ACTIVE DESIGN

SHAPING THE SIDEWALK EXPERIENCE

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TABLE OF CONTENTS

Note from Mayor Michael R. Bloomberg 04

Preface by Amanda Burden, Commissioner, Department of City Planning 04

Commissioners' Messages 05

Prologue 06

Chapter 1
Background 14

Chapter 2
Sidewalks // The Experience 28

Chapter 3
Sidewalks // The Physical Space 40

Chapter 4
Sidewalk // The Policies 66

Chapter 5
Summary 106

Glossary 110

Bibliography 113

Photography/Image Credits 117

Endnotes/References 118

Acknowledgements 120

MAYOR MICHAEL R. BLOOMBERG

New York City has been at the forefront of efforts to fight obesity and ensure that our residents have the tools and resources they need to lead healthy lives. One of the best ways to maintain a healthy weight is through regular exercise, and the results of this sidewalk study will help communities design an urban environment that encourages more people to stay active.

Michael R. Bloomberg
MAYOR
The City of New York

THE DEPARTMENT OF CITY PLANNING

Sidewalks form one of the most fundamental networks of public open space in New York. We are known as famously for our sidewalks as we are for our skyline. Over 13,000 acres of sidewalk line the edges of our street grids, permeating each of our unique neighborhoods, connecting us to our parks and waterfronts, and facilitating peoples' ability to walk to schools, places of employment, and neighborhood amenities throughout the five boroughs.

The NYC Department of City Planning promotes strategic growth, transit-oriented development, and healthy, sustainable, and resilient communities. We cannot do this without caring about sidewalks as the connective tissue of our neighborhoods. As the agency responsible for determining the appropriate mix of land uses, the location of built density, and the envelope that shapes the buildings in private property, the very first thing we do is walk the sidewalks of every single neighborhood where we work. We judge everything we do from the perspective of the pedestrian on the sidewalk. We observe how the sidewalks are used, who populates them, and what they feel like, and we try to understand what makes them unique to that place. We look at how they are shaped by the design of the building walls and landscaped spaces that touch their edges. We try to preserve and enhance what works well, and improve what does not. We ask applicants to design the sidewalk first, and then design the building and other spaces in support of it. Recognizing the act of walking as one of the simplest, cheapest, and healthiest modes of transportation, we acknowledge that the projects we review, and the decisions we make on a daily basis, influence how walkable our future neighborhoods will be.

Building from our interagency work with the Active Design Guidelines and our intimate knowledge of ways to create great sidewalk experiences, we developed this document by observing, measuring, and drawing hundreds of sidewalks across the country. As a city with sidewalks at its heart, we are excited to present Active Design: Shaping the Sidewalk Experience in order to share what we know, to continually improve on what we have, and to help people in urban environments across the country advocate for great sidewalk experiences. We hope it serves as a tool for those who shape the built environment to facilitate a participatory pedestrian design process, and to understand that great sidewalks are imperative in striving for a healthy, active, sustainable, and resilient environment for future generations.

Amanda M. Burden, FAICP
COMMISSIONER, *Department of City Planning*
CHAIR, *New York City Planning Commission*

COMMISSIONERS' INTRODUCTIONS

Many factors contribute to creating a "walkable city" but the most important, and arguably the most neglected, is the design of the sidewalk. More than simply a concrete apron to mediate between road and building, the sidewalk is the stage on which pedestrian life plays out. It is the floor for the pedestrian "room" and as such deserves as much design attention as the living room of a home. A well designed sidewalk can make a street pleasurable and safe to walk down. A poorly designed sidewalk can be a deterrent to pedestrian traffic. This supplement to the Active Design Guidelines is intended to assist designers and governments create beautiful, enjoyable sidewalks that make our cities more walkable and our citizens healthier.

David Burney, FAIA
COMMISSIONER
New York City Department of Design and Construction

Well-designed, safe and accessible sidewalks can help contribute to healthier communities and healthier residents. Incorporating physical activity into daily life is a key part of addressing obesity and related chronic diseases such as diabetes and heart disease. We are proud of the work we have done with our partners in Active Design — including the New York City Departments of Design and Construction, Transportation and City Planning — to promote daily physical activity in the design and construction of our neighborhoods, streets and buildings. Our sidewalks are the fabric tying these elements together, a key ingredient to creating and sustaining healthy communities.

Thomas Farley, M.D., MPH
COMMISSIONER
New York City Department of Health and Mental Hygiene

The New York City Department of Transportation's *Street Design Manual* is a comprehensive resource for creating world class pedestrian spaces. DOT has significantly enhanced the palette and performance of New York's sidewalks by recommending superior materials, highlighting next generation bus shelters, bicycle racks, and CityBenches, installing bioswales to manage stormwater, and launching WalkNYC—an innovative pedestrian wayfinding system. DOT has given New York its safest streets in history over the past five years by installing 300 miles of bicycle lanes, adding 624,000-square-feet of new plaza space and implementing initiatives like Safe Routes to Schools and Safe Streets for Seniors. *Shaping the Sidewalk Experience* builds upon these dramatic improvements to the sidewalk "ground plane" and the "roadside plane" by inviting architects and developers to consider the human footprints beyond their building footprint, and design sidewalks that promote active living and foster vibrant communities.

Janette Sadik-Khan
COMMISSIONER
New York City Department of Transportation

PROLOGUE

PROLOGUE

The pedestrian is an active participant, who walks through the center of a room—the center of what we call "the sidewalk room." It is a space defined by four planes: a ground plane, a canopy, a roadside, and a building side, all contributing to the spatial quality of the room and to your overall experience within it. This study is about you—your neighborhood, your well-being, and your right to an enjoyable and healthy experience within the sidewalk room.

The authors embark on this study of sidewalks not from the perspective of those who drive past them or of those who construct them, but of those who actually use them. It is the point of view of the pedestrian—the person inhabiting and experiencing the sidewalk—that we care about most.

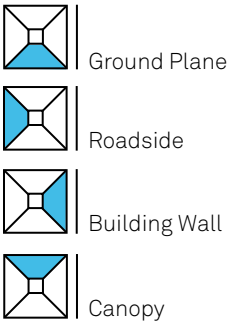
Funded by the Centers for Disease Control and Prevention through the New York City Department of Health and Mental Hygiene, *Active Design: Shaping the Sidewalk Experience* has been produced as a resource and toolkit for communities working to encourage physical activity by transforming their built environments. This publication is an extension of the Active Design Guidelines (www.nyc.gov/adg), which strive to promote health and integrate physical activity into our daily lives through intelligent design.

The work and research undertaken in this document has been completed by the Office of the Chief Urban Designer at the New York City Department of City Planning (DCP). The Department of City Planning promotes strategic growth, transit-oriented development, and sustainable communities as ways of enhancing quality of life in New York City. It works in part by initiating comprehensive, consensus-based planning, design, and zoning changes for individual neighborhoods and business districts, and by establishing policies and zoning regulations applicable citywide.

The DCP strives to create healthy neighborhoods, and is passionate about public spaces: its urban designers study, draw, measure, and ultimately experience them every day. We seek to understand what makes great public spaces so special, and to identify potential areas of improvement in less successful ones. When it comes to creating great public spaces, every inch matters!

In turning to the subject of sidewalks, the DCP applies its collective expertise in architecture, landscape architecture, urban design, urban planning, and zoning policy to one of the most fundamental forms of public open space. This study offers an opportunity to privilege the pedestrian perspective. The word "pedestrian" often connotes dullness, ordinariness, or a lack of inspiration. But the pedestrian perspective is exactly the opposite: it is one of the most thrilling and intimate ways to experience a place. A pedestrian can meander beneath lush green canopies and along vibrant and varied street walls, encounter familiar faces or complete strangers, or simply spend quality time walking a four-legged friend. Sidewalks

Judging from the pedestrian perspective, the sidewalk is conceptualized as a room with four planes.



Judge the sidewalk from the point of view of the pedestrian.

provide a public platform for people to experience a place with nothing but their own two feet.

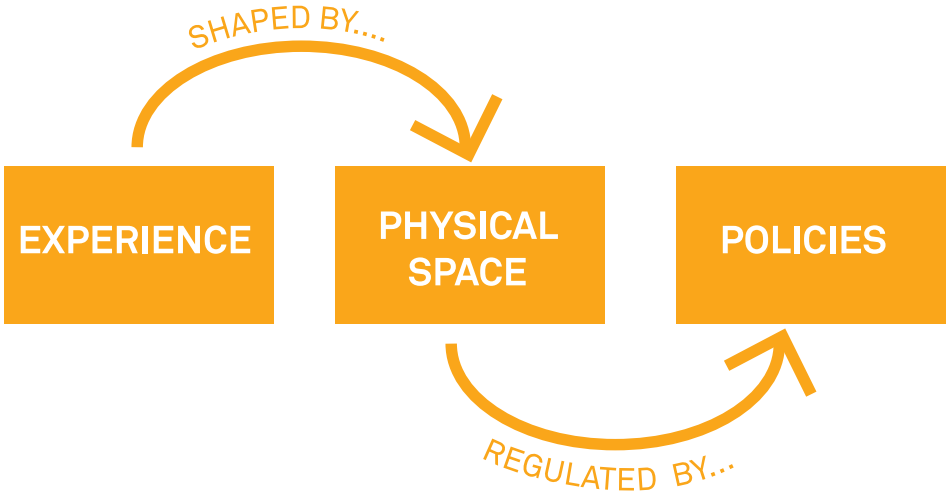
When they are good, sidewalks are interconnected, interesting, and inviting. When they are good, they are also good for the pedestrian. They entice people to walk on them, and to be physically active without knowing it. Hence sidewalks can play a critical role in combating obesity and diabetes, the health epidemics of our time.

Active Design: Shaping the Sidewalk Experience cannot provide all of the answers to creating good sidewalks. Instead, it presents a framework for thinking slightly differently about sidewalk spaces, offering a partial atlas of national initiatives and policies that can help inform sidewalk design, and in turn promote healthy and active lifestyles for pedestrians. By compiling and categorizing different zoning tools from the pedestrian's perspective, this publication aims to encourage cities to borrow, adapt, and imitate other places' successes and to learn from their mistakes.

A complex set of players and regulations contribute to the design of sidewalk spaces, which typically fall within the legal jurisdiction of transportation agencies. This document attempts to complement the efforts of those agencies while broadening the list of people who should share the responsibility of contributing to successful sidewalks—be they policy makers, planners, urban designers, architects, landscape architects, or local shopkeepers.

Because each site is affected by a unique set of physical, environmental, cultural, and political influences, creating successful sidewalks is not an exact science. Accordingly, this work attempts to draw from onsite experience as well as methodologies developed by both academic and professional practitioners. The study's researchers have walked hundreds of sidewalks, measured over thirty of them in detail across six different cities (in a kind of "sidewalk safari"), and investigated policies across the country in order to present the critical components of a healthy sidewalk experience.

This publication focuses on three parallel investigations in relation to the sidewalks: The Experience, The Physical Space, and The Policies.



Active Design: Shaping the Sidewalk Experience **uses the conceptual framework of the "sidewalk room" to grapple with the complexities of shaping this space. Addressing both quantitative and qualitative factors, the publication focuses on three parallel investigations:**

Sidewalks: The Experience: The sidewalk is not a static condition, but a dynamic space that people experience at their own paces. Chapter Two discusses how the human senses impact our sidewalk experience, and acknowledges that while design can impact some factors, many are impossible to control. It outlines a set of key factors that contribute to an active sidewalk experience, recognizing that a variety of pedestrian experiences contribute to the interest and diversity of a city or neighborhood.

Sidewalks: The Physical Space: The pedestrian experience occurs within a space shaped by a variety of physical elements, all of which contribute to its individual character. The presence, scale, and composition of these elements matter a great deal. Chapter Three focuses on the physical space of the sidewalk at three scales of context. It begins with the neighborhood context, touches on the different street typologies within it, and finally defines the sidewalk room by its four planes: the ground plane, the roadside plane, the canopy, and the building side plane.

Sidewalks: The Policies: Many of the physical elements that define sidewalks are regulated by a range of city codes and policies. Chapter Four focuses primarily on zoning codes and the various tools within them that shape the built environment. A subset of physical elements that exist within the four planes of the sidewalk are expanded upon from this perspective of zoning, understanding that the relevant codes and policies differ with each municipality.

Active Design: Shaping the Sidewalk Experience **aims to provide tools to assist policy makers, designers, and citizens in advocating for the pedestrian experience through knowledge sharing and collaboration. It is designed to serve as a guide or reference for a variety of users. The guide should help policy makers to become aware of the specific regulations they create or adjust that might ensure, encourage, or restrict certain kinds of pedestrian experiences and opportunities for people to be physically active. It warns of the unintended consequences of over-regulating, or of providing no guidance at all for the elements that shape a sidewalk. It asks planners to pay special attention to the quality of sidewalk design at the early stages of planning new neighborhoods and in their various regulatory review processes. Decisions about density distribution and where certain land uses are permitted impact the number of people who live within walking distance to transit stops, supermarkets, schools, or local parks, and therefore populate the sidewalks. In creating regulations that define building envelopes and their various elements, planners are informing how walkable the adjacent sidewalk will be. This document encourages urban designers, architects, and landscape architects to realize that they are designing a good portion of a sidewalk room when they decide exactly where to place their buildings, how to detail their façades to meet the sidewalk with entrances and windows, whether to plant trees, and how to design open spaces in both public and privately owned land. Finally, in an effort to promote active design and walkable neighborhoods, this document serves as a tool for public advocates and students to gain knowledge about the complexities that contribute to a sidewalk**

experience, assisting them in precisely articulating their goals and rationales as they advocate for healthier and more active communities.

Jane Jacobs, in *The Death and Life of Great American Cities*, writes about the marvelous order for maintaining the safety of the streets and the freedom of the city:

> *"Its essence is intricacy of sidewalk use, bringing with it a constant succession of eyes. This order is all composed of movement and change, and although it is life, not art, we may fancifully call it the art form of the city and liken it to the dance—not to a simple-minded precision dance with everyone kicking up at the same time, twirling in unison and bowing off en masse, but to a intricate ballet in which the individual dancers and ensembles all have distinctive parts which miraculously reinforce each other and compose an orderly whole. The ballet of the good city sidewalk never repeats itself from place to place, and in any one place is always replete with new improvisations."* [1]

The material in this report can assist design professionals, public servants, and community members in making the best possible "sidewalk ballets" to flourish in your neighborhood. We hope to empower you to take steps toward creating sidewalks that suit your local context, promoting diverse uses and healthy active lifestyles through informing processes, policies, practices, and projects across the nation.

CHAPTER ONE

BACKGROUND

HISTORY

Dedicated spaces for pedestrians to walk within the roadway have existed for thousands of years. While sidewalks are designed primarily to allow safe pedestrian movement separated from moving traffic, they have always been about much more. Sidewalks provide a fundamental network of public open space that allows pedestrians to negotiate their way through the built environment at safe remove from moving vehicles while simultaneously contributing to a healthy and active lifestyle. They can also be places of personal interaction and engagement, social spaces to see and be seen, places of economic trade, and platforms for collective speech and gatherings.

Sidewalks can be ambiguous zones between public and private spaces. In the late eighteenth century, once the construction of sidewalks became increasingly common in urban areas, they were generally associated with their adjacent uses within the buildings. Property owners were often asked to construct and maintain the sidewalks in front of their buildings, and since the paving was generally cheaper and therefore comple ted prior to the neighboring roadbed, it increased its distinction from the moving traffic.[2] Adjacent building users could blur this boundary between public and private space by envisioning sidewalks as physical extensions of their shops and businesses and as social extensions of their living rooms. With objects and activities that enlivened the edges of the walking path, these extensions, when appropriate, could contribute to special characteristics and unique urban conditions. The sidewalk became one of the most active and vibrant elements of the city, helping shape a neighborhood's identity.

By the late nineteenth century, urbanization was increasing, with more vehicles and people populating the streets. Sidewalks became increasingly critical as a primary means of public circulation, and local municipalities began to extend their public jurisdiction over them, including control of how they could be used.[3] In response to cases where the ground floor tenants had claimed an inappropriate portion of sidewalk space for their own use, ordinances were sometimes created to restrict commercial goods and activities from spilling outside, often introducing parameters governing exactly what could extend onto the sidewalk and where. With rising personal vehicular use in the twentieth century, residential developments began to sprawl outward from city centers, and further away from access to public transportation. Sidewalks were sometimes regarded as no longer necessary or as hindrances to efficient vehicular traffic flow, and pedestrians were often seen as slowing down traffic and getting in the way of cars. With the automobile as the main form of transportation, attention to infrastructure for walking diminished. Sidewalks were no longer prioritized as critical elements of new neighborhoods, and slowly physical activity began to be designed out of residents' lives. As Anastasia Loukaitou-Sideris and Renia Ehrenfeucht note in their book *Sidewalks: Conflict and*

Historic sidewalk
Pompeii, Italy.

By the late 19th century, sidewalks became a space for social congregation and activity. New York City.

Today sidewalks still play a critical role in activating our neighborhoods.
Sixth street stoop sitters society, New York City.

Negotiation over Public Space, "In some cities, such as Salem, Oregon, sidewalks were required prior to World War II, but after the war, new housing subdivisions could omit them." [4]

Today it is becoming more widely understood that sidewalks are an essential element of urban areas that must balance the need to effectively allow appropriate pedestrian circulation with the desire to create safe, active, and interesting public spaces that entice people to use them. Reprioritizing the design of sidewalks in such communities is a way to reassert the importance of the pedestrian as one of the street's prime users. Enhancing sidewalks can improve both the built environment and public health in an increasingly urbanizing world.

Sidewalks should create safe, active and interesting public spaces that encourage people to use them. New York City.

HEALTH IMPACTS

As the global urban population grows and urbanized areas increase exponentially, design and policy decisions made today about the quantity and quality of sidewalks will have a significant impact on the condition of future built environments, and in turn on public health. Many countries are confronting global health epidemics of chronic diseases—particularly obesity, diabetes, and heart disease. According to the World Health Organization, chronic diseases are now the leading cause of death worldwide, accounting for 36 million deaths per year.[5] In the United States, obesity and diabetes have been rising rapidly in recent decades. Obesity is the second leading cause of death in the U.S. after tobacco, and physical inactivity is the fifth leading cause. Physical inactivity also contributes to the second, third, and fourth leading causes of death—obesity, high blood pressure, and high blood glucose, respectively.[6] The rise in obesity is tied to the population's over-consumption of calories and under-expenditure of human energy, both of which are shaped by the built environments in which we live, work, and play.[7]

Alongside poor nutrition, tobacco use, and excessive alcohol consumption, lack of physical activity is one of the four modifiable health risk behaviors responsible for much of the illness, suffering, and early death related to chronic disease.[8] This means we each have the power to modify our actions and make an impact on our health. But a recent report by the Centers for Disease Control and Prevention (CDC) found that more than a third of adults in the United States did not meet recommendations for aerobic physical activity, and 23% reported no leisure-time physical activity at all in the preceding month.[9] The built environments we live in can make those choices to be more physically active easier or much harder depending on how they are designed.

For the last half-century, advancing technology and trends in neighborhood planning and building design have caused physical activity to be designed out of daily life. Cars allow people to sit in a stationary position while being transported from point A to B; increased reliance on automobiles has encouraged wider roads and more sprawling developments, further discouraging walking. Escalators and elevators allow people to move between floors within tall or even low-rise buildings without having to use stairs, and computers and the Internet allow people to complete work and engage in social networking from a sedentary position in front of a screen. While the examples cited are all significant and generally beneficial innovations, in combination with other factors, they have drastically altered people's lifestyles. Across the population, there has been no reduction in energy intake to compensate for the drop in daily energy expenditure. In fact, many people have increased their average daily caloric intake.

With approximately two thirds of adults[10] and 30% of children[11] now overweight or obese, Americans are faced with serious challenges in altering the way we live. One key challenge for planners, architects, urban designers, and public officials is to design a built environment that integrates physical activity back into our daily lives. As Dr. Richard Jackson notes in his Designing Healthy Communities book, "If current trends are not reversed, this could be the first generation of American children to have shorter life spans than their parents."[12]

According to available studies, street-scale and community-scale built environment interventions have been shown to be associated with 35–161% increases in physical activity. Such interventions include improved street lighting, traffic calming approaches, enhanced street landscaping, improved safety and aesthetics in the physical environment, continuity and connectivity of sidewalks and streets, proximity of residential areas to destinations, and the use of policy instruments like better road design standards, zoning regulations, and government policies. Studies have also shown that these various strategies are associated with an increased sense of community and a decreased sense of isolation, decreased

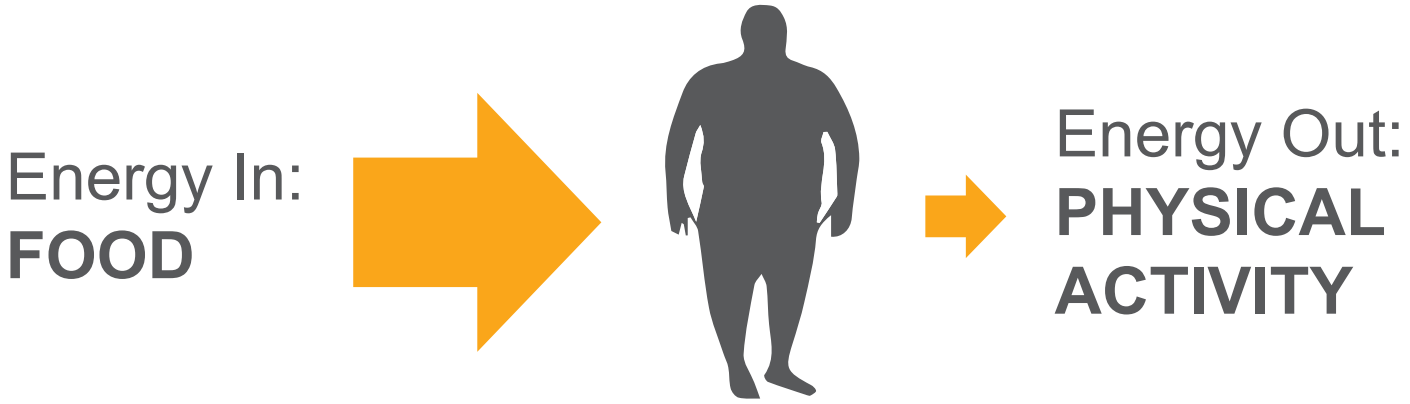
crime and stress, and increased consumer choice for places to live.[13]

Walkable communities are an essential component of healthy environments for people to live, work, and play. More than half (55%) of Americans say they would like to walk rather than drive more throughout the day, either for exercise or for travel to specific places.[14] People generally enjoy walking, but if it is not an accessible and easy option, they are less likely to actually do it.

Walking is a moderate-intensity physical activity that can assist people in meeting the 150 minutes of moderate-intensity (or 75 minutes of vigorous-intensity) physical activity for health per week recommended by the U.S. Department of Health and Human Services' Physical Activity Guidelines for Americans. Such activity can be accumulated in 10-minute bouts spread throughout the course of the week.[15] In most major cities, sidewalks facilitate our ability or impetus to walk. Sidewalks can provide a sustainable means of transportation, serve as destinations in their own right, and help us stay healthy by reaching our daily recommended physical activity levels. As the 2012 Benchmarking Report from the Alliance of Biking and Walking notes, "Where bicycling and walking levels are higher, obesity, high blood pressure, and diabetes levels are lower." [16]

Changing the way urban areas are regulated, designed and built is one of the key strategies in increasing these bicycling and walking levels across the nation. A ten-year study completed by the University of Melbourne found that the overall health of residents of new housing developments in Western Australia improved when their daily walking increased as a result of more access to parks, public transport, shops, and services.[17] It can be difficult to ask people to walk to such destinations without appropriate sidewalks to walk on.

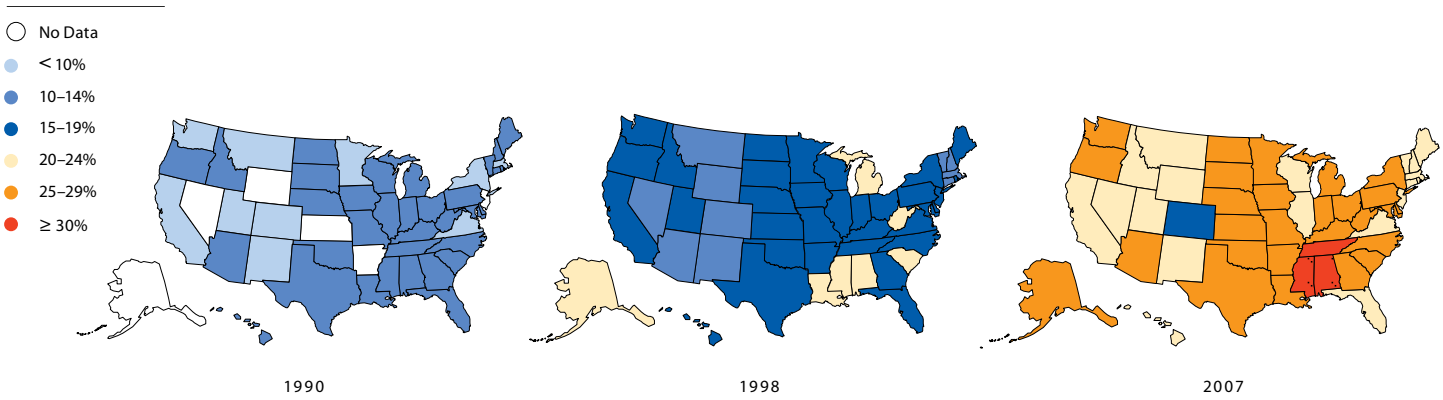
Advancing technology and trends in neighborhood planning have caused physical activity to be designed out of daily life, and resulted in an imbalance in our energy intake and output.



In addition to the health benefits of enhancing and encouraging walking, sidewalks can also contribute to a healthier environment by incorporating trees and other ecological features that help manage water and improve air quality. Sidewalks can foster a healthier local economy by encouraging people to support local shops with active building fronts and streetscapes. By creating vibrant places where people want to be, businesses can attract top talent to work with them. One study found that 64% of college millennials choose where they want to live first, and only then do they look for a job.[18] Sidewalks can also add to a healthier society by providing opportunities for social interaction and community building. Jeff Speck includes a great quote—even if it is not proven health evidence—from Enrique Peñalosa, former Mayor of Bogota, Colombia, in his *Walkable Cities* book:

"As a fish needs to swim, a bird to fly, a deer to run, we need to walk, not in order to survive, but to be happy." [19]

Obesity trends among U.S. adults



Obesity is defined as a Body Mass Index (BMI) ≥ 30, or about 30 lbs overweight for a 5'4" person.
Source: CDC Behavioral Risk Factor Surveillance System

EXISTING EFFORTS

Existing efforts to improve walkability include measures taken by urban and town governments as well as academic researchers and theorists. Current initiatives include master plans that focus on walking, street design manuals, revisions to zoning codes, and newer digital media. Cities and their residents are increasingly recognizing the value of walkability, and some communities are putting enormous effort into design and policy changes to that end. The Seattle Pedestrian Master Plan, for example, is advocating for healthier lifestyles by seeking to create more walkable neighborhoods and promoting walking as an "environmentally, economically, and socially sustainable" mode of transportation. [20]

National programs like the National Complete Streets Coalition have influenced over 350 communities to commit to some form of a Complete Streets policy, which ensures that transportation planners and engineers design and operate roadways with all users, and not only those in automobiles, in mind. [21] Boston and Nashville are two of the many cities currently striving to promote the design of streets that are *safer, more livable, and welcoming to everyone*[22] by improving street connectivity and the larger sidewalk network. The growing awareness of walking's importance to children's health is supported by the national Safe Routes to School program[23] and by organizations like America Walk[24], which foster walkable communities by engaging, educating, and connecting walking advocates in specific areas. Through data collection and performance measures, there are opportunities for cities to begin to track the improvements in various communities over time. Groups focused more broadly on Active Design[25], like the Center for Active Design and the Active Living Resource Center,[26] can also provide local organizations with technical assistance, programs, and strategies for promoting more active places.

Pedestrian master plans for urban areas can encourage the creation of a comprehensive, safe, and comfortable sidewalk network over time. Several cities, including Seattle, Portland, and Denver, have undertaken comprehensive analyses to prioritize funding for sidewalk improvements. Louisville has adopted a Community Walkability Plan that focuses on improving its pedestrian network. Through public engagement, they have identified and prioritized locations and set out an action plan for implementation.

Street design manuals, such as those recently developed by transportation agencies in New York City, Boston, Chicago, and Los Angeles, can provide guidance and technical direction for designing the general right-of-way in a manner that serves pedestrians, bicyclists, transit users, and motorists equally. Vision plans for specific areas can provide further ideas for developing sidewalk spaces that are appropriate to the particular character of a given neighborhood. Documents defining precise dimensions and materials in the design and construction of sidewalks have tended to focus primarily on the ground plane, paying far less attention to the street- and building-side "walls" of the sidewalk room. One publication, Inclusive Design Guidelines, New York City provides guidance that helps designers produce multisensory enhanced environments that accommodate a wide range of physical and mental abilities. An inclusive environment takes into account all the characteristics that affects the senses: tactile, visual, auditory, taste, olfactory, proprioceptive, and vestibular. New York City is moving beyond accessibility toward inclusivity with this work.

Pilot programs and temporary events have become more common over recent years as mechanisms for introducing change in the way communities see their public right-of-way. In the Claremont neighborhood of the Bronx, New York, the NYC Department of Transportation has been trialing "slow zones," modeled on London's 20 mph zones, with the goal of increasing pedestrian safety, reducing traffic volumes and noise pollution, and making streets more welcoming to residents.[27] Programs like Summer Streets,[28] CicLAvia,[29] and Play Streets,[30] which

temporarily close stretches of the roadbed to vehicles, can provide additional space for pedestrians and bicyclists, encouraging more active and playful uses in areas otherwise dominated by cars.

Digital media and technology are also beginning to play an important role in broadening communication and general awareness of these issues. The Media Policy Center has produced a four-part public television series, "Designing Healthy Communities," hosted by Dr. Richard Jackson, which offers best practice models for improving the nation's public health by redesigning the built environment.[31] Web-based assessment tools like Walk Score rate the walkability of a location based on its proximity to nearby amenities, intersection density, and average block length.

Some cities have created new official positions within their local government structures to focus on issues of walkability, as with Philadelphia's full-time Pedestrian and Bicycle Coordinator, based in the city's Office of Transportation. Through interviews and discussions with local municipalities across the nation, it seems that, in general, staff are beginning to collaborate more frequently across previously siloed city agencies. Many cities, including Portland and New York, are seeking to incorporate innovative strategies into their designs, with storm water harvesting and management. New York is currently using the pedestrian perspective to judge the impacts of various Post-Sandy adaptation strategies being developed for climate resilience. Boston's Complete Streets Guidelines are promoting energy efficiency technologies for their street furniture and lighting, as well as sidewalks fitted with intelligent systems[32] that bring internet access, air-quality and noise sensors, and real-time management information to the public realm.

In the New York City Department of City Planning, Commissioner Amanda Burden influences operational processes by charging her agency staff with judging sites from the pedestrian perspective. This means walking all of the sidewalks of any rezoning or project area, and drawing massings and renderings from this vantage point in order to test the appropriate scale of the proposed bulk envelopes. These drawings are not only utilized to develop final zoning text, but also to provide the community with a sense of what their future neighborhoods might feel like from a perspective everyone can identify with—when walking down the sidewalk rather than flying overhead by helicopter.

New York City Department of City Planning staff drew proposals of massings and renderings from the perspective of the pedestrian.
Rendering from North Shore 2030 Vision plan, Staten Island, NYC.

