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Follow the Footsteps

Before there was a New York City, there was a Broadway. Originally *breede weg* in pre-Colonial Dutch Nieuw Amsterdam, Broadway was one of the island's first roads at a time when there was an actual wall built at Wall Street to keep out native incursions and Five Points was a pond within a swamp. New Amsterdam was built atop, over, and through existing footpaths. The resulting settlement was akin to a medieval European town, with short buildings and narrow, curved streets. Roads emanated in every direction, with activity concentrated around miniature villages through the eighteenth century. What is today Broadway followed the outline of the Wickquasgeck Path, formed by the feet of the Native American inhabitants who made Manhattan an original walking city.

There were likely practical reasons why Broadway took the path it did; it may have been the shortest distance between pre-Colonial settlements in Manhattan, avoiding hills, rivers, and swamps. In a sense, Broadway was New York City's earliest desire line. Desire lines are naturally occurring



A worn grass path created by thousands of footsteps illustrates where a sidewalk, bus stop, and crosswalk should be on Mosholu Parkway in the Bronx.
NYC DOT

travel patterns that reflect where people naturally want to travel. In modern urban planning, desire lines are the natural, spontaneous way that people use public spaces, often contradicting the way the space was designed. These signatures are usually direct, practical, and leave physical evidence, like a footpath worn into a park lawn where pedestrians cut a corner to get from one sidewalk to another. They may also become visible over time and reveal themselves deductively, such as when people ride bikes through a park for one block to reach a bridge entrance instead of taking a three-block route along one-way streets.

Desire lines are the native operating code for a new approach to urban design. Instead of asking why people aren't following the rules and design of the road, we need to ask ourselves why the rules and design of the road aren't following the people. If a street tells people on foot to cross at marked crosswalks hundreds of feet distant, they may instead opt to cross, illegally and dangerously, midblock to reach their destination. Desire lines are a road map of opportunity, and they represent a

challenge to the view of streets as places to move cars and the dogma that isolating people from the streets is the only way to protect them.

Viewing sidewalks as valuable space and understanding how people want to use them is critical to activating the entire street and the cities defined by them. Sidewalks aren't raised concrete streets for pedestrians. They are the front yards for city dwellers, as important as any suburban lawn. Whether neighborhood sidewalks or commercial corridors like Fordham Road in the Bronx, Nostrand Avenue in Brooklyn, Victory Boulevard on Staten Island, Flatbush Avenue in Brooklyn, or the warren of narrow streets in Manhattan's Chinatown and Little Italy—these in-between places are a stage for New Yorkers, the urban filament where people sense and connect to the city's energy.

In walkable cities, sidewalk design can encourage walking by creating opportunities for things to do and see along the way. This could be shopping, eating, or clustering services in a particular area, which can enhance connectivity and eliminate the need for cars to run multiple errands. And sidewalk life isn't just about movement. In a kind of urban koan on New York City's streets, people sitting on fire hydrants and leaning on light poles, buildings, and railings daily make a silent but profound statement: there is no place on our streets and sidewalks to stop and do nothing. Yet doing nothing is paradoxically one of the animating forces in a city.

Walking is a complicated language. Unlike cars on a street, people on sidewalks are free to walk in both directions or in jagged lines. But among the billions of trips people make on foot every day, there are relatively few collisions and people are generally able to walk at different speeds, stop, and turn around without needing marked lanes or causing traffic jams or lethal pileups. People know how to read the sidewalk, and there are unspoken, unmarked lanes that people intuitively understand.

