MOVE THIS WAY

Making Neighborhoods More Walkable and Bikeable

ChangeLab Solutions
Law & policy innovation for the common good.

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CHAPTER 1: Introduction

Walking & Biking toward Healthy, Vibrant Communities

Take a moment to think about the neighborhood where you live. Can you easily walk or bike to work? How about to essential services, like public transportation, parks, libraries, and grocery stores? Do you have well-maintained, uninterrupted sidewalks and an accessible network of bicycle facilities, such as bike lanes and trails? Are your streets clean and attractive, with landscaping, benches, lighting, and other features that make your journey more pleasant? If there are children in your household, do you feel comfortable allowing them to walk or bike to school?

If you answered "no" to many of these questions, you are not alone. Far too many communities lack the basic amenities that make walking and biking safe, comfortable, and convenient. During the last half-century, urban development has largely focused on the construction of automobile-friendly suburban communities. Many cities and towns built during this period have wide roads meant to maximize car volume and speed, narrow or absent sidewalks and hazardous street crossings, few or discontinuous bicycle routes, and long distances separating destinations such as home, work, shops, and schools. Meanwhile, denser, more urban communities also face barriers to walking and bicycling. In some of these places, aging infrastructure and escalating maintenance costs have left existing pedestrian, bicycle, and public transportation amenities in bad repair, while the suburbanization of many jobs and businesses has required city residents to drive to work. These trends have a profound influence on our health, economy, environment, and overall quality of life. Among the risks to health:

Declining rates of walking and bicycling linked to increased obesity and other chronic diseases: Chances are, the more you drive, the more you weigh. In an international survey, researchers found that the United States has some of the lowest rates of walking, biking, and public transportation ridership compared to other industrialized countries, coupled with higher rates of car usage, and found that these factors are directly correlated with higher obesity rates.[1] This trend holds within the U.S. too: for instance, one American study showed that every additional hour spent in a car per day is associated with a 6 percent greater risk of being obese.[2] More than two-thirds of American adults, and almost one-third of children and teens, are overweight or obese and thus at increased risk for a range of health conditions, such as heart disease and diabetes.[3, 4, 5]

High rates of traffic crashes resulting in injury and death: Fast speeds, heavy car volumes, and unsafe infrastructure make our roads dangerous for everyone — drivers, bicyclists, and pedestrians alike. On average each day, more than 90 people are killed and more than 6,000 people are injured in traffic crashes, the majority of whom are car drivers or passengers.[6] For pedestrians and bicyclists, the introduction of traffic safety measures (such as traffic calming features, well-marked street crossings, and bike lanes) have been linked to a decreased risk of injuries and fatalities.[7, 8]

Health risks related to air pollution: Higher driving rates result in poorer air quality across the region, with various potential health consequences, such as increased risk of asthma and other respiratory diseases, coronary heart disease, premature births, and cancer.[9, 10, 11] Air pollution can also prevent physical activity and exacerbate chronic conditions (for example, by triggering asthma attacks).[12] It is estimated that traffic-related air pollution in the U.S. results in 40,000 premature deaths annually.[13] Perhaps even more critically, transportation-related emissions contribute significantly to climate change, which could lead to major disruptions to our way of life, endangering our health through potential increases in extreme weather events, food and water shortages, displacement of coastal communities, and other potential hazards.[14]

Difficulties accessing vital services and destinations: Sprawling development can make it harder to access the resources essential to a healthy lifestyle. Car owners may find themselves spending precious time and resources driving to the edge of their community or even farther afield to get to work, schools, grocery stores, hospitals, and other community institutions.[15] Meanwhile, households without cars may find themselves out of luck, especially in communities where there are few public transportation alternatives.

Many communities are taking steps to retrofit their streets to promote walking and biking. Diverse types of places — urban, suburban, and rural — are addressing infrastructure gaps and working to build a continuous network of pedestrian- and bicycle-friendly facilities between key destinations. They are ensuring that routes to transit stops, parks, schools, and neighborhood commercial centers are safe and easily accessible. They are adding features such as lighting, landscape buffers, bicycle lanes, and well-marked crosswalks. And they are starting to see real improvements to residents' quality of life. In addition to promoting physical activity and easier access to neighborhood resources,[16] these efforts can help strengthen the social fabric of communities. For instance, studies have shown that residents living in walkable environments are more likely to know their neighbors and get involved in local civic processes.[17, 18] Small businesses may also see a benefit, as pedestrians and cyclists are apt to spend more of their dollars locally.[19, 20] Given these potential benefits, it is no surprise that increasing numbers of people want to live in walkable and bikeable places — recent consumer surveys show that more than half of homebuyers want to live, work, and play in vibrant, walkable places with easy access to a range of retail and services, public transportation, and jobs.[21]

This guide explains how to use one set of tools – zoning and subdivision codes — to make your community more walkable and bikeable. It was designed to assist public health department professionals and advocates in their efforts to revise their local codes, but it may also be useful to other stakeholders routinely involved with updating and revising zoning and subdivision codes, including elected officials, planners, and local advocates.

Zoning and subdivision codes specify requirements for the design of future development, so language requiring bike and pedestrian facilities can create a major shift in the way roads are built and maintained in your community. The sample codes presented in this toolkit are meant to complement and implement other strategies that may be needed to improve bicycle and pedestrian conditions in your community, such as comprehensive plans (also known as general plans), bicycle and pedestrian master plans, and complete streets policies.

Design Needs of Pedestrians & Cyclists

Streets designed only for cars are dangerous for everyone else, and they contribute to the obesity epidemic by making it difficult for children and adults to get regular physical activity during their daily routine. In contrast, "complete streets" are safer, convenient, and comfortable not only for drivers but also for pedestrians, bicyclists, children, and people with disabilities. All modes of travel – from walking to bicycling to public transit – must offer safety, access, and comfort to succeed.

Safety

Streets should keep pedestrians and bicyclists safe from potential physical harm or exposure to environmental hazards.

Complete Streets. Forty percent[22] of our roads do not have sidewalks even though injuries and fatalities are more likely to happen in places without sidewalks or crosswalks. The risk of pedestrian fatalities significantly increases to 45 percent when crosswalks are absent (compared to 10 percent when crosswalks exist).[23] Studies show that streetlights and paved surfaces prevent injuries and crashes, enhancing safety for not only for bicyclists but also for pedestrians and motorists.[24] Safety-related street components include sidewalks and bike lanes, pedestrian-scaled lighting, well-spaced trees and vegetation, and the absence of automotive-oriented uses. Frequent and well-marked pedestrian crossings are a key feature of safe neighborhoods.

Reducing speeds. Collisions with cars traveling 30 miles per hour result in pedestrian deaths 40 percent of the time, compared to 5 percent of the time for collisions with cars traveling 20 miles per hour.[25] Specific engineering features – narrower travel lanes, bulb-outs, and roundabouts – calm traffic and enhance street crossings, which can alleviate fears about walking and reduce the incidence of traffic-related pedestrian injuries and fatalities.

Safety from crime. Concern about safety is a major barrier to walking or bicycling.[26] Studies have shown a positive relationship between safe environments and walking, especially for children and seniors.[27] Urban design strategies that create opportunities for pedestrian activity – ground-floor retail, daytime and nighttime uses, landmarks, and pedestrian-scaled lighting – can create safer and more enticing environments for pedestrians and bicyclists alike.

Access

Street connectivity and a supportive multi-modal transportation network are central to pedestrian- and bicycle-friendly neighborhoods.

Compact and complete neighborhoods. Compact and mixed-use neighborhoods bring destinations closer to each other, reducing the need to travel long distances for basic needs such as food, jobs, and retail. A strong mix of land uses can attract pedestrian activity, and amenities such as outdoor dining and landscaping can enhance the sense of place. Parks and open space can have significant positive impacts on health and well-being. In addition to promoting physical activity, access to a natural environment and green spaces can reduce stress, improve mental health, and increase longevity.[28] A study conducted in Los Angeles showed that residents living within a mile of a park are four times more likely to visit the park once per week or more.[29] Zoning components that directly impact connectivity include shorter block lengths, limited cul-de-sac use, ground-floor commercial uses, and standards addressing parks and recreational spaces.

A multi-modal transportation network. Improved access to public and active transportation modes can lead to a higher quality of life through greater physical activity; increased access to jobs, services, and retail; and reduced transportation costs.[30, 31, 32] A well-connected network of streets, sidewalks, and paths improves transit accessibility and makes it more likely that public transit users will walk or bicycle.

Public sidewalks and bicycle lanes or paths should also connect key destinations throughout the neighborhoods, such as schools, parks, and commercial areas. Bus shelters should be visible, shield transit riders from the elements, and provide transit information in the form of maps or electronic "next bus" features.

Comfort

Comfort often takes a back seat to safety and access when designers consider pedestrians' and bicyclists' needs. However, streets that create a comfortable and enticing pedestrian realm increase the likelihood that people will walk, bike, or take public transit when given the choice. This is especially true for warmer or humid climates where active forms of transportation can be more taxing.

Cultivating a sense of safety and well-being for pedestrians and bicyclists means providing pedestrian-scaled streetscapes (e.g., lighting and signage), aesthetic enhancements (e.g., public art or well-maintained landscape features), and amenities (e.g., abundant seating, bus shelters, or water features). It is equally important to eliminate elements that make streets feel less safe, such as surface parking lots, abandoned lots, or excessively long street walls.

CHAPTER 2: Common Local Codes & Barriers to Implementation

Zoning Codes

What is zoning?

Zoning is the mechanism by which cities and counties regulate how parcels of land can be developed — both the types of uses allowed and the features of the physical structures that can be built. Zoning works by legally dividing a jurisdiction (a city or a county) into separate geographic districts or "zones" and then applying different rules or regulations that govern the built environment within each zone. Zoning codes generally determine what types of structures can be located in each zoning district (e.g., how large or small a structure can be, how tall, etc.) and how structures within the district can be used (e.g., residential, commercial, industrial, etc.).

How are zoning codes created?

Zoning generally takes place at the local level. Zoning codes are created legislatively, meaning that they have to be voted on by the city council or county board of supervisors. Each jurisdiction has a zoning code within its municipal code (for a city) or county code that creates the overall zoning map for the jurisdiction, as well as the rules that apply within each zoning district. To make changes to the zoning district map or to the zoning regulations within a district, the legislative body has to vote to pass an ordinance to amend the zoning code. Once an ordinance is passed, it becomes law, and the zoning code is amended accordingly.

In some states, such as California, ordinances that amend the zoning code can be adopted through a ballot initiative process. Under this process, a measure is placed on the ballot in a local election, and if it garners a majority of votes, it becomes law, just as it would if a legislative body had passed the ordinance. A measure can be placed on the ballot by the local legislative body or through a petition process whereby the proponents of the measure collect a specified number of signatures from voters in the jurisdiction.

How does zoning affect pedestrian- and bicycle-oriented design?

Zoning codes have a big influence on how pedestrian-friendly or bike-friendly a community is. Not only do zoning codes create rules about the size, location, and use of buildings within a zoning district, but they also govern the surrounding public spaces. For example, zoning codes set standards for the width of sidewalks and streets, the location and frequency of crosswalks, the placement of pedestrian medians, the installment of bicycle lanes, or the inclusion of traffic-calming devices such as speed bumps. Zoning codes can also create mixed-use districts where structures can be used for both commercial and residential purposes, allowing more commerce to happen where people live and reducing the need for motor vehicles. Zoning can even foster greater socioeconomic diversity in communities by requiring a proportion of all newly constructed housing units to be affordable to low-income residents. This is called "inclusionary zoning" or "inclusionary housing."

Zoning codes can create active, vibrant, and compact neighborhoods by allowing, requiring, restricting, and incentivizing an array of uses. For example, allowing community gardens, farmers' markets, or edible landscaping in residential, institutional, or open space ensures access to healthy and nutritious food in neighborhoods where grocery stores are not present or easily accessible. On the other hand, restricting fast food restaurants ensures that unhealthy foods are prohibited in certain areas, especially around schools, parks, or day care centers. Many municipalities utilize incentives to encourage developers to provide features that promote the public good. For example, a zoning code may allow a reduction on the parking spaces a developer is required to provide in exchange for a park or community center.

What are the legal limitations and requirements for zoning to be valid?