Another important body of work comes from academics and theorists who have studied and written about the science of sidewalks during the past decades. One study developed measurement protocols for nine urban design qualities cited in the literature—imageability, enclosure, human scale, transparency, complexity, coherence, linkage, legibility, and tidiness—and tested these on New York City sidewalks.[33] Alan Jacobs has shared his observations, documentation, and illustrations of hundreds of great streets and boulevards from around the world,[34] and Eran Ben-Joseph touches on the topic of sidewalks when he examines the relationship between regulatory standards and place-making in his books.[35] Loukaitou-Sideris, Blumenberg, and Ehrenfeucht discuss the sidewalk as a setting for contested democracy, examining how the legal, regulatory, and policy frameworks employed by ten Californian municipalities prescribe the form and use of sidewalk spaces through four main design and land use strategies: de-emphasis of sidewalks, gentrification and beautification of sidewalks, privatization of sidewalks, and taming of sidewalk behavior.[36]

In his *Walkable Cities*, Jeff Speck promotes walking as the one key factor of a thriving city, presenting it as a simple, practical-minded solution to many of the complex problems that daily undermine the nation's economic competitiveness, public welfare, and environmental sustainability.[37] Some of the most globally renowned urban thinkers, such as Jane Jacobs and Jan Gehl, have written again and again about the importance of sidewalk spaces to urban vitality, highlighting the subject to sidewalk amateurs and experts alike.

In total, this study has reviewed more than fifty documents from twenty cities across the nation, including street design manuals, transportation master plans, municipal zoning and construction codes, and specific design guidelines for sidewalks and façade treatments. Some of these documents regulate how sidewalks are to be built, while others guide practices and set goals of how they should be used.

This study builds on and complements the existing body of work, presenting further insights and tools in promoting healthy and active living across many communities.

Well designed sidewalks can facilitate the use of public transit.

INFRASTRUCTURE & FINANCIAL BENEFITS

While evaluating the impact of building and maintaining sidewalks on the economy, it is important to recognize both the upfront development costs and the resulting financial and infrastructure gains. Investing in sidewalks, when combined with other initiatives, has been associated with boosts in the local economy, financial savings from transportation-related costs, and increases in the overall quality and value of homes and businesses. Given the connections between increased physical activity and the prevention and control of epidemic chronic diseases (as well as decreased depression, prevention of falls, and better cognitive function in older adults),[38] there are also huge future savings expected in healthcare costs.

Investing in sidewalks has been shown to benefit the local economy. A 2010 study[39] found that pedestrian and bicycle infrastructure projects create 11–14 jobs per $1 million of spending, while road infrastructure projects create approximately 7 jobs per $1 million of expenditures. It has also been found that compact development patterns that are walkable and contain more sidewalks save money on avoided infrastructure costs. A $12.6 billion (10.1%) savings in water and sewer costs and a $109.7 billion (6.6%) savings for road land miles were found for compact growth scenarios over sprawl growth scenarios.[40]

Decreases in individual transportation-related costs can result from increased access to sidewalks. The Alliance for Biking and Walking [41] reports on the annual spending of various modes of transport in the San Francisco Bay Area, and the savings of each mode over driving. In this report, bicyclists and pedestrians were found to save the most: between $8,664 and $9,054 a year (adjusted to 2011 dollars). Savings gained through using sidewalks instead of roadways can equate to higher disposable income to invest in local goods, services, and entertainment.

Sidewalks should be a fundamental form of infrastructure in all neighborhoods across the nation. They can add value to a neighborhood and, while complicated with respect to the complexities of social equity issues, it is important not to ignore the fact that they have been found to positively impact property values. According to the Alliance for Biking and Walking, communities that invest in infrastructure around biking and walking have higher property values and create new jobs. In addition, by investing in alternate modes of transportation, these communities are decreasing traffic congestion and commute times while simultaneously improving air quality and public health.[42]

Because of the long-term effects on the health of our population and on our neighborhoods, not building sidewalks might cost our society a great deal more in the long term. National healthcare costs are astronomical, and only growing. According to the U.S. Centers for Disease Control and Prevention, the medical costs attributable to obesity in the U.S. today are estimated at $147 billion per year.[43] If these trends continue, by 2030, the total attributable health care costs are expected to be a staggering 6.5 times this amount, totaling around $860–956 billion per year.[44] Walking is also the cheapest means of transportation at the individual scale. By designing our communities in an equitable way that enables us all to live healthy and active lifestyles, we are investing in the health of our citizens. We are investing in preventative health care rather than health care treatment.

CHALLENGES

While sidewalks support healthy and active communities, they do not come without their challenges. It is easier to design sidewalks into new developments than it is to retroactively construct them into an already built context. It is critical to find the appropriate distribution of space between competing uses within the right-of-way, and to ensure that sidewalks are designed and maintained properly to allow for safe and inviting use by pedestrians.

According to one national survey, "Walking is the second most common form of travel, representing 10.9% of all trips. However, a full 1/3 of Americans report not taking a walking trip in the last week. Studies show how unsafe people feel on the roads in their communities—lack of sidewalks, poor lighting, and too few crosswalks. These problems with the built environment keep people from walking, biking, and getting to transit." [45]

In many suburban or low-density neighborhoods built in recent decades, sidewalks do not exist. Another national survey found that "One quarter of walking trips take place on roads without sidewalks or shoulders." [46] In streets without sidewalks, those who want to walk or who are unable to drive have no choice but to walk within the roadbed, putting these pedestrians as well as drivers and their passengers in danger of collision. Where roadside planting strips but no paved sidewalks exist, people tend to make their own trails, or "desire paths," through the planting, and these should be seen as strong indications of desired paths of travel that could be made more permanent. Cities might try to acquire strips of private property to facilitate new sidewalks, or they may implement "road diets" to create sidewalks within the existing right-of-way by removing or narrowing excess travel lanes.

In some cases, sidewalks may exist but are poorly designed or falling into disrepair. If no one maintains or takes ownership of sidewalks, they collect trash and debris. This is often the case with sidewalks adjacent to vacant lots. When surfaces are cracked and uneven, they become tripping hazards and are uncomfortable to walk on. Such surfaces can also impede universal accessibility for those with walkers and wheelchairs. Lighting is another important factor in people's sense of safety when using sidewalks, and appropriate levels should be created and maintained. Clear requirements and information on maintenance, repair, and liability responsibilities enhance the prospect of usable and desirable sidewalks, and should be easily available to citizens. Programs that provide for the upkeep of unclaimed portions of sidewalks can also be created.

Funding can be a challenge at the local, city, and federal levels. Methods for finding revenue to build and maintain sidewalks vary, and can often highlight challenges in the distribution of funds between various modes of transportation. "12% of trips are by bicycle or foot, yet bicyclists and pedestrians ... receive just 1.6% of federal transportation dollars." [47] Governments can contribute to sidewalk construction costs, but funding to build and maintain them is often the responsibility of the adjacent private property owner. Whereas in large-scale projects or neighborhoods a comprehensive sidewalk network can often be planned, designed, and built all at once, in existing built contexts, construction is more likely to occur in a piecemeal way, as individual buildings are built or renovated and individual sidewalks are replaced over time. Developing a vision plan for a sidewalk network can ensure that each smaller section that is constructed contributes to the overall plan.

The effort to create enjoyable sidewalks often aligns with other existing or developing city policies. PlaNYC, for example, is New York City's blueprint for strategic growth for the year 2030. Undertaken by Mayor Bloomberg in 2007, PlaNYC seeks to prepare the city for one million more residents, strengthen the economy, combat climate change, and enhance the quality of life for all New Yorkers. It comprises 127 initiatives that work toward achieving goals in a range of arenas, including land, water, transportation, energy, air, and climate change. As a living document that is required to be updated every four years to ensure progress, PlaNYC saw the 2011 update add in a chapter on Cross-Cutting topics. The synergies between the goals became apparent, with "Public Health" articulated as a critical topic:

New York City is one of the healthiest cities in the United States, with a life expectancy that exceeds the national average. This achievement is the result of visionary planning and sustained investment. Despite these successes, health challenges remain—and new ones are emerging—that require creative, modern shifts in how the city operates.... A good part of being able to protect and improve our health depends on the choices we make as individuals. Healthy and moderate eating, active living, and regular physical activity prolong both the quality and duration of life. But in some neighborhoods, the opportunities to make these healthy choices are restricted—where access to healthy food or safe exercise and play space is limited. We can also improve health in the way we get around our city. By promoting public transportation, pedestrian plazas, safe walking routes, and calming and reducing vehicular traffic, we will encourage more and safer walking and physical activity. [48]

Whether aligning with climate change, sustainable transportation or planning policies, efforts to plant more street trees, incentivize local supermarkets, or create local community destinations, these synergies should be embraced. They further the argument for prioritizing the pedestrian experience through the design of active sidewalks. Sidewalk designers and advocates should look for opportunities for alignment with strategic plans, transportation policies, other health policies, and sustainability polices in their area.

CHAPTER TWO

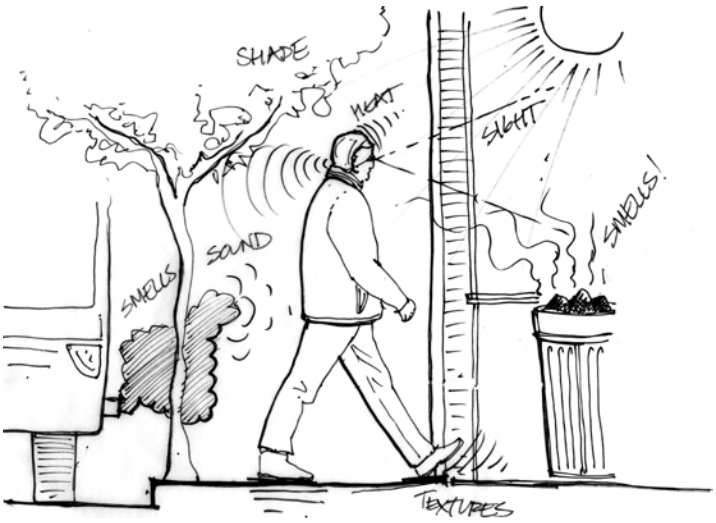
THE EXPERIENCE

THE EXPERIENCE

A sidewalk is often represented in plan or section, in static two-dimensional drawings that capture and record key configurations or measurements. While these are useful tools for documenting and laying out sidewalk spaces, this document encourages a more dynamic spatial approach, with the larger goal of promoting active design and using the sidewalk as a space to encourage daily physical activity. Placing the pedestrians at the center of the "sidewalk room" encourages consideration of their perspective. How might they experience it? What are they seeing, smelling, and feeling? This means considering the physical space while also keeping in mind time, movement, and the human senses. Pedestrians typically experience a sidewalk by moving along it over a period of time and perceiving it with all seven senses, including proprioceptive (body position and force) and vestibular (moving through space against gravity).

Sight is the most highly developed human sense, and critically important—but it should not be the only one taken into consideration. The sounds of busy traffic and people bustling about can make for a very different experience than that of birds chirping on a quiet stroll down a residential street. Overflowing garbage cans and vehicular fumes are not nearly as enjoyable as the aroma of fresh baked goods wafting from local bakery windows or spring flowers blossoming from sidewalk planting strips. The texture of the ground beneath the walker's feet and the relief of the shade beneath a lush green tree canopy on a hot summer day also impact the experience of the sidewalk room. It can be helpful to imagine yourself walking down a sidewalk in the context you are working in, recalling your most memorable sidewalk experience and thinking about what made it so.

Pedestrians typically experience a sidewalk with all seven senses.



FACTORS THAT CONTRIBUTE TO AN ACTIVE SIDEWALK EXPERIENCE

An enjoyable sidewalk experience is different for each user, and is, of course, based on many factors. Design can impact some of these factors, while others are impossible to control. Beyond the physical space, the time of day, the individual's mood, and the walk's purpose are all variables. Regardless of the available level of control, there is a set of key factors that contributes to an enjoyable sidewalk experience. They are:

SUSTAINABILITY + RESILIENCE: Consider local context regarding climate, plantings + trees, materials, air quality and storm water management.

SAFETY: Ensure sidewalks are designed with adequate lighting, gradients, and materials, to enable safe use 24 hours a day.

HUMAN SCALE + COMPLEXITY: Use architectural detailing, entries, transparency, landscaping and so on to increase the complexity at the lower floors, helping to complement the human scale and break down the rhythm of length of the sidewalk.

CONTINUOUS VARIETY: Ensure an experience of continuous variety. Consider the different speeds that people move at, and a variety of activites that can occur within the sidewalk room.

CONNECTIVITY: Ensure sidewalks provide clear wayfinding and are continuous, connecting people to destinations and not resulting in dead ends.

ACCESSIBILITY: Ensure accessibility for multiple users, considering different ages and abilities.

Connectivity

If a sidewalk is not connected at both ends in some way, it is unlikely to be well used. Ideally, connectivity is a consideration at the outset of neighborhood planning efforts. A well-connected sidewalk network has numerous intersections and short block patterns, and no dead ends—characteristics mostly found in street patterns forming a grid. A good sidewalk network allows people to choose multiple paths, including the most direct route between their origin and destination, allowing walking to be an efficient mode of transportation. Less connected sidewalk networks are often found in more suburban developments. Dead-end cul-de-sacs and convoluted street patterns can force pedestrians to walk far greater distances to reach destinations that might otherwise be relatively close, often resulting in a preference for vehicle use for local trips.

Accessibility

Designing a sidewalk to accommodate the widest range of users and appropriate pedestrian volumes is crucial to its success. Accessibility, as defined by the *2010 ADA Standard* and the *A117.1-2009 Accessible and Usable Buildings and Facilities Standards*, establishes a minimum level of access for people with disabilities. Going beyond code requirements to create a more user-friendly environment should be encouraged (as in the NYC *Inclusive Design Guidelines*[49]) and can further help improve quality of life for everyone, especially children, seniors, and people with disabilities. Regardless of a sidewalk's scale, one can design a multisensory environment that enhances the experience and increases usability. An inclusive environment addresses not just user needs but also their preferences. Everyone falls within a range of abilities, which change as we age. Sidewalks must accommodate users of all ages, from infants to the elderly, and with a wide range of physical and mental abilities. Some individuals may find walking difficult and may be more active if they know that they will have plenty of places to sit and rest along the way. Young children experience sidewalks from a different vantage point than adults, a particularly important consideration on routes frequently used for walking to school. Limiting obstacles and enhancing the multisensory cues within the three-dimensional sidewalk environment will reduce difficulties for those who are blind or have diminished vision. An inviting and inclusive design makes every user feel comfortable.

Designing a sidewalk to accomodate the widest range of users and appropriate pedestrian volumes is crucial to its success.

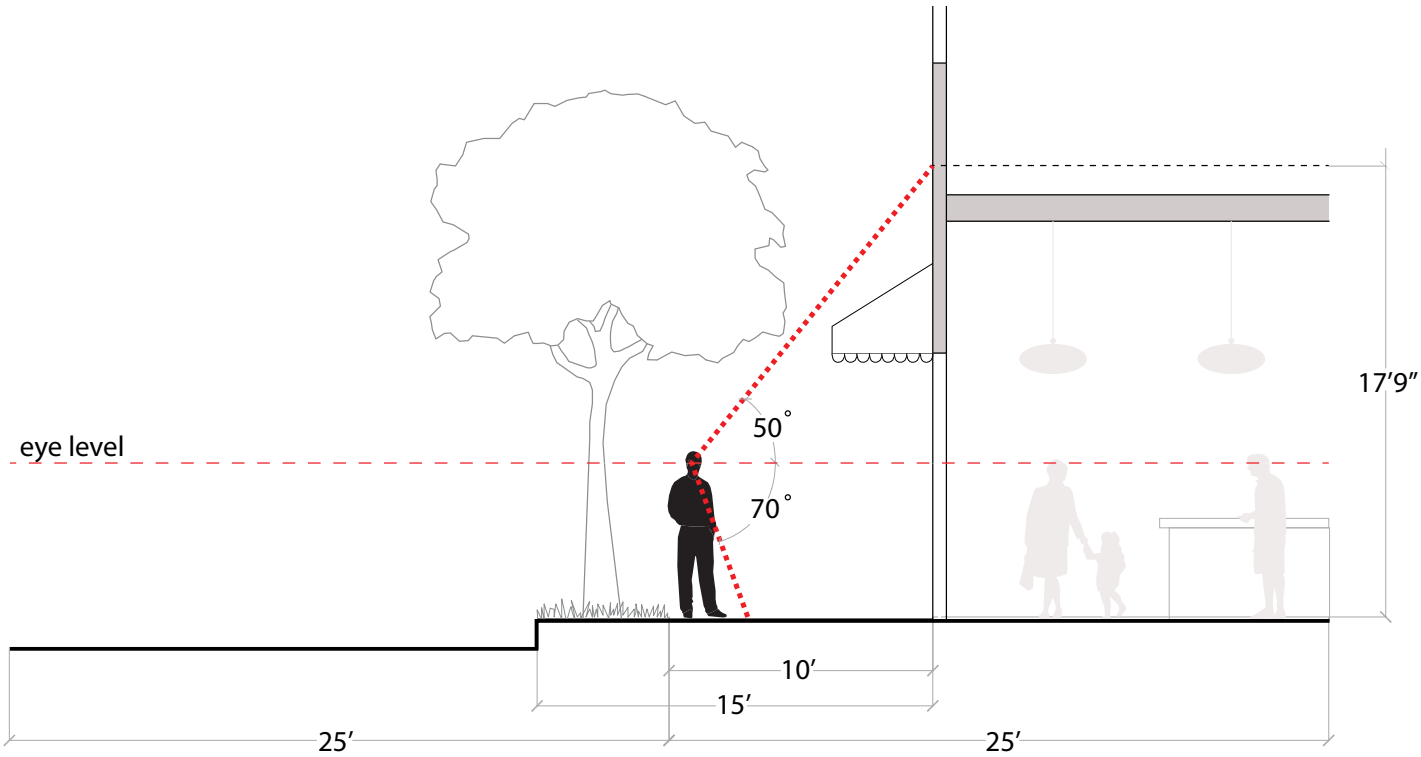
Safety

The sidewalk experience is only enjoyable if users feel safe. Sidewalks should be appropriately lit at night, with pedestrian scale lighting spaced at appropriate intervals to provide the correct level of illumination. Where the ground plane is well surfaced, it can eliminate tripping hazards, and it is helpful to ensure that the appropriate processes and agreements for long-term maintenance and repair work are in place upon construction. Facing building entries and windows toward the sidewalk can help walkers feel that other people are nearby, and can make the sidewalk feel more interesting and walking distances seem shorter.
Adding residential units to the mix in downtown commercial areas increases the likelihood that an area will be populated after regular office hours. Restaurants and similar establishments that support residential populations can help sidewalks stay active during the day and into the evening, keeping "eyes on the street," as Jane Jacobs famously recommended.

Human Scale And Complexity

Understanding how the human body perceives space is a first step in designing sidewalks at scales that improve human comfort. This requires conscious decisions that enhance their multisensory characteristics and recognize that sidewalks are three-dimensional environments and not just static planes. The scales, or zones, critical for an enhanced environment are based on spatial envelopes defined by variable boundaries along the path of travel. These envelopes create complex partial enclosures and make each sidewalk unique depending upon their composition. One of the defining features of the spatial envelope is the building wall plane; this document discusses increased attention to and complexity within this plane using two linear dimensions. These are the vertical height of the building wall plane—which passes immediately beside pedestrians as they are walking—and the horizontal distance, or the distance down the street that is visible to the pedestrian.

The lower one to two floors of a building wall are most important in relation to the factor of "human scale and complexity." In the diagram below, the lower portion of the building façade, the tree, and the treatment of the closest lane of the roadbed become extensions of the sidewalk room and are the elements that the pedestrian experiences most intimately.



a. Breaking Down The Vertical Dimension: Sidewalks can be bordered by tall or short buildings, or by no buildings at all. The pedes trian's experience is strongly influenced by the vertical height of the building wall plane. The human eye typically perceives the space within the angles of 50–55 degrees above and 70–80 degrees below a direct horizontal line. [50] If we assume the average eye height of someone walking down the street, the diagram reveals that the vertical height most intensely experienced by the pedestrian is the lower one to two floors of a building (or in this case the lowest 17'9" of the building). This lower portion of the building wall plane is most successful when it contains a sufficient level of detail and articulation, where it is more closely readable to the human eye, and renders the sidewalk experience interesting and engaging for the walker.

b. Breaking Down The Horizontal Dimension:
The horizontal distance has three sub-scales embedded in it. These are:

i. The Scale of the Street: 330 feet (or roughly 100 meters) is often considered the farthest distance that the human eye can see people or objects in motion.[51] At this scale, people see landmarks in the distance, constructed view corridors, or vanishing points. This study uses this distance as the total length of the sidewalk room and suggests it as an appropriate sidewalk length to study as a sample.

ii. The Scale of the Building: 60 to 70 feet (or roughly 25 meters) is the distance at which the human eye can begin to read facial expressions. It is the mid-scale of rhythm often demonstrated when there are a series of different buildings, and therefore vertical distinctions between them, on the same block.[52] When a single building extends the full length of a block, it can quickly become monotonous and repetitive for the person walking next to it. In these cases, variety is encouraged through the use of different materials, window patterns, cornice lines, and other architectural articulations.

iii. The Scale of the Establishment/Unit: The smallest scale of pedestrian experience occurs within the closest 25 feet (or 0 to 7 meters) of the viewer. This is the scale at which the senses are most engaged with the complexities of façade articulation, active entries, transparency, textures, awnings, signage, and architectural details.

Variety within each building will help to break down the horizontal scale, helping the pedestrian experience something different roughly every 7 seconds.

As Jan Gehl articulates in his book, *Cities for People,*

"It is interesting to note that shops and booths in active, thriving commercial streets all over the world often have a façade length of 5 or 6 meters (16–20 feet), which corresponds to 15–20 shops or other eye-catching options per 100 meters (328 feet). At an ordinary walking speed of about 80 seconds per 100 meters (328 feet), the façade rhythm on these streets means that there are new activities and sights to see about every 5 seconds."

Continous Variety

a. Variety of speed: Streets and sidewalks function and are perceived at multiple speeds. For the last half-century, streets and sidewalks have often been designed with the speed of the automobile in mind. However, because the pedestrian—rather than the driver—inhabits the sidewalk room, it is important to focus on the average human walking pace of 2.5 to 3 mph (4 to 5 km/hr) when designing these spaces. At this slower speed, pedestrians have more time than automobile passengers to absorb their surroundings. It is important to design with enough complexity and detail to maintain the pedestrian's interest.

Even within the average walking speed of 2.5 to 3 mph (4 to 5 km/hr), it is important to keep in mind the variety of speeds at which people move. High-density areas require sidewalks that allow people to move where they want to go quickly, but the best sidewalks often allow for a variety of pedestrian walking speeds. An adequate clear path for thoroughfare allows for fast-paced walking, but creating an environment that invites people to meander and pause as well, or offers the opportunity to stop for periods of rest or refreshment, can add to the diversity and interest of the sidewalk room.

b. Variety of activities: By catering to a range of speeds at which pedestrians can move, the best sidewalks allow for a variety of activities. At a basic level, sidewalks allow pedestrians to walk without having to use the roadbed and face dangerous conflicts with moving vehicles. However, this is only one of the functions of a sidewalk. The best sidewalks serve as stages for numerous other activities, including leisurely promenading (to see and be seen), chance encounters between old acquaintances, daily interaction with local characters, and surprise introductions to strangers. Sidewalk spaces should allow pedestrians to take a step aside and catch up with their neighbors, to pause against a building façade to rummage through a bag, and to rest beneath the

The best sidewalks allow for a variety of activities at a range of speeds.

s hade of a tree and take a phone call. When appropriate, they should allow for resting and people-watching on public benches, for cafés and restaurants to spill out and activate the street, and, within limits, for stores to extend out and blur the boundaries between public and private space. They should provide a variety of functions for diverse users at different times, acting as the crucial framework for the public realm.

Sustainability & Climate Resilience

A sustainable and resilient sidewalk is one that has been designed to suit the local context. Sidewalks are exposed to climate and weather variation, and it is necessary to plan for and consider local seasonal patterns in their design. A sidewalk's provision of protection from overexposure to heavy rains, significant snowfall, and extreme heat can affect pedestrians' comfort levels and influence their decision to walk. Systems for clearing heavy snowfall quickly and efficiently should be in place so that pedestrians can continue to use the sidewalk without having to trudge through muddy snow or risk their lives on black ice. In Copenhagen, bike lanes and sidewalks are cleaned before the roadbed!

Where possible, trees should be planted at regular intervals (approximately 25-foot spacing), with tree pits at least 5 feet wide to ensure their long-term survival. If designed appropriately, tree pits and planting strips can help manage storm water levels during heavy rains. Tree canopies also help clean the air and reduce the urban heat island affect, while sheltering pedestrians' skin from the hot summer sun. When choosing sustainable materials, consider the location of the source as well as the toxicity and durability of components.

In areas faced with the need to raise ground floor levels due to base flood elevations in flood zones, the interface between the building and the sidewalk should be carefully designed to ensure that the public realm remains active and engaging. When required, consider making multiple smaller level changes that are not taller than the pedestrian's waist level. This can help to avoid single tall, blank façades that reach beyond human eye height. Where possible, consider mitigating level changes with dry flood-proofing techniques or within the footprint of the building or front yard to minimize the impact on the public realm. Consider the impact of flood plain management regulations, and utilize landscaping, artwork, and pedestrian amenities like benches to enhance walkable neighborhoods where possible.

"All sidewalk trees should ideally have a tree pit of no less than five feet in width." (Amanda Burden, Commissioner of the NYC Department of City Planning, Chair of the NYC Planning Commission)

ACKNOWLEDGING A VARIETY OF PEDESTRAIN EXPERIENCES

There are many different ways to define "enjoyable." Allowing for a variety of pedestrian experiences is important in contributing to the interest and diversity of a city or neighborhood. In considering the types of experiences appropriate to a particular sidewalk, various regulatory tools—and their relative rigidity or looseness—can be used to achieve different desired outcomes.

Below are five sample categories of :

BUSY AND ORDERLY
Some areas with high volumes of pedestrian traffic in downtown commercial cores and near transit nodes may call for wider clear paths and more limited spill from adjacent establishments. A certain consistent character may be desired (as is often the case in Business Improvement Districts, or BIDs), and can lead to guidelines, standards, or restrictions for signage and and street furniture.

BUSY AND DYNAMIC
A dynamic sidewalk experience can be shaped less by imposing regulations than by allowing individual property owners or establishments to contribute their personal touches to the sidewalk room. In such areas, there might be fewer restrictions on signage, ground floor uses might be allowed to spill out (while still maintaining an adequate clear path), and individualized street furniture might be permitted. This condition is often found in local neighborhood main streets.

QUIET AND GREEN

Some sidewalks provide an inviting non-commercial environment that encourages local residents to get out and about in their neighborhood—to take an evening stroll around the block, make a quick visit to the neighbors, or take an enticing walk to the local transit stop. These sidewalks are typically not overly wide, but still comfortable enough for a couple to walk their dog or for two people pushing strollers to pass each other. Regularly planted trees add greenery, while doors, windows, and front porches facing the street contribute to the sidewalk's safety and activity.

DESTINATION SIDEWALKS

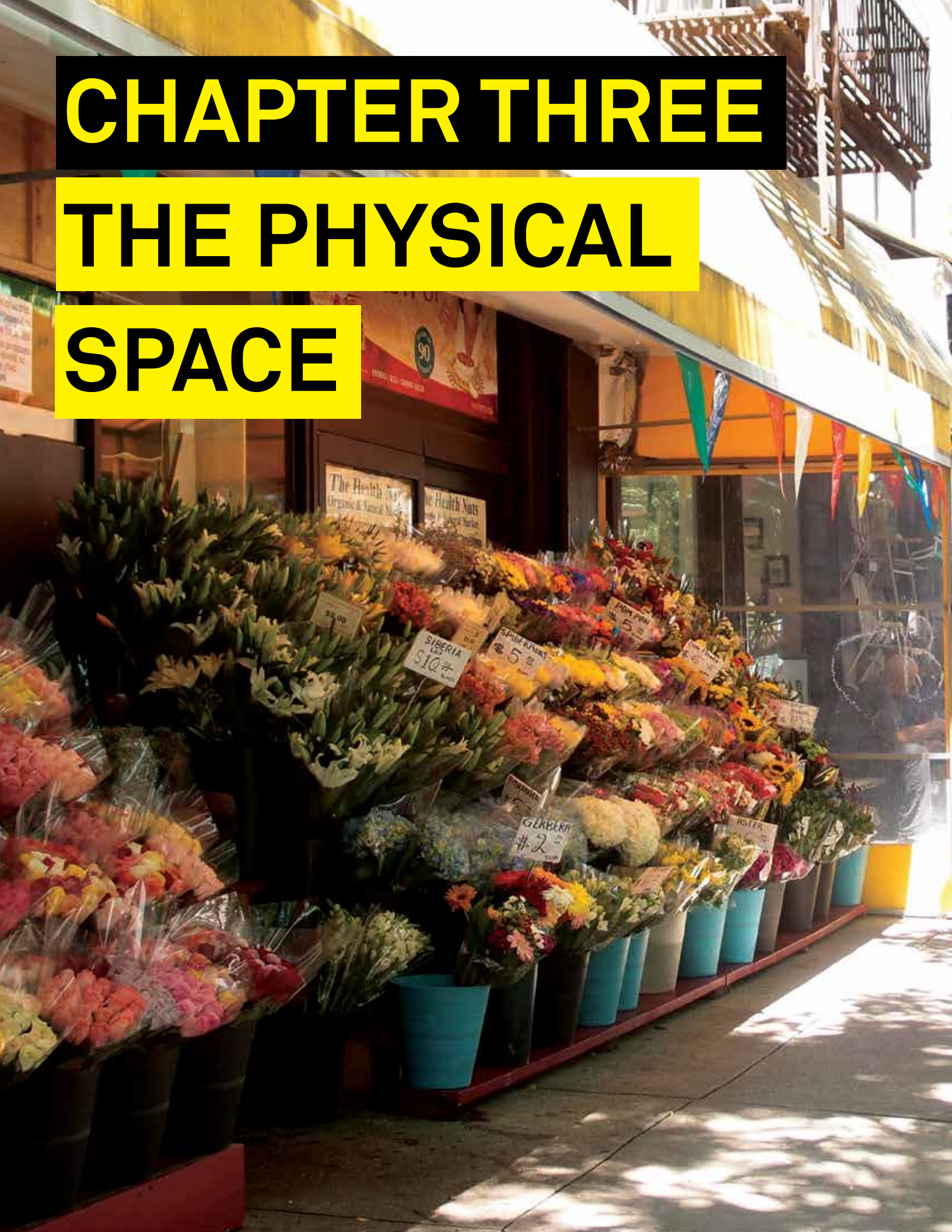
A few sidewalks are destinations in themselves, where people go for a specific kind of experience. They are spaces to promenade, shop, people-watch, dine, socialize, and see and be seen. They can be created, protected, or enhanced as platforms for certain venues, like a restaurant row, an arts district, a sport and entertainment street, a beach or park front, or an urban amusement park.

ADJACENT TO ARTERIAL ROADS

Sidewalks on arterial roads often facilitate longer walks between origin and destination points, and are located next to fast-moving vehicular traffic. The clear path where the pedestrian walks might be set back from the travel lane, protecting pedestrians with a planted buffer. These longer walks are usually less populated with pedestrians, and as they are generally longer, providing intermittent seating opportunities for people to stop and rest can help encourage active use.