Closest to the building, on the left in our image on page 77, is an



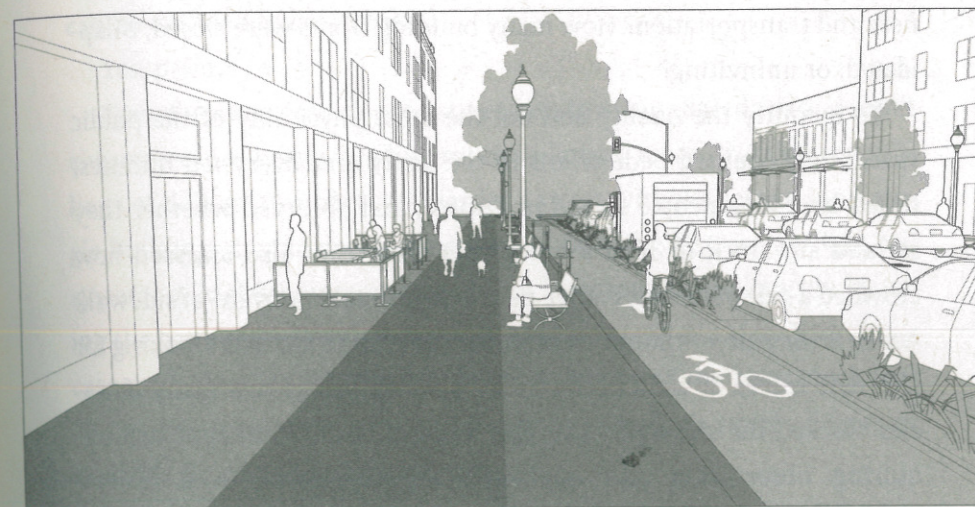
A desire line on 51st Street between Sixth and Seventh avenues in Midtown Manhattan, where hundreds of pedestrians daily cross midblock to reach the entrance of a pedestrian arcade (at left) instead of walking hundreds of feet to the corner crosswalks. NYC DOT



Desires fulfilled. By following where people crossed the street, we revealed a new crossing between Sixth and Seventh avenues. We called it 6½ Avenue, in a nod to Harry Potter, hinting at the simple magic that paint and planters can provide for pedestrians.

FOLLOW THE FOOTSTEPS

area where people can stop to finish a conversation when leaving or entering the building, or wait for a date or a ride. Next is the walking lane in the center, ideally five to seven feet wide in residential areas and eight to twelve feet wide in downtown or commercial areas. Next to the pedestrian zone on the right of the image is the street furniture or curb area, which may be lined with parking meters, utility poles, mailboxes, or streetlights and thus an ideal zone to place other street furniture. We don't usually think of benches or planters as "furniture," in the



Sidewalks are the front yards for city residents and the front door for local businesses. Designs that enhance the pedestrian experience at the street level will add to the quality of life in neighborhoods and support local commercial districts. NACTO/Courtesy of Island Press

same sense as a La-Z-Boy or a potted ficus we add to our living rooms. But there are increasing numbers of amenities that can line this area, including bike racks or bike-share stations, newspaper racks, and, if you're lucky, pits for shade-giving trees.

We've plotted out an ideal sidewalk, but most city sidewalks don't look this good. So how do we get to there from here? By identifying the desire lines. In the case of most cities, we are not designing a new street

as much as we are revealing what is already there. Working in New York City with the Danish architect and urban designer Jan Gehl (whom I hired after seeing his work in Copenhagen), we undertook a detailed study to understand *how* New Yorkers actually use their streets. Instead of laying rubber tubes across a street connected to a counting machine to count only passing cars, Gehl's team of dozens of trained public life surveyors fanned out across the city to look closely at how people on foot use city spaces. How many people were stopping? How long did they linger? How long were streets so crowded that they impeded business and transportation? How many building fronts were closed, dilapidated, or uninviting?

To quantify the quality and not the mere physicality of the public space, they counted pedestrians in the study area every ten minutes, timed how long people stayed in a space, and observed whether they sat and ate lunch or read a newspaper. The team also assessed how crowded a sidewalk was; twelve people per minute per yard of sidewalk width is the rule-of-thumb cutoff before people on foot start looking for alternate routes or walk in the street. They looked at how many obstacles blocked the sidewalk. This was a radically different approach, requiring observation and qualitative measurements from trained observers sent out to focus on the qualities of the interactions that people had with the public realm.