To be legally valid, zoning codes have to be reasonably related to the public welfare, they must comply with all constitutional requirements such as due process, and in many states (including California, Minnesota, Pennsylvania, and Wisconsin, among others) they must be consistent with the comprehensive or general plan of the jurisdiction. In addition, zoning may run afoul of the law when it has a disproportionately adverse impact on specific protected classes of people, such as minorities or immigrant populations. In general, any ordinance to amend a zoning code will include a series of "findings" that outline the rationale for the proposed changes, demonstrating that they are reasonably related to the public welfare, consistent with the comprehensive plan, and not discriminatory or otherwise unconstitutional.

Subdivision Codes

What are subdivision codes?

A subdivision is a tract of land that has been divided into multiple parcels or lots, but which remain legally grouped together for purposes of a specific development. In contrast to zoning codes, which regulate the type and intensity of uses allowed on a parcel of land, subdivision codes regulate how land is divided to accommodate uses permitted by the zoning code. Just as they have zoning codes, cities and counties also have subdivision codes that govern the process for subdividing land and establish the types of infrastructure to be provided to new plots. For example, subdivision codes can require residential lots to have a minimum level of access to public roads and utilities and can regulate how many residential or commercial units may be sited on one parcel. Subdivision codes can also govern how land is developed; for example, they can require buildings to be placed a certain distance from the street or can regulate the amount of space between buildings. This can determine the type of development a subdivision can be used for (for example, as a shopping area, a tract of single family homes, office buildings, etc.).

How do subdivision codes affect pedestrian- and bicycle-oriented design?

Because subdivision codes regulate the types of services that must be available to units in a subdivision, there are a number of ways that subdivision codes can facilitate pedestrian- or bike-friendly design. For example, subdivision codes can require that a percentage of lots within a subdivision have access to a bike lane, or they can set standards for sidewalk width on roads that abut residential or commercial lots within a subdivision. Subdivision codes can also foster greater density within subdivisions and can determine the development of combined commercial and residential structures within the same subdivision. Similar to mixed-use zoning, this kind of development reduces the distance that residents have to travel to access services, decreasing their dependence on motor vehicles and making walking and cycling more attractive.

How are subdivision codes created?

Just as with zoning codes, amendments to a municipality's subdivision code are made legislatively, through an ordinance passed by a city council or county board of supervisors.

What are the legal limitations and requirements for subdivision codes?

Local subdivision codes must abide by all relevant state laws governing subdivisions. For example, California's Map Act (which creates the rules for how land can be subdivided) requires municipalities to have a subdivision code to regulate subdivisions in its jurisdiction, but the Map Act preempts local regulations that contradict the provisions of the Map Act itself.[33] Amendments to a subdivision code that affect or change the way land or a subdivision can be used must also meet constitutional requirements of due process. This means that the changes to the code must not result in arbitrarily depriving someone of a property interest without a sufficiently legitimate reason. Furthermore, changes that substantially alter the value of private property may constitute a "taking," which requires the government to compensate property owners for their loss in value.

Unified Development Codes

Increasingly, jurisdictions have begun to combine their zoning and subdivision codes (and in some cases, other codes such as the building code) into a unified land development code.

Unified development codes are enacted through the same legislative process described above for zoning and subdivision codes. Consolidating local zoning and subdivision codes into one unified development code does not change the legal requirements for adopting zoning or subdivision provisions, nor does it change the legal limitations and requirements that apply to those provisions, as discussed in the previous sections. Combining the relevant codes in one place makes it easier to work within the framework of the comprehensive plan. In jurisdictions where zoning and subdivision codes are legally required to be consistent with the comprehensive plan, consolidation helps ensure that the codes comply with that law.

Common Implementation Barriers

Strategies to create pedestrian- and bike-friendly design can sometimes be controversial, encountering strong political opposition at the local level. Opponents of pedestrian- and bike-friendly design commonly express three chief concerns: increased traffic congestion, decreased safety, and the economic cost of the improvements.

Traffic Congestion

Some argue that pedestrian- and bike-friendly design changes worsen traffic conditions. The argument is that adding bike lanes or reducing the number of motor vehicle lanes (resulting from "road diets") increases traffic congestion and impedes flow, resulting in increased commute times for drivers and transit riders without actually reducing the total number of vehicles on the road.[34, 35] For example, in 2012, a poll of residents in Glendale, California, showed 80 percent public opposition to the implementation of a road diet, on the grounds that it would increase congestion.[36] A 2004 report from the U.S. Department of Transportation found that road diets on roads that carry 20,000 or more vehicles per day did result in greater congestion, which resulted in diverting traffic to alternate routes.[37]

However, other studies have shown that adding bike lanes and reducing car lanes can and do result in smoother traffic flow, particularly for roadways that carry less than 20,000 vehicles per day. A report by the City of Pasadena notes that "in a 3-lane system [as opposed to 4 or more lanes] there is always one lane for driving, and one lane for turning, making driving safer and more reliable, with fewer crashes and frustrations." Other reports have found that on roads that have gone on road diets, capacity remains the same.[38, 39]

Safety

Opponents to pedestrian- and bike-oriented development sometimes argue that such strategies decrease overall safety for pedestrians, cyclists, and drivers alike and that bike lanes in some cases actually make cyclists less safe. One article from 2008, for example, argues that locating bike lanes on the right side of the road creates a hazard for cyclists, increasing the likelihood that they will be cut off by cars attempting to turn.[40]

Proponents point to studies that contradict this argument, showing overall increased safety with bike lanes and pedestrian improvements. For example, one 2012 study found that the installation of bicycle lanes in New York City did not lead to higher rates of collisions and theorized that the slowing of traffic increases safety.[41] Another study from 2009 concluded that improvements such as bike lanes, increased street lighting, paved surfaces, and low-angled grades contribute to overall safety.[42]

Cost

Opponents of pedestrian- and bike-friendly design argue that it's too expensive to be a priority. They claim that because the majority of people drive, transportation funds are best spent on projects that primarily benefit drivers, such as highway improvements.[43] Such opponents also assert that pedestrian- and bike-friendly design is ineffective at facilitating walking and biking and that places that have made such improvements have not seen increases in pedestrianism or bicycling in their communities.[44]

On the other hand, there is evidence that the cost of pedestrian- and bike-oriented improvements is more than made up for by overall savings in health care costs and fuel savings. In Portland, Oregon, alone, it is estimated that city residents will have saved $64 million in health care costs by 2017 because of increased bicycling spurred by the city's bike-friendly design.[45] By 2040, Portland will have invested $138 million to $605 million in bike-friendly design yet saved $388 million to $594 million in health care costs and $143 million to $218 million in fuel costs, a benefit-cost ratio of up to 4 to 1.[46]

There is also evidence that pedestrian- and bicycle-oriented improvements do actually result in more pedestrianism, more bicycling, and less driving.[47] One study of cities across the country estimated that for every 1 percent increase in the length of designated bicycle lanes, there was a 0.31 percent increase in the number of bicycle commuters.[48] Other studies have concluded that those who live near walking or hiking trails are 50 percent more likely to meet physical activity guidelines and that those who live near bike lanes are 73 percent to 80 percent more likely to bicycle.[49, 50, 51, 52]

CHAPTER 3: Addressing Health Disparities

Health & Equity

Our built, social, and economic environments have a tremendous impact on our health, and increasingly we must grapple with the reality that health risks and resources are not distributed evenly. Communities with higher concentrations of low-income people and people of color are more likely to face unhealthy conditions, such as environmental pollution, dangerous traffic patterns, neighborhood crime, low-quality housing, and high numbers of fast food outlets and liquor stores.[53] These communities typically have less access to good schools, stable employment, affordable health care, safe parks and recreational spaces, places to buy healthy food, and meaningful opportunities for civic engagement.[54] Such discrepancies in resources can amount to staggering differences in health; for instance, a child born into poverty is seven times more likely to report poor health than a child born to a wealthier family, and can expect to die 6.5 years sooner on average.[55]

Although it is important to improve walking and biking amenities in all communities, to ensure lasting progress in tackling our chronic disease epidemic, we must pay special attention to the communities where health needs are greatest. Low-income people, rural communities, seniors, people with limited mobility, and other vulnerable populations face particular challenges to living a healthy lifestyle, including the following:

Neighborhoods without access to healthy resources: Low-income households and people with limited mobility are less likely than others to own a private vehicle and more likely to use "active transportation" modes such as walking, biking, and public transportation.[56] While this may promote increased physical activity, such potential benefits are offset by the lack of healthy options within the immediate community. Low-income neighborhoods often lack the resources essential to health, such as employment centers, grocery stores, recreational facilities, healthcare providers, and other civic institutions.[57]

Residents may face difficult choices if these resources are too far away to access by biking and walking and there are no convenient transit routes. For instance, only about one-quarter of low- and middle-skilled jobs are within a 90-minute ride on public transit for commuters in metropolitan areas, meaning that low-income people may have to spend significant amounts of time and money to reach appropriate jobs.[58] In communities without grocery stores or other places to buy healthy food, residents may rely on poor-quality, unhealthy food at local convenience stores and restaurants, or they may have to take a difficult journey on transit to get to farther-flung stores.[59] For many, these transportation barriers are prohibitive: for example, it's estimated that more than half a million Americans with disabilities almost never leave their homes because they do not have access to reliable public transportation options.[60]

Lower-quality and unsafe bicycle and pedestrian infrastructure: Low-income communities are more likely to lack amenities that make biking and walking comfortable and safe.[61] For example, 89 percent of high-income neighborhoods have adequate sidewalks, compared to 59 percent of middle-income neighborhoods and 49 percent of low-income neighborhoods. The same pattern holds for other types of infrastructure: 13 percent of high-income communities have marked crosswalks versus 7 percent of low-income communities, while 8 percent of high-income communities have traffic-calming features, compared to 3 percent of low-income communities.[62] Low-income communities may also see greater delays in maintenance and upgrades relative to more wealthy communities.[63]

These conditions contribute to the higher rates of traffic crashes and fatalities in lower-income communities. Nationally, the number of pedestrians injured in the poorest census tracts is more than six times higher than in the richest census tracts.[64] The story is similar for

cyclists — the number of injuries is almost four times higher in poor areas than in rich ones.[65] Neighborhoods that feel unsafe — because of dangerous traffic conditions or high crime rates, both of which are more prevalent in low-income communities — also discourage residents from biking, walking, and other outdoor physical activities, preventing people from making all but the most essential trips.[66]

Unsupportive land use policies and fewer opportunities to get involved: Many of the communities that experience the greatest health disparities also tend to have lower rates of participation in political and civic processes, which can be exacerbated by linguistic, cultural, and educational barriers. Thus, residents may have fewer opportunities to voice concerns about transportation issues facing their communities.[67]

Urban planning policies reflect these disparities in political participation. Even though more residents bike and walk in lower-income communities, these areas are less likely to have zoning or subdivision codes that require pedestrian- or bicycle-friendly infrastructure than upper-income communities are.[68] Ninety-one percent of high-income communities require pedestrian-oriented design elements such as sidewalks, crosswalks, and so on. But only 58 percent of low-income communities have such requirements. Similarly, 14 percent of higher-income communities have laws that mandate bike lanes, but only 5 percent of low-income communities do.[69]

Many of these poorer neighborhoods are also dealing with incompatible land uses, such as residences located near polluting industrial and waste facilities. Zoning codes may not require developers to provide basic infrastructure for walking and biking for properties zoned for industrial/manufacturing or mixed-use.[70]

Mobility challenges in rural and exurban areas: Rural communities face particular health challenges, with higher mortality rates and a greater incidence of many chronic and acute diseases.[71] With large distances separating destinations, lower population densities, and fewer resources to invest in infrastructure, rural towns may struggle to provide even the most basic pedestrian and bicycle facilities, and public transportation service may be meager or nonexistent. About 40 percent of people living in rural areas — over 12 million people — live in counties without public transportation.[72] Low-income people, seniors, and those with limited mobility are especially vulnerable in rural areas; they face a higher risk of social isolation and even less access to health-promoting goods and services than residents in denser communities.[73]

Pedestrian- and bicycle-friendly infrastructure alone cannot solve these persistent health disparities; helping communities hardest hit by chronic, preventable illness will require a comprehensive range of policies and programs, as well as social, educational, and economic support that provides residents with both the knowledge and the means to lead healthier lives. Yet targeted investments to improve walking and bicycling conditions for vulnerable populations can have a noticeable impact on residents' health. In fact, since lower-income and other vulnerable populations are more dependent on walking and biking, the impact of these improvements may be felt more deeply there than in other communities. The benefits extend beyond health — improvements that increase walking and biking can improve quality of life for local residents, reduce our environmental footprint, and help revitalize neighborhoods and the local economy.