CHAPTER THREE

THE PHYSICAL SPACE



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PHYSICAL SPACE

The previous chapters considered some of the less tangible contributors to an enjoyable sidewalk experience and the promotion of Active Design. This chapter focuses on the physical space of the sidewalk. Similarly to the previous chapter, in which vertical and horizontal dimensions were broken down into several scales, this chapter considers three contextual scales that impact the overall character of the physical space. These are:

1. The neighborhood context
2. The street typology
3. The sidewalk room

SCALE 1 NEIGHBORHOOD CONTEXT

Within a neighborhood, different sidewalk conditions work together to create a comprehensive pedestrian network, with paths and routes connecting various destinations. While people may need to use public transit or automobiles for longer trips that extend beyond their neighborhoods, street patterns, block scales, and land use decisions can encourage local walking opportunities and inform the overall street hierarchy. Whether the context is in an urban downtown or a suburban development, the option to walk to a local store, playground, park, or other local amenities from an office or home should ideally always be available, without the necessity of a vehicular trip.

When approaching land use policy, consider the origin of most walking trips as well as their destinations, which might include a downtown, a school, a row of local shops or restaurants, a market, or a park. By understanding, encouraging, and creating such key destinations and desirable routes between them, urban planners and designers can build appropriate networks and hierarchies that take into account the types and numbers of people using the sidewalks. Mapping destinations and the connections between them at the neighborhood scale can help designers keep track of the larger pedestrian network, critique the condition of the existing physical environment, and prioritize which sidewalks to invest in first.

Providing people with destinations to walk to, as well as safe, continuous, and interesting pathways on which to travel, can have an enormous impact on individuals' decision to incorporate physical activity into their daily lives.

"According to a new survey,[54] more than three quarters of us consider having sidewalks and places to take a walk one of our top priorities when deciding where to live. Six in 10 people also said they would sacrifice a bigger house to live in a neighborhood that featured a mix of houses, stores, and businesses within an easy walk."[55]

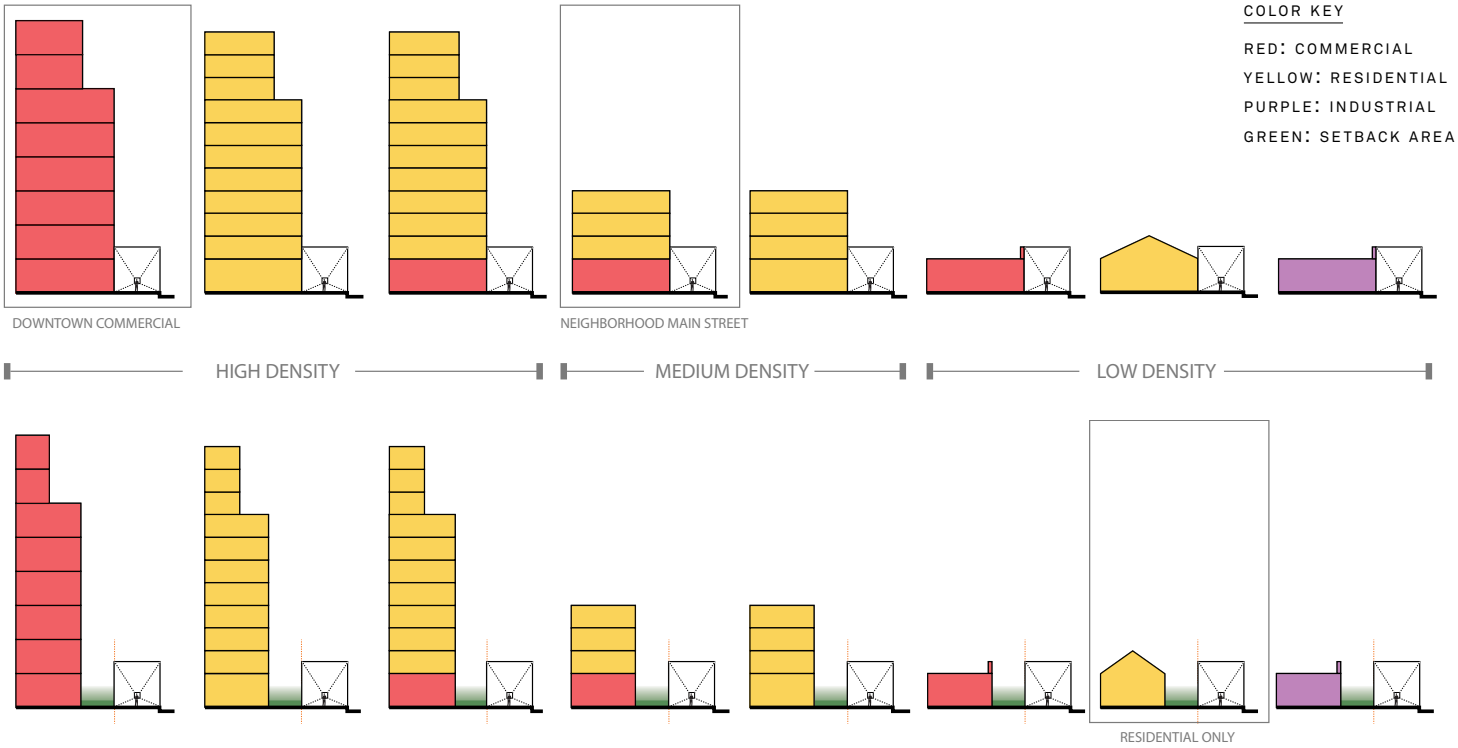
Providing people with destinations to walk to, as well as safe, continuous, and interesting pathways on which to travel, can have an enormous impact on individuals' decision to incorporate physical activity into their daily lives.

SCALE 2
THE STREET TYPOLOGY

Once we understand the larger context surrounding the sidewalk, we can examine the immediate context of the street itself. Each city has numerous street typologies that differ depending on their location within the neighborhood context, their adjacent land use, the height of the buildings, the width of the streets, the overall proportion of the space, and so forth. This scale encompasses the public right-of-way within which the sidewalk sits, and the ways in which the surrounding street environment impacts the sidewalk room.

One of the most influential factors affecting the sidewalk room at this scale is the presence and location of the street wall. When a building sits directly on or very close to a property line that defines one edge of the sidewalk room, the details of its design play a critical role in shaping the pedestrian's experience. When a building is set back, however, the design of the adjacent space and the objects and activities allowed within it also become essential considerations. The proportion of the street wall height to the overall right-of-way width will inform how open or enclosed the street feels, depending on whether the section is tall and skinny, versus low and wide.

Above: **Sidewalk with streetwalls,** below: **sidewalk with setbacks.**

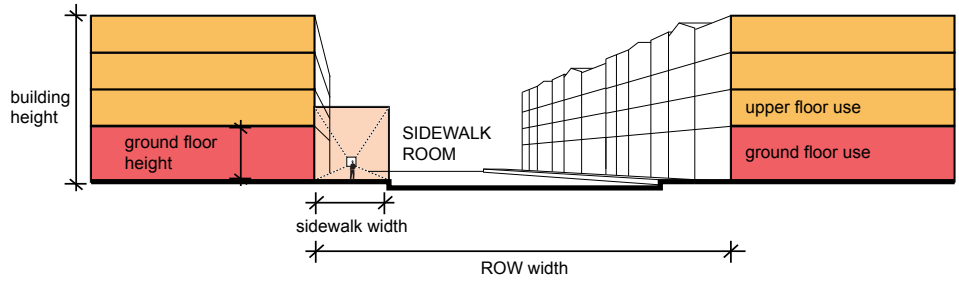


DOWNTOWN COMMERCIAL STREET

This type of street typically has wider sidewalks, with an approximately 10 to 15 foot clear path, wider overall right-of-way, street walls close to and framing the majority of the sidewalk length, taller buildings, and mostly ground-floor commercial uses. It is generally part of a network of streets arranged in a grid, and accommodates a range of pedestrian types, including office workers, transit riders, shoppers, tourists, and residents.

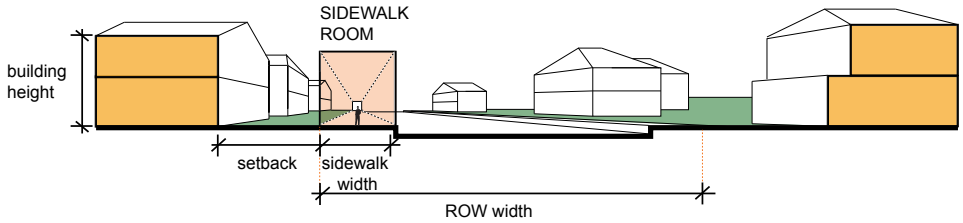
NEIGHBORHOOD MAIN STREET

This type of street usually has sidewalks with anywhere between 5 to 12 foot clear paths. The buildings along it are often between one to four stories high, and in general form a strong street wall, sitting directly on or near the property line. Ground-floor spaces are mostly occupied by commercial uses, with the occasional residential entry. They are often more unique in character and less orderly than the downtown sidewalks, with 20- to 40-foot-wide establishment fronts, on average. The pedestrian population is generally a mix of local residents, schoolchildren, shoppers, and workers.



RESIDENTIAL ONLY STREETS

These streets have the narrowest clear path, of approximately 5 to 7 feet. Pedestrian volumes tend to be much lower, with the occasional resident walking a dog, going for a run, or walking to a local store, transit stop, or school. In older neighborhoods, trees and planting strips often exist on the roadside of the clear path, and in newer areas, this planting sometimes sits on the private property side of the clear path, reducing the buffer between pedestrians and vehicles. Buildings are mostly set back from the property line, causing front yard planting, fencing, and car parking to become more dominant than the building wall.



SCALE 3
THE SIDEWALK ROOM

Ground Plane

Roadside

Building Wall

Canopy

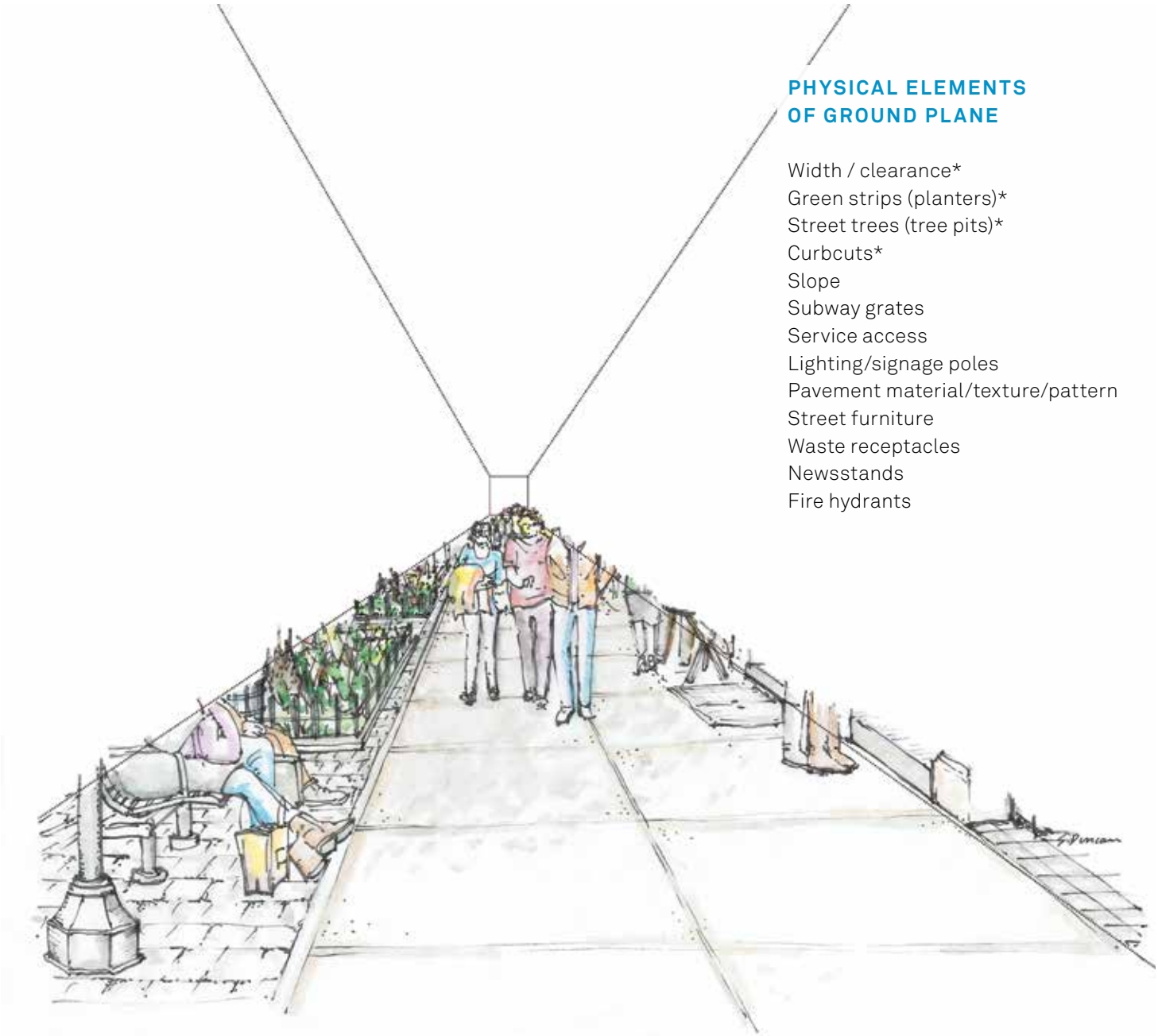
After an understanding of the larger neighborhood context and immediate adjacencies, the next scale to consider is the sidewalk room. As we mentioned in the introduction to this study, our methodology has been to think of the sidewalk as a three-dimensional envelope within which the pedestrian moves, defined by varying degrees of permeability and transparency that affect the way we perceive it. We can dissect the sidewalk room into four planes, each of which helps us grapple with the complex interaction of players, policies, and physical elements shaping the pedestrian experience of the sidewalk. While separating the planes is helpful for delving into the details of each of these elements, there are also many overlaps. The pedestrian never experiences a single plane in isolation: each plays a critical role in the sidewalk room's overall composition. For the purpose of this investigation, however, the details and roles of each plane have been analyzed individually.

Judging from the pedestrian perspective, the sidewalk is conceptualized as a room with four planes.

The following pages will break down this illustration into its four planes, and identify some of they key physical elements that exist within each one.

PLANE 1
THE GROUND PLANE

This plane is the most commonly considered aspect of the sidewalk—and rightly so. Without it, the sidewalk would not exist. An adequate clear path and slope should make the sidewalk accessible for multiple users. The materials used, and their ease of maintenance, drastically impact the sidewalk's aesthetic while also affecting its safety and navigability. The nature of the area closest to the building wall or private property line depends on the presence of entryways, sidewalk cafes, signage, overspill from stores, front yard fencing, and planting. This portion of the ground plane can provide an interesting edge to the clear path, and it sees a good deal of pedestrian traffic, with people entering and exiting buildings and pausing to look in windows. The roadside zone of the ground plane often contains planting and street furniture like trashcans, benches, newsstands, subway grates, the bases of lighting and signage poles, and tree pits and tree trunks. When trees are placed in planting strips on this side of the sidewalk, they should ideally be at least five feet wide to ensure the plants' survival.



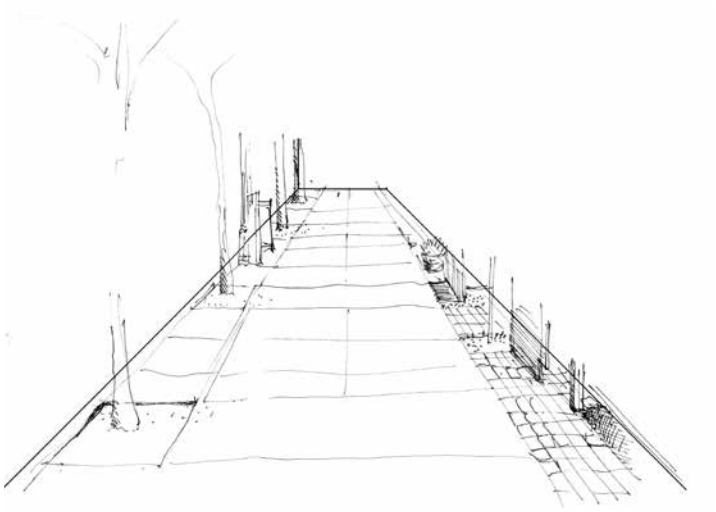
PHYSICAL ELEMENTS OF GROUND PLANE

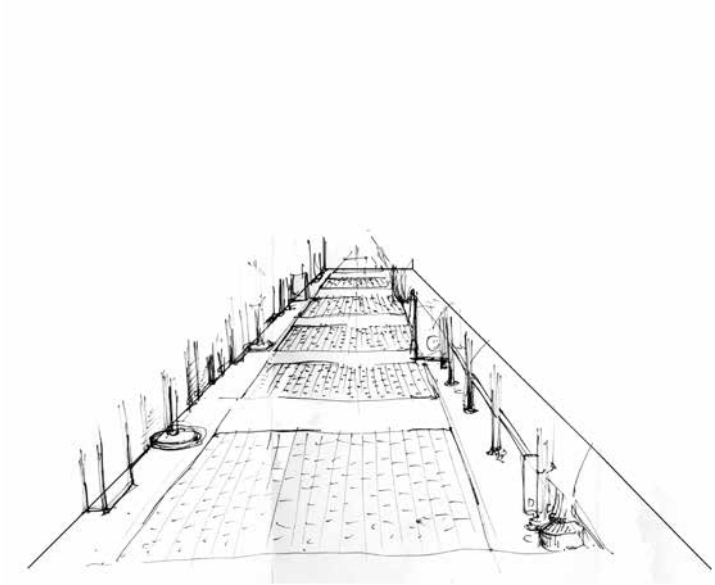
Width / clearance*
Green strips (planters)*
Street trees (tree pits)*
Curbcuts*
Slope
Subway grates
Service access
Lighting/signage poles
Pavement material/texture/pattern
Street furniture
Waste receptacles
Newsstands
Fire hydrants

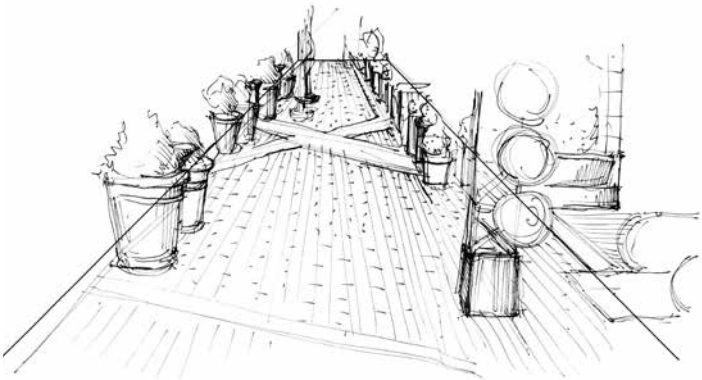
** These elements are affected by zoning and are discussed in detail in chapter 4*

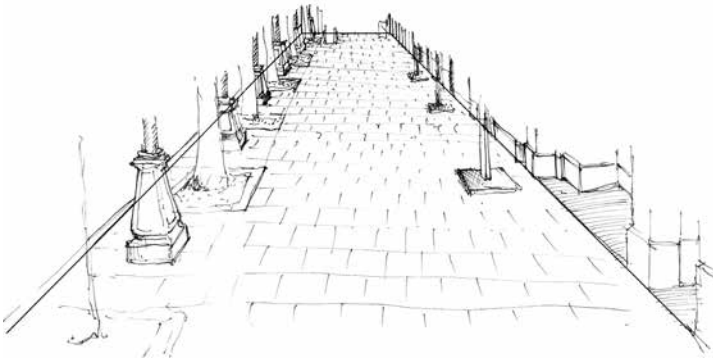
THE GROUND PLANE: **DOWNTOWN COMMERCIAL**

Often between 15-20' wide, with clear paths for substantial pedestrian flows and a variety of activities. The roadside edge often contains tree pits, street signs, light poles, and other street furniture. The building side edge is typically defined by outdoor uses, entrance recesses, planters, and building signage.
Locations, clockwise from top left: Portland (Adler Street), Nashville (Lower Broadway), Seattle (5th Ave), Louisville (4th Street Live!).



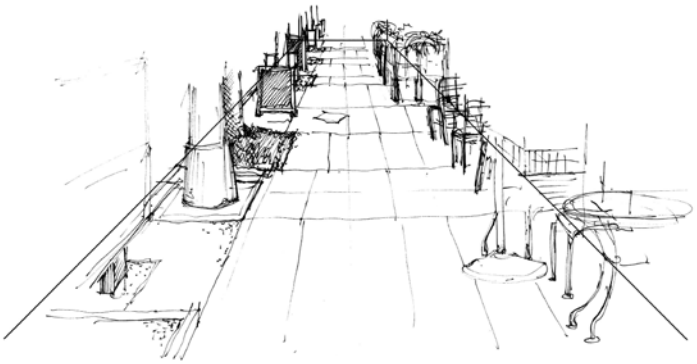


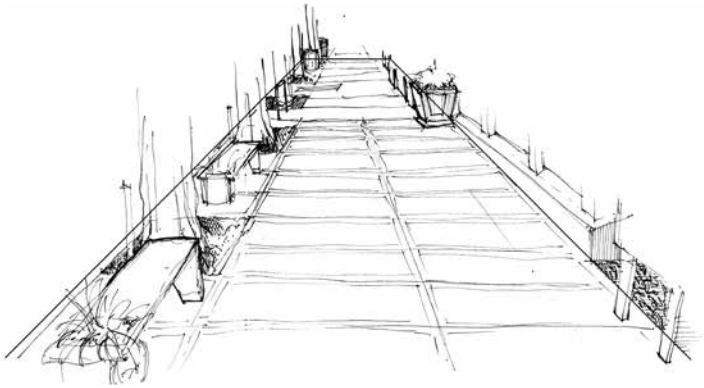


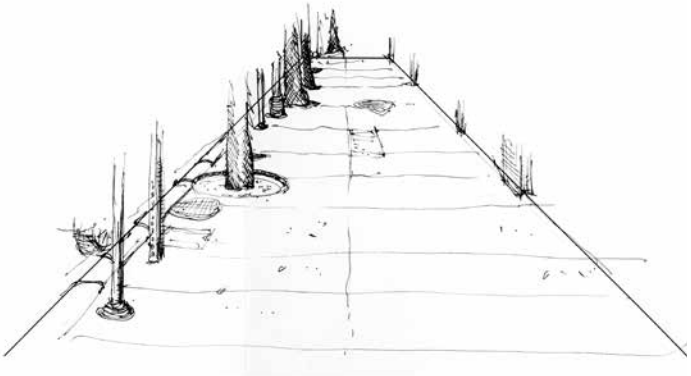


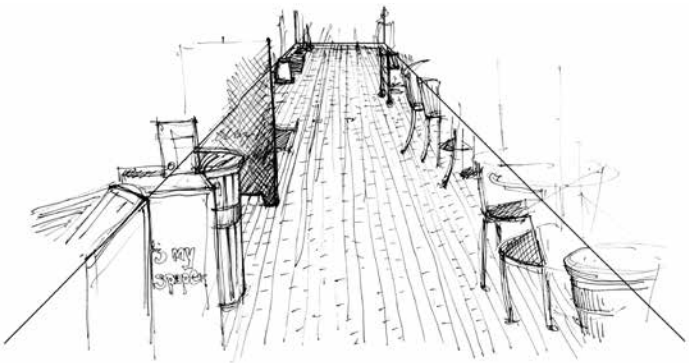
THE GROUND PLANE: **NEIGHBORHOOD MAIN ST**

Clear paths are generally between 5-12' wide. Tree pits, planters, lighting poles, signage and street furniture fill the roadside edge, while outdoor uses, entrance recesses, and occasional stoops or planting define the building wall edge of the ground plane. *Locations, clockwise from top left: Seattle (Queen Anne St), Portland (NW 23rd Street), Birmingham (20th Street), Nashville (Hillsboro).*



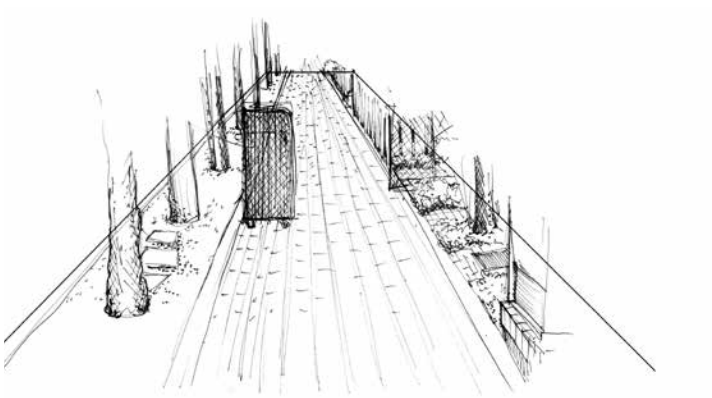


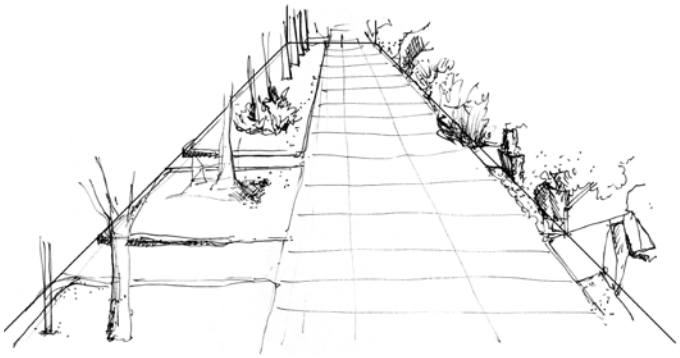


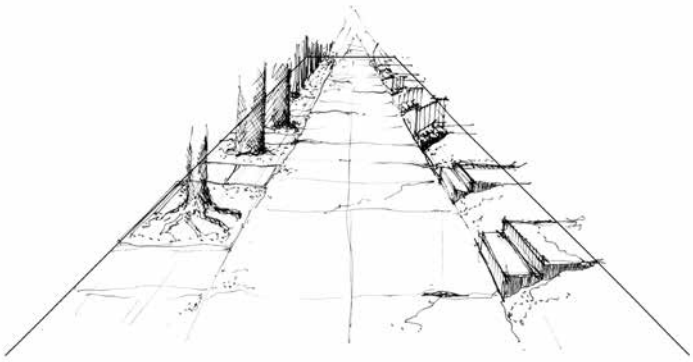


THE GROUND PLANE: **RESIDENTIAL**

Clear paths are generally between 5-7' wide. Wider, continuous planting strips typically sit on the roadside edge of the clear path. The base of fences, gates, front yard landscaping, and stoops in the private property define the building edge side of the clear path. *Locations, clockwise from top left: Nashville (Germantown), Portland (SE Ladd St), Birmingham (Clairmont Street), Seattle (Lydia Street).*

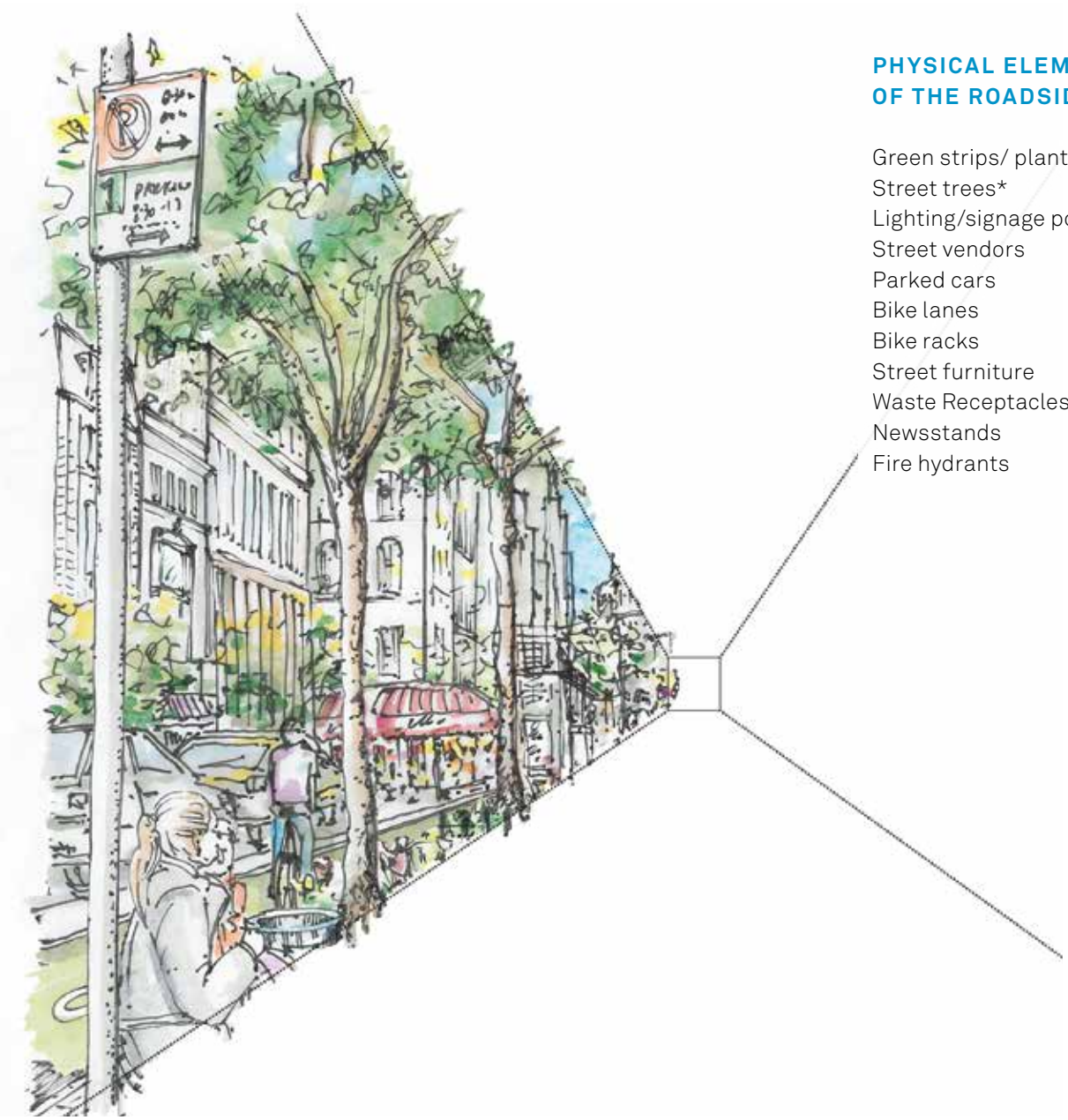






PLANE 2
THE ROADSIDE PLANE

The roadside vertical plane can have a great deal of depth, adding a number of layers to the pedestrian experience. This plane is defined primarily by the rhythm of vertical physical elements like tree trunks and light poles that line the immediate edge of the sidewalk. The more closely these are spaced, the more prominent and dense the first layer becomes. The second layer in this plane is shaped by the immediate roadside adjacency, and varies greatly depending on whether it is a bike lane, a parking lane, or a moving travel lane. Parked cars and other static objects can act as buffering elements to moving vehicles, and can in some cases help increase the intimacy of the sidewalk experience. Finally, in the distance, the street wall, buildings, and trees across the road add a third layer of depth. While this layer often serves as the background of the sidewalk experience, the absence of vertical elements in the foreground can greatly amplify the effect of what's happening on the other side of the street. The overall volume and speed of traffic also have a major impact on how this plane is experienced.