The study focused on Broadway and some of New York's busiest streets. On Main Street in Flushing, Queens, pedestrians outnumber all vehicle passengers by two to one, yet they have less than one third of the street space. Exacerbating the crowded sidewalks are newsstands, vendors, and other obstructions that cut walkable space in half and invite "pedlock"—gridlock for pedestrians. The narrow sidewalk forces pedestrians to spill into the street, where they block cars and drag down transit. This was most telling in the lack of children and older people counted on the street—they were only 10 percent of the

pedestrian population even though they comprise 30 percent of the city's population, a sign that they were avoiding the street out of fear for their safety.

The study opened the door to the many imbalances and opportunities with the street. The challenge was figuring out how to restore the balance and elevate the importance of pedestrians and other vulnerable people on the street. By following the footsteps and tracing an outline of the way people use the street today, we could uncover the design of the city we will want to live in tomorrow. These streets of tomorrow can be outlined today in paint.

Yes, paint.

Transforming a car-clogged street into inviting shared space doesn't always require heavy machinery, complicated reconstruction, or millions of dollars. Planners can reorder a street without destroying a single building, double-decking a street, or building a streetcar, light rail system, or highway interchange. It can be accomplished quickly by using the basic materials that every city has access to—in New York City's case more than six thousand miles of streets—and the basic stock that all city transportation agencies already have in their supply depots or available through existing contracts.

Yes, I mean paint. Hundreds of thousands of gallons of it. Whether it's off-the-shelf industrial paints, thermoplastic (a polymer cooked directly onto pavement), or epoxy-modified acrylic coatings, paint has an amazing ability to telegraph a road's rules of order through color, texture, and geometry. Combined with the other basic transportation tools, such as concrete lane dividers and plastic stanchions and reflectors, these simple materials are the building blocks of innovative new public space.

The mind-set required for such an approach is something I learned from my father, Orhan Sadik-Khan. A Tatar who grew up in wartime Europe and was educated at the American University of Cairo, he emi-

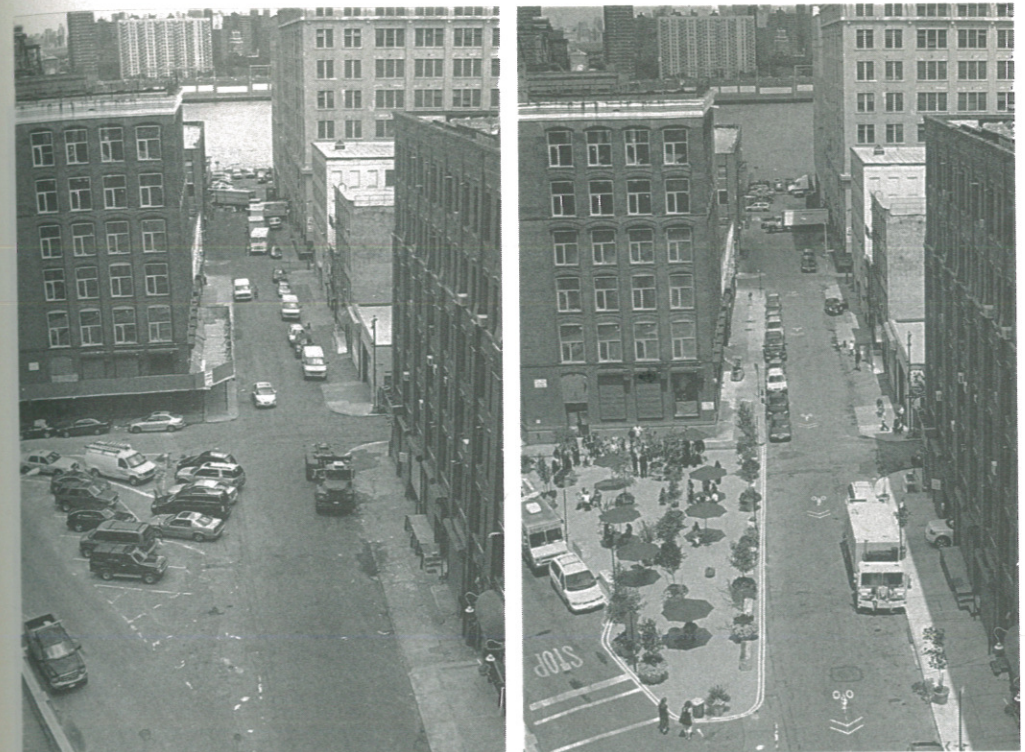
grated to the United States as a young man to attend Stanford Business School. He was the biggest influence on my life—funny, smart, imaginative, wildly successful, and never afraid to embark on a new mission. He spoke five languages but was fluent in the most important one—understanding people. He brought a direct approach to challenges, not surprising given his adventure-laden childhood, and gave me one of the most useful pieces of advice that I have ever heard: throw mud balls at the wall and see what sticks. I understood this to mean that not everything you try works out. What's important is to see what works, and keep trying.