Zoning Strategies to Address Health Disparities

Creative approaches to zoning and subdivision codes show great potential to address past inequities. This section describes a few zoning tools (zoning changes, buffers/overlays, and inclusionary zoning), while the following section outlines some policy strategies that promote health equity. Depending on your local context and your state's laws, it may make sense to get involved in a policy strategy in addition to, or instead of, working on your community's zoning codes. For example, your community can develop a stand-alone Complete Streets resolution or integrate active transportation policies into your Comprehensive or General Plan. As the primary land use document, a community comprehensive plan contains policies and implementation strategies that guide the way a community takes shape. See Appendix A for links to resources that can help you implement these strategies.

Zoning has two components: 1) a zoning map, which specifies categories of places ("zones"), down to the individual parcel; and 2) a zoning ordinance (aka "zoning code"), which specifies the requirements that apply to properties in each zone. A basic zoning ordinance specifies permitted, conditionally permitted, and restricted uses for all parcels within a given zone, as well as other requirements for how the land may be built out (such as building height limits, setback requirements, and other design guidelines).

Zoning changes

One way a community could address health disparities is to redraw its map boundaries. For example, most communities assume that few pedestrians and bicyclists will travel through areas zoned for industrial uses, so they may not include requirements for basic bicycle and pedestrian amenities in such zones. But if a community has a concentration of low-income households in a "light industrial" zone that borders an area zoned "residential," residents could request to change these parcels to residential zoning to qualify for pedestrian- and bicycle-friendly features.

The existing land use context is critical — a proposal to change zoning designations may be less likely to pass if the new zoning is substantially different, and a large number of properties will become "non-conforming" uses (for example, a recycling facility in a new residential zone could be considered non-conforming). One way to deal with this issue is to "grandfather" these non-conforming properties, allowing them to continue their operations until they substantially change the nature of their activities. However, map amendments may be most feasible in neighborhoods with many vacant or undeveloped parcels or in communities that are conducting a more comprehensive zoning revision that includes extensive zoning changes across the jurisdiction.

A community could also amend the text of its zoning ordinance to add requirements and incentives that address health disparities. For example, a community could decide to change its zoning code for "medium residential" zones to require that apartment buildings provide a minimum number of bike parking spaces. Such a change would impact all properties across the jurisdiction that fall within the "medium residential" zone. Even though this is a rather blunt tool (impacting the entire jurisdiction), it can still address disparities affecting specific neighborhoods or groups. For example, we might reasonably assume that multi-family apartment buildings are more likely to house low-income households that do not own cars. Thus, the code amendment to add bike parking spaces would likely have a greater impact for low-income residents but would have the added benefit of improving quality of life for everyone who lives in multi-family housing in the community.

Creating new health-supporting zoning designations

Once communities are built out, it may be challenging to create substantial changes to prevailing land use patterns. For instance, many suburban communities have been developed with a strict division of land uses — wholly separated zones for single-family homes, multi-family homes, commercial, institutional, and industrial properties, which has disconnected residential neighborhoods from daily necessities. In this context, standard zoning code and map amendments may not be sufficient to transition to new, more livable development patterns.

Planners are trying to create more flexibility within this system through new zones, buffers, and overlays that respond to arising needs or priorities. For instance, many communities are developing transit-oriented district (TOD) zones around major public transportation hubs, or pedestrian-oriented overlays around neighborhood shopping centers. These more targeted forms of zoning may also help to address health disparities, since they can be applied to limited areas where the barriers to health are greatest. See the case study on Baltimore's TransForm rezoning process (page 19), an example of a community experimenting with buffer and overlay zoning tools to address health needs.

These tools can be used interchangeably to some degree, but they do have a few differences. Planners can use new zoning to signal a departure from current zoning (such as a new mixed-use zone) or to tailor more general regulations to a specific neighborhood. Zoning overlays, which are quite common for habitat and historic preservation, can generally serve a similar purpose, but as the name implies, they're a set of policies that build upon the existing underlying zoning with additional (usually more specific or stricter) requirements. Zoning buffers tend to improve transitions between existing zones, which may be an especially useful strategy for residential communities in close proximity to industrial facilities or freeways. In practice, selecting the appropriate tool to use may depend on the specific outcomes desired, the local planners' familiarity with these tools, and political feasibility.

Zoning for health in all neighborhoods, not just vulnerable communities

In many places, neighborhoods may be heavily segregated by income, education, and race, and zoning maintains these exclusionary practices. For example, some higher-income neighborhoods have zoning requirements that specify minimum house and lot sizes, which can prohibit the development of smaller or multi-family buildings. Residential segregation and concentrated poverty can lead to deepening health disparities — as communities become increasingly divided, low-income communities may suffer through lack of revenues, lower-quality schools, and less engagement in civic processes. These trends have accelerated during the last half-century, as wealthier households have moved out of central cities to suburban and exurban communities.[74] (Evidence indicates that this trend may now be reversing in many regions.[75])

It is critical to look beyond the neighborhoods most burdened by health disparities to ensure that zoning codes everywhere foster diverse communities, with housing and economic opportunities across the income spectrum. **One effective tool that promotes neighborhood diversity is inclusionary zoning,** which uses requirements and incentives to induce developers to produce affordable housing when new projects are developed. To ensure health equity, it is especially critical that such policies prioritize housing in neighborhoods that are rich in public transportation, bicycle, and pedestrian amenities.

Inclusionary zoning can serve multiple functions. In more prosperous neighborhoods, it can create new housing opportunities for less well-off residents. Meanwhile, in lower-income neighborhoods where housing prices are relatively low, inclusionary zoning can result in newer and higher-quality affordable units and can help preserve affordable housing supplies (which is particularly important in neighborhoods where rising property values threaten to displace existing residents). Many communities adopt a jurisdiction-wide inclusionary zoning code that affects both higher- and lower-income neighborhoods; however, some areas opt for targeted inclusionary strategies using overlays or specific zones.

Inclusionary strategies may be especially effective as part of subdivision codes, especially if you live in an area where the majority of new housing is built in subdivisions. Historically, subdivisions have tended to provide limited types of housing (such as large, single-family detached homes) at prices that are unaffordable to many low- and moderate-income buyers. Inclusionary housing strategies can ensure that new developments provide a diversity of housing types and prices.

Strategies to create healthier and more diverse communities can benefit everyone, not just low-income or other vulnerable groups. Although studies on the subject remain rare, some evidence is beginning to emerge that demand is growing for communities that are economically and socially diverse and that social interactions among diverse groups in community settings (such as schools) can help build social capital.[76]

Crafting Strategies to Address Equity

The following strategies — many of which overlap with those found in Chapter 4 — attempt to address the health disparities described at the start of this chapter. As health risks, opportunities, and resources vary significantly from one location to the next, a comprehensive needs assessment can help communities determine what specific priorities can best improve health and livability.

Infrastructure quality and accessibility

- Build a complete network of functional, well-maintained sidewalks and bike routes (such as bike lanes and multi-use paths).
- Require or encourage multi-family housing units to provide amenities such as pedestrian-oriented design and bike parking.
- Ensure that routes to public transportation are safe and accessible, and provide comfortable facilities (such as bus shelters).

Economic development

- Develop neighborhood commercial areas that include pedestrian-oriented design, such as small or mid-sized storefronts with street-facing windows, bike parking, street furniture (such as seating and waste receptacles), and pedestrian-scale lighting.
- Ensure accessibility to major job centers for cyclists, pedestrians, and transit riders.

Access to goods and services

- Prioritize improvements on routes to key neighborhood services such as healthcare providers, schools, parks, and shopping districts.
- Use inclusionary zoning to require or incentivize new affordable housing near key transit routes, commercial areas, and services.

Safety

- Use traffic-calming strategies, particularly on roads where traffic-related injuries and fatalities are common and in places frequented by vulnerable populations (such as children, seniors, or people with limited mobility).
- Incorporate crime prevention through environmental design (CPTED) principles.

Compatible land uses

- Limit and phase out land uses that are incompatible with residences, such as industrial facilities, liquor stores, and fast food restaurants.

Support for vulnerable populations

- Ensure that the Americans with Disabilities Act (ADA) design standards are enforced.[77]
- Address safety and accessibility around schools and incorporate Safe Routes to School programs.
- Prioritize safety and accessibility improvements around senior centers and housing developments.

Incorporating Health Equity Throughout the Zoning Process

In practice, the zoning strategies described in this chapter represent a set of tools to help create environments that promote health equity, but they are not a panacea. Jurisdictions are unlikely to make progress on reducing health disparities unless there is a collaborative, community-wide effort that leverages the existing strengths, knowledge, and resources of many stakeholders. Here are some questions that can help frame discussions throughout this process, from the initial assessment phase through the implementation rollout:

Assess current health needs and barriers

- Where are the areas with the greatest health needs? If it has not already been completed, an assessment of the built environment, such as a walk audit or bike audit, can highlight problem areas.
- How are communities that are most underserved by bicycle and pedestrian infrastructure currently zoned? How does the existing policy prevent people from being healthy?

Conduct outreach and develop partnerships

- What groups/people do we need to reach out to in order to ensure that diverse populations are represented (such as community groups, businesses and business associations, health and social services agencies, or other government agencies)?
- Who is likely to support the policy? How can we engage them?
- Who is likely to oppose the policy, and why? What health messages or priorities might resonate with them?

Develop policies to address disparities

- What agencies or people will implement the policy?
- What performance measures can be included to ensure success and accountability? Consider diverse health, economic, and social indicators. A Health Impact Assessment (HIA) may be one way to develop a comprehensive understanding of the potential benefits or negative consequences of a policy.
- How can we set up the policy for success during the implementation process? For instance, can we utilize existing programs/resources, or design the policy to be cost-neutral or to generate revenue?

Stay engaged during implementation

- Which individuals or organizations will continue to monitor implementation? What resources do they need?
- How can we ensure that the plans don't sit on a shelf? What sorts of implementation tools (such as capital implementation lists) do we need to keep track of?
- Moving forward, how can we integrate our efforts with other local/regional transportation planning initiatives?

TransForm Baltimore: Advancing health through the rezoning process using a Health Impact Assessment

For the first time in 40 years, Baltimore has taken a unique and healthy approach to updating its zoning code using a Health Impact Assessment (HIA) to evaluate and refine the first draft of the revised code, which is called TransForm Baltimore.[78] Led by researchers from Johns Hopkins School of Medicine and School of Public Health, this HIA allowed diverse stakeholders to identify zoning strategies that might improve health issues such as obesity and related chronic diseases. Baltimore has stark health disparities across neighborhoods, with average life expectancy varying from 63 to 83 years. The HIA researchers suggest that differences in local infrastructure, which are influenced significantly by zoning, may be among the complex factors that compromise the health of lower-income and African-American communities.

By combining scientific research with local expertise, researchers identified key strategies to address disparities in local infrastructure. **These strategies include expanding opportunities for physical activity, increasing the number of mixed-use developments, creating more pedestrian- and bicycle-friendly neighborhoods, and developing transit-oriented development (TOD) districts.** To ensure that the new code is effective in addressing community concerns, city planners talked to a wide range of stakeholders, including city agencies, developers, community leaders, and the general public through a robust community engagement process.[79] The HIA was initiated to support this process and has been a powerful tool for raising public health concerns, many of which are reflected in the draft TransForm Baltimore zoning code.

The proposed zoning references public health in its purpose statement, retains or improves design standards that promote walkability and pedestrian safety, lays out requirements for bicycle parking, and specifies districts that support TOD in high-poverty neighborhoods.[80] For any development or redevelopment affecting more than 5,000 square feet, new landscaping and design requirements call for clear and safe pedestrian and bicycle routes and pedestrian-friendly environments.[81] Developers of new buildings will have to provide a minimum number of long-term covered spaces and short-term spaces for bikes; this will apply to a wide range of facilities, including sports arenas, schools and college campuses, apartment buildings, and shopping centers.[82] To incentivize further increases in bicycle parking, the plan allows developers to cut one automobile parking space for every 12 bicycle spaces added.[83] TOD districts also require a minimum of one bicycle parking facility for every 15 parking spaces.[84]

Additionally, TOD districts will allow for higher residential density mixed with retail uses near public transit hubs. The goal is to promote the development of neighborhoods that people can navigate using active transportation, thereby creating greater opportunity for people to get out of their cars and instead walk, bike, or take transit to work, shop, and play. Four distinct TOD designations will ensure that the new development suits the surrounding neighborhoods. Each district will be defined by height and retail mix allowances. For example, a TOD1 district will have low-rise buildings and retail that's limited to neighborhood services, while a TOD4 district will feature taller buildings and a full retail mix compatible with downtown locations.[85] As part of the Waterfront Overlay District, the city has included incentives for increased waterfront access and a continuous promenade in non-industrial areas.[86]

Many of these tools will increase walking, biking, and recreation, particularly in low-income communities. One projected outcome of the new code is that 23 percent of residents in high-poverty neighborhoods will now live in a TOD district, with walkable access to shopping, public transportation, and bicycle infrastructure.