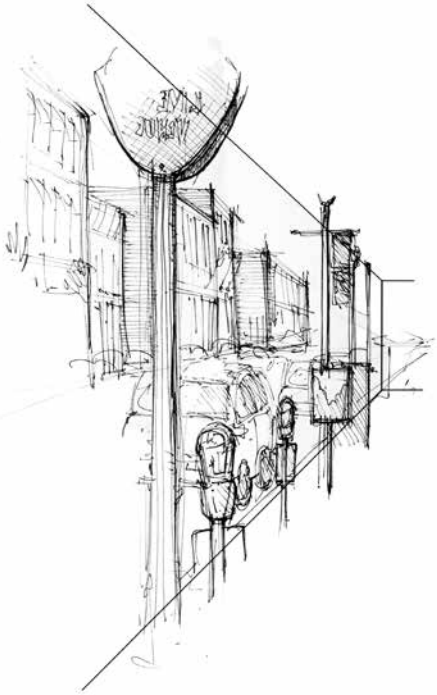
PHYSICAL ELEMENTS OF THE ROADSIDE PLANE

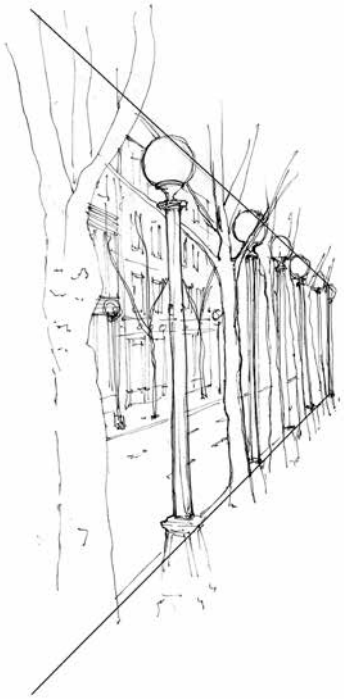
Green strips/ planters/ tree pits*
Street trees*
Lighting/signage poles
Street vendors
Parked cars
Bike lanes
Bike racks
Street furniture
Waste Receptacles
Newsstands
Fire hydrants

** These elements are affected by zoning and are discussed in detail in chapter 4*

ROADSIDE: **DOWNTOWN COMMERCIAL**

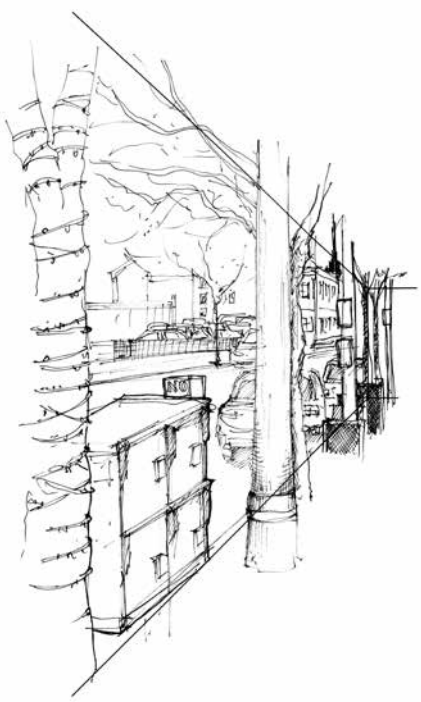
Generally contains many vertical elements, spaced closely together. Street lights, trees, and signage define the primary plane; bus or parking lanes when they exist define the secondary plane. When there are less vertical elements on the sidewalk, the streetwalls across the road become more prominent. *Locations, clockwise from top left: Portland (Adler Street), Nashville (Lower Broadway), Seattle (5th Ave), Louisville (4th Street Live!).*





ROADSIDE: **NEIGHBORHOOD MAIN ST**

Often less orderly than downtown commercial sidewalks, but still defined by the spacing of street trees, furniture, signage, parking meters and lighting poles. Parking lanes typically sit directly adjacent to the sidewalk, and since buildings across the street are usually lower, their roof lines become more apparent in the background. *Locations, clockwise from top left: Seattle (Queen Anne St), Portland (NW 23rd Street), Birmingham (20th Street), Nashville (Hillsboro).*

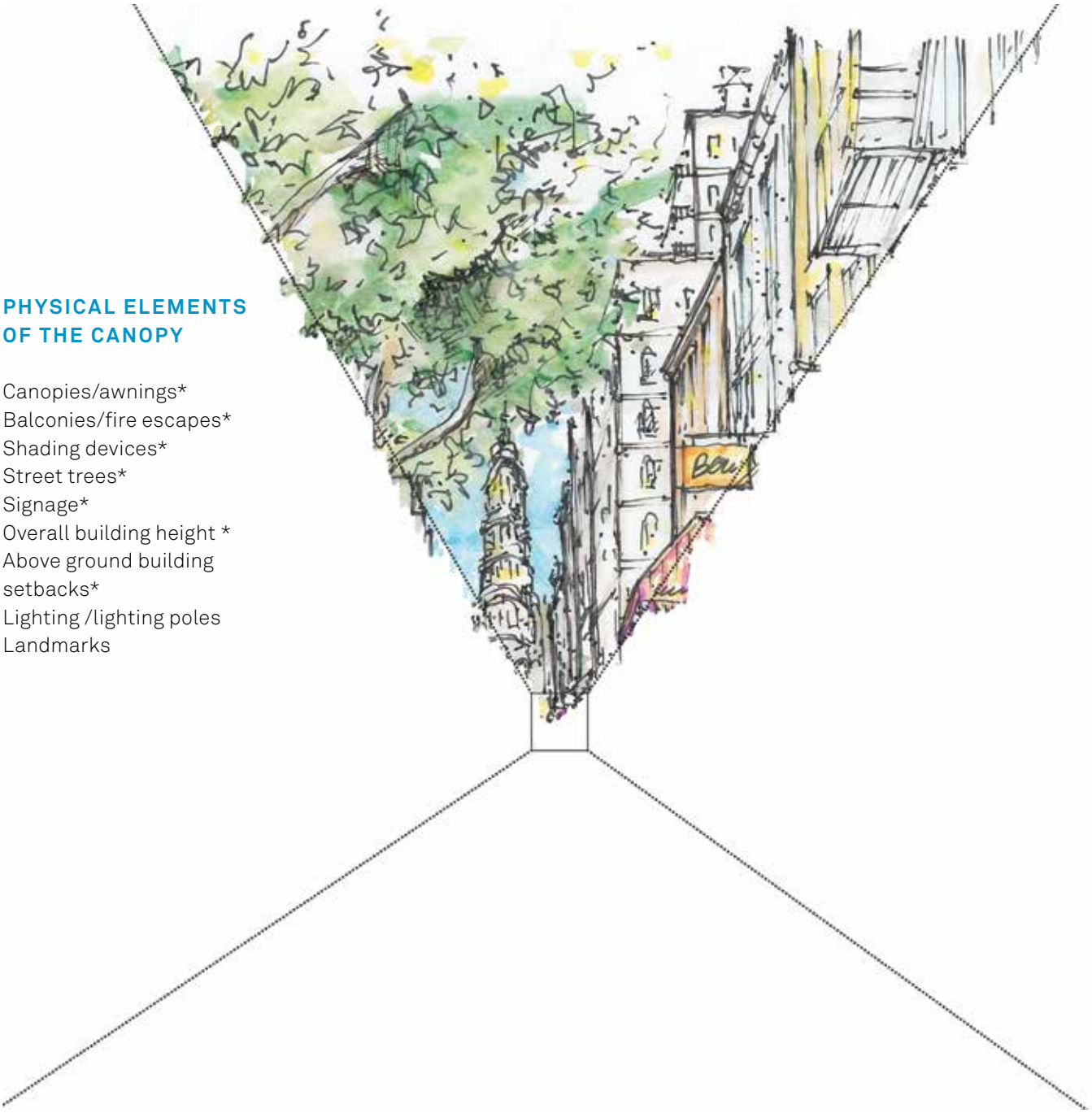


ROADSIDE: **RESIDENTIAL**

With less signage and street lighting, the tree trucks become the primary defining feature, particularly when they are large and spaced closely together. When trees are young or further apart, the front yard planting, trees, and buildings across the street become more prominent. *Locations, clockwise from top left: Nashville (Germantown), Portland (SE Ladd St), Birmingham (Clairmont Street), Seattle (Lydia Street).*

PLANE 3
THE CANOPY

The canopy or sky plane is the area pedestrians perceive as overhead. Zoning regulations play a big role in the composition of the canopy. In most cases, the canopy plane is defined by the amount of sky apparent to pedestrians. In higher density areas, however, building walls and cornice lines from both sides of the street cut into it, along with awnings, canopies, balconies, signage, fire escapes, and other projecting elements. Sidewalks lined with trees provide a strong and diverse canopy filled with tree branches or heavy foliage, and change seasonally. The number of elements that project into this plane affects the sidewalk's overall sense of enclosure as well as the amount of shade and shelter it provides for pedestrians in extreme weather conditions. Distant landmarks are often apparent in this plane.



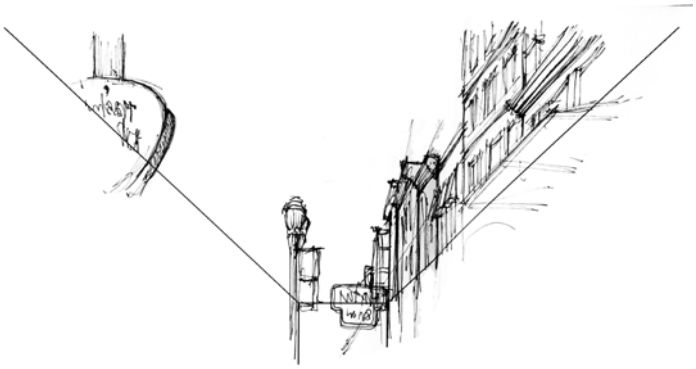
PHYSICAL ELEMENTS OF THE CANOPY

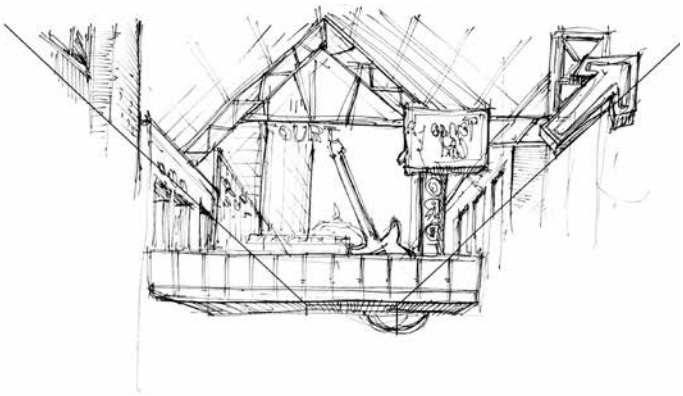
Canopies/awnings*
Balconies/fire escapes*
Shading devices*
Street trees*
Signage*
Overall building height *
Above ground building setbacks*
Lighting /lighting poles
Landmarks

** These elements are affected by zoning and are discussed in detail in chapter 4*

THE CANOPY: **DOWNTOWN COMMERCIAL**

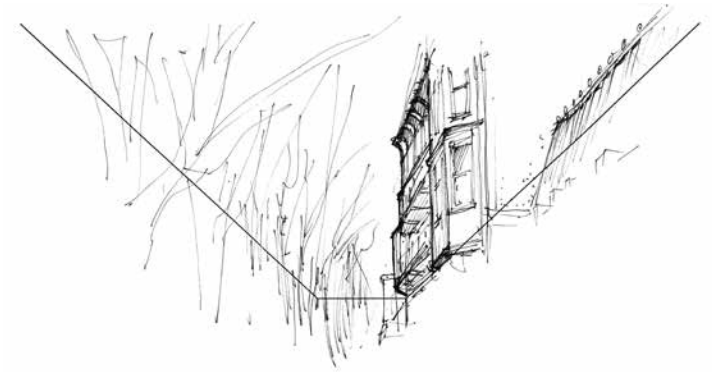
The canopy changes seasonally with tree foliage and the top of streetlights become evident. Typically taller buildings exist, so cornice lines at building setbacks become prominent. Awnings, balconies, fire escapes and signage can protrude into this plane, and unique tower-tops or landmarks often appear in the distance. *Locations, clockwise from top left: Locations: Portland (Adler Street), Nashville (Lower Broadway), Seattle (5th Ave), Louisville (4th Street Live!).*





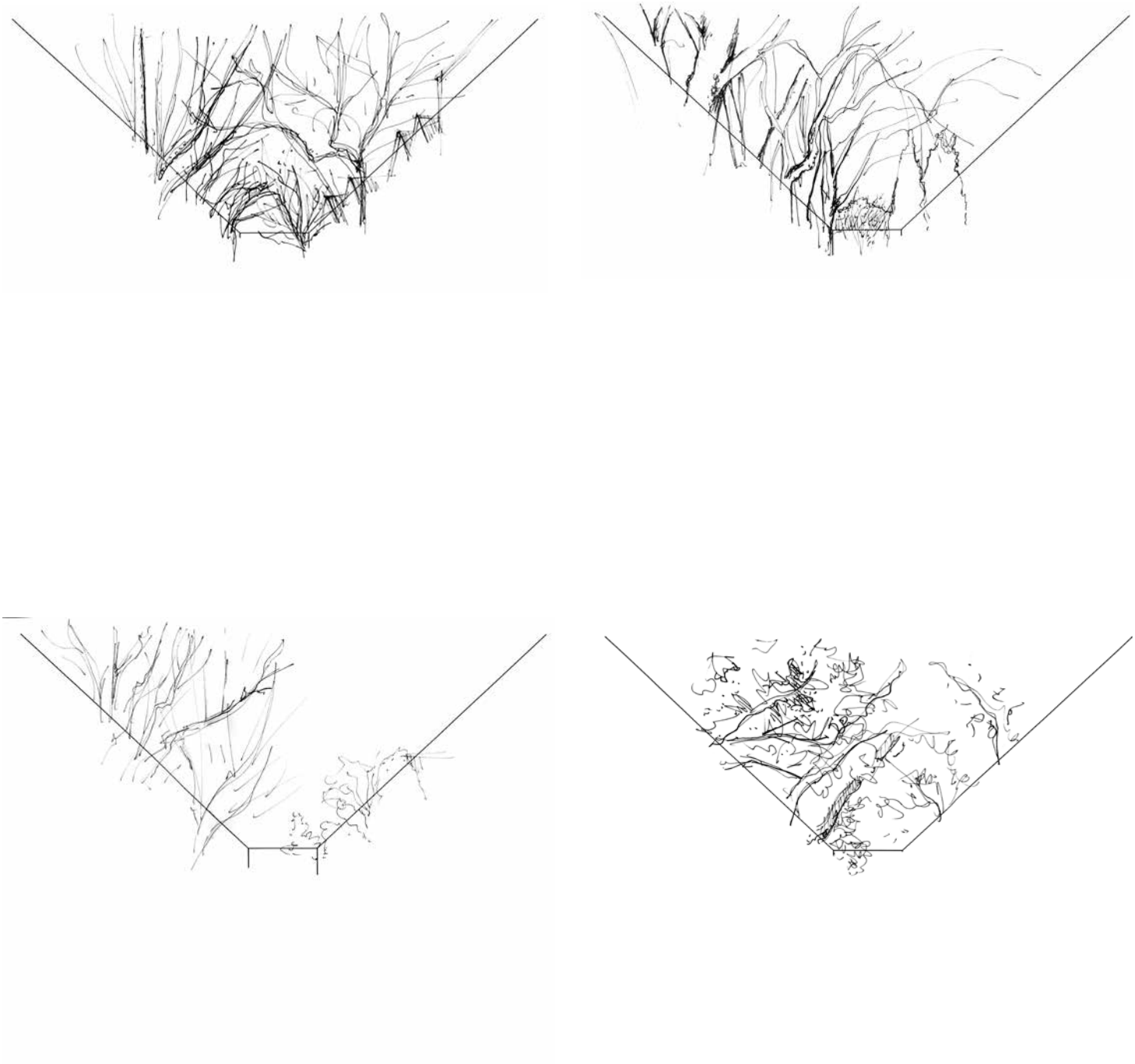
THE CANOPY: **NEIGHBORHOOD MAIN ST**

Often less orderly than downtown commercial sidewalks, but can still be defined seasonally by tree foliage. The tops of light poles, commercial signage, awnings, shading devices and building cornice lines influence how much sky is visible, and how enclosed the sidewalk feels. *Locations, clockwise from top left: Seattle (Queen Anne St), Portland (NW 23rd Street), Birmingham (20th Street), Nashville (Hillsboro).*



THE CANOPY: **RESIDENTIAL**

With lower buildings set back from the property line, this plane is almost entirely defined by tree tops and visible sky. This changes seasonally with the foliage density, and in some cases rooflines appear from the building side plane. *Locations, clockwise from top left: Nashville (Germantown), Portland (SE Ladd St), Birmingham (Clairmont Street), Seattle (Lydia Street).*

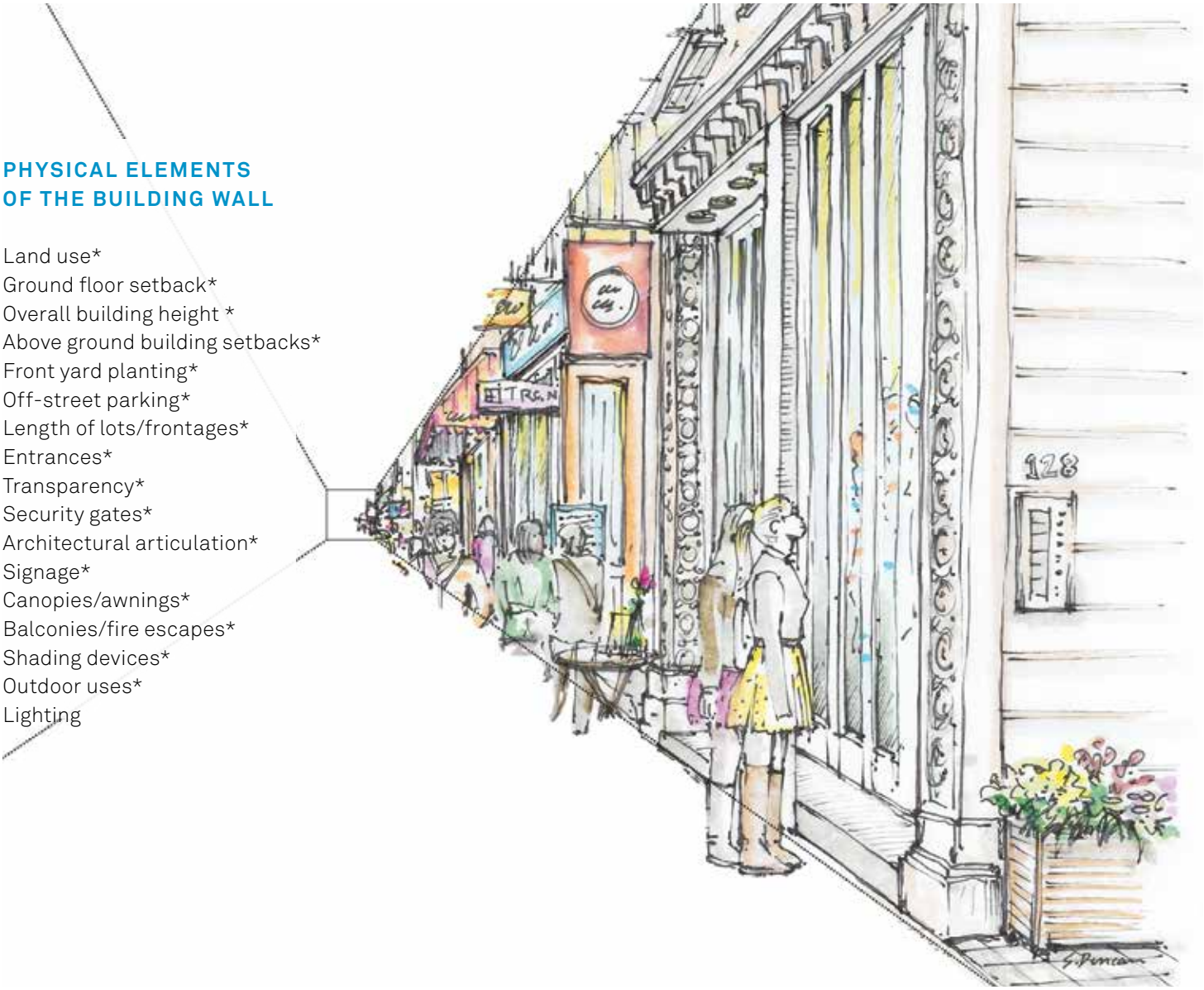


PLANE 4
BUILDING WALL PLANE

The building wall plane is the point at which the sidewalk meets the private property line. Zoning regulations typically have the greatest impact on this plane. The position of the building wall plane—whether a building is set back or sits directly on the property line—can greatly affect the sidewalk experience. For buildings that sit on the property line, forming a street wall, the vertical rhythm, depth, and textures of the façades help create interest and break down the building mass to the pedestrian scale. Multiple entrances spaced closely together, with people entering and exiting buildings at regular intervals, can help ensure that a sidewalk is active and safe. The building wall plane's level of transparency helps define the degree to which inside ground floor uses are apparent from the sidewalk. Signage and awnings affect the upper portion of this plane, while active uses like sidewalk cafés help define its lower portion. For buildings set back from the sidewalk line, the building wall still has an impact, but what occurs in this setback zone also contributes to the pedestrian experience. Areas with smaller setbacks often feature plantings, cafés, signs, trashcans, stoops, and other street furniture; zones marked by larger setbacks with curb cuts tend to contain parked cars, larger trees or other plantings, and front yard furniture.

PHYSICAL ELEMENTS OF THE BUILDING WALL

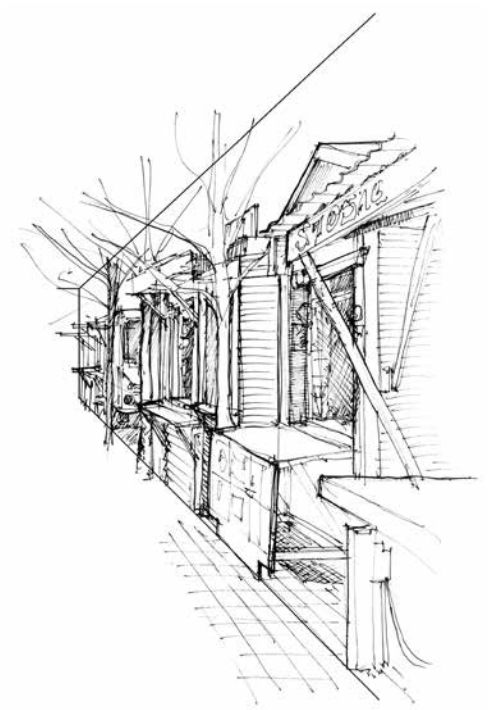
Land use*
Ground floor setback*
Overall building height *
Above ground building setbacks*
Front yard planting*
Off-street parking*
Length of lots/frontages*
Entrances*
Transparency*
Security gates*
Architectural articulation*
Signage*
Canopies/awnings*
Balconies/fire escapes*
Shading devices*
Outdoor uses*
Lighting

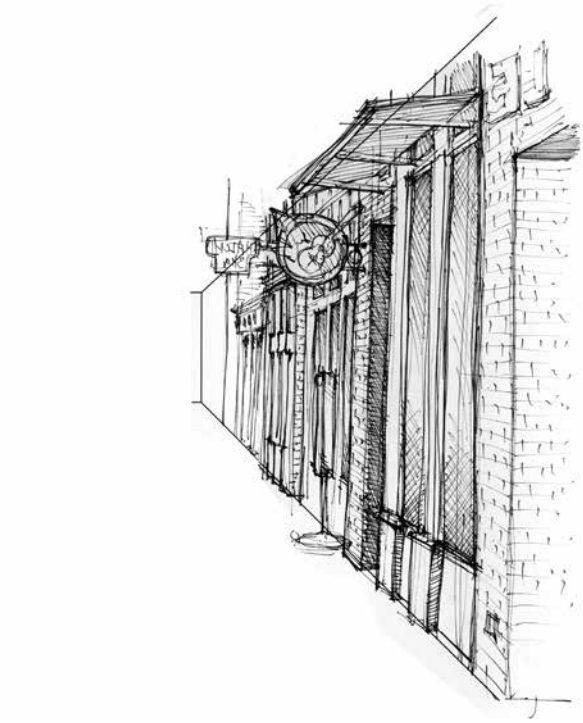


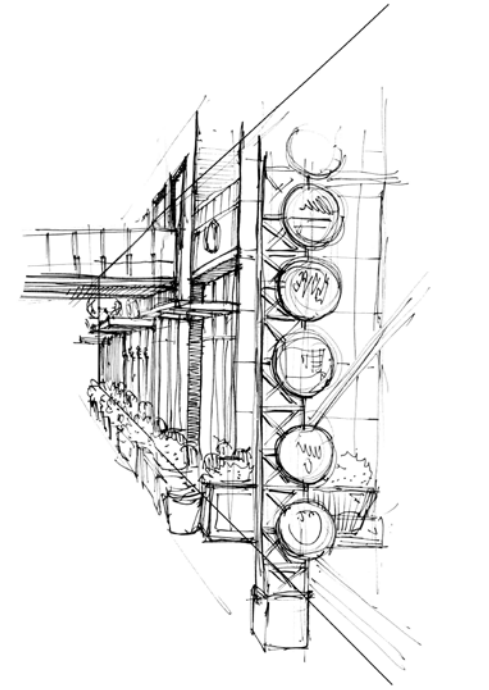
** These elements are affected by zoning and are discussed in detail in chapter 4*

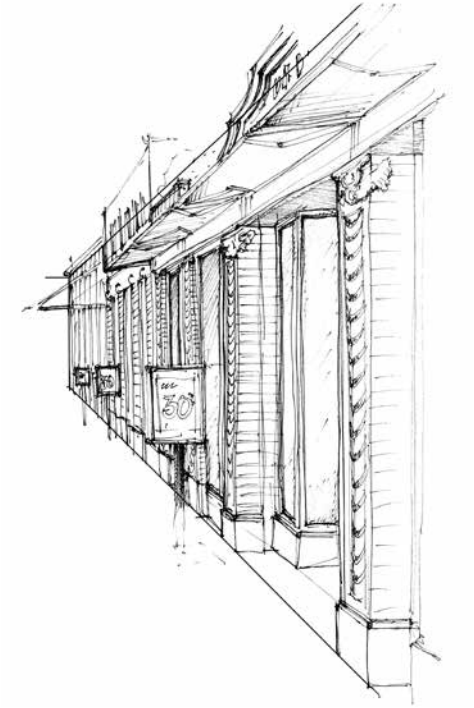
THE BUILDING WALL: **DOWNTOWN COMMERCIAL**

Generally defined by a strong street wall with frequent commercial or residential entrances. Medium to high levels of transparency allow pedestrians to see into the adjacent ground floor spaces. Rich and varied architectural articulation keep the walk interesting, and signage, canopies and outdoor uses can provide continuous variety. *Locations, clockwise from top left: Portland (Adler Street), Nashville (Lower Broadway), Seattle (5th Ave), Louisville (4th Street Live!).*



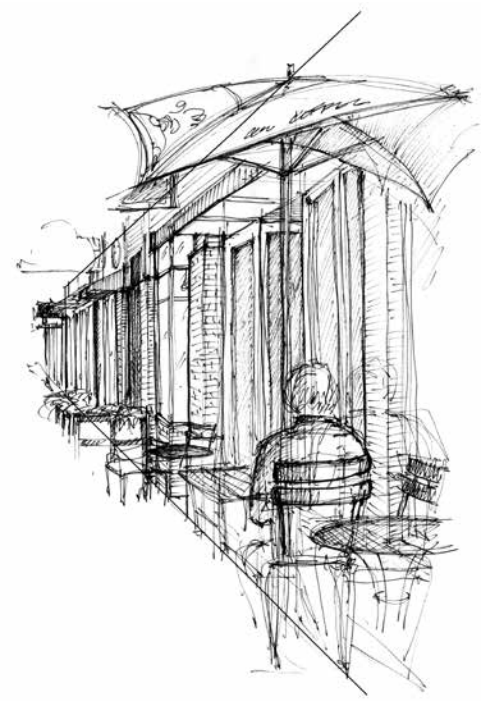


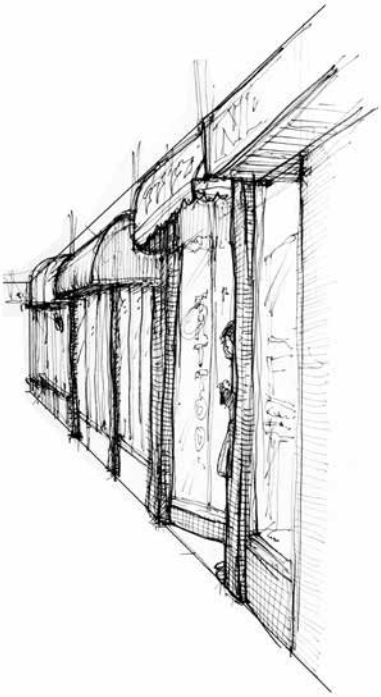




THE BUILDING WALL: **NEIGHBORHOOD MAIN ST**

Often unique in character and varied in design, this typology is still typically defined by a strong street wall. Frequent entrances and medium transparency levels ensure an engaging experience for the pedestrian. Awnings, signage, lighting, planters, stoops and architectural detailing are important in contributing to continuous variety. *Locations, clockwise from top left: Seattle (Queen Anne St), Portland (NW 23rd Street), Birmingham (20th Street), Nashville (Hillsboro).*





THE BUILDING WALL: **RESIDENTIAL**

Buildings are typically set back from the property line, spaced further apart, and have lower transparency levels. The elements sitting in front of the buildings, such as front yard planting, parking, fences, stoops, porches, and trash receptacles become important considerations, while maintaining an active, safe and engaging sidewalk experience. *Nashville (Germantown), Portland (SE Ladd St), Birmingham (Clairmont Street), Seattle (Lydia Street).*

UNDERSTANDING THE MULTIPLE PLAYERS

A number of public and private parties are key players in shaping or regulating the physical elements within all four planes of the sidewalk room:

- **Private property owners and tenants** are responsible for the placement of their personal possessions within their front yards and inside their windows, their entrance spaces, and the individual character of the building wall plane. They are also frequently required to build and maintain the sidewalk in front of their property, ensuring that it is clear of tripping hazards, trash, and snow.

- **Designers and architects** are responsible for how interesting and engaging the building wall plane is to walk past—how frequently entrances are spaced, the design of the windows, the architectural articulations that cast light and shadow and add depth, the materials, the landscaping, and many other design factors. These are all decisions made within the allowable building envelope, and while they are more typically associated with the building design, they drastically impact the sidewalk experience.

- **Departments of transportation** often regulate sidewalk widths and clear paths in conjunction with overall right-of-way. These departments determine whether it is a traffic, parking, or bike lane on the roadside plane; ensure that tree pits are adequately sized so that trees survive; and may approve the design and location of street furniture and way-finding. They typically provide standards for the private property owner to use in building a sidewalk. Transportation departments have the most impact on the ground and roadside planes.

- **Departments of planning** can occasionally influence overall sidewalk widths, but are often responsible for the overall allowable building heights, setback dimensions (both at the street level for wide sidewalks or yards and above for access to light and air), and the locations where curb cuts are allowed. Planning departments influence the type of ground-floor uses buildings contain and how many entrances there may be, and may also regulate the transparency of street walls. They also typically outline permitted obstructions that are allowed to project into setback areas, within the private property. Planning departments have the most impact on the building wall plane, the roof plane, and the ground plane.

- **Departments of parks** are often in charge of maintaining street trees and bioswales, and mostly impact the ground and roadside planes.

- **Departments of sanitation** are generally in charge of trash collection and recycling, and impact the overall cleanliness of and potential temporary obstacles in the sidewalk room.

- **Departments of environmental protection** often manage the storm water that runs onto sidewalks through curbside drains.