Our first attempt to refashion a street was in the picturesque DUMBO (Down Under the Manhattan Bridge Overpass) neighborhood of Brooklyn, where our team met with representatives of businesses to repurpose the roadbed beneath the Manhattan Bridge. At the base of one of the bridge's arches, a frontage street runs on an angle against the grid, creating triangles of unused space, not unlike what we saw at the complicated intersections in chapter 4. More than a dozen cars parked on one such triangle of underused space at Pearl Street, putting this scrap of cobblestone on the short list for the World's Most Picturesque Parking Lots. The mere fact that city transportation representatives were reimagining anything was itself a sea change. The department was then viewed largely as a signs-and-signals bureau, typically making headlines only for traffic management, such as turn restrictions for vehicles on Midtown's crosstown streets to help unclog rush hour traffic.

Working with community representatives in the summer of 2007, we developed a plan to reprogram the parking spaces as a pocket plaza, cordoning the area with space-defining thermoplastic that sends the message for cars to keep out. Throwing paint (as my mud balls), we used a vibrant green epoxy acrylic coating to mimic an open "green space," giving a cue to pedestrians that the triangle was intended for

them, then we furnished it with patio tables and chairs to remove any doubt. Large soil-filled pots planted with saplings were added on the periphery, along with surplus granite blocks from bridge projects. These multipurpose amenities offered shade in the summer and made the rough asphalt seem more humane. It provided protected seating in a beautiful neighborhood that lacked space for people to stop and relax. The topper was that the local business improvement district agreed to fund the maintenance of the plaza—cleaning and sweeping the space and taking in the seats and tables every evening.

The space transformed from a place where people wanted to park



Pearl Street plaza in DUMBO, one of New York City Department of Transportation's first place-changing projects, in 2007. It required only the basic tools already in every transportation department's arsenal: paint and the street space already there. Even years later, people still believe that these before and after pictures are a designer's renderings, too vivid and appealing to be real-life images. NYC DOT—Ryan Russo

into a place where people wanted to be. Workers in nearby buildings brought lunches to the tables sheltered beneath the plaza's umbrellas with coffees and snacks purchased at local cafés and food trucks. The transformation was fast—a couple of weeks—and easily integrated into the neighborhood. The mud ball stuck. Unfortunately, my father died just days before we cut the ribbon on that first plaza. I think of him every time I walk through one.

These interventions worked in a traffic enclave like DUMBO where there is little through traffic. The bigger question was whether they would work in other settings, like a free-for-all Manhattan intersection. In Manhattan, we quickly proved that this intervention was no fluke by replicating our results at Ninth Avenue and 14th Street. The complex



Ninth Avenue and 14th Street, on the border of Chelsea and the Meatpacking District. Former lanes for uptown traffic on the left were reversed, allowing downtown lanes to be converted into an asphalt triangle big enough for a community-maintained plaza. This project

and traffic-choked street was left over from the mid-twentieth century when the area was filled with meatpackers and old-world industry. By 2007, the neighborhood was alive with new office space, the Chelsea Market retail complex, and nightlife. Preparations were under way for the High Line, near Ninth Avenue, guided by the leadership of New York's planning commissioner, Amanda Burden, and it was becoming clear that the area would soon resemble the nearby upscale Greenwich Village, abandoning its bleak past as an after-hours drug-scoring, cruising strip. We reversed two uptown lanes on Ninth Avenue between 14th and 16th streets to downtown only. By doing so, we no longer needed three downtown lanes in the center of the street near 14th, so we cordoned off the triangle of suddenly in-demand new space with



