the East Esplanade Trail at the edge of downtown, this trail follows the Willamette River and Johnson Creek through Portland neighborhoods, natural areas and farmland to the City of Gresham, which explains why it attracts 1.2 million users per year.

The South Waterfront Greenway forms part of Portland's multi-use trail network.

Other completed and planned portions of the 40-Mile Loop pass 33,000-student Mt. Hood Community College, several parks along the shores of the Columbia River, and the Portland International Airport before circling the 2,000-acre Smith and Bybee natural area, one of the country's largest urban freshwater wetlands.

Returning to downtown, the 40-Mile Loop enters Tom McCall Waterfront Park, created when Portland and Oregon removed Harbor Drive in 1974 and replaced it with a green space that now serves as the city's front lawn. Today this park is home to several festivals including Portland's Rose Festival, the venerable celebration held every June since 1907. From Waterfront Park, bridges cross the Willamette River to the Eastbank Esplanade, effectively creating a 2.5-mile inner loop. One segment of the Esplanade is formed by a 1,200-foot-long floating bike/walkway, the longest one of its kind in the United States. From the Esplanade, bikeways radiate east to several destinations including the Oregon Convention Center and Moda Arena. Since the Olmstead Brothers' original vision, the 40-Mile Loop has expanded to more than 140 miles throughout Multnomah County, connecting to more than 30 parks.

Portland's 1,200-foot-long floating bike/walkway is the longest one of its kind in the United States.

Portland's Green Dividend

The local economy benefits from the city's investments in transit, pedestrian infrastructure, and bikeways. Portland's Green Dividend refers to the fact that the less people drive, the less they spend on cars, fuel, insurance, registration, and repairs, which together cost more than $10,000 per year on average. Consequently, car-free or car-lite households have more money to spend on other things. According to a 2007 study, since Portlanders drive less than average Americans, they have an extra $1.1 billion in their pockets. In addition to reducing expenditures on cars and gas (which primarily leave the state), this $1.1 billion has a better chance of being spent in Portland and in economic sectors with higher local multiplier effects including restaurants and brewpubs. Transit, walking, and compact development as well as bicycling account for Portland's lower auto-dependency. Thanks to the cost-savings made possible by alternatives to driving, Portland's economy is strengthened because of, rather than despite, its people-friendly mobility.

Vying for a piece of the Portland Green Dividend, developers here are designing buildings geared predominantly to cyclists. Businesses are also attracted to bikeways because cyclists can easily make multiple stops, particularly when convenient bike parking is available in the form of a bike corral replacing a car parking space that was previously located in front of a store or restaurant. As one measure of the popularity of bicycle-supported business, Portland has installed over 6,000 bike racks in public rights of way, including 158 bike corrals requested by adjacent businesses who understand the rewards of catering to cyclists.

Even in bicycle-friendly Portland, some business owners resist eliminating on-street parking for bike lanes or bike corrals. However, surveys of customers at Portland bars, convenience stores and restaurants find that cyclists tend to visit more often than motorists and consequently spend almost 25 percent more per month than their car-driving counterparts.

Connectivity

Portland's 1903 Olmstead Plan stressed interconnectedness as essential to building a world class park system as well as a great city. Over 122 years later, Portland is on track to completing 962 miles of its bike infrastructure network by 2030 and giving people further mobility options using comprehensive public transit and a regional network of multiple-use trails. And if the number of micro-breweries can be used as an indicator, the savings from using cars less (or not at all) are helping to grow a vibrant local economy.

CHAPTER 29

St. Louis, Missouri

St. Louis has a current population of 280,000, which is roughly one third of its 1950 population. The city's strategy for dealing with decline includes building an extensive pedestrian/bicycle network that connects everyday destinations and supports existing neighborhoods, businesses, and employment centers. In addition to placekeeping and other forms of economic development, the greenway network offers affordable transportation options that make it possible to get around the city without the expense of owning a car.