- **Departments of building** often regulate what can project beyond a building or private property line into the public right-of-way.

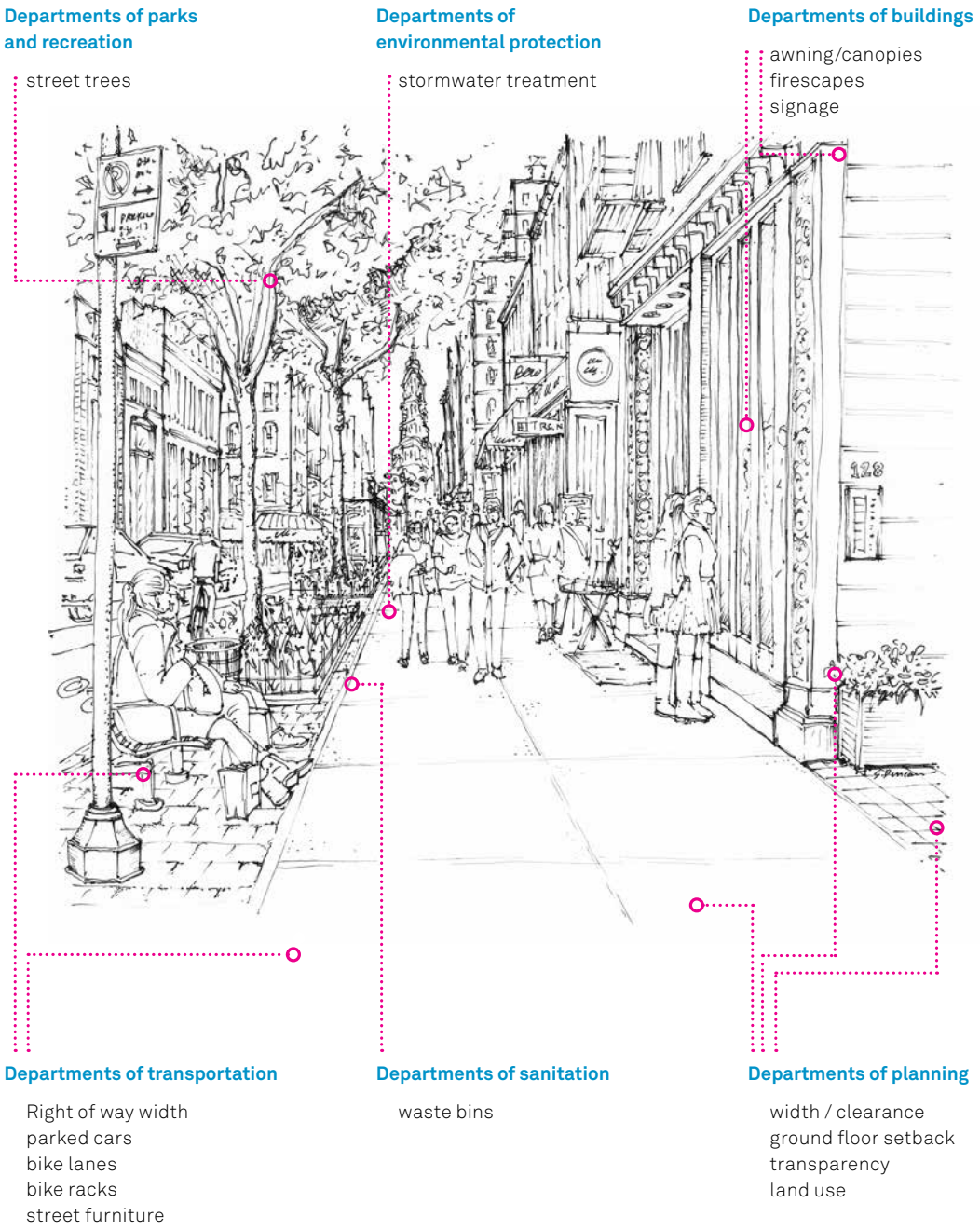
- **Transit authorities** can provide transportation infrastructure needed to access buildings.

- **Departments of people with disabilities** work to assure that the disabled community is represented in programs and policies that address the needs of people with disabilities. Safe and accessible sidewalks are fundamental to ensuring the mobility of those with diminished abilities.

- **Departments of consumer affairs** and other agencies regulate sidewalk cafés by issuing licenses and enforcing compliance with legislated size and location requirements that ensure adequate clear paths. Permits for food carts and other temporary activities are also issued.

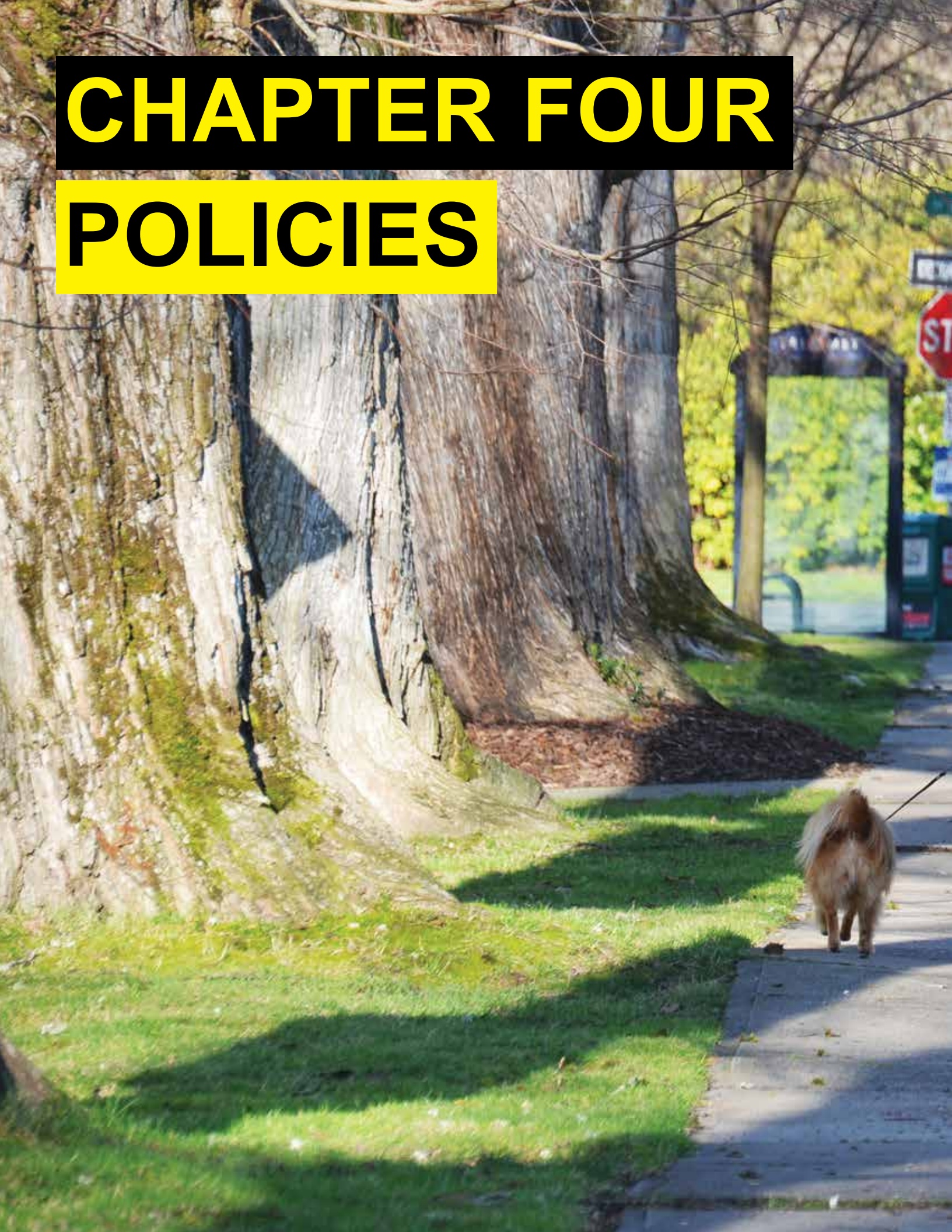
- **Landmark agencies** can be responsible for identifying and designating city landmarks. The preservation of historic buildings and their façades in a safe and maintainable manner can play a big role in defining the character of a street and sidewalk for pedestrians.

The roles and responsibilities of different players will vary from one location to another, but when breaking down the complexities of the sidewalk room in any location, it quickly becomes evident that many people have a stake in shaping an active and healthy sidewalk room.



CHAPTER FOUR

POLICIES

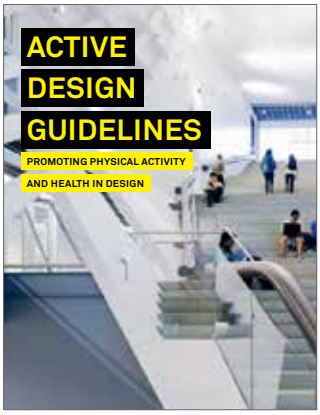


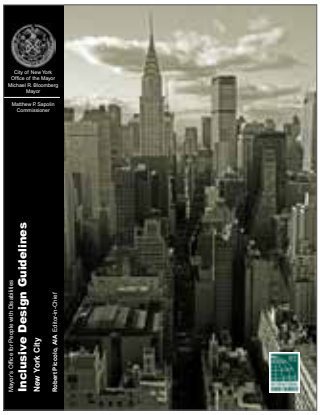
OP

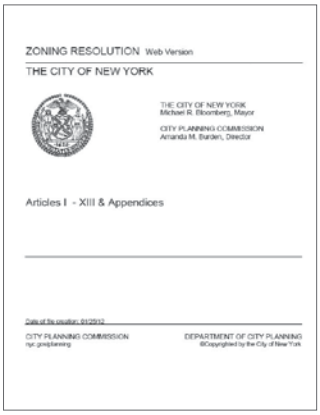
POLICIES

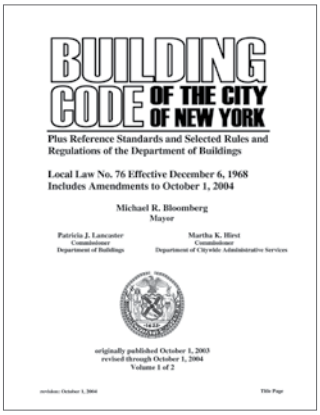
Public policy can play a significant role in promoting the goals of Active Design and healthy living. Zoning codes in particular offer a strong way of influencing the outcome of the physical environment. The policy documents shown below, are examples of successful manuals and policies that are the result of multiple agencies collaborating together to produce a results that meet varying goals. While these documents have been produced by stakeholders with different interests, each has a role to play in promoting healthy and sustainable sidewalks.

Examples of successful policy documents and manuals from the City of New York that effect sidewalk design.









UNDERSTANDING THE POLICY TOOLKIT:

This section will highlight zoning codes from around the county that mandate, incentivize or simply encourage particular changes to the built environment. It will describe how zoning can be used as a tool to provide design guidelines or to remove impediments to best design practices. Understanding how to develop zoning tools and how to strike a good balance between over- and under-regulation is important in creating an active and desirable sidewalk experience.

● ALLOW

The elements allowed in a zoning ordinance shape individual buildings, neighborhoods, and the larger urban fabric. Zoning may set a template of uses or define building bulk envelopes for built form. Features or approaches can be allowed when it is not appropriate to mandate them. This enables such elements to be incorporated in situations where they make sense without imposing a burden where they do not. This approach is most likely to be effective when the logic of incorporating the feature is apparent to the developer, in that it might provide revenue or enhance the quality of the development. Some examples include allowing, where appropriate, retail uses on the ground floor, awnings and signage in certain areas, a sidewalk café, or an entry recess within a street wall. In most cases, however, the choice to execute a certain practice may have embedded restrictions. For example, if a retail store chooses to provide an awning that is not mandated, it must comply with certain requirements, such as maximum projections, minimum height clearance over the sidewalk, and amount of allowable signage. Regulations that are allowances generally contain certain parameters that consider current best practices and can provide for a great level of flexibility and diversity in the developments they produce.

◐ INCENTIVIZE

Incentives can be used to encourage desired practices that are not appropriate or practical to require of all buildings or neighborhoods. When features or approaches entail additional costs or sacrifices, and when they provide clear benefits that would otherwise be difficult to achieve, it may be appropriate to provide incentives. The form and size of the incentive should consider the costs and benefits associated with providing the feature. Some cities, for example, incentivize fresh food supermarkets in neighborhoods of need, while others give density bonuses for public plazas, amusement or arts uses in certain districts, or the inclusion of affordable housing within developments. These incentives generally come with requirements or conditions that must be followed, ensuring, for example, that if a public plaza is provided, it is of a certain design standard, or that a supermarket contains a certain amount of space for fresh produce within its footprint. With zoning incentives, it is also important to consider the interactions between multiple competing incentives available for the same areas, and to prioritize among them.

○ MANDATE

Mandates are requirements. A proposed development must comply with these requirements or else it cannot be built. Features or approaches can be mandated when they are appropriate to apply to all buildings. This generally necessitates that they can be reasonably accommodated in a variety of situations, with limited additional costs or tradeoffs. Examples include minimum planting standards for front yards, minimum levels of transparency,

locating a building at the lot-line or at the sidewalk, and requiring ground-floor commercial use. Most cities mandate minimum design and spatial standards to create usable spaces within the built environment.

RELIEVE

This category, for removing a penalty, is somewhat different than the others. It can be combined with other zoning tools to either allow or mandate a feature. For instance, if a requirement for bicycle parking in new buildings is instituted, it may be appropriate to exempt these bicycle parking spaces from floor area calculations, so as to remove a perceived drawback to meeting the bicycle parking requirement. Similarly, if a code is amended to require wider fire stairs, zoning could be amended to exempt this additional width from floor area calculations. The impacts of such floor area relief are likely to result in larger overall buildings, which should be considered carefully in relation to the local context.

REMOVE IMPEDIMENT

Sometimes zoning ordinances contain regulations that were adopted long ago and may have become outdated given the current context. Modifying these regulations to allow current best practices can sometimes be the most visible and effective way to shape the built environment. For example, it might be appropriate to update strict requirements for land use segregation and instead allow a mix of land uses within a neighborhood, so that local stores can be developed within walking distance of people's homes. Excessive minimum parking regulations or unduly restrictive density or height regulations in areas in close proximity to reliable public transit might impede the potential for the development of walkable neighborhoods. There are emerging practices that encourage economical transportation choices and promote more daily walking trips, like car sharing, which allows residents to rent cars on an hourly basis at accessible locations. Given that such practices did not exist when most zoning ordinances were written, they are not officially defined as a term, and therefore by default may not be permitted in residential parking lots and garages. Identifying impediments in the laws and regulations is a laborious process, but it is entirely necessary to maintaining zoning's usefulness as a tool for achieving the goals of your community.

GUIDE

Zoning ordinances do not contain guiding documents within them, but guidelines can play an important role in supporting or enhancing the goals of certain neighborhood rezonings, regulations, or projects. Providing guidelines can be appropriate when it is not suitable or possible to regulate certain practices. They can help to communicate the intent or general idea about a place or project, while maintaining the flexibility for creative interpretation. Guidelines can be produced or issued by many different organizations, and often help to communicate general principles, strategies, or desirable courses of action. They are not mandatory but can assist in decision making processes and provide parameters while still encouraging variety.

PHYSICAL ELEMENTS

This chapter will further examine the physical elements of the sidewalk room that can be regulated through zoning codes. Each physical element in this chapter is examined in three ways. First, a basic diagram is shown from the perspective of the sidewalk room which includes the element and the key metrics with which it is regulated. Next, photograph examples are shown to demonstrate the variety of contexts in which each physical element was examined. Finally, this chapter examines how a selection of these physical elements and considerations can be regulated through zoning specifically.

Although this chapter separates each physical element in order to understand the particular regulatory tool by which it is regulated, in practice they should not be considered in isolation. Each element should be considered in the context of the other elements.

For a complete list of the sampled policies that were reviewed, please refer to the bibliography and to Appendix B of *Shaping the Sidewalk Experience: Tools and Resources.*

A full list of physical elements broken down by each of the sidewalk planes recaps the last portion of Chapter 3: "The Physical Space."

Those in bold are the physical elements shaped by zoning regulations, and are expanded upon in more detail in this chapter.

PHYSICAL ELEMENTS OF THE BUILDING WALL

Land use
Ground floor setback
Overall building height
Above ground building setbacks
Front yard planting
Off-street parking
Length of lots/frontages
Entrances
Transparency
Security gates
Architectural articulation
Signage
Canopies/awnings
Balconies/fire escapes
Shading devices
Outdoor uses
Lighting

PHYSICAL ELEMENTS OF THE ROADSIDE PLANE

Green strips/ planters/ tree pits
Street trees
Lighting/signage poles
Street vendors
Parked cars
Bike lanes
Bike racks
Street furniture
Waste Receptacles
Newsstands
Fire hydrants

PHYSICAL ELEMENTS OF THE CANOPY

Canopies/awnings
Balconies/fire escapes
Shading devices
Street trees
Signage
Overall building height
Above ground building setbacks
Lighting /lighting poles
Landmarks

PHYSICAL ELEMENTS OF GROUND PLANE

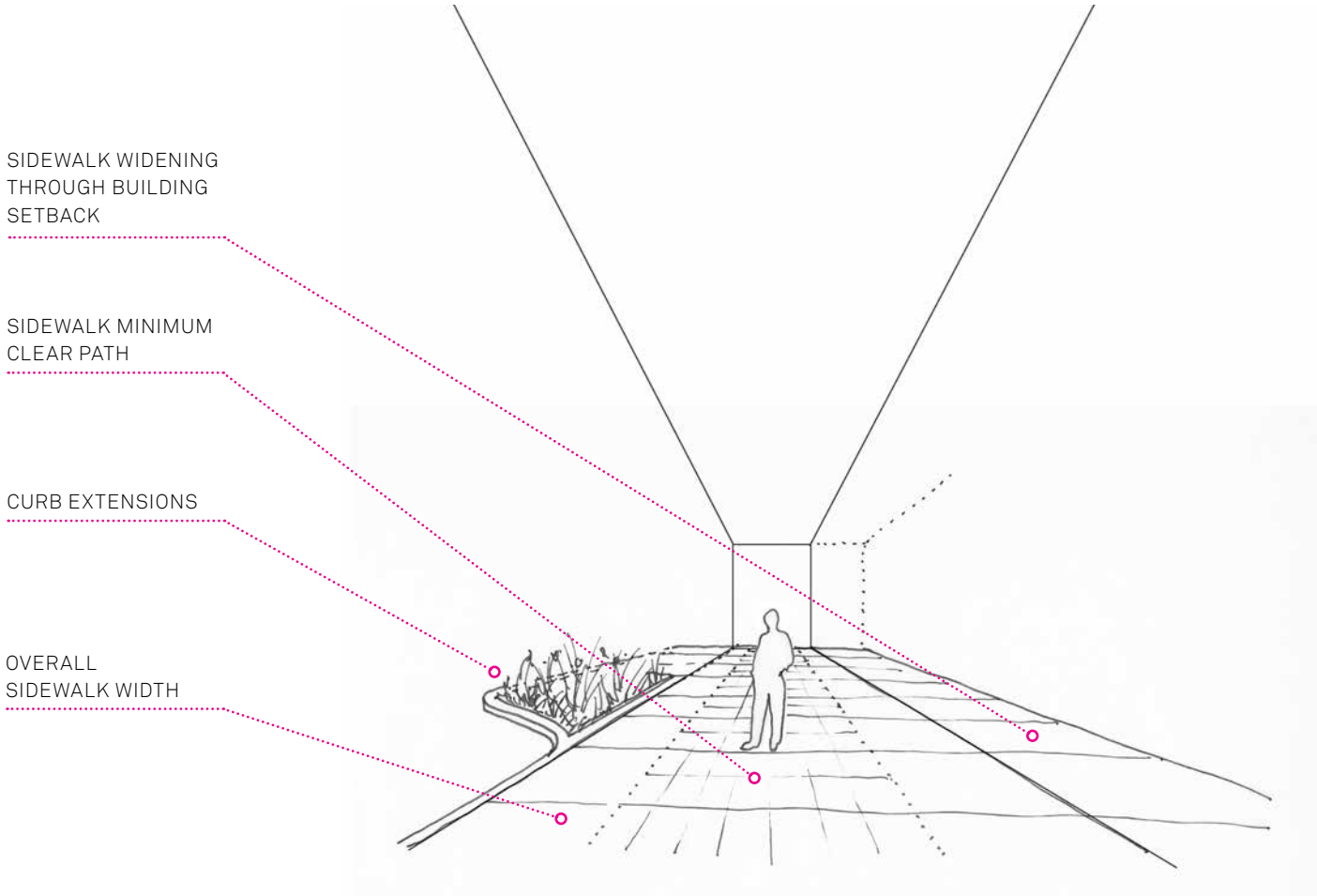
Width / clearance
Green strips (planters)
Street trees (tree pits)
Curb cuts
Slope
Subway grates
Service access
Lighting/signage poles
Pavement material/texture/pattern
Street furniture
Waste receptacles
Newsstands
Fire hydrants

WIDTH/ CLEARANCE

Ground Plane

- Allow
- Incentivize
- Mandate
- Relieve
- Remove Impediment
- Guide

Sidewalk width is often regulated by transportation agencies, but in some cases there are opportunities to use zoning to require that sidewalks be widened or to mandate minimum widths in new developments. New buildings can be required to setback in order to widen a sidewalk in the direction of the private property, or local transportation agencies could be consulted to see if curb extensions are possible by redistributing roadbed geometries. Cities often regulate sidewalk size by establishing a minimum width, but in some cases cities break the overall width into three zones, requiring a minimum clearance width for the pedestrian path, an amenity zone for trees (with tree pits ideally no less than 5 feet wide) and plantings next to the roadbed, and a zone adjacent to the building wall into which activities can extend. Minimum requirements established by the Americans with Disabilities Act (ADA), or local Inclusive Design Guidelines (IDG) suggesting width, slope, and surface type,[56] should be incorporated into regulations, as these elements directly relate to sidewalk accessibility and safety, two of the factors discussed in Chapter 2 that contribute to an active sidewalk experience.



5'-0" clear path

Building setback to widen sidewalk

Curb extension

8'-0"clear path

15'-0" sidewalk

○ MINIMUM WIDTH

Require sidewalks in every neighborhood, for both sides of the street; require minimum sidewalk widths depending on the type of street, land use, density, and the presence of destinations like schools, hospitals, and transit stops.

○ ADA STANDARDS

Require sidewalks to comply with ADA, or IDG minimum standards such as width, slope, and surface type.

○ WIDENING

Require sidewalk widening for new developments and enlargements in neighborhoods where sidewalks do not comply with proposed minimum width requirements. In some cases this may mean pulling buildings back from the property line.

○ CLEAR PATHS

Define minimum and appropriate clear paths that accommodate the expected pedestrian flow for a given neighborhood.

● DEFINE "ZONES"

Acknowledge the existence of "zones" within the total sidewalk width that can accommodate different activities and furnishings. "Low-speed" activities can occur in the "amenities zone," next to the curb, or in the "frontage zone" by the building wall, while foot traffic can still occur along the clear path. If necessary, suggest specific widths and uses for each of these zones.

● EXPANSION INTO ROADBED

Allow and guide the expansion of sidewalks by incorporating underutilized adjacent traffic lanes where appropriate.

◎ MATERIAL PALETTE

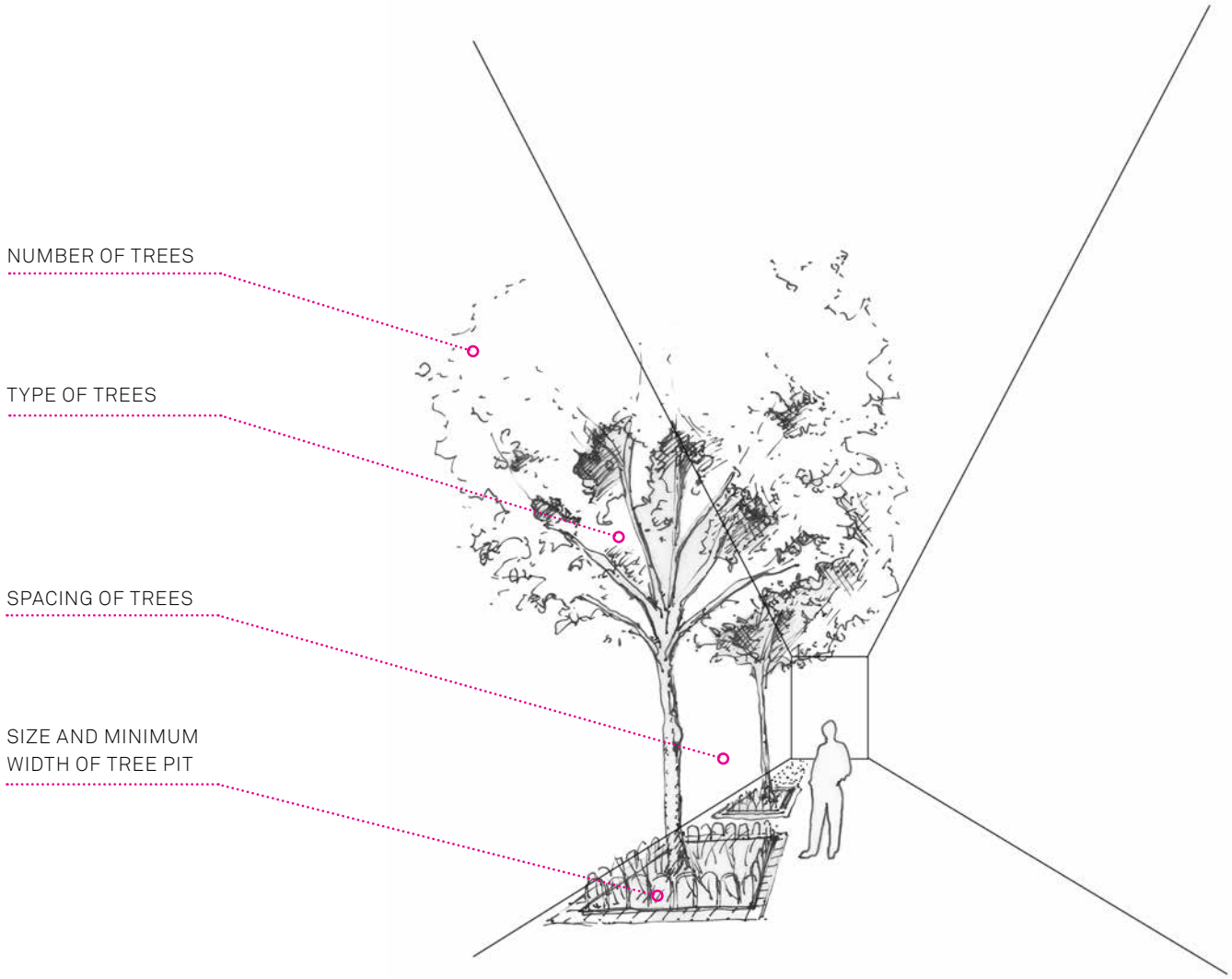
Create a "palette" of materials to be used in designing the sidewalk. These can vary from one neighborhood to another, fostering individual identity while still maintaining minimum quality standards that ensure pedestrian safety and ease of maintenance.

GREEN STRIPS/ STREET TREES

Planting and landscaping play a key role in shaping the sidewalk's character. Trees should be planted at intervals appropriate to the species, with tree pits that are at least 5 feet wide to allow enough space for healthy tree growth. Storm water can be managed by planting strips and continuous tree pits designed to detain water. Tree canopies can help provide shade in hot summer months, and contribute significantly to the sidewalk's aesthetic and sound attributes. If sub-grade conditions restrict the adequate depth for planting trees, consider raised planters, and if the width allows, look to include seating around the edges.

Canopy
Roadside Plane
Ground Plane

- Allow
- Incentivize
- Mandate
- Relieve
- Remove Impediment
- Guide



6'-0" tree pit

Raised planter with bench

12'-0" green strip

Bioswale with varied dimensions

PLANTING STRIP WIDTH

Require a minimum width of planting strips between the clear path and the roadbed. Widths can vary according to type of street. Continuous planting strips are typically more appropriate in lower-density neighborhoods and can be tied into local water management strategies.

STORMWATER MANAGEMENT

Allow the use of street swales and other stormwater management strategies along green strips. Guide dimensions, locations, and plant species as well as models of partnerships for maintenance.

MINIMUM TREE SPACING

Establish minimum tree spacing measurements based on tree species. Specify minimum distances between trees and light poles and other vertical elements evident in the "roadside plane."

MINIMUM TREE PLANTING

Require property owners or developers to plant a minimum number of street trees. This number can be determined according to property characteristics such as frontage width or, in case of an enlargement, the amount of increase in floor area ratio (FAR).

DESIGN DETAILS

Recommend types of finishings, including planters, tree pits, and railing dimensions, and materials.

TYPE OF VEGETATION

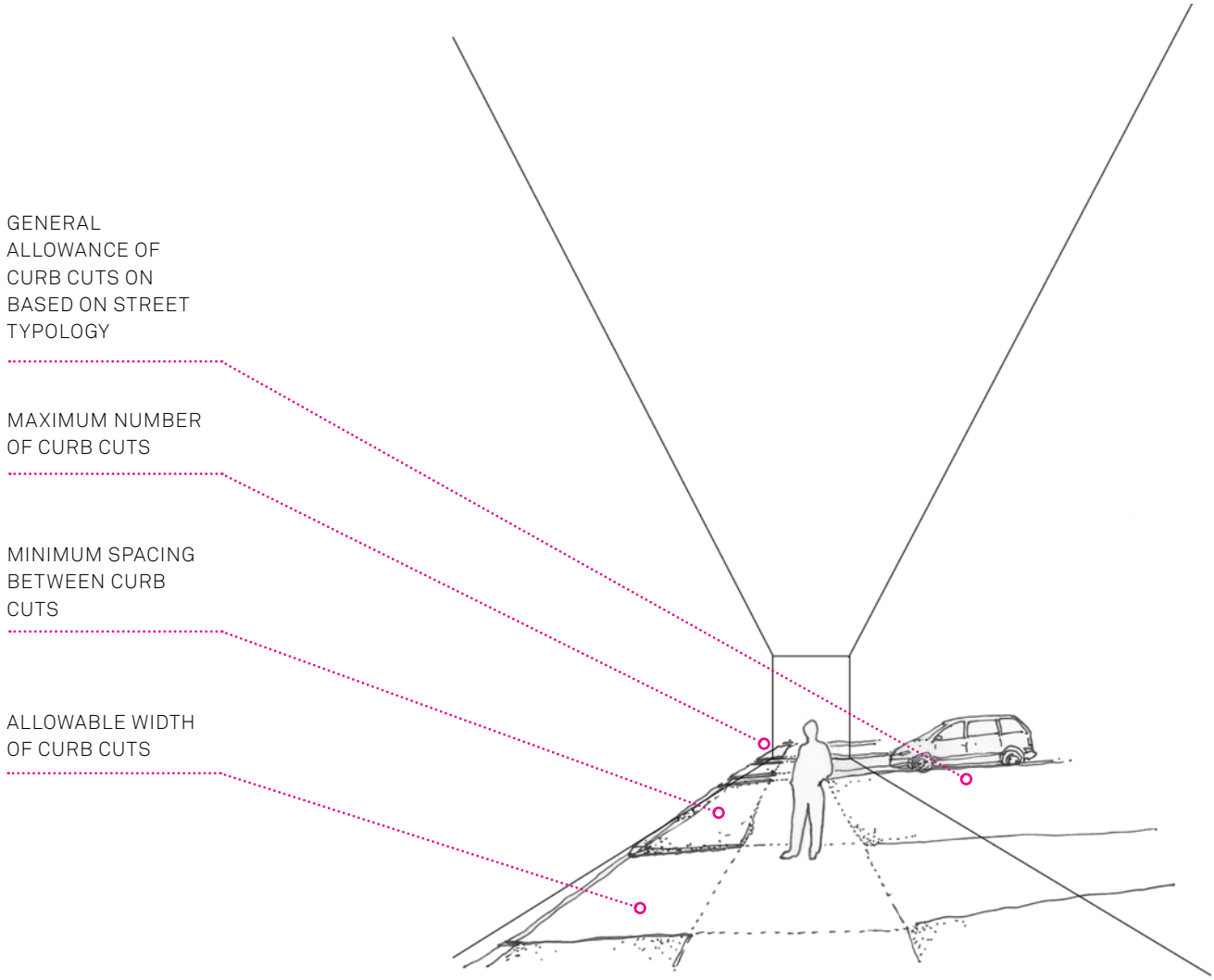
Suggest the use of certain tree species according to local availability, citywide climate characteristics, the type of shade desired, the available dimensions of planting strips, and the intensity of use. Busy sidewalks, for instance, might require more resilient types of ground cover.