CHAPTER 4: Pedestrian- & Bike-Friendly Code Elements

31 Codes at a Glance		Neighborhood Building Blocks																
		Access	Activity Center	Block Patterns	Buildings	Comfort	Community Character	Connectivity	Environmental Co-benefits	Green Streets	Land Use	Parking	Public Transportation	Safety	Street Crossings	Traffic Flow	TOD	Wayfinding
Sample Code Elements	Bicycle Infrastructure: Parking	●	●		●			●		●		●	●	●			●	
	Bicycle Infrastructure: Separated Trails & Paths	●						●						●				
	Bicycle Infrastructure: Showers & Lockers	●			●	●					●	●						
	Building Entries	●	●		●						●			●				
	Building Facades	●			●	●	●											
	Dead Space				●	●	●				●	●		●				
	Eyes on the Street	●				●	●							●				●
	Land Use: Commercial		●			●	●				●	●		●				
	Land Use: Density		●								●		●				●	
	Land Use: Mix		●		●		●				●	●						
	Land Use: Undesirable Uses																	
	Landmarks		●		●	●	●	●			●						●	●
	Lighting					●	●						●	●				
	Outdoor Dining	●	●			●	●				●			●				
	Parks & Recreation Spaces		●				●				●			●				
	Public Art	●	●				●										●	●
	Sidewalks	●				●	●	●		●			●	●			●	
	Signage	●				●	●											●
	Street Furniture		●			●	●			●		●	●				●	
	Street Walls				●	●	●							●				
	Streets: Block Length	●		●		●		●						●	●	●		
	Streets: Connectivity	●		●		●		●						●	●			
	Streets: Road Widths	●		●		●								●	●	●		
	Streets: Safe Crossings	●	●	●				●						●	●	●		
	Streets: Traffic Buffers					●	●			●	●		●	●				●
	Steets: Traffic Calming			●										●		●		
	Streets: Trees					●	●		●	●								
	Transit: Access	●	●										●		●		●	
	Transit: Facilities					●	●					●	●					
	Underground Utilities					●	●							●				
	Water Features	●	●			●	●		●	●				●				●

Note: The sample codes in this chapter are quoted verbatim. All typos and unclear wording come directly from the codes being quoted.

Bicycle Infrastructure: Parking

Not only does bicycling provide a healthy dose of exercise, but it also improves air pollution and congestion. Increasing the proportion of trips taken by bicycle can help mitigate climate change by reducing emissions of greenhouse gases. However, a lack of bike parking can dissuade potential riders. A survey conducted by the New York City Planning Department (2006) found that the two most often cited barriers to bicycle commuting are traffic and lack of bike parking or storage.

Providing comprehensive infrastructure — including bicycle parking — is key to cultivating bicycle-friendly communities across the country. To encourage bicycle travel, many communities have started to provide safe, adequate, and convenient bicycle parking at important destinations like commercial areas, public spaces, and major transportation hubs. Please consult Appendix A for a comprehensive model bike parking ordinance.

Code Examples

In Minneapolis, the code provides bicycle parking guidance for downtown districts, requiring at least one bicycle parking space for every 20 automobile spaces. Tucson, Arizona's code requires builders to provide bike parking when renovating properties or expanding existing uses, and bike parking is commonly required for new development. Adding bike parking during renovations or expansions is particularly important for cities that are substantially built out.

Minneapolis, Minnesota

(b) Bicycle parking standards. Each required bicycle parking space must be accessible without moving another bicycle and its placement shall not result in a bicycle obstructing a required walkway. Bicycle racks shall be installed to the manufacturer's specifications, including the minimum recommended distance from other structures. In addition:

(1) Required short-term bicycle parking spaces shall be located in a convenient and visible area within fifty (50) feet of a principal entrance and shall permit the locking of the bicycle frame and one (1) wheel to the rack and shall support a bicycle in a stable position without damage to the wheels, frame or components. With the permission of the city engineer, required bicycle parking may be located in the public right-of-way. Public bicycle parking spaces may contribute to compliance with required bicycle parking when located adjacent to the property in question.

(2) Required long-term bicycle parking spaces shall be located in enclosed and secured or supervised areas providing protection from theft, vandalism and weather and shall be accessible to intended users. Required long-term bicycle parking for residential uses shall not be located within dwelling units or within deck or patio areas accessory to dwelling units. With permission of the zoning administrator, long-term bicycle parking spaces for non-residential uses may be located off-site within three hundred (300) feet of the site.

Minneapolis, Minn., Zon Code Title 20, ch. 541, art. III. § 541.180(b)

Tuscon, Arizona

3.3.2 **APPLICABILITY**. The provisions of this Division apply to:

3.3.2.1 New development.

3.3.2.2 New uses locating in an existing development, as required in Sec. 3.3.3.11.

3.3.2.3 Any expansion of an existing use or any addition of a new use to an existing development, as required in Sec.3.3.3.12.

Tucson, Ar., Land Use Code, Art. III, Div. 3, § 3.3.2

Bicycle Infrastructure: Separated Trails & Paths

Infrastructure designed and located specifically for pedestrian and cyclist use is important to ensuring accessible, safe, and comfortable travel, especially in highly trafficked thoroughfares. A bicycle survey conducted by the New York Planning Department found that a majority of cyclists (76 percent) preferred off-street (separated) to on-street bike facilities.

Code Examples

In Conyers, Georgia, policies aimed at increasing livability, sustainability, and walkability are codified in the Zoning Code through the Livable Centers Initiative Overlay District. The excerpt highlights implementation strategies for increasing pedestrian and bicycle use and connectivity through 30-foot multi-use paths.

Alachua County, Florida, provides detailed direction on multi-use paths, making room for creative design solutions by including guidance on possible locations and required separations between multi-use paths and homes and roads. The Land Development Code example selected also highlights how different materials and elevated treatments can create distinction between multi-use paths and streets and driveways.

Conyers, Georgia

Multi-purpose paths. Multi-purpose paths should connect open space areas with built areas. Any property located within 1,500 feet of a multi-purpose path shall provide a direct connection to the path in order to improve connectivity, promote alternative modes of transportation and enhance the quality of life. Multi-purpose paths shall meet the following standards:

a. With the exception of golf carts, the use of motorized vehicles shall be prohibited.

b. Multi-purpose paths shall require an easement no less than 30 feet in width.

c. The maximum grade of the multi-purpose path shall be six percent.

d. Multi-purpose paths shall require a pavement width of ten feet.

e. Shoulders shall be at least five feet in width and comprised of grass or mulch.

Conyers, Geo. Code of Ords. Title 8, ch.7, art.C. § 8-7-66.i.6

Alachua County, Florida

Multi-use paths. Multi-use paths shall be constructed parallel to and up to 300 feet from the roadway in an open space or common area. A multi-use path may satisfy the pedestrian facility requirement for two parallel roadway facilities. Multi-use paths are intended to provide safe and convenient bicycle and pedestrian transportation to major attractors within a development and between developments. Multiuse paths can be placed behind homes or homes can be oriented to front multiuse paths. Appropriate access management, site distance and intersection treatments must be used wherever a multiuse path crosses an intersecting driveway or street. Development plans shall be designed to provide for safe pedestrian and bicycle circulation. The county engineer may require deviations from this requirement due to public safety concerns. In no instance shall a pedestrian facility be eliminated entirely from a street corridor. Multi-use paths shall conform to the following standards.

(1) Vehicle/path separation. Where multi-use paths are parallel and adjacent to a driveway or street (public or private), they shall be raised six inches and curbed, or separated from the driveway or street by a five-foot minimum strip within bollards, a landscape berm or other physical barrier. If a raised path is used, the ends of raised portions shall be equipped with curb ramps.

(2) Housing and path separation. Multi-use paths shall be separated a minimum of five feet from all residential living areas on the ground floor, except at building entrances. Separation is measured from the path edge to the closest dwelling unit.

(3) Crosswalks. Where paths cross a parking area, driveway or street ("crosswalk"), they shall be clearly marked with contrasting paving material, humps, raised crossing or painted striping. An example of contrasting paving material is the use of a concrete crosswalk through an asphalt driveway. If painted striping is used, it shall consist of thermo-plastic striping or similar type of durable application. Neighborhood streets do not require crosswalk striping except when the street width is greater than 36 feet or at the intersection of roadways that have AADTs greater than 1200.

(4) Path surface. Path surfaces shall be concrete, asphalt, brick/masonry pavers or other durable surfaces, and shall comply with the Americans with Disabilities Act (ADA) requirements. Multi-use paths shall be constructed to a minimum width as shown in Table 407.141.1 and with a surface of one inch in thickness and constructed with SP 9.5 asphaltic concrete and four inches limerock base with LBR 100 and 98 percent maximum density using modified proctor and six inches stabilized subgrade with LBR 30 and 98 percent maximum density using modified Proctor. An alternative may be substituted if approved by the county engineer.

Alachua County, Fla. Code of Ords. Title 40, ch.407, art.XIII. § 407.142.c

Bicycle Infrastructure: Showers & Lockers

In addition to bike lanes, signage, or other bicycle infrastructure, bicycle facilities at workplaces or commercial areas also promote cycling behavior. Providing showers and bike storage in office, commercial, and other public spaces increases the likelihood that cyclists will undertake more frequent short trips or longer commutes, particularly in warm or humid climates.

Code Examples

Montgomery County, Maryland, and San Francisco employ different strategies for providing bicycle-related facilities. Montgomery County requires developments with office uses greater than 100,000 square feet to provide one male and one female shower or changing facility for employee use. In addition to requiring short- and long-term bicycle parking, the City of San Francisco also mandates shower facilities and lockers for new and existing buildings undergoing renovations.

Montgomery County, Maryland

(b) For office uses with a total non-residential floor area of 100,000 square feet of gross floor area or greater, one shower/change facility is required for each gender; the facility may be made available only to employees when the building is accessible.

Montgomery County, MD. Zoning Ordinance. 59-C-15.62(b)

San Francisco, California

(b) Requirements for New Buildings and Buildings With Major Renovations. New buildings and buildings with major renovations shall provide shower and clothes locker facilities for short-term use of the tenants or employees in that building in accordance with this Section. Where a building undergoes major renovations, its total square footage after the renovation is the square footage that shall be used in calculating how many, if any, showers and clothes lockers are required.

(c) For new buildings and buildings with major renovations whose primary use consists of medical or other professional services, general business offices, financial services, City government agencies and departments, general business services, business and trade schools, colleges and universities, research and development or manufacturing, the following schedule of required shower and locker facilities applies:

(1) Where the gross square footage of the floor area exceeds 10,000 square feet but is no greater than 20,000 square feet, one shower and two clothes lockers are required.

(2) Where the gross square footage of the floor area exceeds 20,000 square feet but is no greater than 50,000 square feet, two showers and four clothes lockers are required.

(3) Where the gross square footage of the floor area exceeds 50,000 square feet, four showers and eight clothes lockers are required.

(d) For new buildings and buildings with major renovations whose primary use consists of retail, eating and drinking or personal services, the following table of shower and locker facilities applies:

(1) Where the gross square footage of the floor area exceeds 25,000 square feet but is no greater than 50,000 square feet, one shower and two clothes lockers are required.

(2) Where the gross square footage of the floor area exceeds 50,000 square feet but is no greater than 100,000 square feet, two showers and four clothes lockers are required.

(3) Where the gross square footage of the floor area exceeds 100,000 square feet, four showers and eight clothes lockers are required.

San Francisco, Ca., Art. 1.5, § 155.3 (b)(c)(d)


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Building Entries

Building entrances are often obscured by parking spaces or, in some instances, parking lots that create dangerous environments for pedestrians. This type of configuration increases the likelihood of injury and may discourage pedestrians from accessing these services.