solidified the rapid plaza design palette and showed how smart traffic management could reprogram street space without causing traffic congestion. Soon after, an Apple store opened at the location and Google moved in just up the street. NYC DOT—Ryan Russo

thermoplastic paint and texturized gravel. What happened to the traffic that used those two uptown lanes? The grid happened. The relatively small volume of uptown traffic on Ninth Avenue was easily accommodated on side streets, and delivery trucks could reach businesses by changing their routes slightly.

The opening of the plaza was reported in a relatively new transportation and urbanism news platform, *Streetsblog*, which covers the quotidian news of street design and would become the most attentive and enlightened chroniclers of the urban revolution unfolding on New York City's streets. They wrote the stories that readers would never find in newspapers and hyperlocal blogs obsessed with conflict, detailing lane widths and the minutiae of signal timing and turn lanes, and they treated safety with grave seriousness. They were partisan at times, calling out elected officials for obstructing changes to the street, critiquing arguments by reporters and columnists they felt were lacking, or amplifying arguments that didn't get ink anywhere else.

"If DOT's new plazas on Willoughby and Pearl Streets in Brooklyn are any indication," *Streetsblog* wrote in these early days, "the demand for this type of public space is huge and it's going to be a hit with lunch-time and evening crowds regardless of the proximity to busy traffic." These words were among the first of hundreds of posts on our projects to appear on the site, which has since expanded to cities across the nation.

The support of neighborhood groups and the absence of traffic complications at Ninth Avenue and 14th Street helped establish an immediate public acceptance of the changes. Once you changed a space, its new configuration became obvious and unassailable, and people immediately abandoned whatever attachments they had to the way it used to be. The transformation of the street itself was the best example and catalyst for its approval. This understanding—remarkably simple but also remarkably powerful—helped solidify the strategy of trying out change instead of endlessly waiting for change to come out of a drawn-

out process designed to avoid disagreement at all cost. The strategy, process, and tools used in DUMBO and at Ninth Avenue and 14th Street provided the street-design and community-outreach template for hundreds of projects to come, setting us up for the greatest transformation yet: Broadway.

The problem with modern Broadway started in 1811 when New York's planners laid out the city's grid system but retained diagonal Broadway. Following the road's original footpaths, Broadway cuts across the grid, carving three-way intersections wherever it intersects both an avenue and a cross street. In the process it creates the iconic traffic gorges that today we call Times Square, Herald Square, Madison Square, and Union Square. Less beloved than the squares are the triangular firing squads of traffic where these three streams of traffic meet, creating a compound transportation/engineering problem of time and space that could dumbfound astrophysicists.

While city traffic signals can be on a sixty-second cycle, providing, say, thirty seconds of green light time to one direction of traffic at a time, what happens when you must assign green light time for a third stream of traffic? One option, giving only twenty seconds of green light time to each of the three directions, may not be enough time for a group of vehicles to make it through the intersection on one green signal, or long enough for a pedestrian to cross the street. Another option is to add green time to the third direction of traffic, say thirty seconds. This in turn will add to the time that drivers in the other two streams will have to remain stopped. Instead of waiting thirty seconds at a red light for a green light, drivers will have to wait for the two thirty-second green signals of the two other streams of traffic, doubling their wait time to one minute. Meanwhile, even more traffic backs up at the red light, reducing the possibility that they can all get through the intersection on a single green light. The result? Traffic congestion.

Another "problem" for traffic: people. People's desire lines often

don't correspond to traffic signs, signals, and crosswalks supposedly designed for everyone's safety. This was one of the problems we had in mind while looking at Madison Square, where Broadway meets Fifth Avenue and 23rd Street, in the shadow of the landmark Flatiron Building. Traffic on 23rd Street at Fifth Avenue was heavy enough that cars often had trouble making it through the intersection on a single light cycle. Factoring in Broadway traffic made it only more toxic.