CAR CURB CUTS

If curb cuts for cars are not limited in any way, they have the potential to drastically affect the continuity of the pedestrian path. They may be most suitable on streets where pedestrian volumes are lower. When pedestrian volumes are high and active commercial or residential entrances exist, it may be appropriate to prohibit curb cuts, considering exceptions in cases of car park entrances and loading docks when critical. Defining the maximum allowable width of the cut can minimize disruption to pedestrian circulation. Identifying a minimum space between two curb cuts can help maintain tree planting continuity, increase front yard planting levels, preserve on-street parking, and foster more active building frontages.

Ground Plane

- Allow
- Incentivize
- Mandate
- Relieve
- Remove Impediment
- Guide



Define allowable distance between curb cuts

Change in pattern

Distance between curb cuts

Define maximum width of curb cut

MINIMUM WIDTH

Establish maximum width dimensions for curb cuts.

LIMIT LOCATION

Specify the location of curb cuts and loading areas in relation to street types and pedestrian flow. Prohibit curb cuts along specific roads, such as busy commercial streets in downtown areas, where foot traffic is high and frequent interaction with cars can compromise pedestrian safety.

LIMIT NUMBER OF CURBCUTS

Limit the number of curb cuts in a sidewalk by defining: A. The minimum distance between curb cuts, or B. The maximum number of curb cuts per amount of lot frontage. Prohibit curb cuts along lot frontages that are not wider than a specified dimension.

DESIGN DETAILING

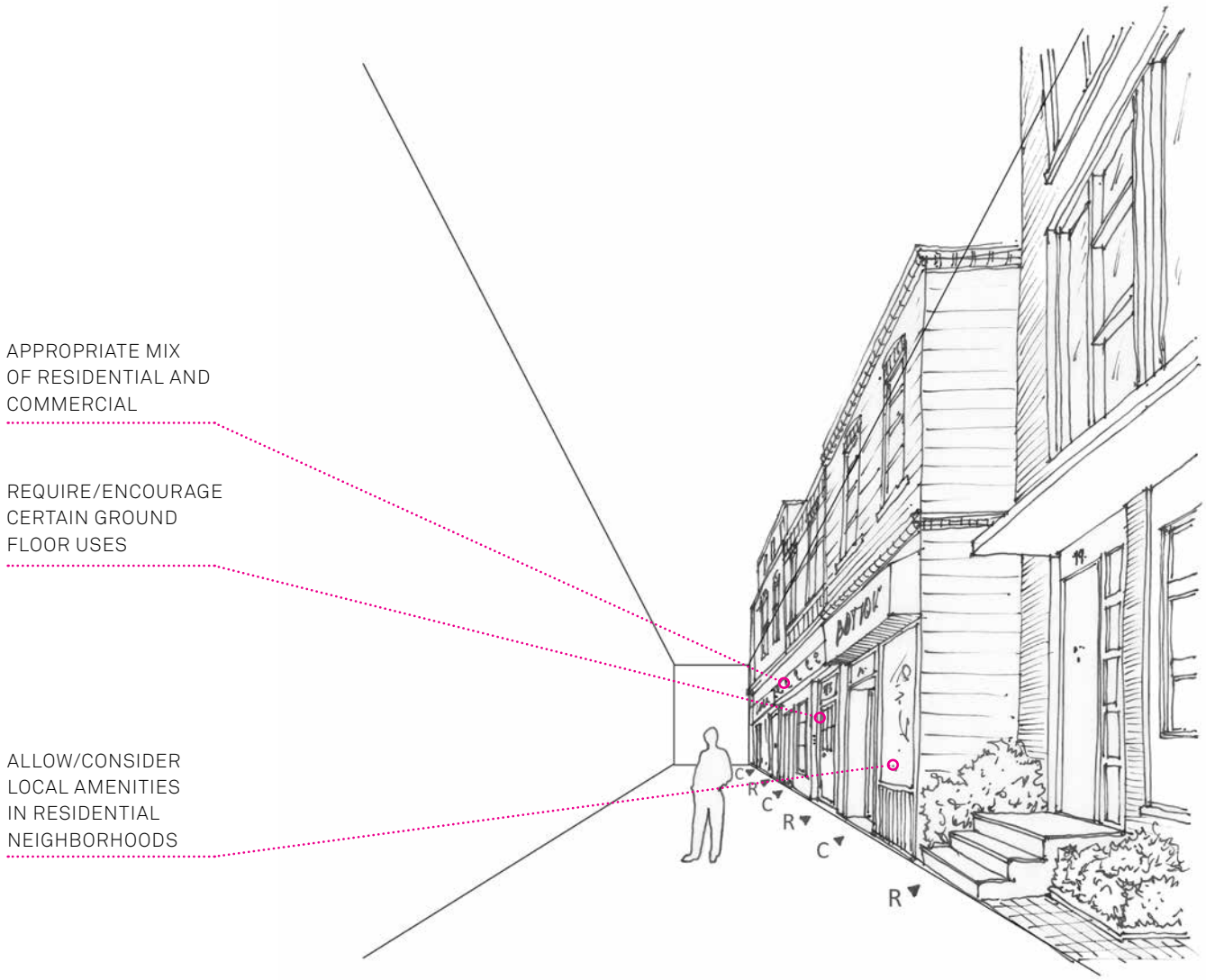
Specify curb cut materials, paving patterns, and slopes to ensure the priority of pedestrian flow over vehicle access. Sidewalks should be continuous, maintaining constant gradients and paving materials when interacting with driveways to enhance pedestrian safety.

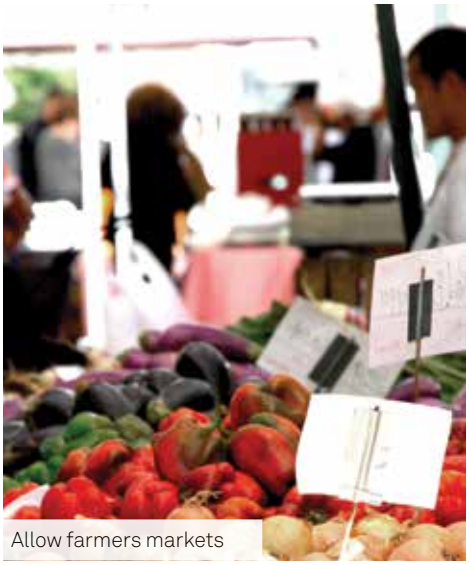
LAND USE

Zoning codes often require or restrict certain land uses in an area. Sidewalk environments can vary depending on their location. Environments include all-residential areas, mixed-use districts, or streets with continuous ground-floor commercial establishments and should be designed accordingly. Land use regulations might protect the existing character of a street, incentivize certain uses to enhance a neighborhood's character (such as a special arts, entertainment, or sports district), or allow for a mix of uses. Allowing new residential uses to be developed in areas of light industry or commercial downtowns can help create more walkable 24-hour communities.

Canopy
Building Wall
Ground Plane

- Allow
- Incentivize
- Mandate
- Relieve
- Remove Impediment
- Guide





Allow farmers markets

Allow mixed land uses

Mixed use buildings with ground floor commercial and upper story residential spaces

ALLOW OVERLAYS

Allow for a mixture of uses by creating zoning "overlays" in existing single-use districts. A. Create zoning regulations that allow commercial overlays in existing residential neighborhoods, enabling basic amenities like corner stores and local restaurants. Commercial overlays can occur along main neighborhood streets and enhance the pedestrian experience by providing continuous retail frontage and convenient local shopping opportunities as walking destinations. B. Allow for residential overlays in special industrial and commercial districts where the transformation of uses is desired. Residential overlays can improve neighborhood vitality and increase pedestrian safety by providing "eyes on the street" at all times.

SPECIFY GROUND FLOOR USE

In certain districts, specify ground floor (or first story) use by requiring: A. Minimum floor area percentages for specific street-activating uses, such as retail, or B. Minimum lot frontage for such uses. This can help create a more active building wall plane in certain residential districts while encouraging a mix of uses.

ENCOURAGE CERTAIN USES

Create incentives for specific use groups. This type of policy can help preserve the existing land use characteristics of neighborhoods in transformation or inject desired uses into depressed areas. These can include building fresh food supermarkets in areas of highest need and creating special arts and entertainment districts.

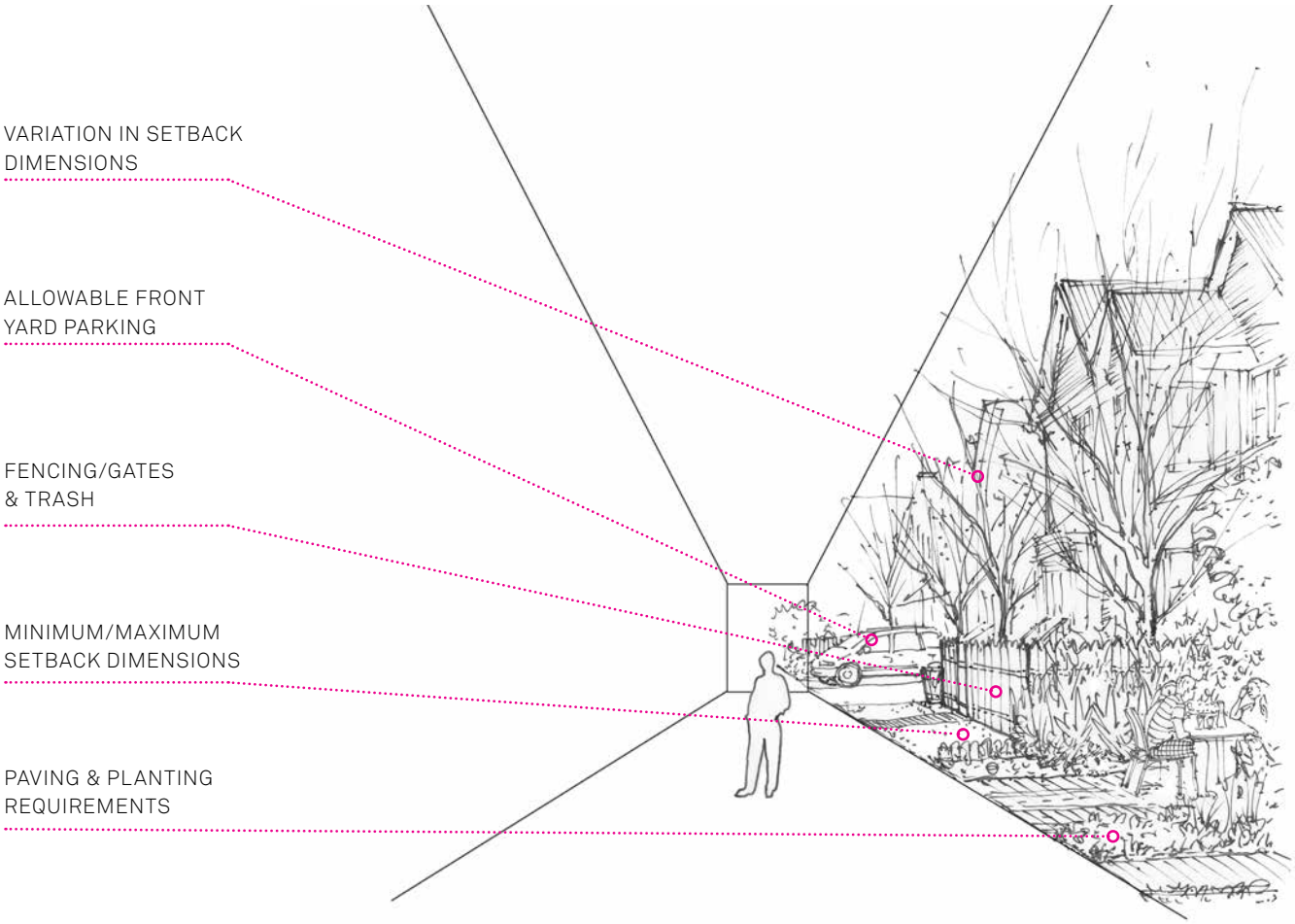
Allow street fairs

GROUND FLOOR SETBACKS

Building Wall

- Allow
- Incentivize
- Mandate
- Relieve
- Remove Impediment
- Guide

Setbacks play a major role in defining the sidewalk room's sense of enclosure. They are often prohibited in favor of a strong street wall in commercial districts, or required in lower-density residential neighborhoods to promote a more bucolic character and enhance residents' privacy. Depending on the dimension of the setback, different elements become more prominent in the building wall plane. For smaller setbacks (of 5 to 10 feet), front stoops, entrances, front yard planting, fencing, trash cans, and other elements are significant factors, and in larger setbacks, car parking and landscaping can become more dominant than building façade details. For commercial car parks, landscaped buffers can improve the sidewalk experience and help manage storm water. For commercial areas where building setbacks occur, design guidelines can ensure that the setback area is inviting, publicly accessible, planted, active, safe, and enjoyable to inhabit. [57]
As more buildings in waterfront areas are being required to raise their ground floors in response to increased flooding events, careful consideration should be given to the design of this zone in order to promote active and walkable streets.



Add design elements in front yard setbacks

Use setback space for public amenities

Front stoops in setback area

Car parking and landscaping in setback area

○ SETBACK DIMENSIONS

Specify minimum and maximum street wall setbacks in relation to aspects of the sidewalk context using zoning and street classification. The location of the building frontage in relation to the sidewalk will determine which elements of the building wall plane will become most relevant to the pedestrian experience. Whereas architectural detailing can create interest where building walls are close to the property line, other front yard uses like planting and parking are more prominent when setbacks are greater.

● STREET WALL RECESSES

Allow for some recesses and articulation along the street wall while still requiring a minimum amount of the building wall to be on the desired setback line or sitting directly on the property line. Both street wall continuity and varied façade detailing contribute to an engaging "building wall."

○ MAXIMUM PARKING SURFACE

Establish the maximum allowable percentage of parking surface in front yards. Prohibit open parking lots in certain districts, such as downtown commercial or neighborhood main streets, or require the location of parking spaces within a lot to be behind the building and not between the sidewalk and building front.

○ MINIMUM PLANTING/ PERMEABILITY

Require minimum area of permeable treatments and tree planting within front yards as well as other landscape elements that can contribute to the creation of a "green" buffer. Such elements can reinforce the sense of a building frontage, help with storm water management, and improve the pedestrian experience. This is generally most appropriate in lower-density areas where buildings are set back from the property line.

○ SCREENING FOR CERTAIN USES

Require screening such as planting or artwork at the property line for specific land uses (industrial, for example) as well as parking areas.

○ DESIGN STANDARDS

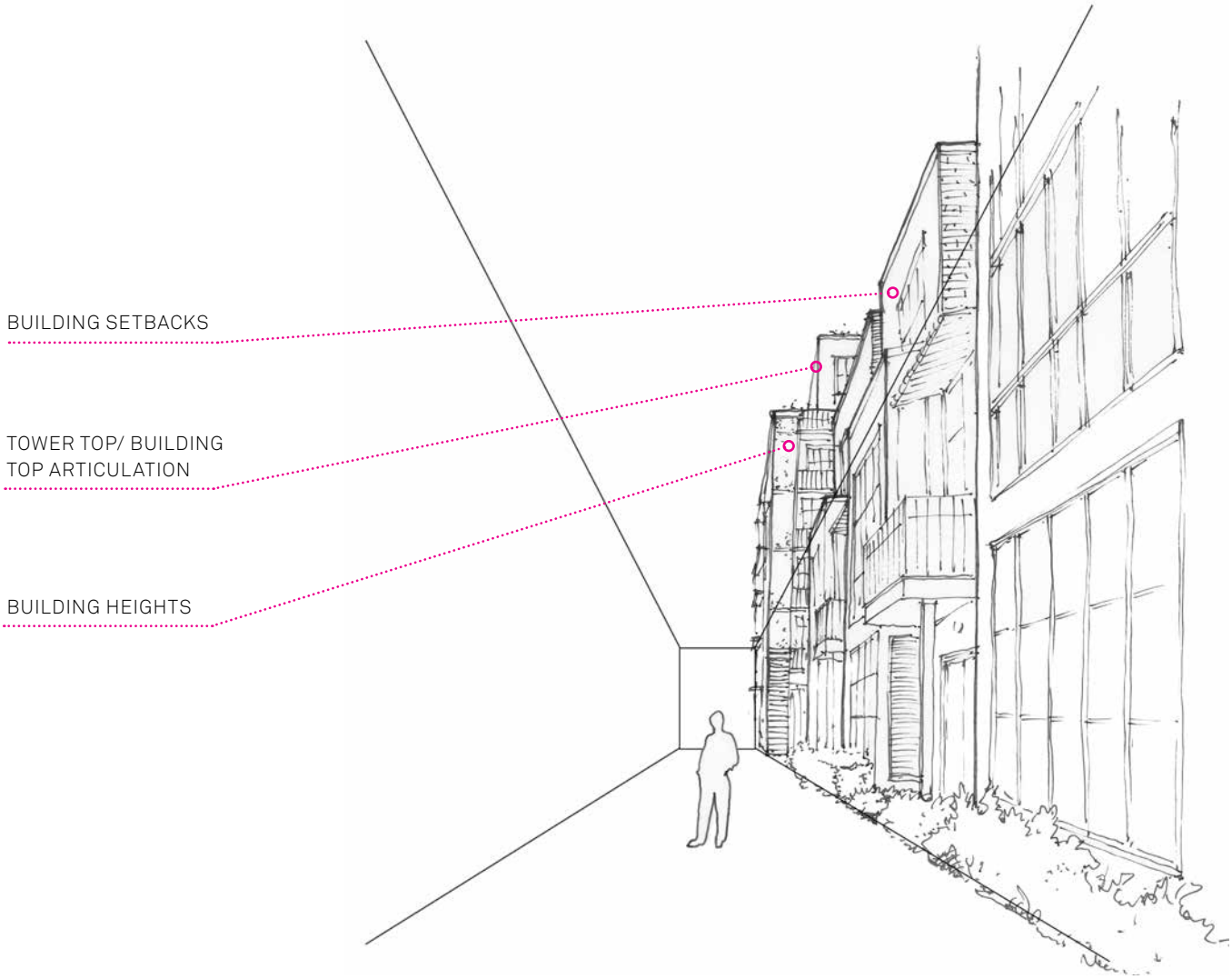
Set minimum design standards (of planting, lighting, seating, and active entrances) for large areas where buildings are set back or where public plazas have been created.

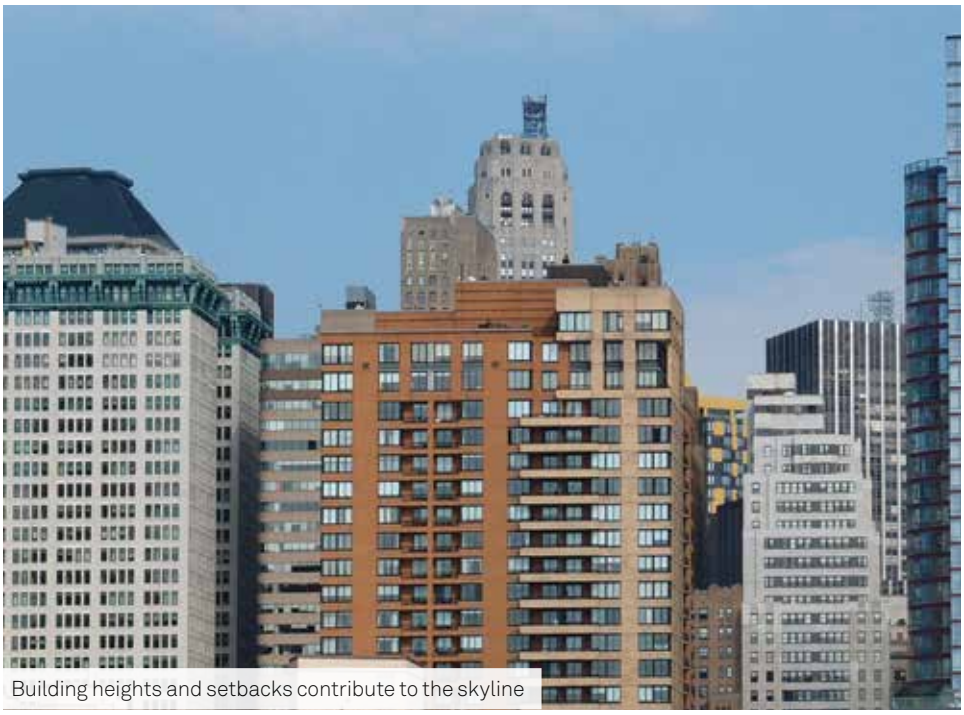
BUILDING HEIGHTS AND UPPER SETBACKS

Building Wall

- Allow
- Incentivize
- Mandate
- Relieve
- Remove Impediment
- Guide

Overall building height is one of the most common elements regulated by zoning, and has a great impact on the sidewalk room's sense of enclosure. Zoning regulations can define both the maximum overall height of a building and the minimum height of a lower street wall before an upper setback occurs, ensuring that a building's façade shapes the sidewalk in the most appropriate way. Setbacks are often required once a building reaches a certain height to ensure that light and air can reach the sidewalk below. Setback distance is often related to the overall width of the street—for example, in New York, the required setback above the streetwall is 10 feet on wide streets (a 75- to 100-foot right-of-way) and 15 feet on narrow streets (a 60-foot right-of-way), keeping the overall proportion of the public right-of-way in mind. The way in which the edge of the building setback or the building top itself touches the sky contributes significantly to the variation and interest of the canopy plane. This profile adds character to the street as a whole and is a prominent feature when viewed from the pedestrian perspective. In some cities, regulations require the articulation of tower tops, as distinctive skylines contribute to the identity of a neighborhood and city.





Building heights and setbacks contribute to the skyline

Street wall with upper floor setbacks

Permitted heights

Distinctive skyline in NYC

○ MAXIMUM HEIGHT

While zoning cannot require a building to be built, it can specify the minimum building height before a required setback to ensure the sidewalk's sense of "enclosure" when a building is present. The height a building should reach before it sets back can be based on the sidewalk context, which includes land use, street type, and density (for instance, a low-density suburb versus a high-density downtown).

● PERMITTED OBSTRUCTIONS

Allow for dormers and other permitted obstructions like shading devices, balconies, and fire escapes to penetrate height and setback limits, adding interest and diversity to building forms. Provide guidelines or limits on the parameters of these different elements, specifying, for example, heights, setbacks from the building wall, and area.

○ TOWER TOP ARTICULATION

Require a 'Tower Top Zone' for the top 15% of building height for towers over 350 feet tall. Require increased setbacks and articulation in this zone.

○ MINIMUM HEIGHT

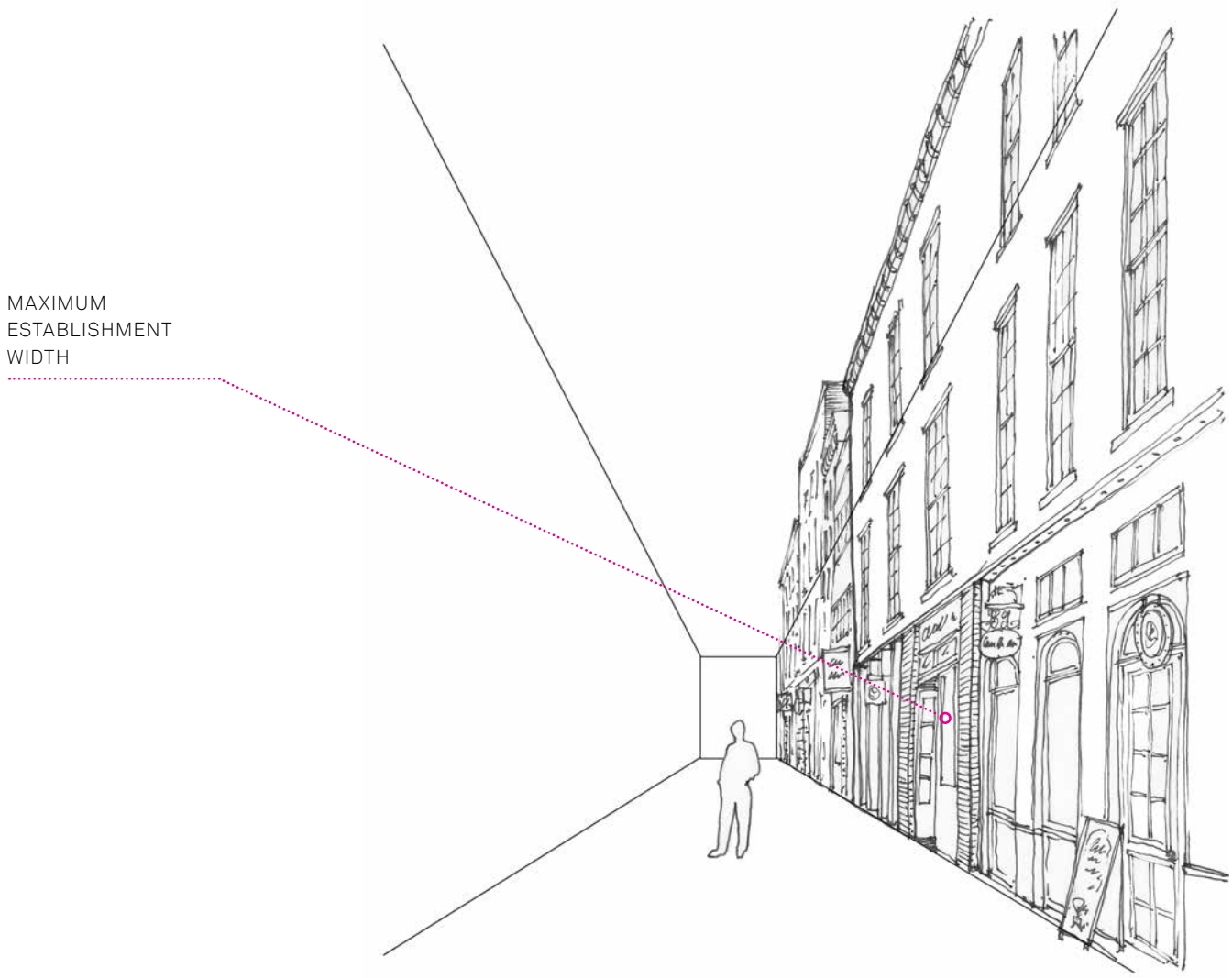
Define maximum overall building heights and differentiate between base height (before a building sets back) and total building height. In some districts buildings can be higher if they respect certain setback dimensions.

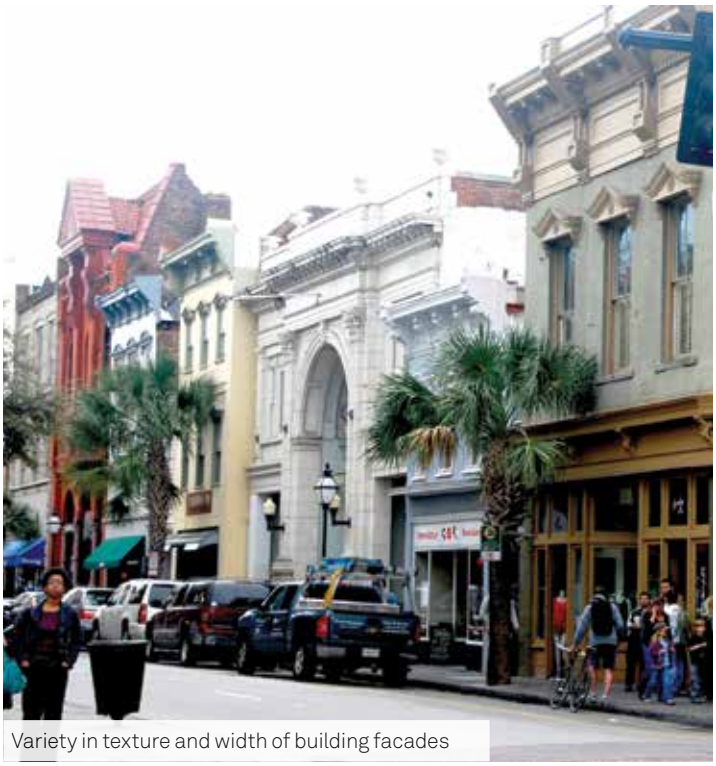
LENGTH OF LOTS OR FRONTAGES

Long stretches of building fronts of the same design can make the pedestrian experience monotonous and repetitive. Defining maximum widths for buildings, façade segments, or establishment frontages can encourage the continuous variety desirable in a "building wall" plane (see Chapter 2 for the definition of continuous variety). Changes in façade materials, colors, window patterns, textures, and separate entrances are often associated with changes in building frontage or establishment. These can help define the vertical and horizontal rhythms of the building wall plane, breaking down the scale of the block and making it feel more pedestrian-friendly. Most of the policy examples cited below strictly define maximum lengths for building frontages, while designs with wider façades should incorporate architectural detailing elements that help break down their massing.

Building Wall

- Allow
- Incentivize
- Mandate
- Relieve
- Remove Impediment
- Guide





Variety in texture and width of building facades

Architectural detail in building façade

Continuous variety in building façade

NUMBER OF ESTABLISHMENTS

Set or suggest a minimum number of establishments or required active entrances per amount of street frontage. Numbers might vary according to land use, overall building length, and ground floor or building base height.

FRONTAGE DETAILING

Allow for wider street frontages when a building façade incorporates elements of architectural detailing that help to break down the scale of the building.

WIDTH DIMENSIONS

Define the maximum width of the street wall for a given lot or property.