Great Rivers Greenway

In 2000, the voters of the City of St. Louis, St, Louis County, and St. Charles County overwhelmingly approved the creation of the Great Rivers Greenways District funded by a one-tenth of one cent sales tax that generates $10 million per year dedicated exclusively to parks and greenways. In 2012, Great Rivers Greenways and its many partners completed a plan for over 1,000 miles of on-street bikeways throughout the region. These greenways will link to the State of Missouri's Katy Trail which stretches for 240 miles across the state and will ultimately form a loop with the 144-mile Rock Island Trail.

In 2021, St. Louis County adopted its Action Plan for Walking and Biking that recommended the addition of 325 miles of bike facilities in the near-term future with an ultimate network within St. Louis County of 1,142 miles including 705 miles of off-street, shared-use facilities.

Also in 2021, Great Rivers Greenways adopted the City of St. Louis Gateway Bike Plan Update: The Vision for a Low-Stress Bike Network. According to the city update, 150 miles of on-street bikeways and 40 miles of off-street trails existed within the City of St. Louis as of 2021. One of the off-street trails is The Mississippi Greenway, (also known as

the Riverside Trail), that passes the Gateway Arch in Gateway Arch National Park. That trail links with trails on the east side of the Mississippi River in Illinois by way of the Chain of Rocks Bridge, which is now a car-free segment of the Route 66 Bikeway.

The Mississippi Greenway, a segment of the planned 1,000-mile Great Rivers Greenway network, passes the Gateway Arch in Gateway Arch National Park.

Other notable shared-use paths within the city include the St. Vincent Greenway, the River des Peres Greenway, and the perimeter trail encircling Forest Park. Forest Park was the site of the 1904 World's Fair, immortalized in the film *Meet Me in St. Louis*. The only remaining building from the fair has become the St. Louis Art Museum. Since then, St. Louis has built other institutions here, including the St. Louis Science Center, the Missouri Historical Museum, and the St. Louis Zoo. Forest Park also serves as the hub of the greenways network.

The 2021 update recommended a 278-mile network within the City of St. Louis including 64 miles of shared-use paths and 126 miles of separated bike lanes. That year, the League of American Bicyclists recognized St. Louis as a Silver-level bike-friendly community. By implementing the 2021 Bike Plan Update, the city can achieve the League's Gold rating.

Gateway to More

The St. Louis Region is doubling down on people-friendly mobility. As of 2025, the Great Rivers Greenway and its partners, including Greater St. Louis, Inc., Washington University, and BJC Health Systems, were building another segment of the 12-mile Brickline Greenway. The Brickline Greenway is a $245-million public-private partnership linking Forest Park with Fairground Park, Tower Grove Park, and Gateway Arch National Park, connecting 14 neighborhoods and hundreds of destinations along the way. An impressive 28 other greenway sections were in the planning stage in 2025.

CHAPTER 30

San Francisco, California

San Francisco is one of the few cities in the United States that resisted and even removed freeways. It forms the hub of a highly-successful regional transit system and operates a municipal transportation agency that operates a wide array of public transport modes including cable cars and historic street cars. Along with New York City, San Francisco ranks as the nation's most walkable city. It is considered one of the most bike-friendly big cities in the country. Remarkably, San Francisco and its surrounding region are planning to top their past accomplishments in creating a city where people of all income levels can easily and safely get around without the need to own a car.

Freeway-Free San Francisco?

San Francisco comes close to being free of freeways. The city still has stretches of five major highways: the I-280 spur, the Central Freeway, I-280, I-80, and Highway 101. But the devastation is far less severe than in most US cities where freeways cut wide swaths across entire urban areas, severing neighborhoods, worsening car dependency, and saddling governmental budgets with the task of maintaining these monstrosities after they have wiped out a substantial amount of tax base. In fact, San Francisco is famous in planning circles as an example of how urban freeways can be successfully replaced.

In the 1950s, plans were presented to shove nine freeways through this city of 49 square miles. Protests by residents and city officials delayed or stopped most of these proposals. Nevertheless, various segments began construction including 1.2 miles of the double-decked Embarcadero Freeway that was planned to extend for another five miles along the waterfront, connecting the Oakland Bay Bridge with the Golden Gate Bridge. The construction stopped in 1959 when just about everyone could see that this freeway was a colossal mistake. The Embarcadero stub remained in place for three decades as a monument to the folly of urban freeways.