Code Examples

Both Fort Worth, Texas, and Louisville, Kentucky, have encouraged pedestrian-oriented buildings by ensuring that building entrances can be accessed directly through the street. These requirements differ from the current practice of orienting entrances toward parking lots, often to the side or rear of a building.

Fort Worth's code requires that primary entrances face the street, except where a public space adjoins a building. Louisville's code also mandates that the primary entrance be oriented toward the street or public open space. Where the primary entrance faces a public space other than the street, Louisville requires doors and windows on the side of the building that fronts the primary street. For a building located on a corner, there must be either an entrance on both streets or a corner entrance. This same provision of Louisville's code also encourages buildings to create a sense of enclosure by forming a "street wall," bringing in another element of pedestrian-friendly design.

Fort Worth, Texas

Primary pedestrian building entrances shall be located on the street frontage of the building. For buildings fronting other public spaces, the primary pedestrian entrance shall be oriented to and accessible from the public space.

Fort Worth, Tex., Near Southside Dev. Standards and Guidelines § 5.C(3) (2008)

Louisville, Kentucky

Building Location and Orientation

(a.) Principal building entrances shall face the primary street serving the development or shall be oriented toward a focal point such as a landscaped public square, plaza or similar formal public open space. All structures that are located along the primary street serving the development shall also have doors or windows facing the primary street (see b. below for lots with more than one street frontage). Principal buildings shall be parallel to the primary street. If the prevalent (more than 50 percent) orientation of buildings on the block is at an angle to the street, the new building's orientation shall be the same as other buildings. The walls of buildings on corners should be parallel to the streets.

(b.) Retail and office uses within buildings facing two or more streets shall have at least one customer entrance facing the primary street and one customer entrance facing the second street or instead of two entrances, a corner entrance.

Louisville, Ky., Land Dev. Code § 5.5.1 (A)(1) (2009)

Building Facades

Over the past several decades, buildings have become wider, and front entrances have been minimized, obscured, or relocated from the street to the parking lot. Vast, monolithic buildings present too much dead space, making pedestrians feel small and out of place. Wide, unadorned buildings don't offer as much visual variety as a row of smaller buildings, and they provide fewer ground-level services and window displays.

To keep an area visually interesting and define the spaces on the street, communities can provide for narrow buildings with many windows or ensure that large, wide buildings are broken into comfortable units by using design features (windows, awnings, balconies) that visually delineate human-scale spaces. In addition, by encouraging small retail uses on the first floor, pedestrians experience a wide building as a series of stimulating, appropriately scaled locations.

Human-scale building design considers both the horizontal and vertical building scales. When buildings are too tall, they can create canyon-like streets and block the sun, which can have an oppressive feel. To prevent these undesirable effects, communities can require that buildings taller than three stories should "step back" from the street before extending upward. Some cities include "height bonuses" for developers that provide grocery stores and other forms of retail on the ground level, offsetting the potential negative aspects of greater height with the benefits for walkability of ground-floor retail. Evidence suggests that narrower, taller buildings improve walkability more than wider, shorter buildings do.

Code Examples

The following code examples both focus on incorporating smaller, human-scale characteristics into large buildings.

San Antonio explicitly emphasizes the need for human scale, calling for a pattern of windows, doors, and architectural features that are cohesive and aligned with adjacent facades. The code requires that commercial and mixed-use facilities visually distinguish between upper and lower floors and that ground floors contain a high percentage of windows. The code also requires that, for buildings exceeding given lengths (between 30 and 100 feet, depending upon location), street- and riverside facades be divided into traditionally scaled modules, giving the appearance of separate buildings.

Salt Lake City does not restrict overall building size but requires that building facades in developments exceeding 60,000 square feet have articulated exteriors and suggests patterns and sheltering roofs. The code also limits the amount of uninterrupted building length, although the limitation only applies to buildings in excess of the already lengthy 300 feet.

San Antonio, Texas

Mass and Scale. A building should appear to have a "human scale". In general, this scale can be accomplished by using familiar forms and elements interpreted in human dimensions. Exterior wall designs should help pedestrians establish a sense of scale with relation to each building. Articulating the number of floors in a building can help to establish a building's scale, for example, and prevent larger buildings from dwarfing the pedestrian.

(1) Express facade components in ways that will help to establish building scale.

A. Treatment of architectural facades should contain a discernable (sic) pattern of mass to void, or windows and doors to solid mass. Openings should appear in a regular pattern, or be clustered to form a cohesive design. Architectural elements such as columns, lintels, sills, canopies, windows and doors should align with other architectural features on the adjacent facades.

(3) Express the distinction between upper and lower floors in commercial and mixed-use buildings.

A. Develop the first floor as primarily transparent. The building facade facing a major street shall have at least thirty (30) percent of the street level facade area devoted to display windows and/or windows affording some view into the interior areas. Multi-family residential buildings with no retail or office space are exempt from this requirement.

(4) Where a building facade faces the street or river and exceeds the maximum facade length allowed in Table 674-1 [30 to 100 feet] divide the facade of building into modules that express traditional dimensions.

San Antonio, Tex., Unified Dev. Code art. VI, div. 6, §§ 35-674(b)(1,3,4) (2009)

Salt Lake City, Utah

a. Large building masses shall be divided into heights and sizes that relate to human scale by incorporating changes in building mass or direction, sheltering roofs, a distinct pattern of divisions on surfaces, windows, trees, and small scale lighting.

b. No new buildings or contiguous groups of buildings shall exceed a combined contiguous building length of three hundred feet (300').

Salt Lake City, Utah, Zon. Code ch.21A, art. 59, div. 060 § 21A.59.060(M)(1) (2009)

Dead Space

It is unappealing to walk by the blank, unfriendly expanses created by windowless structures or by parking lots or garages. "Dead spaces" like these lack visual interest, often feel oppressive to pedestrians, and can encourage crime.

Examples of dead spaces include unadorned surface parking lots (empty or full), long blank walls, vacant lots, reflective glass facades, featureless open spaces, and garage doors lined up along the street. Communities can help curtail dead space by mandating that parking lots be concealed behind buildings, requiring buildings to have windows at street level, and encouraging undulating facades and setbacks.

Code Examples

Seattle and Fort Worth, Texas, address two different aspects of preventing dead space in the following code examples.

Seattle limits parking that is visible from the main street, creating a set of standards and requirements that differ depending on the typology of the street. On Class I pedestrian streets, parking is only allowed in the rear of buildings or where it is concealed by other uses. On Class II pedestrian streets, parking is permitted at street level, but it must be screened from view and 30 percent of the parking must be separated from the street by other uses, the facade of which must not present as an imposing blank wall. The code from Fort Worth focuses on preventing blank stretches of wall.

Fort Worth requires that, for new buildings, 25 percent or more of the portion fronting on public streets or spaces must have transparent windows.

Seattle, Washington

a. On Class I pedestrian streets and designated green streets, parking is not permitted at street level unless separated from the street by other uses, provided that garage doors need not be separated. b. On Class II pedestrian streets, parking may be permitted at street level if:

(1) at least thirty (30) percent of the street frontage of any street level parking area, excluding that portion of the frontage occupied by garage doors, is separated from the street by other uses;

(2) the facade of the separating uses satisfies the transparency and blank wall standards for Class I pedestrian streets for the zone in which the structure is located;

(3) the portion of the parking, excluding garage doors, that is not separated from the street by other uses is screened from view at street level; and

(4) the street facade is enhanced by architectural detailing, artwork, landscaping, or similar visual interest features.

Seattle, Wash., Mun. Code § 23.49.019(B)(1) (2009)

Fort Worth, Texas

Fenestration (all buildings) – New building facades fronting on publicly accessible streets or other public spaces (except alleys) shall have openings and transparent (not mirrored) glazing that together constitute not less than 25 percent of the facade.

Fort Worth, Tex., Near Southside Dev. Standards and Guidelines § 5.F(5)(c) (2008)

Eyes on the Street

By encouraging development that leads people to naturally monitor the streetscape and one another, communities can enhance safety. Buildings with porches, balconies, and windows that face streets, parks, and plazas help put more "eyes on the street." Communities can also increase this type of visibility by purposely providing seating on the street and by encouraging the presence of street vendors and outdoor dining in areas that need the most surveillance.

When people regularly keep a casual eye on public spaces, or even when building design makes it clear that people could be watching, crime goes down and pedestrians feel safe, not isolated. This can improve the mental health of a community by lowering stress. Another strategy for reducing crime is "crime prevention through environmental design" (CPTED), which can include landscaping that's harder for potential criminals to hide behind, lighting design that reduces blind spots, and building entries that are more visible to passersby, with fewer concealed pockets.

Code Examples

Sarasota County, Florida, employs traditional neighborhood design (TND) principles to ensure high-quality public spaces where windows and doors open onto tree-lined streets, plazas, squares, or neighborhood parks. In addition to the example below (which highlights porches, stoops, and building visibility from the street), Sarasota County's Municipal Code includes comprehensive TND guidance for mixed-use infill development.

The Seatac, Washington, Municipal Code, on the other hand, devotes an entire chapter to addressing CPTED principles. Title 17 includes comprehensive design and lighting standards for all uses, specifically calling out uses most often linked to safety issues, such as parking structures, gasoline stations, and convenience stores. The example provided highlights the role of urban design and orientation in providing natural surveillance.

Sarasota County, Florida

5. Front Porches: Front porches may extend up to ten feet into street yards provided they are at least eight feet deep. Partial walls, screened areas, and railings on porches that extend into the street yard may be no higher than 42 inches. Porches must remain set back at least the following distances from a public right-of-way:

i.In the Core transect zone, zero feet.

ii.In the General transect zone, two feet.

iii.In the Edge transect zone, five feet.

6. Stoops: Stoops may extend into street yards in the Core and General transect zones provided their upper platform is no higher than 42 inches above the sidewalk. Partial walls and railings on stoops may be no higher than 42 inches. If requested during the PMI application process, stoops may extend into the right-of-way to the extent specifically provided by the Board of County Commissioners during the PMI approval process, based on its determination as to the adequacy of sidewalk widths to allow encroachment by stoops.

8. Windows on Primary Facades: Primary facades on all Pedestal Building, Lined Building, and Mixed-Use Building Lots must have between 30 percent and 75 percent of the primary facade of each story in transparent windows. For windows to be considered transparent, the window glass, whether integrally tinted or with applied film, must transmit at least 50 percent of visible daylight. In addition, retail stores must comply with the following:

i. The ground story's primary facade must have transparent storefront windows covering no less than 75 percent of its principle plane in order to provide clear views of merchandise in stores and to provide natural surveillance of exterior street spaces.

ii. Storefronts must remain unshuttered at night to provide views of display spaces and are encouraged to remain lit from within until 10:00 p.m. to provide security to pedestrians.

iii. Doors allowing public access to streets must be provided at intervals no greater than 75 feet to maximize street activity, to provide pedestrians with frequent opportunities to enter buildings, and to minimize any expanses of inactive wall.

Sarasota County, Fla., Mun. Code § 6.11.5.(e) 5, 6, & 8

Seatac, Washington

B. Natural Surveillance. Natural surveillance is a design concept directed primarily at keeping intruders under observation. Provision of natural surveillance helps to create environments where there is sufficient opportunity for people engaged in their normal behavior to observe the space around them. Areas can be designed so they are more easily observed through:

1. Design and placement of physical features to maximize visibility. This may include: building orientation, windows, entrances and exits, parking lots, refuse containers, walkways, guard gates, landscape trees and shrubs, use of wrought iron fences or walls, signage and other physical obstructions.

2. Placement of persons or activities to maximize surveillance possibilities.

3. Minimum maintained lighting standards that provide for nighttime illumination of parking lots, walkways, entrances, exits, and related areas to promote a safe environment.

Seatac, Washington, Title 17 § 17.08.030 (B)

Land Use: Commercial

Some types of commercial and civic spaces are more pedestrian-friendly than others. Having stores, parks, libraries, and restaurants at street level allows people to run errands on foot and helps create more walkable and inviting areas. Zoning is an effective strategy for prohibiting unhealthy or hazardous uses. A community may want to discourage drive-through restaurants, big box stores, and auto repair shops in pedestrian- and bicycle-oriented areas. Pedestrian malls located in civic, commercial, and retail areas offer prime examples of commercial uses geared toward pedestrians.