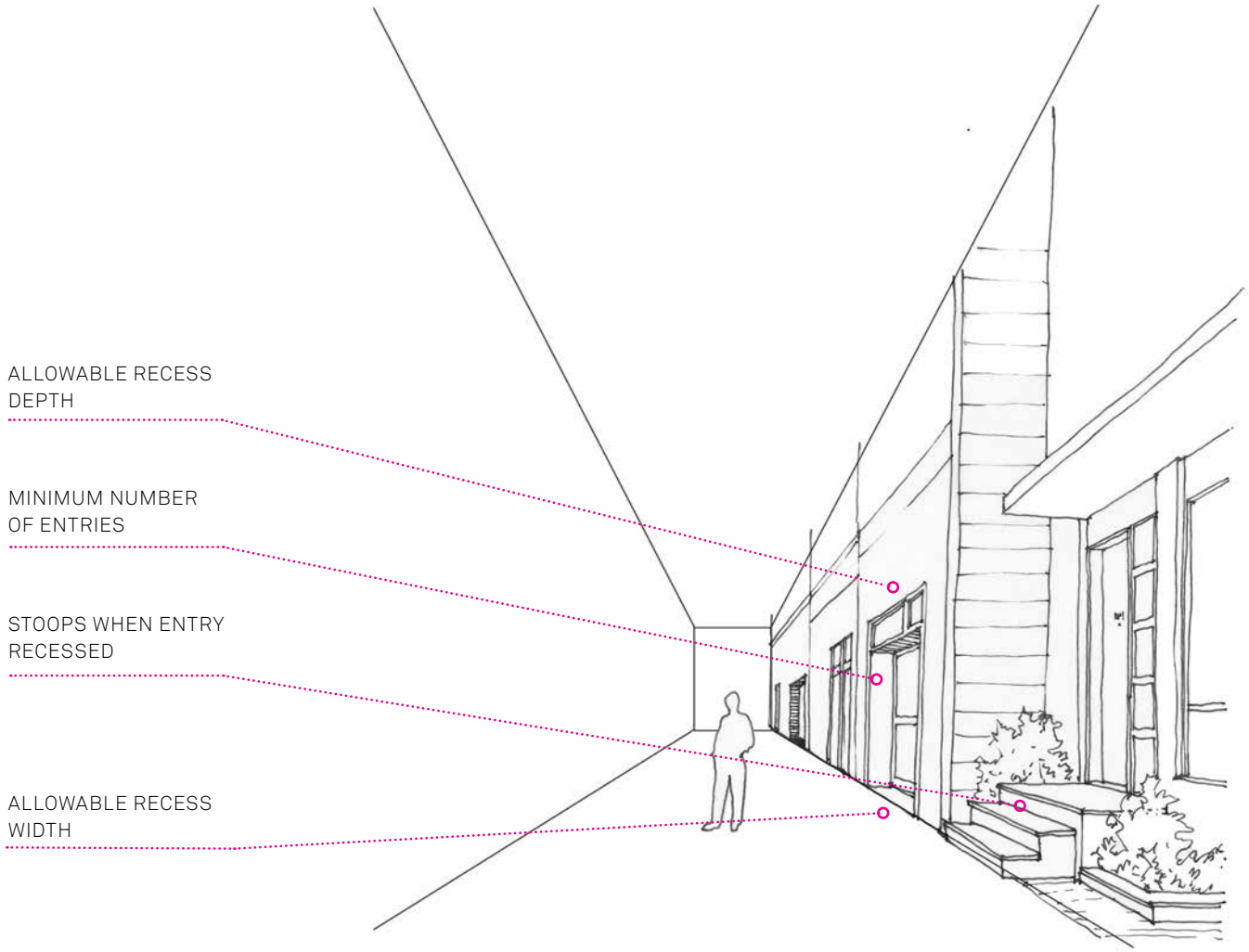
ENTRANCES

Building Wall

- Allow
- Incentivize
- Mandate
- Relieve
- Remove Impediment
- Guide

Commercial entrances are key elements in activating the sidewalk, and should be visible and approachable. They should be clearly marked and inviting to pedestrians, and provide an adequate transition between public and private space. The more entrances there are—assuming that all are functional—and the more closely they are spaced, the more active the sidewalk feels. Small entrance recesses can avoid blocking the sidewalk clear path with door swings, can add interest to the building wall, and help provide shelter from external elements like wind, rain, and snow.

Ideally, the space between a residential entrance and the sidewalk should provide privacy as well as security for residents, and a visually interesting street front for pedestrians. This transition space varies with the depth of the front setback and the height of the building, but typically, small gardens, awnings, stoops, and other elements can help shift fluidly between the public sidewalk and the private entrance while enhancing the sidewalk's character. For larger residential buildings with central lobbies and without ground floor commercial uses, consider giving ground floor apartments additional private entrances facing the street, in a townhouse-style model that can help activate the adjacent sidewalk.



Privacy for residential entrances

Stoops and planting create a transition space

Closely spaced entrances make for an active sidewalk

Entrance recesses on commercial sidewalk

Entrance alcoves can offer a place to pause

○ MINIMUM NUMBER

Maximize the number of entrances along the building wall by requiring: A. a maximum distance between entrances or B. a minimum number of entrances for a certain length of lot frontage. This will differ depending on whether the ground floor is used for commercial or residential functions, and will be less appropriate for low-density residential neighborhoods.

○ ● RECESS DIMENSIONS

Regulate allowed entrance recesses by setting maximum depths to avoid deep, dark spaces and aggregate widths in relation to the building façade length.

● ◌ RECESSES AND PROJECTIONS

Even when specifying building setbacks, allow for windows and doors to recess or project beyond this line—depending on context—to add to the variety and complexity of the building wall. Also allow for other architectural elements like stoops, awnings, canopies, and planters to be incorporated for variation.

○ ENTRANCE LOCATIONS

Define entrance locations in relation to specific land uses and street types. Consider residential versus commercial entrances, and wide versus narrow streets.

◎ DESIGN DETAILING

Suggest design standards for entries. In special districts, consider requiring details that can help create a harmonious building wall composition as well as enhance the identity of a specific neighborhood.

○ LOADING

For commercial districts, where possible, restrict loading by locating garage access on service alleys or streets with lower pedestrian activity, by establishing loading hours, and by applying other loading management strategies.

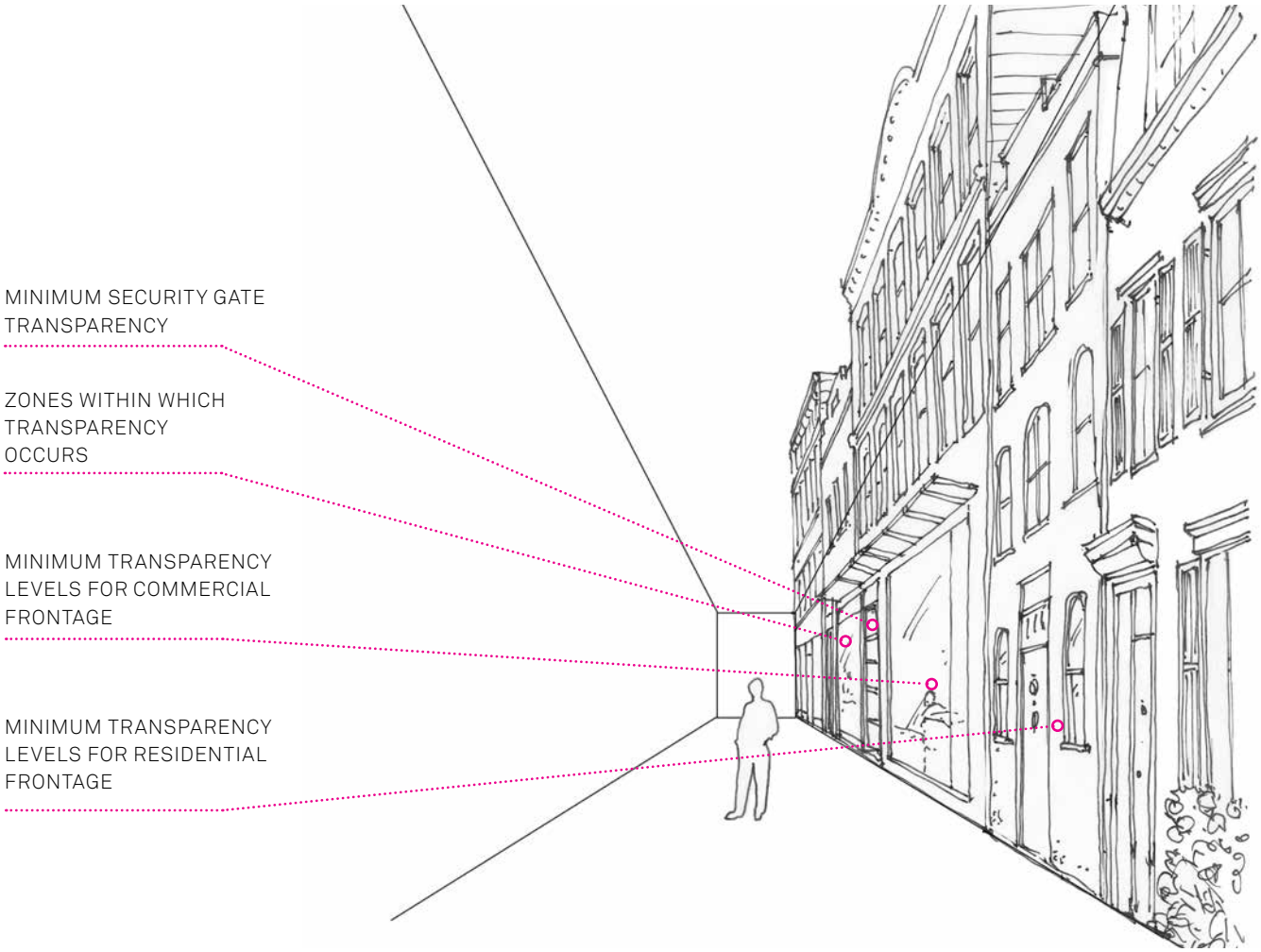
TRANSPARENCY

Building Wall

- Allow
- Incentivize
- Mandate
- Relieve
- Remove Impediment
- Guide

Commercial storefronts should be transparent, allowing for a direct visual connection between pedestrians on the sidewalk and activities occurring inside the buildings. Setting minimum transparency levels at the ground level activates the street environment, providing visual interest during the day and an intimate, secondary source of lighting at night. Levels should not be too high so as to only allow continuous flat glass, which has no articulation or depth. Different window types, depths, and patterns contribute to the goal of continuous variety, which is more likely to be achieved when minimum transparency levels are not set too high. Ensuring that security gates on commercial frontages have a minimum level of transparency and are set behind the line of glass is important to maintaining an active sidewalk when stores are closed.

Transparency levels in residential ground floors are often much lower than in commercial buildings if the ground floor does not have a more public use. To increase privacy for residents while maintaining an active sidewalk environment for pedestrians, consider pulling the building back from the street line slightly and planting in front of the building or lifting the first residential floor a few feet for privacy. In these situations, be sure that adequate windows and architectural detailing still activate the sidewalk for pedestrians, and that residents feel comfortable leaving their blinds or shades open. Windows and glass doors influence transparency levels most obviously, but fences and vegetation can also alter the degree to which we can see beyond the edge of the building wall.



Transparent commercial storefront

Lower level of transparency in residential streets

Interior and exterior visual connection

Minimum transparency levels for security gates

MINIMUM TRANSPARENCY

Define minimum transparency levels for the ground floor level and establish the minimum and maximum heights at which these percentage requirements apply.

SECURITY GATES

For commercial store frontages, require minimum transparency levels for security gates and limit garage walls. Require that any security gate be placed behind the glass line. This can enhance the pedestrian experience when commercial establishments are closed.

RESTRICT BLANK WALLS

Restrict the maximum length of blank walls (where there is zero transparency) to ensure building wall complexity, variety, and engagement with pedestrians.

MATERIALS + DETAILING

Suggest that transparent or translucent materials be incorporated in "minimum transparency percentage requirements" and provide guidelines for incorporating other architectural features to give glazing variety, and vertical and horizontal rhythms.

FLOOD ZONE MITIGATION

In cases, such as flood zones, where minimum transparency levels are difficult to achieve, allow for other elements like public art, planting, seating, or specific wall treatments to be considered under "minimum transparency percentage requirements."

ALLOWED ELEMENTS

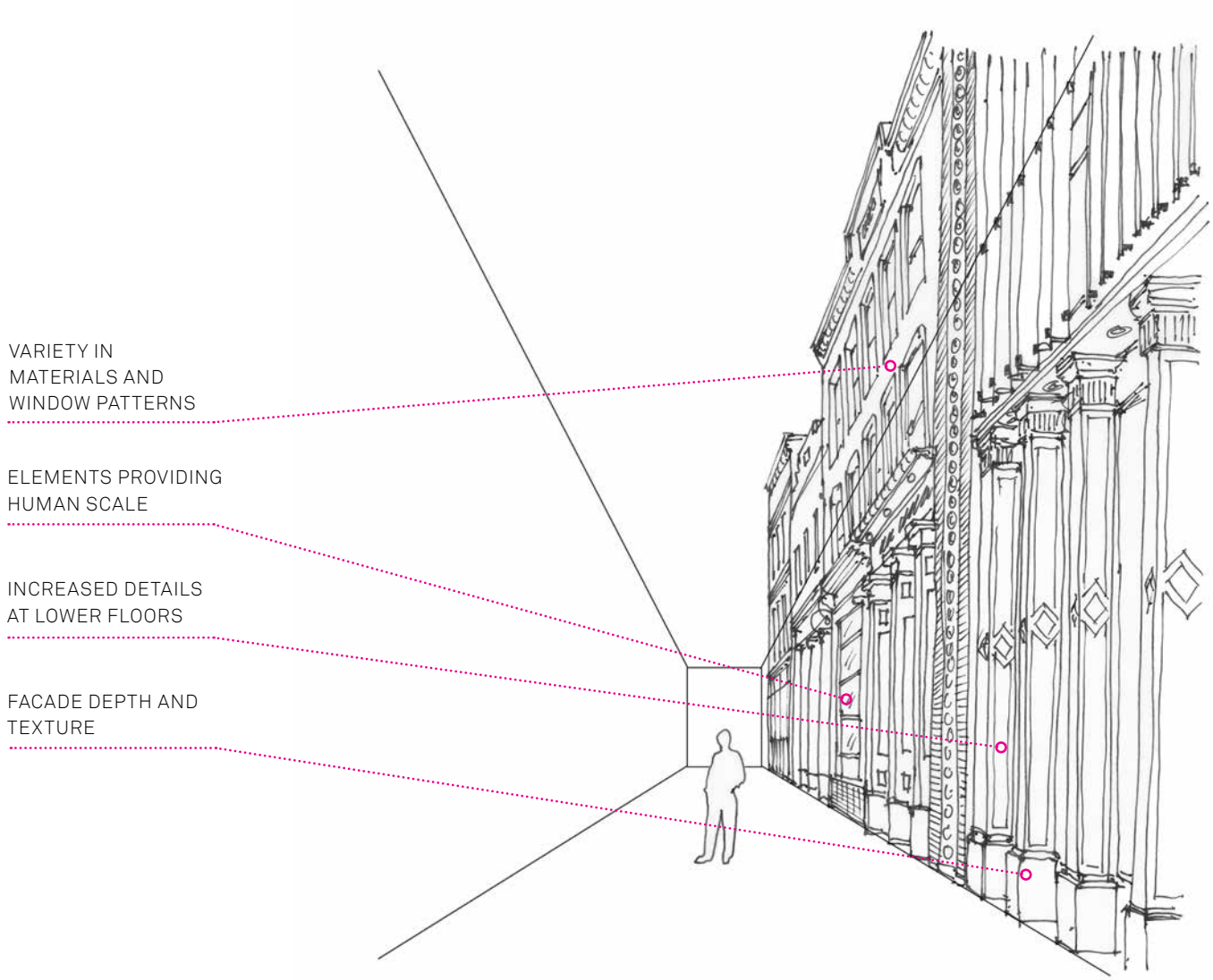
Define the type of elements that comply with transparency requirements. Doors, windows, and displays can be encouraged, while long stretches of solid glazing without any articulation should be restricted.

ARCHITECTURAL ARTICULATION

Building Wall

- Allow
- Incentivize
- Mandate
- Relieve
- Remove Impediment
- Guide

Changes in the way a façade is detailed can help give a block front continuous variety and make buildings appear unique to both occupants and pedestrians. Increased attention to detail at the lower portions of the building helps break down the building wall to the pedestrian scale. Incremental shifts in plane, building material variation, and window patterns can help create small shadows that give an impression of depth and texture while maintaining a strong street wall presence. In some cases, if minimum transparency levels are set too high or street wall requirements are too tight, they can become impediments to designing articulated and varied façades, resulting in all-flat, all-glass ground floors that have little interest. Façade articulations are usually restricted in how much they can project beyond the face of the building when sitting on the property line. These restrictions can be relieved by interpreting or adapting current regulations. Where a strong but interesting street wall is desired, consider allowing for a "zone" of around 12 to 18 inches within which the street wall must sit. Architectural details are difficult elements to regulate, and can be found more often in the design guidelines or review processes accompanying regulations, or in building codes.



Creating interesting interactive facades

Ornamentation

Increased detail at top and bottom of building

Rhythm

Detail adding human scale

○ RHYTHM/ CADENCE

Require vertical and horizontal elements to be read within the "building wall" to help establish the "human scale" or "complexity" of the plane by giving it rhythm. Consider establishing: A. The minimum number of architectural elements along the width of the façade frontage, or B. The maximum spacing between these elements.

◎ ARCHITECTURAL FEATURES

Create a list of possible architectural features that can be incorporated in the building façade, including materials, textures, colors, shifts in plane, recesses, projections, pilasters, cornices, stoops, bay windows, and openings patterns.

● ALLOW PROJECTIONS

Allow for certain architectural details to project into the sidewalk room. Define maximum projections, clearance height for pedestrian flow, and other relevant dimensions.

● MINIMUM STREETWALL

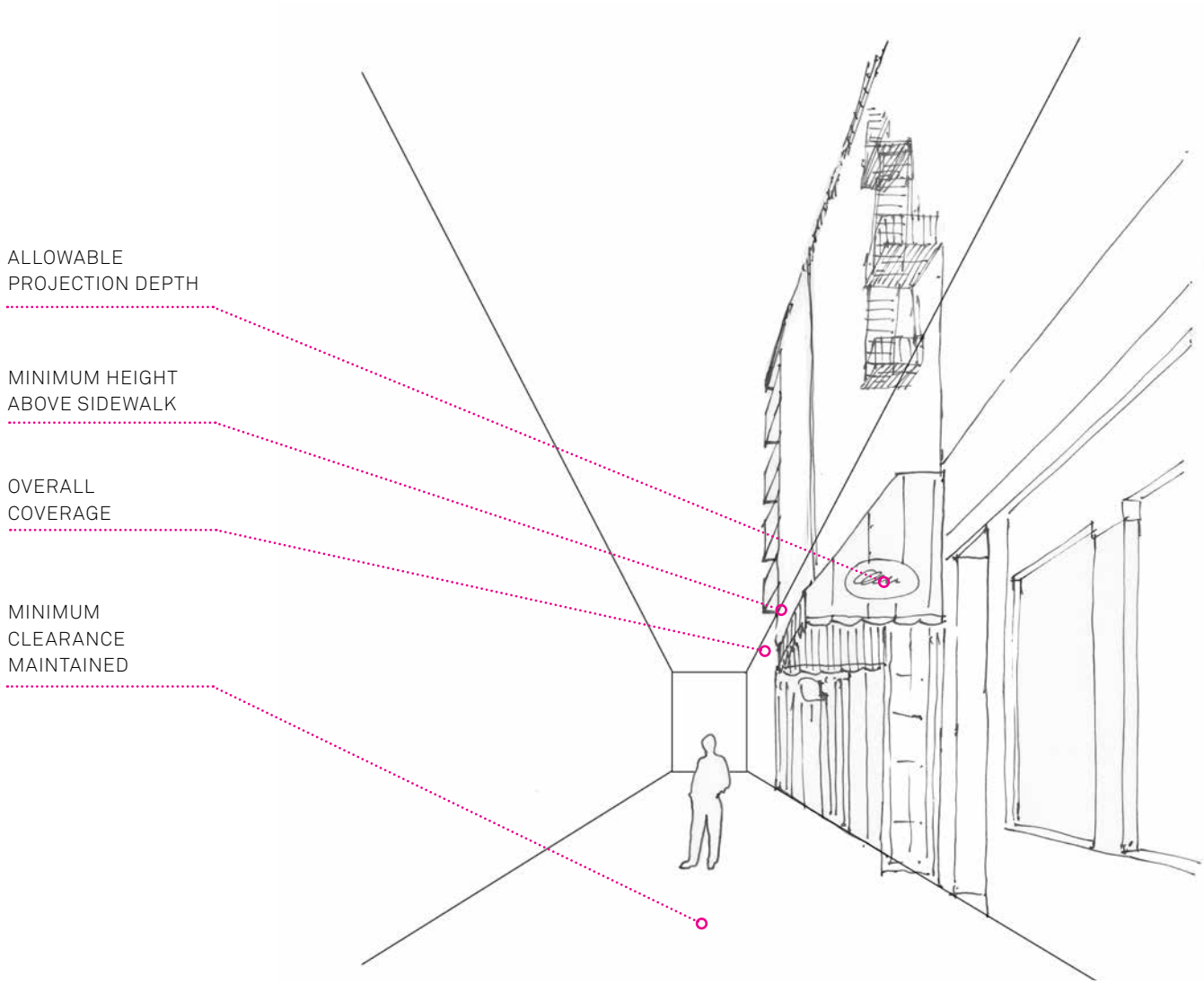
Allow minimum "street wall" requirements to be interpreted as complying within an 18-inch zone of the private side of the property line. This will encourage creative depth and texture along the building façade.

CANOPIES, AWNINGS, SHADING DEVICES, FIRE ESCAPES, AND BALCONIES

Building Wall Canopy

- Allow
- Incentivize
- Mandate
- Relieve
- Remove Impediment
- Guide

Canopies, awnings, fire escapes, and balconies all project from the building face. These elements add depth, interest, and variation to the building wall and roof plane of the sidewalk room. They also often provide opportunities for individual establishments to use color and add to the character of the street while breaking down the scale of larger buildings. Awnings often incorporate part of a commercial establishment's signage and help shape a specific building's identity. Awnings, canopies, and shading devices can provide shade during hot seasons and shelter from rain and snow, as they usually appear next to building entrances and windows. If the building wall is right on the property line, these elements sometimes project into the public right-of-way and come under the jurisdiction of departments of buildings and transportation. As long as they maintain a minimum clear height above the sidewalk grade, they are usually permitted to project a certain distance from the building face.



Shading devices

Shading devices contribute to skyline

Canopy providing protection from the elements

Awnings projecting into sidewalk

PERMITTED OBSTRUCTIONS

Allow for canopies, awnings, shading devices, fire escapes, and balconies to project into the sidewalk room.

HEIGHT AND PROJECTION

Determine maximum dimensions.in order to maintain a clear and safe path for pedestrians. Define: A. The maximum allowable projection from the building wall, B. The minimum allowable height from the sidewalk level to the bottom part of the specific element, and C. The maximum allowable coverage of projecting elements as measured in elevation.

GUIDE ON PARAMETERS

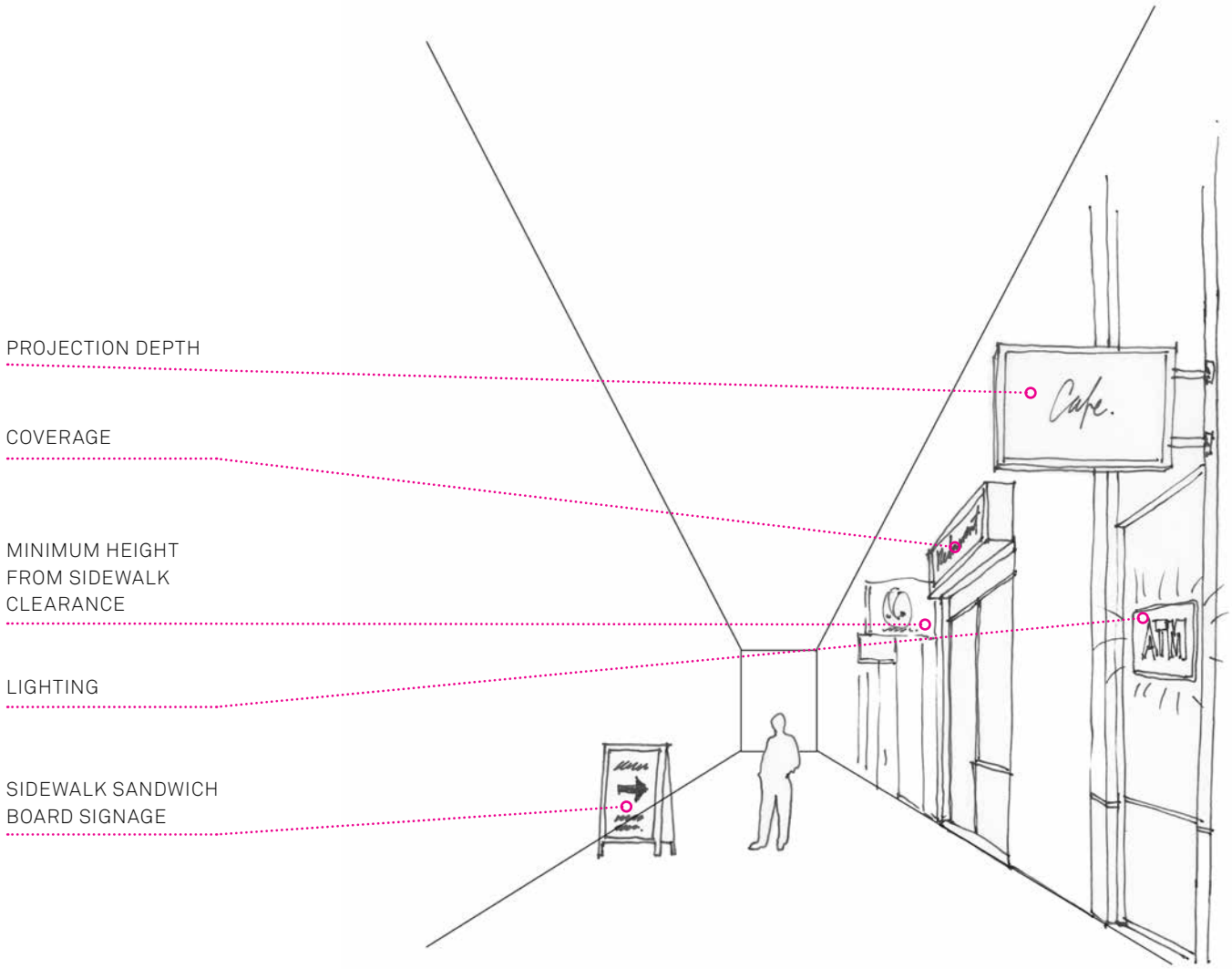
Establish parameters to enhance the identity of the sidewalk by providing guidelines on: A. The maximum percentage or width of the building façade that can be covered by awnings, canopies, or shading devices, and B. Colors and materials that can be used.

SIGNAGE

Building Wall Canopy

- Allow
- Incentivize
- Mandate
- Relieve
- Remove Impediment
- Guide

Signage is primarily a consideration for areas with commercial activity. Signs can add interest to the sidewalk environment if they are appropriate to the area's desired scale and character. The rhythm and spacing of signs along the building wall plane can help achieve a human scale and create a more inviting and active sidewalk environment. In some extreme cases, minimum signage is required because it contributes to an area's identity, as in New York City's Times Square, while in many residential-only areas, signs are prohibited. In most cases, there is a balance between the extremes where general restrictions apply, including limits on overall size, percentage coverage, minimum clearance above the sidewalk, lighting allowances, and in some cases, content (for instance, revenue-generating advertising versus the name of the establishment). Sign types include "face signs" (flat signs mounted flush against the building), "projecting signs" (flat or three-dimensional signs attached to the building by means of a perpendicular bracket), and "free-standing signs" (signs supported by a pole or base that is not attached to the building).



Signage can enhance night time experience

Signs projecting into sidewalk

Signage creating identity

Minimum signage requirements in Times Square

● ALLOW PROJECTION

Allow for signage to project into the sidewalk room.

○ HEIGHT AND PROJECTION

Define design standards for signage that can vary from one district to another. Establish minimum allowable heights from the sidewalk level, as well as a maximum height limit. Set limits on the maximum projection from the building wall and the maximum percentage of the building frontage that can be covered by signage.

◎ CREATING IDENTITY

In cases where signs will contribute to the construction or branding of a neighborhood's identity, provide guidelines on the types of signage, materials, colors, and levels of luminosity to allow for a harmonious composition of building frontages.

● FLEXIBLE SIGNAGE

In places where a less orderly character is desirable, allow any type of signage, as long as it keeps a minimum height and width of the sidewalk clear.

○ RESTRICT IN RESIDENTIAL

Restrict certain types of signage and their lighting in residential-only areas while still allowing for the names of buildings, community facilities, and other basic designations to appear.

○ REINFORCE CHARACTER

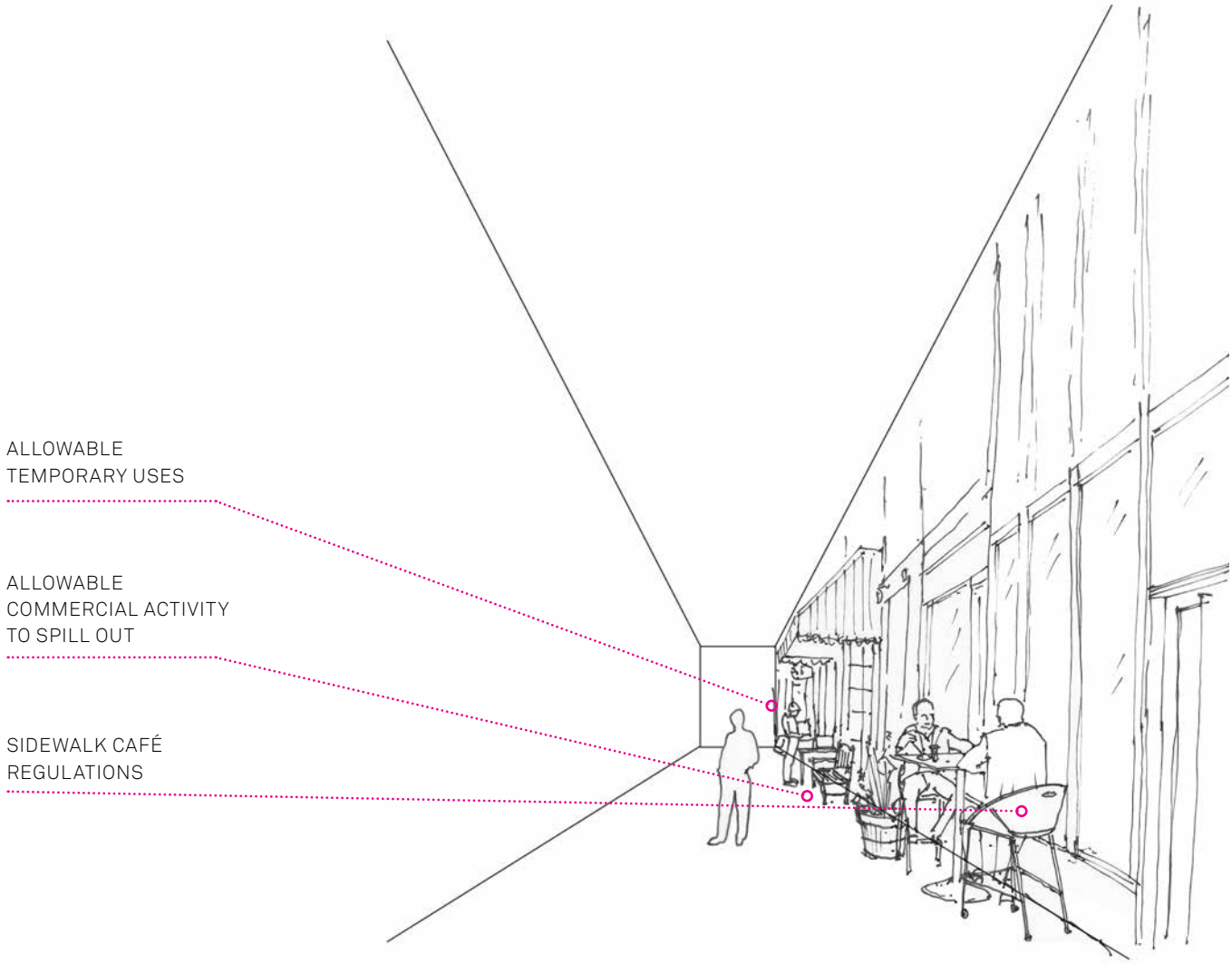
In districts where signage is already incorporated into the neighborhood character, requiring minimum signage and specifying the type of sign to be used will reinforce the area's identity even as new developments appear.