In 1989, the Loma Prieta earthquake damaged the Embarcadero, creating a second chance to do the right thing. In 1991, the unusable relic was torn down and ultimately replaced by a muti-modal boulevard that allows cars but also incorporates bike lanes, bus lanes, and a streetcar line. Along this transformed corridor, transit use rose by 75 percent, the number of people working, living and shopping increased, affordable housing was added, the tax base grew, and the iconic Ferry Building reclaimed its role as the link between the city and San Francisco Bay.

In 1991, San Francisco tore down the Embarcadero Freeway and replaced it with a multi-modal boulevard that allows cars but also incorporates, bus lanes, a streetcar line, and bike lanes.

Muni

The San Francisco Municipal Transportation Agency, affectionately known as Muni, operates a light-rail system that carries 173,500 passengers per day, making it the nation's third busiest light rail system. These rail services are ably supplemented by buses and more typical public transportation vehicles.

Over 150 years ago, San Francisco was the first city to power cars with cables running beneath the street. In 1964, the cable cars were named as a National Historic Landmark. Today the city still runs three lines including two that climb and descend the steep inclines between Market Street and the Fisherman's Wharf area. While most of the over three million passengers a year are tourists, some residents also ride the cable cars.

Muni also operates historic streetcars on two lines including one connecting destinations on Market Street and the Embarcadero including Fisherman's Wharf, the Ferry Building, and the San Francisco Railway Museum. Muni restored some of the streetcars from its own fleet and brought many from other cities including Philadelphia, Milan, and Hamburg. Some are Presidents' Conference Committee (PCC) streetcars, built from a standard blueprint in the 1930s with then-modern features. They sport historic color schemes and can surprise visitors who might be unaware that San Fransico is using vintage streetcars to serve city residents as well as tourists.

Regional Achievements

The nine-county San Francisco Bay region already has one of the nation's most robust and successful rail networks, with Bay Area Rapid Transit (BART), Caltrain, Capitol Corridor, the Altamont Corridor Express, and Sonoma-Marin Area Rail Transit serving hundreds of thousands of passengers daily. Plan Bay Area 2050 envisions modernizing and expanding this network including Link21, a program featuring the addition of a new transbay rail crossing between Oakland and San Francisco.

Rail and other public transportation agencies throughout the region jointly offer a single payment card called the Clipper Bay Pass which can be used on all Bay-area public transportation. The Clipper Bay Pass greatly simplifies the ability to transfer between transportation providers and navigate throughout the nine-county region.

San Francisco's cable car system is over 150 years old and still carries over three million passengers a year.

The San Francisco Bay region has also been a leader in active transportation. In 2013, it launched the nation's first regional bike share program, Bay Area Bike, which has since then logged over 10.4 million trips.

In 2021, the Metropolitan Transportation Commission (MTC) and the Association of Bay Area Governments (ABAG) adopted the Plan Bay Area 2050 which calls for the construction of 10,000 miles of new multi-use paths and bike lanes throughout the region to advance the goals of eliminating traffic injuries/fatalities and creating transportation options that better serve people with disabilities and low incomes.

In 2022, MTC adopted a regional Active Transportation Plan creating a roadmap for achieving regional Complete Streets and Vision Zero goals as well as prioritizing investments within Equity Priority Communities. The plan highlights individual projects like the Bay Skyway - a proposed pedestrian, bike, and micromobility pathway linking

Oakland and San Francisco over San Francisco Bay.

The region's Complete Streets policy calls for over $325 million in regional active transportation projects. For example, MTC and ABAG are managing the evolution of the San Francisco Bay Trail which is envisioned to ultimately offer cyclists, hikers, joggers, skaters, and wheelchair users a 500-mile network connecting over 130 parks and thousands of other destinations within 47 cities around the San Francisco Bay. Over 350 miles of this network were open as of 2025.