Code Examples

These two codes require commercial uses of the type that support pedestrian activity. Seattle's takes a streamlined approach and requires that all lots on designated pedestrian-oriented streets have at street level a park, library, or supportive commercial use, such as a store, restaurant, or entertainment location. San Francisco's takes a similar but more detailed approach, explicitly noting the goal of supporting pedestrian-oriented commercial uses and laying out in detail the acceptable uses for street level frontages on given streets. San Francisco also specifies that such uses shall not include uses oriented toward motor vehicles.

Seattle, Washington

Street-level uses. One or more of the uses listed in subsection A are required at street level on all lots abutting streets designated as Class 1 Pedestrian Streets shown on Map B, located at the end of this Chapter. A. The following uses qualify as required street level uses:

1. General sales and service uses;
2. Eating and drinking establishments;
3. Entertainment uses;
4. Public libraries; and
5. Public parks.

Seattle, Wash., Mun. Code § 23.48.019(A) (2009)

San Francisco, California

(a) Purpose: To support active, pedestrian-oriented commercial uses on important commercial streets.

(c) Definitions. "Active commercial uses" shall include those uses specifically identified below in Table 145.4 [including amusement game arcade, animal hospital, automobile sale or rental (with qualifications), bar, business goods and equipment sales and repair service, eating and drinking use, entertainment, tourist-oriented gift store, institutions, jewelry store, neighborhood serving business, nonauto vehicle sales or rental (see qualification, above), public use (with qualifications), restaurant, retail sales and service, financial service, medical service, personal service, take-out food, trade shop, walk-up facility], and: (1) Shall not include uses oriented to motor vehicles except for automobile sale or rental where curb-cuts, garage doors, or loading access are not utilized or proposed, and such sales or rental activity is entirely within an enclosed building and does not encroach on surrounding sidewalks or open spaces;

San Francisco, Municipal Code, §145.4 (a, c) (1)

Land Use: Density

Medium to high residential and commercial densities promote walkability and bikeability by ensuring that a full array of services and destinations are within an easy walking distance. Although appropriate in some communities, increased density does not always require high-rise development. The benefits of density can be achieved through incremental increases in building heights, the quantity of residential units, spaces designated for commercial use, or other suitable metrics of density.

Increased densities can assist in creating safe and vibrant environments by ensuring that a sufficient number of people are present at various times of the day. Safer communities can enjoy higher rates of mental health due to decreased stress levels, and a dense community generally emits fewer greenhouse gases per capita, which can help mitigate climate change.

Requiring higher-density development around transit centers is appropriate. Concentrating homes and commercial areas around transit stops helps ensure sufficient ridership levels to support the transit line, and diverse commercial uses create interesting and lively destinations at transit stops.

Cities can promote higher density by requiring a minimum Floor Area Ratio (FAR), measured by dividing the building footprint (sum of all floor areas) by the size of the parcel. Thus, a three-story building that covers 100 percent of the parcel area would have a FAR of 3.

Code Examples

Both of these codes promote higher densities around transit stations as part of transit-oriented development policies. In Aurora, Colorado, the zoning code sets a range of minimum densities that decrease with distance from the transit station. San Diego requires an average density rather than a minimum density. Although San Diego's average density requirement of 18 units per acre is much lower than Aurora's, it appears sufficient to support transit and provide an active street life. San Diego offers an incentive for density in the form of a density bonus for projects planned in the proximity of existing or planned transit stations.

Aurora, Colorado

1. Principle. Residential densities in TODs [Transit Oriented Development] are higher than in surrounding areas, and usually transition from higher densities near the transit station to lower densities adjacent to surrounding neighborhoods. Higher densities provide increased numbers of transit riders within walking distance of rail stations and provide for lively, interesting places. There shall be no upper limit for residential densities in the core sub-area and those densities shall generally exceed 60 units per acres.

2. Required Densities. Residential densities shall be defined by the station area plan. Where no station area plan has been adopted, minimum densities shall be as follows:

Core Area: 60 units per acre,

General Area: 40 units per acre,

Transition Area: 20 units per acre.

Aurora, Co., Building and Zoning Code ch. 146, art. 7, div. 6, § 146-728(C) (2009)

San Diego, California

Density. The combined mixed-use core and residential components of the urban village shall have an average density of at least 18 dwelling units per net acre. Maximum permitted density shall be determined by the base zone regulations. A 10 percent density bonus over the base zone density may be permitted for projects located within 2,000 feet of an existing or planned light rail transit station or other trunk transit line station, unless stated otherwise in the applicable land use plan.

San Diego, Cal., Mun. Code ch. 13, art. 2, div. 11, § 132.1107(a) (2009)

Land Use: Mix

Neighborhoods that have a mix of uses allow people to run errands, commute to work, and access daily services without the need to drive.

Mixed-use storefronts that open out to sidewalks are more attractive and interesting and invite pedestrian activity. Codes can require or incentivize development that includes a combination of uses that are mixed vertically (within the same building) or horizontally (along the same block). Mixed-use developments promote health — through increased physical activity, and social and mental health outcomes — while providing environmental co-benefits such as improved air quality and the preservation of open spaces.

Code Examples

Portland, Oregon's code creatively uses traditional zones and overlay zones to provide for a mixture of uses. Neighborhood commercial zones (1 and 2) contain flexibility to foster different uses, and the code limits the size of commercial uses to moderate potential negative consequences of mixing residential and commercial uses.

In encouraging a mixture of land uses, the code from St. Lucie County, Florida, takes a citywide approach, requiring a mix of uses in each neighborhood. Rather than simply allowing different types of uses, St. Lucie's code requires that each neighborhood contain a minimum number of retail and civic building lots. St. Lucie provides for continuous street walls and accounts for transitions in scale and type, placing considerable emphasis on urban design and aesthetic impact.

Portland, Oregon

A. Neighborhood Commercial 1 zone. The Neighborhood Commercial 1 (CN1) zone is intended for small sites in or near dense residential neighborhoods. The zone encourages the provision of small scale retail and service uses for nearby residential areas. Some uses which are not retail or service in nature are also allowed so a variety of uses may locate in existing buildings. Uses are restricted in size to promote a local orientation and to limit adverse impacts on nearby residential areas. Development is intended to be pedestrian-oriented and compatible with the scale of surrounding residential areas. Parking areas are restricted, since their appearance is generally out of character with the surrounding residential development and the desired orientation of the uses.

B. Neighborhood Commercial 2 zone. The Neighborhood Commercial 2 (CN2) zone is intended for small commercial sites and areas in or near less dense or developing residential neighborhoods. The emphasis of the zone is on

uses which will provide services for the nearby residential areas, and on other uses which are small scale and have little impact. Uses are limited in intensity to promote their local orientation and to limit adverse impacts on nearby residential areas. Development is expected to be predominantly auto accommodating, except where the site is adjacent to a transit street or in a Pedestrian District.

Portland, Or., Zoning Code § 33.130.030(A-B) (2009)

St. Lucie County, Florida

e. Lot Types:

(1) Each neighborhood must contain a mixture of lot types to provide a variety of uses and diverse housing options within the neighborhood. Differing lot types may be placed back-to-back on a single block to provide harmonious transitions between lot types. Lot types should be selected to provide buildings of like scale and massing on opposite sides of streets.

Each neighborhood must contain at least one Mixed-Use or Retail Building Lot.

Each neighborhood must contain at least three Civic Building Lots; one civic building must be constructed within two years after development commences.

St. Lucie County, Fla., Land Dev. Code ch. 3, § 3.01.03. EE.2.e(1) (2009)

Land Use: Undesirable Uses

Many neighborhoods are saturated with unhealthy, automotive-oriented, or hazardous uses. Unhealthy food retail such as fast food or liquor stores, especially those in close proximity to schools and public parks, can fuel consumption of unhealthy food by children and disadvantaged populations.

Code Examples

Local governments can, and often do, limit the location of fast food restaurants to non-residential districts. Communities can also regulate the density of fast food restaurants by limiting the total number of restaurants allowed; establishing spacing standards between restaurants; and restricting fast food around sensitive uses such as schools or playgrounds. Carlsbad, California, prohibits drive-thru restaurants within all zone designations; while Detroit prohibits fast food restaurants within 500 feet of any school — defined in their zoning code as public or private primary, elementary, middle, junior high, or high school.

Carlsbad, California

a. Drive-thru restaurants are prohibited within all zones in the city, including coastal zone properties. The drive-thru restaurant prohibition applies citywide to all existing and proposed specific plans, master plans, and related amendments. Drive-thru restaurants that are either existing or have received final approvals on January 5, 1998 are allowed to continue in existence subject to the terms and conditions of this code and the conditional use permit or other discretionary permit permitting them and may apply for and may be granted CUP extensions under this code.

Zoning Code. Title 21, ch. 21.42 §21.42.140(B)(50)

Detroit, Michigan

Use Type: Restaurant, carry-out or fast food

Minimum Distance from Other Use Types (Existing or Approved): School (not including Educational institutions): 500 feet

Municipal Code §61-12-91 (2008)

Landmarks

Landmarks serve as points of reference for pedestrians and others as they find their way. Landmarks help people recognize and remember routes, they contribute to the identity and character of an area, and they can act as gateways that orient travelers who are approaching or leaving a district. Landmarks can include monuments, natural objects, buildings, or other structures that have notable physical features or historical significance. A landmark such as a plaza or square can also serve as a place where people gather or events take place.

Code Examples

Washington, DC's code spells out the historic value of landmarks and calls for their protection and enhancement.

In Aurora, Colorado, the code calls for the dedication of land for neighborhood parks, community parks, other park uses, and trails. Park requirements for developments in urbanized areas, transit-oriented development, or infill locations can satisfy their parks requirements by providing accessible and useable public spaces. The code will likely lead to sites that people identify with a place, and may create lovely meeting points and reference points for travel orientation, although these places may not rise to the order of historic or monumental landmarks.

Washington, District of Columbia

It is hereby declared as a matter of public policy that the protection, enhancement, and perpetuation of properties of historical, cultural, and esthetic merit are in the interests of the health, prosperity, and welfare of the people of the District of Columbia. Therefore, this subchapter is intended to:

(1) Effect and accomplish the protection, enhancement, and perpetuation of improvements and landscape features of landmark districts which represent distinctive elements of the city's cultural, social, economic, political, and architectural history;

(2) Safeguard the city's historic, aesthetic and cultural heritage, as embodied and reflected in such landmarks to next search terms and districts;

(3) Foster civic pride in the accomplishments of the past;

(4) Protect and enhance the city's attraction to visitors and the support and stimulus to the economy thereby provided; and

(5) Promote the use of landmarks and historic districts for the education, pleasure, and welfare of the people of the District of Columbia.

D.C. Code § 6-1101(a) (2009)

Aurora, Colorado

(1) Principle. Plazas, main streets, squares or open space are used to create enduring and memorable public spaces. These spaces are part of a highly integrated system of streets, walkways, and buildings that create a sense of enclosure on the street where citizens walk, recreate, congregate and interact. These spaces use interesting entryways and features. Intense uses around these spaces will activate them and make them lively. The public spaces are adjacent or well-connected to the transit station. Outdoor commercial activities, such as outdoor restaurant seating, will be encouraged as part of the transition between wholly public outdoor space and wholly private building space.

(2) Desired Public Spaces. Any public space intended to satisfy land dedication requirements of section 147-48(b) of this code shall conform to the criteria set forth in the Parks and Open Space Dedication and Development Criteria Manual. Small Urban Park (SUP) is a park classification that may be used to advance the above principles of public spaces while concurrently serving park needs of an urban population in a TOD.

Main streets shall be designed as attractive public areas with quality streetscaping, provision of space for sidewalk cafés, and at the appropriate width for the volume of pedestrians.

Aurora, Co., Building and Zoning Code ch. 146, art. 7, div. 6, § 146-728(F)(1)(2) (2009)

Lighting

Lighting that is designed for pedestrians is important in areas in which people will walk after dark. Such lighting is important to address actual personal and traffic safety concerns, as well as to increase the perception of safety and encourage use of the area after dark.

Pedestrian-scale lighting differs from standard road lighting in a variety of ways. First, it is closer to the ground. In addition, it is spaced together closely to create an even lighting of the sidewalk instead of alternating bright and dark spaces. Pedestrian oriented lighting also usually features a white light, rather than yellow light, which is more inviting to pedestrians. Finally, pedestrians appreciate and enjoy lamps that have interesting or attractive shapes. As a further benefit, human-scale lighting, like other street furniture, alerts drivers to the presence of pedestrians in an area.