OUTDOOR USES

Sidewalks are often seen as potential sites for buildings to extend their ground-floor uses outward—for children to play on stoops, for stores to display their goods, or for restaurants to increase their seating areas. These uses are often temporary, either daily or seasonal, sometimes permitted, and other times left unregulated. Outdoor uses can add to the variety of pedestrian speeds, allowing for people to pause and look, stop, relax, and people watch. On a commercial street, outdoor uses like cafés, flowers, and fruit stalls can add enormously to the sidewalk's vitality, providing an excuse for people to stop and pause or linger for longer periods as actors in, and audiences of, the sidewalk show. In some cases, outdoor uses may need to be limited in order to maintain primary access for pedestrian circulation, and in extreme cases they can be seen as privatizing the public realm. Because clearing the sidewalk completely of these types of activity can cause its dynamic and intricate character to vanish, however, it is important to strike the right balance between a clear path and active uses.

Ground Plane
Building Wall

- Allow
- Incentivize
- Mandate
- Relieve
- Remove Impediment
- Guide



Benches

Commercial spaces extend onto sidewalk

Outdoor restaurant seating spaces

Outdoor cafés with circulation space

Commercial spaces extend onto sidewalk

◎ STREET FURNITURE FAMILY

Suggest types of furniture to be used for outdoor seating, including permanent rather than temporary benches and tables, umbrellas, and fences, and list preferable materials according to variables like their resistance to weather, levels of transparency, and maintainability. Provide guidance on maximum dimensions for the extended area so it doesn't disturb other activities occurring along the sidewalk.

● ALLOW ENCROACHMENTS

Allow for outdoor uses to occur within the right-of-way while requiring that minimum clear path dimensions be maintained along the sidewalk's ground plane.

○ LOCATION

Define the appropriate areas where outdoor cafés and other uses can spill onto the sidewalk. In some streets, the sidewalks might not be wide enough to incorporate such encroachments. In those cases, outdoor uses might be prohibited or restricted in dimension, allowing for the primary function of pedestrian flow while ensuring proper safety and accessibility.

OTHERS ELEMENTS TO CONSIDER

Many other elements have a large impact on creating active sidewalks but are not directly regulated by zoning codes. These elements can influence the location of building entrances and, depending on size, create unintended obstacles in the overall sidewalk space. These elements include:

- **Bus Stops:** Consider their location, provision for advertising on shelters, whether they obstruct building fronts, and if they maintain an adequate clear path on the sidewalk.
- **Bollards:** Consider the height, spacing, and overall size of bollards. Bollards need to serve their security or traffic calming function without creating harsh visual barriers for pedestrians. Alternatively, design bollards to be features of the public realm.
- **Scaffolding:** While scaffolding is generally temporary, it can remain erected for multiple years. It can be a great obstacle to pedestrian flow and limit access to natural light. Consider the clear path maintained by the scaffolding, whether the space beneath the structure is adequately lit, and even how the structures can be completely redesigned. (New York City recently held a competition to redesign current scaffolding in a competition called Urban Shed)
- **Street Vendors:** Food vendors can play a great role in activating sidewalks and providing additional food choices for pedestrians. Although other agencies outside planning generally regulate food vendors through permits, consideration should be given to the location of food vending to ensure that it does not impede pedestrian circulation.
- **Street Furniture:** Street furniture—including benches, tables, kiosks, mailboxes, planters, newspaper stands, parking meters, bicycle racks, and shelters—is commonly placed along the "amenities zone" next to the curb when sidewalks are wide enough to provide a minimum clear path. Guidelines can be developed to inform local decisions on materials, dimensions, and design of street furniture.
- **Signs, Signals and Street Lights:** These elements are generally regulated by transportation agencies, and can ensure safe and efficient movement for all users within the street, including pedestrians, bicyclists, and drivers. Their location, scale, height, visibility, and design detailing all impact the legibility, functionality, and aesthetic of the sidewalk.
- **Service Infrastructure:** Consider the location of service vaults, ventilation grates, fire hydrants, stand pipes, manholes, and other infrastructure for below-grade access to minimize obstructions to pedestrians.

Scaffolding

Scaffolding

Scaffolding

Bollards

Bollards

Bus Stops

Street Vendors

Street Furniture

Street Vendors // Street Furniture

PREVENTION

It is important to consider conditions to avoid and to learn from the mistakes found in the existing built environment. Conditions to avoid where possible include:

- **Inadequate Maintenance:** Cracked surfaces and sidewalks in disrepair can become tripping hazards.
- **Obstacles:** Permanent or temporary physical elements should be placed so they do not obstruct pedestrian flow.
- **Sidewalks That Are Too Narrow:** Sidewalks that are too narrow will force people to walk within the roadbed, putting them in danger of moving vehicles.
- **Tree Pits That Are Too Small:** When tree roots do not have enough space to grow, they will warp the sidewalk and create tripping hazards. Ideally, tree pits should be designed to be at least 5 feet wide and appropriately long to allow tree roots to grow without buckling the sidewalk.
- **Blank Façades:** Long stretches of blank façades with no entrances or windows are uninviting and should be avoided. When this is not possible, artwork or architectural articulation techniques can add interest to the pedestrian experience.
- **Inappropriately Located Street Vendors:** Consider the location of street vendors to avoid creating pinch points.
- **Opaque Security Gates**: Avoid long stretches of solid blank security fences on storefronts, which impede any visual connection. They should be designed to be at least 75% transparent, and ideally be located behind the glass.
- **Service Infrastructure:** Where possible, avoid placing service infrastructure in locations that will degrade walkable surfaces for pedestrians, or require closed walking paths when in use.

Blank Facades

Obstacles

Obstacles

Empty/Abandoned Lot

Blank Facades

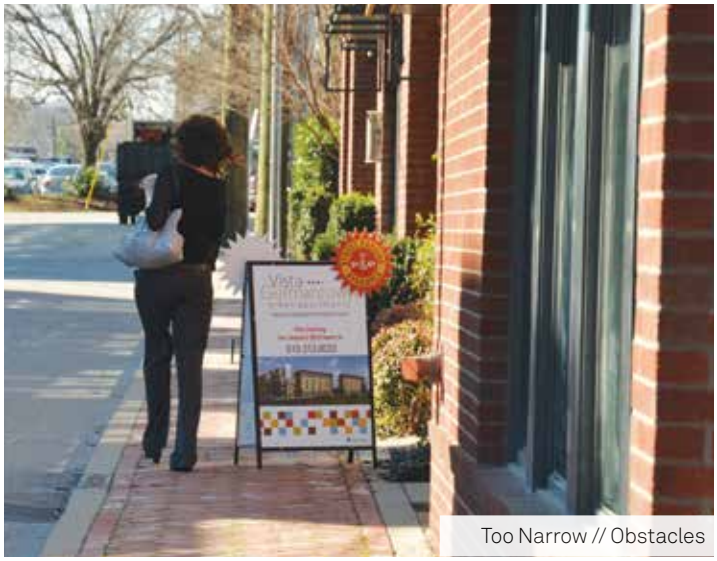
Too Narrow

Tree Pits too small

Maintenance

Obstacles

Too Narrow // Obstacles


Too Narrow // Obstacles

Security Gates

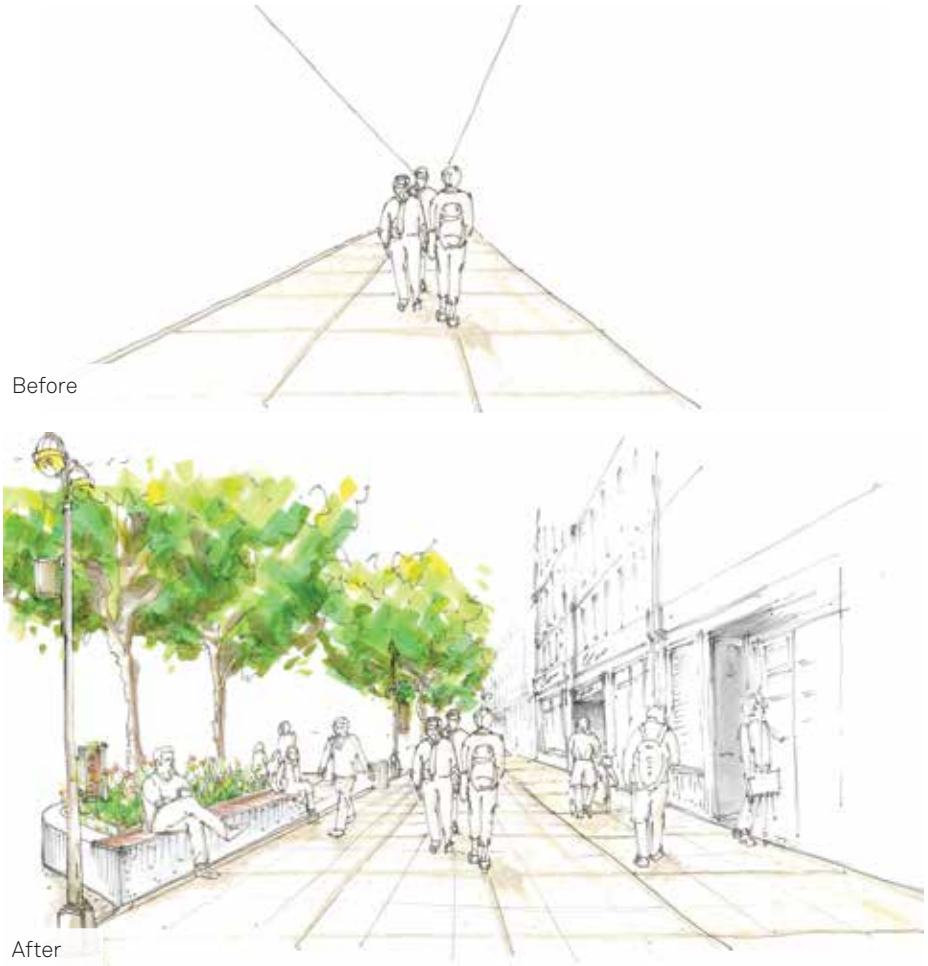
Service Infrastructure

COMBINING THE ELEMENTS

As noted earlier in this chapter, each physical element shaped by zoning has been discussed separately in order to better quantify and understand it, but it should always ultimately be considered in the context of the other elements within the sidewalk room. There are almost infinite iterations of how the various elements can be combined, depending on the existing conditions, the context around the sidewalk, the goals of the desirable outcome, and various other parameters. In some cases, the adjacent buildings already exist and cannot be changed in the immediate future, so the role of zoning policy is limited, but there might still be opportunities to improve the sidewalk experience by making changes within the public right-of-way. In these cases, the appropriate local city agencies should be consulted and improvement opportunities identified. In other cases, when new buildings are being planned, there might be a chance to set them back (if the existing sidewalk is too narrow) and to ensure that an active and engaging building wall design can be integrated. Below is an example of a toolkit of various elements that could be developed to provide a library of strategies to choose from in order to improve a network of existing sidewalks in a neighborhood. The final image shows how some of the key elements and strategies can be concurrently applied to collectively help improve a hypothetical existing condition, where the sidewalk is too narrow, is inactive and lacks amenities and landscaping. This example assumes possible changes in both the public and private property that improve all four planes of the sidewalk room. Communities should develop their own toolkit, or library of strategies, and use the methodology provided in this document to identify key issues and opportunities for improving the condition of sidewalks in their local neighborhoods.

Improving an Existing Sidewalk: An example of how some key strategies can be combined to improve an existing sidewalk condition. A toolkit of separate strategies is shown on the opposite page.

- Sidewalk curb extension
- Raised planter with Street tree
- Benches added
- Building setback to widen sidewalk
- Regular entrances required
- Appropriate transparency applied
- Increased architectural articulation in lower floors
- Street Lighting added to safety and character
- Signage regulations/ guidance



Building setback

Trees with walkable grates

Planters at grade

Planters at grade with trees + bench

Planters raised with seating

Planters raised with seating + trees

Bulbout with planter

Bulbout with planter and trees

Bulbout with raised planter, seating, and trees

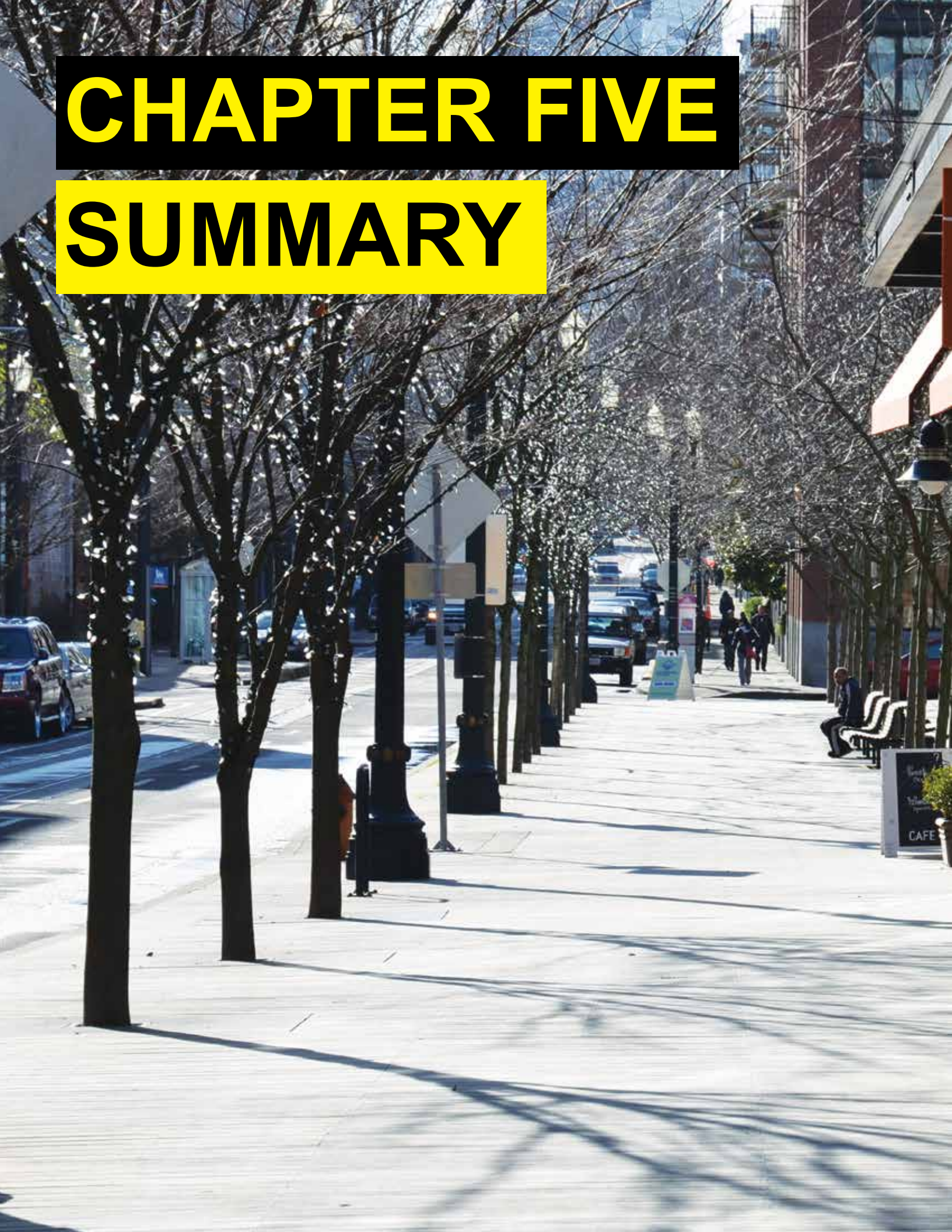
Planters at grade with trees

Planters raised with subway grate

Lighting, paving, street furniture and way-finding

CHAPTER FIVE

SUMMARY



perch
furniture
perch

SUMMARY

The sidewalk can be considered akin to an inhabitable room: four planes surrounding an individual standing at its center. Each plane contains multiple physical elements regulated by a variety of stakeholders and regulations, which collectively contribute to the pedestrian experience. Active Design: Shaping the Sidewalk Experience has focused primarily on those elements that are influenced by zoning policy as a way to highlight methods of affecting the form of the sidewalk. Understanding the parameters and characteristics of these physical elements from the perspective of the pedestrian begins to reveal the various strategies that policy makers and designers can utilize to shape the sidewalk room.

Well-designed sidewalks can promote use. While sidewalks are complex and dynamic spaces that differ depending on varying factors, they are most successful when they are designed according to their surrounding context. This includes considerations such as adjacent land use, street typology, scale of buildings, how the roadbed is distributed, traffic, local policies and projected pedestrian volumes. Further, sidewalks that are considered as part of a larger network can help to connect key destinations, such as schools, parks, offices, community centers, markets and public transit. In certain cases, the sidewalk itself can also act as destination point. Sidewalk design should also allow for safe and accessible pedestrian movement for all users, while considering the human scale and level of complexity experienced by the person moving through the space. Providing an increased level of detail in the lower portions of the building facades, breaking down the massing of larger developments, and allowing for a variety of speeds and types of activities, can ensure that the sidewalk space is engaging for the pedestrian. Whether lush and green, or busy and dynamic, considering a variety of pedestrian experiences is important in contributing to the interest and physical diversity of a city or neighborhood.

This publication is not intended as a best practices guide, as every street presents unique opportunities and challenges. Instead, the document asks designers, policymakers and public advocates to consider how they can influence this critical public infrastructure network from the point of view of the pedestrian.

Active Design: Shaping the Sidewalk Experience encourages the urban designer, architect, and landscape architect to realize that, with every building or open space they design, they are in fact contributing to the design of the sidewalk experience. By carefully considering how to detail buildings and open spaces to meet the sidewalk, designers can make critically valuable contributions to the public realm. This publication should guide the policymaker to become aware of the specific regulations that might ensure, encourage, or restrict certain kinds of pedestrian experiences, knowing that achieving the right balance of over-and under-regulation is critical. Attention at the early planning stages can have a great impact on a neighborhood's ultimate character and overall walkability. Finally, this publication

hopes to assist the public advocate and student gain the tools necessary to observe, understand, measure, and record the complexities of the sidewalk experience, empowering them to articulate their goals and rationales in asking for active and healthy sidewalks in their communities.

Communities that prioritize walkable sidewalks will enable and encourage people to be more physically active in their daily routines. As one of the most affordable and accessible forms of physical activity, walking even in short bursts as part of daily routines can contribute to the daily physical activity levels recommended by physicians. Sidewalks can also add value to neighborhoods, encourage community interaction, and provide a critical network of public open space within the city. By requiring sidewalks, asking for sidewalks, and carefully considering their design using the concept of the 'sidewalk room', those who shape the built environment can positively impact the health of communities.

The companion document, *Active Design: Shaping the Sidewalk Experience: Tools and Resources*, presents the reader with a series of tasks, actions and references. This companion document includes questions and considerations on the sidewalk environment, methodology for conducting sidewalk site visits, summaries of site visit analyses and zoning policy samples.

Active Design: Shaping the Sidewalk Experience should encourage the reader to take responsibility where they see opportunity, and to strive for healthy and active sidewalks.

GLOSSARY

The following terms are provided for your reference. Those marked with an (*) have been extracted directly from the New York City Zoning glossary (http://www.nyc.gov/html/dcp/html/zone/glossary.shtml).

Articulation (architecture): The method of styling and physical manifestation of a building. In this document, it refers to the façade detail, which adds visual interest, depth, and character. These elements contribute to the walking experience and help maintain the pedestrian's interest.

Awnings: Roof-like covers extending over or in front of an establishment to shade a portion of the sidewalk. These should be integrated with the building design to successfully provide shade, add visual interest, and attract passersby.

Balconies: Unenclosed platform extensions that project from the wall of a building, with a railing along their outer edges, often with access from a door or window. Activities on these upper level balconies can contribute to an animated, lively façade.

Bike Lanes: Portions of the roadway designated for bicyclists. They are usually demarcated by different colored striping or signage. Bike lanes often lie between the car lanes and the sidewalks.

Bike Racks: Also known as bicycle stands. These are stationary fixtures to which bicycles can be securely attached. They can help encourage active transportation and transit use. Their placement should not impede pedestrian movement along the sidewalk.

Bioswale*: A landscape element designed to capture storm water runoff from adjacent surface areas. It has inverted, sloped sides that allow rainwater to drain into it, and contains vegetation and mulch designed to remove pollutants before the water infiltrates the soil. Bioswales are required in certain parking lots accessory to commer¬cial and community facility uses.

Block*: A tract of land bounded on all sides by streets or by a combination of streets, public parks, railroad rights-of-way, pierhead lines, or airport boundaries.

Bollards: Temporary or permanent objects used as a traffic-calming measure and boundary between different modes of transportation and the pedestrian realm.

Building*: A structure that has one or more floors and a roof, is permanently affixed to the land, and is bounded by open areas or the lot lines of a zoning lot.

Building Height*: A building's elevation as measured from the curb level or base plane to the roof of the building (excluding permitted obstructions like elevator bulkheads). Strong building edges can help define the street. A building's sense of enclosure varies according to its bulk and height.

Clearance: The width of a clear path of paved passageway that pedestrians can walk comfortably, without hindrances from obstacles.

Commercial Building*: Any building occupied by commercial uses only.

Commercial Use*: Any retail, service, office, or other use allowed by special permit.

Curb: The step where the roadbed meets the sidewalk. Attention to curb detail helps facilitate ease of movement. For example, curb extensions can enhance pedestrian safety and provide spaces for functional elements.

Curb Cut*: An angled cut in the edge of a curb that permits vehicular access from a street to a driveway, garage, parking lot, or loading dock. In residential districts, width and spacing rules for curb cuts ensure adequate curbside parking.

Density*: The maximum number of dwelling units permitted on a zoning lot. The factors for each district are approximations of average unit size plus allowances for any common areas. Special density regulations apply to mixed-use buildings that contain both residential and community facility uses.

Display Window: The window of a store that faces the street and is used to showcase merchandise for sale inside the store. Attractive window displays are inviting and enhance the walking experience.

Dormer*: A permitted obstruction within a required setback area that may exceed the height of a building. In lower-density districts, it is often a window protruding from a sloped roof to provide light and air to the top floors of homes. A dormer can also bethe portion of a building allowed to penetrate a required setback above the maximum base height in order to provide variety to the base heights of buildings along the street. Both types of dormers are subject to size limitations.

Entrance: Place of ingress or entrance to an establishment. Both residential and commercial entries define the number of points at which a building is activated through access between the inside and outside.

Fence: A barrier that encloses or borders a field, or front yard, and usually indicates the line between private and public property. They can be made of various materials, to different levels of transparency, and typically range between 4–6 feet in height. In some cases fences are considered permitted obstructions and given maximum allowable heights.

Fire Escapes: Structures used to escape from a building in case of an emergency. They are usually metal stairways located along the outside walls. Beyond their functional purpose, fire escapes add a sense of rhythm and texture to the building façades.

Floor Area*: The sum of the gross area of each floor of the building, excluding mechanical space, cellar space, floor space in open balconies, elevators or stair bulkheads and, in most zoning districts, floor space used for accessory parking that is located less than 23 feet above curb level.

FRESH Food Store*: A full-line grocery store, established in underserved neighborhoods through zoning incentives, that promotes the sale of fresh food products.

Floor Area Ratio (FAR)*: The ratio of total building floor area to the area of its zoning lot. FAR is the principal bulk regulation controlling the size of buildings. Each zoning district has an FAR that, when multiplied by the lot area of the zoning lot, produces the maximum amount of floor area allowable on that zoning lot. For example, on a 10,000-square-foot zoning lot in a district with a maximum FAR of 1.0, the floor area of the zoning lot cannot exceed 10,000 square feet.

Mixed Building*: A building in a commercial district used partly for residential use and partly for community facility or commercial use.

Mixed-Use District*: A special-purpose district where one set of regulations applies to many different areas shown on the zoning maps as "MX" with a numerical suffix (such as "MX-8"). In MX districts, an M1 district is paired with a residential district (M1-2/R6, for example) and new residential and non-residential uses are permit¬ted as-of-right within the same building. In this district, a building that contains a residential use and any other use is a mixed-use building.

Open Space*: The part of a residential zoning lot (which may include courts or yards) that is open and unob¬structed from its lowest level to the sky, except for specific permitted obstructions, and accessible to and usable by all persons occupying dwelling units on the zoning lot. Depending upon the district, the amount of required open space is determined by the open space ratio, minimum yard regulations, or maximum lot coverage.

Overlay District*: A district superimposed upon another district that supersedes, modifies, or supplements the underlying regulations. Limited height dis¬tricts and commercial overlay districts are examples of overlay districts.

Pavement: Refers to the material and ground texture. Different colors and paving patterns can influence walking patterns and contribute to a place's distinctive character. Types of texture include tinted or porous concrete, pavers, asphalt, granite, and cobblestones.

Permitted Obstruction*: A structure or object that may be located in a required yard or open space or pen¬etrate a height limit, setback area, or sky exposure plane. A balcony, trellis, air conditioner, gutter, or fence is a permitted obstruction in required yards or open space. Certain structures on a roof, such as elevator bulkheads, water towers, and parapets, are permitted obstructions that may penetrate height limits, setback areas, or sky exposure planes.

Planters: Decorative pots or stands along the sidewalk or within private property. Planters add color and seasonal variety to sidewalks.

Planting Strips*: Grassy areas that extend along the edge of the curb within which street trees are planted. Planting strips are a required streetscape improvement in certain districts. They provide sufficient width and soil depth for trees.

Privately-Owned Public Space (POPS)*: An amenity provided and maintained by the property owner for public use, usually in exchange for additional floor area. Located mainly in the high-density central business districts of Manhattan, these spaces typically appear in the form of arcades or public plazas with seating and landscaping, and may be located within or outside a building.

Security Gate: A movable barrier, usually on hinges, that prevents entry to an establishment.

Service Access: An entrance intended for the delivery of goods and removal of refuse. It allows service vehicles to reach utility areas and garages within the buildings.

Setback, Building*: The portion of a building that is set back above the base height (or street wall or perimeter wall) before the total height of the building is achieved. The position of a building setback is controlled by sky exposure planes in height factor districts and, in contextual districts, by specified distances from street walls. When a building is not built up to its property line, the building setback becomes part of the extended sidewalk.

Setback, Front Yard or Ground Level: The portion of open area at ground level between the front of a building wall and the street line. Front yards are required in certain districts (usually residential); often with rules governing the depth of the space, minimum levels of planting, permeable surface coverage, and allowable permitted obstructions. When occurring in commercial areas, these spaces can be designed as public plazas, or privately-owned-public-spaces (POPS).

Sidewalk: A path for pedestrians alongside but higher than a road. A sidewalk includes both hard-paved and soft, landscaped areas. The width of a comfortable sidewalk ranges from 8 to 20 feet, depending on the site context and volume, speed, and frequency of pedestrian usage. Other considerations include desired clear path, plantings, and street furniture.

Sidewalk café*: A portion of an eating or drinking estab¬lishment located on a public sidewalk. Sidewalk café regulations are administered by the Department of Consumer Affairs.

An enclosed sidewalk café* is contained within a structure.

An unenclosed sidewalk café* contains readily remov¬able tables and chairs.

A small sidewalk café* is unenclosed and contains no more than a single row of tables against the street line, extending no more than 4½ feet from the street line, with no barrier between the café and the sidewalk.

Signage*: Any graphics—whether words, pictures, or symbols—on or attached to a building or other structure. Signage should be of appropriate sizes, location, and materials to fit its urban context. Well-placed signage can provide a visual guide that enhances pedestrians' sense of orientation.

An accessory sign* directs attention to a business, profession, commodity, service, or entertainment con¬ducted, sold, or offered on the same zoning lot.

An advertising sign* directs attention to a business, profession, commodity, service, or entertainment con¬ducted, sold, or offered on a different zoning lot.

A flashing sign* is any illuminated sign, whether stationary, revolving, or rotating, that changes light or color.

An illuminated sign* uses artificial light or reflected light from an artificial source.

Slope: Refers to a sidewalk's inclination or slant. The sidewalk gradient should typically follow the roadway gradient. According to the Americans with Disabilities Act (ADA), sidewalks must have a slope of less than 1:20; otherwise they are considered ramps and subject to a different set of ADA standards.

Stoop: A platform with steps leading up to it at the building entrance that connects the sidewalk and the private entrance of a building or establishment.

Story*: The part of a building between the surface of one floor and the ceiling immediately above. A cellar does not count as a story.

Street*: Any road (other than a private road), highway, parkway, avenue, alley, or other way shown on the City Map, or a way at least 50 feet wide and intended for public use connecting a way shown on the City Map to another such way or to a building or structure. "Street" refers to the entire public right-of-way, including public sidewalks.

A narrow street* is a street that is less than 75 feet wide.

A wide street* is a street that is 75 feet or more in width. Most bulk regulations applicable to wide streets are also applicable to buildings on intersecting streets within 100 feet of a wide street.

Street Furniture: Refers to objects and pieces of equipment installed on streets and sidewalks for various purposes. The placement of street furniture like benches, telephone kiosks, and post boxes influences the ways pedestrians use the sidewalk.

Street Line*: A front lot line separating the zoning lot from the street.

Street Vendors: Vendors who sell their goods usually on the sidewalk rather than in a shop or store. Street vending structures like newsstands, mobile food pushcarts, and retail kiosks provide transient gathering spots for pedestrians. Care should be given to the location of these structures so that they do not impede main pedestrian flow.

Street Wall*: A wall or portion of a wall of a building facing a street.

Subway Grates: Ventilation shafts for subway tunnels that pass below the sidewalk.

Transparency: The quality or state of being transparent. It usually refers to the proportion of the light passed through a glazed surface that allows objects to be visible. Transparency is usually articulated by windows that reveal activities and uses within the building to the passerby, thereby producing a sense of animation and visual interest. Evaluation of transparency should not include garage entrances or utility and service areas.

Trash Cans: Containers for temporarily storing refuse and waste. Trash cans should be placed in such a way that they do not impede pedestrian movement. Curbside trash cans are often made of tin, steel, or plastic.

Tree Canopy: The layer of leaves, branches, and stems of trees that provides shade and a sense of enclosure.

Tree Pits: An underground structure and system of aboveground plantings that collects and treats stormwater using bioretention. Tree pits allow water and air to get to the roots of the street trees. Maintenance to adjust for tree growth and prevent any settlement that may be a trip¬ping hazard is required.

Visual Corridors: Open areas that provide an unobstructed view from upland streets through a waterfront zoning lot to the shoreline. Where visual corridors serve as extensions of streets, they must be as wide as the streets; elsewhere, visual corridors must be at least 50 feet wide.

Yard*: A required open area along the lot lines of a zon¬ing lot that must be unobstructed from the lowest level to the sky, except for certain permitted obstructions. Yard regulations ensure light and air between structures.

A front yard* extends along the full width of a front lot line. In the case of a corner lot, any yard extending along the full length of a street line is considered a front yard.

A rear yard* extends along the full width of a rear lot line. In residential districts, the minimum depth of a rear yard is 30 feet, except in R2X districts. In commercial, manufacturing, and R2X districts, the minimum depth of a rear yard is 20 feet. A corner lot is not required to have a rear yard.

In commercial and manufacturing districts, and for some community facility buildings in residence districts, the rear yard may be occupied entirely by a single-story building up to a height of 23 feet.

A rear yard equivalent* is an open area on a through lot required to comply with rear yard regulations.

A side yard* extends along a side lot line from the required front yard, or from the front lot line if no front yard is required, to the required rear yard, or to the rear lot line if no rear yard is required. In the case of a corner lot, any yard that is not a front yard is considered a side yard.

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CHAPTER 2: SIDEWALKS// THE EXPERIENCE

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