The Regional Active Transportation Plan includes an even larger trail network advocated by the Bay Area Trails Collaborative, which is chaired by the Rails to Trails Conservancy. The Collaborative identified a 2,604-mile regional network of connected trails within nine counties and dozens of communities that will put 90 percent of Bay Area residents within two miles of the completed trail network. Nearly 60 percent of this network, 1,409 miles, is already completed and currently available to over one million residents living within one half mile of the existing network.

Biking San Francisco

San Francisco envisions a city "… where anyone feels able to safely and comfortably take a trip by bike for any reason, at any time, to any destination." In 2013, the city updated its 2009 Bike Plan with the overarching goal of making bicycling part of daily life in San Francisco. In 2018, 45,000 people rode bikes on a typical weekday, 1.2 million bikes were counted in the month of July alone, and over one million bikes were counted in that year on the Marina Bike Path, the city's busiest.

In a 2019 progress report, Muni documented its accomplishments and refreshed its strategy for reaching its goals for a bikeable San Francisco. As of 2019, the San Francisco bike network totaled 447 miles including 120 miles of protected bikeways and off-street paths. By 2050, San Francisco aims for 80 percent of all trips to occur on foot, by bike, or on public transportation.

These accomplishments have not gone unnoticed. Lawrence Goozee, the Discerning Cyclist, ranks San Francisco as the third most bike-friendly place in the US. People for Bikes recognizes the city for expanding its low-stress network and for lowering speed limits on many streets.

In 2021, the League of American Bicyclists rated San Francisco as a bike-friendly community at the Gold level, awarding particularly high marks for bike events, bike laws, and bike program staffing. To advance to the next level, Platinum, the city would need to significantly grow the mileage of its bikeway network, which would be a heavy lift. But

the 2019 Bike Report shows that San Francisco is up to the challenge. Under one scenario, the city would spend $821 million to deliver 165 miles of protected bike lanes, 50 miles of buffered bike lanes, 60 bike signals, 75 new automatic bike counters, 500 bike lockers, 10,000 bike parking spaces, and 100 miles of neighborways, (San Francisco's term for residential streets that give priority to cyclists and pedestrians).

Street Fight

Market Street is San Francisco's main artery and the hub of this city's public transportation network. BART and Muni transit here averages 250,000 boardings per day and the street experiences roughly 85,000 pedestrians on a weekend day. Between 1995 and 2015, the number of bicyclists increased by 183 percent. But, prior to 2020, conflicts between various modes reduced transit speeds to roughly five miles per hour, making Market Street one of the slowest transit corridors in the system.

In 2020, San Francisco launched its Better Market Street project in order to make this corridor safer and more efficient by prohibiting private cars and reserving the entire right of way for pedestrians, cyclists, and public transportation. Shortly after the Better Market Street improvements were completed in 2025, Mayor Lurie aimed to revitalize the Market Street corridor by reopening the street to taxi and ride-hailing services. Supporters of the Better Market Street makeover are concerned that the additional cars will once again create traffic delays for transit and reduce safety for cyclists and pedestrians.

The Great Highway Controversy

Not all San Franciscans are on board with some of the city's attempts to reclaim roadways for people. The Upper Great Highway separates western neighborhoods from the encroaching Pacific Ocean. The roadway is sometimes obstructed by sand drifts, yet it served as a convenient way to navigate the west side of San Francisco.

Historic streetcars run on Market Street.

Before 2024, this two-mile stretch of highway was closed to motor vehicles on weekends and became a temporary linear park for cycling, strolling, and enjoying the ocean vistas. In November 2024, San Francisco voters approved the conversion of the Upper Great Highway to a permanent park. Residents of the adjacent neighborhoods launched a recall petition to oust Joel Engardio, the elected representative for one of the west side neighborhoods and a proponent of the permanent roadway closure. The recall petition backers say closing the Upper Great Highway will inevitably force traffic to use their streets to get up and down the coast. Dissecting the 2024 vote illustrated a chasm between the residents of eastern San Francisco, who want to see more parks and people-friendly mobility, versus the residents of western neighborhoods, who largely opposed this closure to motor vehicles. District voters removed Supervisor Engardio from office in a 2025 special election.