Code Example

Nashville and Davidson County, Tennessee, requires that lighting be designed and located at a pedestrian scale. It specifies that lighting should be shielded to avoid glare, and acknowledges the aesthetic function of lighting by requiring compatibility with surrounding properties. Rather than stating that lighting should be pedestrian scale, language that is subject to varying interpretations, San Antonio specifies that pedestrian-oriented lighting is not to exceed the objective measure of 15 feet off the ground.

Nashville and Davidson County, Tennessee

Lighting. Lighting shall be designed and located at a pedestrian scale consistent with pedestrian movements and the neighborhood. Lighting shall be concealed or shielded to avoid glare and off-site impacts on abutting properties. Lighting poles and fixtures shall be compatible with the function and design of the feature and abutting properties.

Nashville and Davidson County, Tenn Code part II, tit 17, ch 17.40, art IV, § 17.40.160(F)(3) (2009)

San Antonio, Texas

Provide Lighting for Pedestrian Ways That is Low Scaled for Walking.

A. The position of a lamp in a pedestrian-way light should not exceed fifteen (15) feet in height above the ground.

San Antonio, Tex., Unified Dev. Code art. VI, div. 6, § 35-673(j)(2) (2009)

Outdoor Dining

Dining outdoors is inviting and can turn areas into a pedestrian and community destination. Sidewalk cafes and restaurants create a lively street environment that can serve to deter crime. Increased daytime and nighttime activity can enhance the social fabric of a community, providing important social and mental health benefits.

Communities can promote outdoor dining by expanding sidewalks, implementing zoning codes that define outdoor dining as an allowed use, and ensuring that the dining areas and surrounding areas provide safe pedestrian environments.

Code Examples

San Diego and Montgomery, Alabama, take two different approaches to enlivening the pedestrian environment through outdoor eating.

San Diego's code does so by permitting sidewalk cafes within Commercial and Industrial Base Zones. Sidewalk café furnishings must be movable or affixed to adjacent buildings. The decision to allow a sidewalk café in a given location is discretionary; major factors in the determination include the effect on pedestrians' right of way, and the ability of the café to make the area more attractive to pedestrians and increase pedestrian traffic.

In Montgomery, Alabama, the zoning code allows for food vending by sidewalk vendors. Having found that "[v]ending on the public sidewalks promotes the public convenience by contributing to an active and attractive pedestrian environment," the code creates a specified vending district wherein vending is permitted, requires vendors to be licensed, and restricts sales to food and non-alcoholic beverages.

San Diego, California

(a) The decision maker will evaluate the following to determine if a sidewalk cafe is a suitable use for the proposed site and will not infringe on the use of the public right-of-way by pedestrians:

(1) The width of the sidewalk;

(2) The design and relationship of the cafe to other existing or planned uses in the vicinity;

(3) The amount of pedestrian use and the impact of the cafe's location on pedestrian activity; and

(4) The ability of the cafe to fit the character of the area, create an outdoor pedestrian plaza, intensify pedestrian activity, and make the street activity more attractive.

(i) The furnishings of the interior of a sidewalk cafe shall consist solely of moveable tables, moveable chairs, and moveable umbrellas. Landscaping may be placed in moveable planters or planted in the ground inside the delineated cafe area adjacent to the barrier. Lighting fixtures may be permanently affixed to the front of the main building.

San Diego, Cal., Mun. Code ch. 14, art. 1, div. 6, §§ 141.0621 (a) (2009)

Montgomery, Alabama

Permitted merchandise. No merchandise shall be sold by a vendor from a cart or kiosk in a vending district except the merchandise approved. Permitted merchandise shall be limited to rental of boats, jet skis (or similar water sports equipment), food and non-alcoholic beverages such as, but not limited to, biscuits or sandwiches made from biscuits, hot dogs, sausages, bagels, pastries, candy, fresh fruit, tamales, burritos, kebabs, sushi, chicken, beef or pork meat, prepackaged sandwiches, chips, popcorn, nuts, pretzels, ice products, ice cream, milk products, frozen yogurt, hot and cold beverages containing no alcohol, and condiments related to permitted merchandise. Tobacco products are not permitted merchandise.

Montgomery, Ala., Code app. C, art. VI, § 10.14.1.D (2007)

Parks & Recreation Spaces

Parks and public spaces such as playgrounds, fields, and gardens are critical elements of an appealing and healthy neighborhood. Well maintained and well used public spaces also increase safety by promoting activity throughout the day and night. When these areas are integrated into a neighborhood and are accompanied by commercial enterprises, they increase the use of public spaces, add to the character of a neighborhood, and create a sense of place, all of which encourage pedestrians. These spaces not only provide areas for physical activity, they also provide important mental health benefits, reinforce the social fabric of a community, and provide important ecological functions.

Parks, if large enough and heavily forested, can also be used by a city to offset its greenhouse gas emissions as the trees sequester carbon from the atmosphere. These carbon offset "credits" can be sold on the California cap and trade market if the development of the forested area complies with certain validation and verification procedures.

Code Examples

In Montgomery, Alabama, public space requirements are very innovative. The code requires that a certain percentage of each pedestrian shed is reserved for public open space, requiring that playgrounds be located within 1000 feet of every residential use. By requiring that public spaces border streets, Montgomery's code increases the appeal of such spaces, since public spaces that appear as extensions of the sidewalk receive more impulsive use and add visual interest and appeal to the street.

In Cambridge, Massachusetts, the code provides for an interesting mechanism to increase and preserve public space within a redevelopment district. The code provides a density bonus available only with provision of at least 2.2 acres of public open space, half or more to be contiguous and within a designated neighborhood. Additionally, the total open space within the district may not shrink below 100,000 square feet even if the density bonus is not used. The code spells out a choice of property control approaches to ensure that the space remains public for 75 years or longer.

Montgomery, Alabama

(a.) Each Pedestrian Shed shall assign at least 5 percent of its urbanized area to Civic Space...

(c.) Each Pedestrian Shed shall contain at least one main Civic Space. The main Civic Space shall be within 800 feet of the geographic center of each Pedestrian Shed, unless topographic conditions, existing Thoroughfare alignments, or other circumstances require otherwise.

(d.) Within 1000 feet of every lot in residential use, a Civic Space designed and equipped as a playground shall be provided.

(e.) Each Civic Space shall have a minimum of 50 percent of its perimeter enfronting a Thoroughfare.

Montgomery, Ala., Zon. Code app. C, art. VI, § 10.14.2(2.7.2)(a.-e.) (2007)

Cambridge, Massachusetts

15.41 Public Open Space Requirement.

As an incentive for the maximum allowable density as provided in Subsection 15.32.1 there is a requirement that a minimum amount of one hundred thousand (100,000) square feet within the District be permanently reserved or designated (without reference to location) as publicly beneficial open space accessible at ground level as set forth in Section 15.32.5. No development shall be allowed which would permanently reduce publicly beneficial open space in the District below one hundred thousand (100,000) square feet. A minimum of fifty thousand (50,000) square feet of contiguous publicly beneficial open space shall be located west of Sidney Street. The initial location of the required publicly beneficial open space shall be guaranteed through one or more of the following.

Cambridge, Mass., Zoning Ord. § 15.41 (2009) (Mun. Code § 17.04.010)

Public Art

Public art pieces (such as sculptures or murals in plazas, parks, or buildings) create active destinations for art lovers, give character to an area, and serve as landmarks, helping people find their way. Involving community members in the process can deter graffiti and enhance a sense of community.

Code Examples

In Minneapolis, the code encourages developers to provide public art by providing floor area ratio premiums as an incentive. To qualify, the art must meet or exceed a given value based upon the capital cost of the principal structure in the development itself. The art must be highly visible to the public, and the developer is responsible for ongoing maintenance. Aurora, Colorado, requires every major development project within transit-oriented development districts to provide public art. The required art can include sculpture or consist of architectural elements in a building facade. Aurora also sets a minimum expenditure for the art, and requires the submission of a public art plan.

Minneapolis, Minnesota

Public art, subject to the following standards:

a. The art shall be valued at not less than one-fourth (.25) of one (1) percent of the capital cost of the principal structure.

b. The art shall be located where it is highly visible to the public. If the art is located indoors, such space shall meet the minimum requirements for an indoor open space, interior through-block connection or skyway connecting corridor, as specified in this article.

c. The art shall be maintained in good order for the life of the principal structure

Minneapolis, Minn., Code tit. 20, ch. 549, § 549.220(7) (2009)

Aurora, Colorado

1. Principle. Art in public spaces and within private development that is visible from streets and public areas contributes to creating the identity of TODs [transit-oriented developments]. In this context, public art includes a wide variety of elements, ranging from free-standing artworks in parks to creative architectural elements incorporated into streetscapes and building facades. Art elements in differing materials, size, and subject matter should be incorporated throughout a TOD. A public art master plan that identifies themes and artwork placement is encouraged.

Aurora, Colo., Building and Zoning Code. Zoning Districts. Art.7 Div.6 146-728.K.1

Public Spaces

The following codes creatively use the development process to increase the number and quality of public plazas and waiting spaces.

Code Examples

Portland, Oregon, innovatively allows the substitution of transit plazas for up to 10 percent of parking that would otherwise be required, encouraging attractive transit stops with more public space. Such transit plazas must be at least 300 square feet in size and open to the public. The plazas must include seating, shelter, and landscaping. The code does not only apply to new development, but also allows existing parking to be converted to transit plazas.

Salt Lake City's takes a different approach, requiring developers to provide public space in proportion to the total floor area of the development (1 square foot of public spaces for every 10 square feet of building area). The code allows a choice of elements for the public space that will "activate" the space, including seating, trees, water features, and eating areas. Because use of outdoor space increases when there is a mixture of sun and shade, the option to include shade and trees increases the attractiveness of the space.

Portland, Oregon

Substitution of transit-supportive plazas for required parking. Sites where at least 20 parking spaces are required, and where at least one street lot line abuts a transit street may substitute transit-supportive plazas for required parking, as follows. Existing parking areas may be converted to take advantage of these provisions...

d. The plaza must include all of the following elements:

(1) A plaza open to the public. The owner must record a public access easement that allows public access to the plaza;

(2) A bench or other sitting area with at least 5 linear feet of seating;

(3) A shelter or other weather protection. The shelter must cover at least 20 square feet. If the plaza is adjacent to the bus stop, TriMet must approve the shelter; and

(4) Landscaping. At least 10 percent, but not more than 25 percent of the transit-supportive plaza must be landscaped to the L1 standard of Chapter 33.248, Landscaping and Screening. This landscaping is in addition to any other landscaping or screening required for parking areas by the Zoning Code.

Portland, Or., Zon. Code ch. 33, art. 266, div 14, § 33.266.110(B)(5)(d)(2009)

Salt Lake City, Utah

b. Plazas or public spaces shall incorporate at least three (3) of the five (5) following elements:

(1) Sitting space of at least one sitting space for each two hundred fifty (250) square feet shall be included in the plaza. Seating shall be a minimum of sixteen inches (16\") in height and thirty inches (30\") in width. Ledge benches shall have a minimum depth of thirty inches (30\");

(2) A mixture of areas that provide shade;

(3) Trees in proportion to the space at a minimum of one tree per eight hundred (800) square feet, at least two inch (2\") caliper when planted;

(4) Water features or public art; and/or

(5) Outdoor eating areas or food vendors.

Salt Lake City, Ut., Zon. Code ch.21A, art. 59, div. 060, § 21A.59.060(M)(2)(b) (2009)

Sidewalks

In many communities, sidewalks start and stop without warning or are lacking altogether, endangering pedestrians. In addition, narrow sidewalks can force pedestrians to walk into the street to get around obstacles and other people.

Sidewalks should be wide enough to accommodate a landscaped "planting strip," which serves as a barrier from traffic and a place to plant trees for shade and beauty. Ideally, sidewalks should also be wide enough to allow benches for older adults and families to stop and rest or relax. Generally, two couples or two wheelchairs should be able to pass each other comfortably on a sidewalk, which requires about 10 to 12 feet across.

Wide sidewalks can also provide room for outdoor dining, public art, and other community-oriented activities.

Code Examples

Seattle requires a minimum 12 foot sidewalk, wide enough for considerable pedestrian traffic and for couples to pass one another.