From the pedestrians' view on 23rd Street, crossing the combined streams of traffic from Fifth Avenue and Broadway was a harrowing 170-foot, seven-lane journey. In reality, a configuration this large tells pedestrians to fend for themselves, crossing against the light and looking



Madison Square: Follow that man! His life may be in peril but in his steps are the outlines of what's needed at this 170-foot-wide expanse of asphalt. NYC DOT

for breaks in traffic—and often getting stranded on safety islands in the middle of the road when the light turns red. The confusion and long wait times for a Walk signal frustrated hundreds of pedestrians daily into abandoning the crosswalk and cutting across the street midblock. In these dangerous desire lines, we saw the outline of a safer street design. The solution was elegant and started not at the intersection itself but one block upstream, just north of 24th Street where Broadway and Fifth Avenue first intersected: a redesigned intersection that fit in better with the grid, consolidating Broadway vehicle traffic onto southbound Fifth Avenue or Broadway. This alteration didn't fundamentally change the traffic pattern but merely simplified it. The better-regulated merge upstream meant we no longer needed as many southbound traffic lanes at 23rd Street. This let us reclaim two full lanes of Broadway roadbed just above 23rd and three lanes of Broadway just below it, east of the Flatiron Building. In the immense wedge of former traffic lanes above 23rd Street we outlined a plaza in thermoplastic and filled in the remaining space with a texturized gravel treatment adhered to the asphalt, evoking the compacted gravel of pedestrian paths in Paris's Jardin du Luxembourg or nearby Bryant Park, but at a fraction of the cost and time.

A stretch of asphalt empty of cars was an invitation for human-scale street life to emerge. Minutes after workers set out the first construction barrels to detour traffic and start work on the plaza, a group of art students materialized, sat on the blacktop, and started to sketch nearby buildings. This was one of the most moving examples of urban place making and it illustrates just how hungry people are for public space. By looking at where people placed their feet and posteriors, we saw the outline of the city we needed to build. The people took care of the rest.

By September 2008, within less than three months, the plazas at Madison Square were ready—light speed by municipal standards. Mayor Bloomberg and representatives of local business associations cut



Madison Square in progress: Following the footsteps of pedestrians, we created sixty-five thousand feet of pedestrian space in former roadbed at Madison Square, which was instantly occupied by New Yorkers from the first moment that construction barrels were placed on the street. The square returned to Madison Square: Bonded gravel, tables, chairs, and umbrellas create an urban oasis where cars once roared. Top: Courtesy of the Flatiron/23rd Street Partnership. Bottom: Seth Solomonow



the ribbon on what totaled sixty-five thousand square feet of pedestrian space at the square and along Broadway, an urban expanse larger than a football field in the middle of the city, and the most significant change to Broadway in decades. People immediately occupied the space as if it were always there. Less noticed was that the project also removed one of Broadway's three moving traffic lanes south of 42nd Street all the way to 25th Street, placing both a bike lane at the curbside and pedestrian plazas in former parking spaces. Traffic moved as well as before but more safely, with better organization.

An unexpected surprise from the Madison Square plaza was how it emerged immediately as a popular gathering place despite its location adjacent to one of Manhattan's great parks. Why would so many people choose the plaza over the park? "For the same reason that people at a dinner party gather in the kitchen instead of the living or dining room," says Andy Wiley-Schwartz, who helped design the spaces and got community leaders to step up and take care of them. From the plazas, New Yorkers and visitors alike can watch the parade of people walking and take in views uptown of the Empire State Building and the Flatiron Building downtown, unobstructed by scaffolds, utility poles—or park trees. "People want to be where the energy and the activity are, and that's where they naturally gravitate," Wiley-Schwartz says.

Some New Yorkers who had been accustomed to the street's previous alignment stopped in their tracks in disbelief, unable to figure out exactly what had happened and where exactly all the new space had come from. Others, true to their New York natures, barely noticed and kept walking. Each step in this evolution seemed monumental in itself, yet New Yorkers took to the changes instantly, giving us the confidence to take the strategy to its natural next step at one of the most famous patches of real estate in the world: Times Square.