Looking Ahead

San Francisco already leads most places in the United States for walkability, bike friendliness, and public transportation. Adopted plans indicate the city and region will remain well ahead of the pack. Some advocates are also urging the city to continue its progress in becoming free of freeways.

As a follow up to the removal of the Embarcadero Freeway (as well as a portion of the Central Freeway which was similarly damaged by the 1989 earthquake), the Congress for the New Urbanism (CNU) developed a strategy to remove the city's other urban freeways. This strategy proposes a phased approach beginning with the replacement of the I-280 spur using a context-sensitive design incorporating high-capacity travel lanes and low-volume side lanes that support street life and reconnect the surrounding neighborhood. CNU hopes that the benefits of this and subsequent replacement projects will create a momentum to ultimately create a freeway-free San Francisco that can serve as a model for other cities around the world to learn from.

CHAPTER 31

Seattle, Washington

Seattle is recognized for accomplishments in public transportation, cycling, and walkability. In 2017, it was one of the first communities to realize that cities would need to steer the autonomous-vehicle rollout in order to maximize benefits and minimize potential harm. Its 2024 Transportation Plan now sets the stage for rebalancing roadways with a wide array of people-first concepts including Healthy Streets, School Streets, Special Alleys, Event Streets, Café Streets, Pedestrian Streets, Destination Streets, Strolling Streets, and, of course, People Streets.

Seattle wants its neighborhood communities to propose and collaborate in the design of these places. The Plan argues that roadways are not merely racetracks to get cars to somewhere else as fast as possible. Instead, streets are a finite resource that should be carefully redistributed in a way that encourages walking, cycling, recreating, and just hanging out with other people in a safe and pleasant public space.

People Streets

The 2024 Seattle Transportation Plan states that 61 percent of the city's total greenhouse gas emissions come from transportation. By 2030, the city wants nine out of ten personal trips to be zero-emission. To reach its goal of a completely carbon-free transportation system by 2050, the city cultivates a green transportation philosophy in which reliable public transportation, ride sharing, and active transportation strategies make it "… safe, easy, and affordable for people to get where they need to go without relying on a car."

Much of the 2024 Seattle Transportation Plan centers on making streets safe, comfortable, and welcoming for all people and all travel modes as well as uses not traditionally associated with mobility such as cafes, gathering spaces, and event areas. While this theme is repeated throughout the Plan, it is front and center in the People Streets and Public

Spaces Element, which "…presents a case and a framework for how we can better and more equitably use public streets to strengthen places and communities."

People Streets put people first. They are tree lined streets that offer a comfortable and safe environment for people to walk, bike, roll, or just linger and connect with others in enjoyable surroundings.

Public Spaces "…are pedestrianized spaces that invite people to gather, play, and connect with one another. These spaces may be focal points in neighborhoods that support local businesses, venues for community gatherings, or more subtle spaces that are loved by locals and stumbled upon by visitors who delight in their discovery. They may incorporate public art, seating, games, trees and green infrastructure, and flexible space for vendors and gatherings. Public spaces are born of inclusive, community-driven processes that inform design, programming, and long-term stewardship."

The element states that vehicles have been given an "outsized portion of urban space" and calls for a rethinking of how to use streets and public places for public life. The element maps existing Healthy Streets, School Streets, Special Alleys, Event Streets, Café Streets, Pedestrian Streets, Destination Streets, and Strolling Streets as well as places identified for future neighborhood studies. By 2044, Seattle aims to have well-designed public spaces that reflect community needs and priorities within a 10-minute walk of 43 percent of households outside Urban Centers and Villages plus 93 percent of everyone living within Urban Centers and Villages.

Public Transit

The Transit Element of the Seattle Transportation Plan aims for transit ridership to double between 2019 and 2030. This goal is ambitious considering that transit achieved a 46 percent share of the commuter trips to downtown in 2019. That year, solo drivers accounted for only 26 percent of the commute to the city center. Like many cities, the pandemic, remote work and other factors took its toll on the enviable transit ridership numbers experienced by Seattle in 2019. But fortunately, a 2020 voter-approved measure secures roughly $50 million of sales tax revenue per year to fund capital investments, additional service, and improved access for transit.

The Seattle monorail passes through the Experience Music Project, designed by Frank Gehry, before arriving near the base of the Seattle Space Needle.

Seattle works with agencies that provide a wide range of transit options including light rail, streetcars, bus rapid transit, water taxis, and ferries. Perhaps the most unusual mode is the Seattle monorail, which was built to connect downtown Seattle with the 1962 Seattle World's Fair. During the World's Fair, the monorail carried eight million passengers and recouped its construction costs before the fair closed, making it the nation's only public transportation system to make a profit according to the report supporting the designation of the monorail as a city landmark. The monorail's longevity alone makes it unusual because most US monorail systems have short lives (with the exception of ones found at Walt Disney theme parks). Since 2000, the monorail cars glide through the Experience Music Project, (a multi-colored, fluidly-sculpted, "rock temple" designed by Frank Gehry), before arriving near the base of the iconic Seattle Space Needle.

Cycling

In 2023, the League of American Bicyclists rated Seattle as a bike-friendly community at the Gold level. People for Bikes ranked Seattle as the third most bike friendly large city in the United States, after Minneapolis and San Francisco, partly because Seattle is setting its default speed limit at 20 mph on residential streets and 25 mph on arterials unless otherwise posted.

Another author ranks Seattle number four in US bike friendly cities behind Portland, Minneapolis, and San Francisco. This rating is largely based on the city's 500-mile network of bike paths and lanes plus a decades-long project called the City Center Bike Network which is building protected bike lanes, signal upgrades, safer street design, traffic calming, and improved access to transit in neighborhoods at the center of the city.

Between 2007 and 2022, Seattle added 34 miles of protected bike lanes, 75 miles of bike lanes, 54 miles of neighborhood greenways, 68 bike signals, and 263 bike corrals. The network also incorporates Healthy Streets, which are closed to pass-through vehicular traffic. People who live on a Healthy Street can access their homes but must share the space with pedestrians and cyclists and "move at the speed of play".

Seattle's 2024 comprehensive plan calls for 'complete communities' in which housing, services, schools, jobs, and amenities can be reached by walking, cycling, or a short transit ride. The 2024 Transportation Plan builds on that foundation by proposing seamless, direct walking, cycling, and rolling links to community and mobility hubs.

Walkable Seattle

In 2021, Walk Score ranked Seattle as the ninth most pedestrian-friendly city in the United States. Seattle is one of only five US cities recognized as a Platinum level walk friendly community by the Walk-Friendly Communities organization, with the other four being New York City, San Francisco, Arlington, Virginia and Portland, Oregon.

The Pedestrian element of the 2024 Transportation Plan aims to make Seattle's walkability even better by adding/improving sidewalks, planting/maintaining street trees/furniture, reducing traffic speeds and installing a wide range of traffic calming measures, including the now-common speed humps and traffic circles. Less well-known traffic-calming tools include speed cushions or tables that force cars to travel over a series of small speed bumps or raised pavement that are spaced so that they do not slow down emergency vehicles with wide wheel bases. Another technique, called a chicane, creates a winding roadway that forces cars to slow down.

The Elliott Bay Trail, which passes through Olympic Sculpture Park, is part of a multi-use trail along Seattle's waterfront.

The Pedestrian element also proposes reallocating street space, including on-street parking and traffic lanes, to create enjoyable places that prioritize people-oriented activities including walking, playing, cycling, and just gathering. As mentioned above, one form of people prioritization are the Healthy Streets, which are closed to through traffic but open to local homes and other destinations at low speeds. The Pedestrian element also highlights Café Streets, a form of Shared Street with high levels of foot traffic and lots of shops, markets, museums, bars, and cafes that can be used by motor vehicles for deliveries and other local access but at low speeds.

New Mobility

Seattle has been a leader in preparing for new and emerging forms of mobility including electric vehicles, autonomous vehicles, ride-hailing, car sharing, and smart-phone applications that facilitate routing and fare payments across multiple service providers. The 2024 Seattle Transportation Plan's New and Emerging Mobility Element recognizes the need to carefully guide the use of these new technologies because they have the potential to help or harm the city's goals for safety, equity, and sustainability as stated on page 19 of the Element:

> These innovations could lead to safer, more vibrant cities, but they could also disrupt existing services, reduce options, increase prices, and upend current business models. They could supplement public transit or compete with our investments in buses, streetcars, and light rail.

The 2024 Element carries on in the tradition of Seattle's 2017 *New Mobility Playbook* by ensuring that these innovations support rather than oppose community goals. For example, the *Playbook* recognized that autonomous vehicles, or AVs, could either help or hurt cities depending on whether they increase or decrease walking, bicycling, transit use and various forms of ridesharing. While other cities assumed they had no ability or no need to guide the AV rollout, Seattle recognized an obligation to prepare for AVs by developing plans and policies that use the community's vision and goals to guide AV deployment.

In its *New Mobility Playbook,* Seattle aimed to ensure that AVs promote rather than pervert the city's vision of the future. The Playbook illustrates how the planning process facilitates logical decisions by basing AV policy on fundamental community values. That may seem obvious. But many cities were and are losing sight of their basic goals when planning (or not planning) for AVs.

In the future, personal car ownership will decline as more people rely on Transportation Network Companies, or TNCs, (like Uber and Lyft) and car sharing services (like Zipcar).

If AV TNC services generate per-mile costs as cheap as some experts predict, even more households will forego ownership of a family automobile. As the *Playbook* estimates, Seattleites will be able to save $10,000 per year by giving up their keys, providing relief to household budgets and liberating capital to stimulate the local economy. In addition, with smaller fleets, the planet will be spared the environmental impact of the resource extraction and energy needed to put a car in every garage. In fact, we will need less garage space, which will reduce housing costs and allow more building space to serve people rather than predominantly immobile cars.

These are all positive outcomes. But if everyone switches from driving their own vehicle to riding alone in an AV, the right of way will continue to be filled with cars, preventing the expansion of the public realm for pedestrians, bicyclists and transit. Optimists assume that this will not happen because commuters will increasingly use transit or other ridesharing modes with little or no encouragement. That opinion contrasts with projections that vehicle miles traveled, or VMT, will *increase* because of the ease and convenience of AV transportation as well as the growth of zero-occupant AV TNCs searching for riders. As pessimists also point out, basic economics teaches that lowering travel costs will inevitably induce more travel. Logically, with reduced cost, people will be *less* financially inclined than they are today to choose high-occupancy modes without additional motivation.

Seattle acknowledges the potential for AVs to increase VMT. But rather than passively accept the "leave it to chance" outcome, the *Playbook* provides policies aimed at proactively controlling VMT. The discussion encompasses road use charges, zero-occupancy and low-occupancy fees, congestion charges, curb fees, and forms of transportation demand management that limit VMT by increasing the number of people per vehicle.

These policy options are fully discussed in the *Playbook* which is still available on Seattle DOT's website. Also worth checking out is Chapter 1 of the Playbook which recites the now-familiar heaven or hell scenarios in which AVs could generate convenient, safe, equitable and affordable transportation or, conversely, congested roadways, reduced safety, insecure data, and greater inequality. To clarify these abstractions, the *Playbook* retells the sad tale of how the private automobile overran our cities in the 20th Century, generating sprawl, segregation, pollution and traffic hazards as well as dedicating most of our public rights of way to cars while forcing pedestrians to the margins of our roadways. This 100-year history of cars in the city succinctly establishes the urgency of avoiding past mistakes as robots take to our roads. On page 17, the Playbook succinctly puts it this way:

> With cars, we forced our city to adapt to the technology instead of shaping the technology to serve the people living and working in the city. The *New Mobility Playbook* is our chance to forge a different future.

NOTES

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