Seattle, Washington

1. The owner shall construct a sidewalk no less than twelve (12) feet in width.

2. The owner shall plant street trees adjacent to the major pedestrian street. The trees shall meet criteria prescribed by the Director of Transportation.

3. Planting strips are prohibited along major pedestrian streets.

4. The owner shall install street furniture and planting boxes adjacent to the major pedestrian street. The installation shall conform to the Right-of-Way Improvements Manual.

Seattle, Wash., Mun. Code tit. 23, subtit. 3, div. 3, ch. 23.71, § 23.71.008(E)(2009)

Columbus, Ohio

All subdivisions, site developments or sections thereof which, shall have installed in them sidewalks and bikeway facilities as specified in the Bicentennial Bikeways Plan to serve each lot or parcel therein. Such sidewalks and bikeway facilities shall be installed by the property owners abutting the street rights-of-way within the development and along the existing streets fronting the development:

(A) Sidewalks and bikeways shall have a hard, improved surface constructed of materials and to standards established by the director of public service and/or their designee depending on type of street construction, anticipated permanence of sidewalk, and land uses being served. Such specifications shall be available for inspection in the department of public service offices.

(B) Sidewalks and bikeways shall be located in the right-of-way of the street or as close to the right-of-way line as possible, and shall extend across the entire dimension of each lot or parcel side adjacent to a public street.

(D) Bikeways shall be located, configured and completed according to the Bicentennial Bikeways Plan and include separate shared-use paths, bike lanes and signed and marked shared bike routes.

(G) Sidewalk or Bikeway Fee in Lieu of Construction. It is the desire of the city to have required sidewalks and bike facilities built at the time of and congruent with development. However, there may be circumstances regarding safety, economic waste and geographical features that preclude such construction. The Director of Public Service has the authority to approve construction exemptions and collect a fee in lieu of as set out in properly promulgated rules and regulations. In no instance will a private or public entity not build or pay a fee in lieu of sidewalk or bike facility construction.

Columbus, OH. Regulations for Land Development. § 4307.29

Signage

People on foot experience signs differently than those in cars. At 25 or 45 miles per hour, signs need to be big, bold, avoid details, and be posted a block before the location the sign refers to. Signage intended for pedestrians should be visually interesting, informative, and scaled appropriately. All too often when signs are oriented toward vehicles, street and directional signage is secondary, while advertising signs loom large and bright, cluttering up the view. Coherent signage that is consistent in shape, size, color, height, and lettering gives pedestrians a feeling of order as they walk, can add to a place's identity, and can assist pedestrians with wayfinding, which is crucial since pedestrians may become far more exhausted if they lose their way than is likely for drivers.

Code Examples

The code examples from Nashville and San Diego demonstrate two very different approaches to regulating the visual impact of signs.

Nashville and Davidson County, Tennessee, provides a simple, discretionary standard for signs in neighborhood landmark districts, providing that a sign must fit a neighborhood's context and character in size and design. This approach is very flexible, but also very vague, providing little information to a business owner or community member regarding what might or might not be acceptable.

In contrast, San Diego's takes a highly detailed and prescriptive approach to signage, restricting the size and number of signs based upon detailed numerical formulas. This approach provides less opportunity to allow a different but appealing sign, but provides more clarity. One interesting aspect of San Diego's code is the requirement that blade (projecting) signs either take the shape of a graphic representation of the product or services offered, or include such an image on the sign. This requirement encourages a certain look to blade signs without creating uniformity or restricting creativity.

Nashville and Davidson County, Tennessee

Signs. Any sign, where permitted as part of the neighborhood landmark development plan, shall be consistent with the context, scale, and character of the neighborhood and in particular streetscape where the district is located. The feature's mass and scale and the neighborhood in which it is located shall be considered in any sign size and design to ensure sensitivity and proportion to surrounding properties.

Nashville and Davidson County, Tenn., Code part II, tit. 17, ch. 17.40, art. IV, § 17.40.160(F)(4) (2009)

San Diego, California

(A) Signs are permitted on the faces of each business establishment provided that no such sign shall project above the nearest parapet or eave of the building and signs parallel to the face of a building shall not project more than 12 inches from the building to which the signs are attached.

(B) One identification sign shall be permitted on the front or primary face of a business establishment. Said sign shall not exceed one square foot for each linear foot of frontage or 24 square feet, whichever is smaller, provided that said sign need not be less than 10 square feet in area.

(C) One identification sign on the side or rear wall of an establishment shall not exceed 16 square feet or one-half-square-foot for each linear foot of street or dedicated walkway frontage along those walls, whichever is smaller, provided that said sign need not be less than 8 square feet in area.

(D) One perpendicular (30 degrees or greater) projecting and/or hanging trade identification sign not to exceed 6 square feet per side shall be permitted on the front or primary face of each establishment provided however that the sign face is, either designed as a graphic representation of the goods or services provided at the particular establishment, e.g. a boot to advertise a shoe repair shop, or designed to include a graphic presentation on the sign.

(E) No free standing or roof top identifications signs shall be permitted with the following exceptions:

(i) For establishments located within arcade, court, office building or similar structure not fronting on the public right-of-way, a single free standing sign at the entrance to said court or arcade to identify the establishments within.

(ii) Maximum height of such signs shall not exceed 4 feet above average adjacent natural grade.

(iii) Maximum size for identification of each individual establishment shall not exceed 2.0 square feet for office and 3 square feet for retail.

(F) In lieu of a primary identification sign, 1 freestanding or hanging perpendicular sign, not to exceed 6 feet in height, with a total surface area on both sides not exceeding one-half the area of the permitted primary identification sign, shall be permitted. Only 1 such sign shall be permitted per establishment

San Diego, Cal., Mun. Code ch. 15, art. 16, div. 4, § 1516.0403(b)(1) (2009)

Street Furniture

Public benches and seating where pedestrians can take a rest, meet a friend, or wait for transit are important for pedestrian-oriented areas. Older adults, pedestrians with disabilities, and families may need to stop and rest frequently. Street furniture (such as benches, drinking fountains, and trash cans) is often regarded as an optional amenity, but can contribute markedly to the comfort and character of an area for pedestrians. Seating areas should include amenities such as shade trees, shelter, attractive lighting, and informational signage. By making these spaces visible from surrounding areas, safety is improved for both those seated and pedestrians within the vicinity.

To avoid visual clutter and pedestrian obstruction, street furniture should be grouped at particular intervals along the street so that the clusters of furniture can function as pedestrian rest stops and potential gathering areas without impeding pedestrian movement.

Code Examples

San Antonio's code features a number of excellent provisions regarding street furniture. The code calls for a variety of different seating options, supports physical activity by encouraging drinking fountains, and calls for inconspicuous but convenient trash cans. Recognizing the important aesthetic and place-making role of street furniture, the code notes that street furniture should not be uniform, but should complement the distinctive nature of the district in which it is located. San Antonio also requires a clear path without obstacles for walking, and suggests clustering different types of street furniture to increase use, create friendly gathering spots, and avoid clutter.

San Diego's includes street furniture code language that focuses on benches and their appearance, requiring that benches be wood or iron, rather than plastic, and prohibiting advertisements on benches located in the right of way. The code also requires that street furniture not intrude into the wide sidewalk, and regulates the positioning of benches to allow socializing and people-watching.

San Antonio, Texas

Historic districts and the downtown, as well as other distinct areas of the city have diverse character and any street furniture selected for these areas should complement these differences. In addition, the clustering of street furniture in one (1) place is recommended. Trash receptacles, seating, telephones and other street furniture should be grouped together.

A. Circulation.

A clear path-of-travel of thirty-six (36) inches wide shall be maintained in and around street features and arrangement.

B. Seating.

Seating should be physically comfortable and inviting, durable and attractive. Plaza and open space seating should also be socially comfortable by offering a variety of choices such as in the sun or shade, near traffic and activity or not, and alone or in groups.

C. Drinking Fountains.

Placing drinking fountains in new development is encouraged. Fountains should be placed within general areas of pedestrian traffic and located on accessible surfaces.

D. Trash Receptacles.

Trash receptacles should blend visually with their surroundings and their design and location should make use as convenient as possible.

San Antonio, Tex., Unified Dev. Code art. VI, div. 4, §§ 35-646(a)(3)(A)–(D) (2009)

San Diego, California

(2) Benches

(A) Materials: Benches located in the sidewalk right-of-way shall conform to one or more of the following materials: wood; wood and iron; wrought iron or cast iron; and formed iron.

(B) The siting of benches shall be as follows:

(i) Benches shall not encroach into the required 8-foot sidewalk clearpath.

(ii) Benches shall not be located within 5 feet from the center of the sidewalk.

(iii) A bench located parallel to the sidewalk shall face the center of the sidewalk.

(iv) If two or more benches are situated perpendicular to the sidewalk, the benches shall be sited to face each other.

(C) Advertisement on benches located in the public right-of-way shall be prohibited.

San Diego, Cal., Mun. Code ch. 15, art. 4, div. 4, §§ 154.0405 & (g)(2) (2009)

Street Walls

A street wall consists of a continuous set of building facades with similar heights that are set back a similar distance from the property line. For pedestrians, having a street wall on both sides of the street creates a feeling of comfort and enclosure. Buildings should not stand too far apart from each other, and driveways should be kept to a minimum, not only to preserve the continuity of the street wall, but also so that pedestrians do not have to dodge cars turning into or out of driveways.

Minor setback variations, however, can keep the street wall from feeling monotonous. Although street walls help create a pedestrian-friendly street, many vibrant urban areas have other types of building arrangements, so this element is not necessary everywhere.

Code Examples

Seattle's requires that on designated pedestrian-oriented streets, each building facade must be built to the street property line for 70 percent of the building. Peoria's code is similar, but provides more detailed specifications. Peoria, Illinois, has the more demanding requirement that 80 percent of the facade be built to the required building line, but provides flexibility by allowing jogs of 18 inches to accommodate architectural details such as bay windows, shop fronts, and the like. The required building line frequently is the same as the street property line, but need not be. Peoria also ensures that the street wall prevails at street corners by requiring that the facade be built out to the required building line within 30 feet of a corner.

Seattle, Washington

All facades on Class 1 Pedestrian Streets, as shown on Map B, shall be built to the street property line along a minimum of seventy (70) percent of the facade length.

Seattle, Wash., Mun. Code tit. 23, subtit. 3, div. 2, ch. 23.48, § 23.48.014 (C) (2009)

Peoria, Illinois

Street Facade

a. On each lot the building facade shall be built to the required building line for at least 80 percent of the required building line length.

b. The building facade shall be built to the required building line (RBL) within 30 feet of a block corner.

c. These portions of the building facade (the required minimum build-to) may include jogs of not more than 18 inches in depth except as otherwise provided to allow bay windows, shopfront, and balconies.

Peoria, Ill., Code app. C, § 6.2(A)(9) (2009)

Streets: Connectivity

An interconnected street network is crucial for pedestrians. Shorter blocks with frequent crossings provide quick connections so pedestrians can get directly to their destinations.

The traditional grid street network brings a variety of benefits to pedestrians — direct routes, parallel streets that provide interesting alternate routes, clear orientation so that pedestrians do not get lost easily, and an orderly progression of streets. However, the repetitive form of the traditional grid network can become boring.

Variations on the grid network can increase pedestrian activity in an area by providing visual interest. For example, some communities have oriented their streets to frame attractive vistas, which can help with pedestrian orientation. A modified grid, with T intersections, appears to reduce the number and severity of vehicle collisions, increasing pedestrians' safety. While different forms of the grid work well under different circumstances, connectivity is the constant.

Code Examples

St. Lucie County, Florida, provides for an interconnected network, but puts less emphasis on a grid per se, allowing streets to be curved or bent, as long as they connect to other streets. St. Lucie County emphasizes short routes and connectivity between attractive pedestrian destinations such as schools, parks, and retail, and limits to use of culs-de-sac. Interestingly, both San Diego and St. Lucie call for alleys as one method of balancing vehicle and pedestrian needs.

San Diego's calls for a grid pattern explicitly. It also allows a modified grid, providing flexibility that may enable it to maximize the benefits of a grid while avoiding some of the drawbacks, particularly in places where topography makes a grid less practical. The code provides for short blocks, and recognizes pedestrians' desire to reach destinations without crossing busy streets. The code also calls for streets to frame vistas to enhance visual interest and orientation for pedestrians.

St. Lucie County, Florida

Each neighborhood must provide an interconnected network of streets, alleys or lanes, and other public passageways.

(i.) Neighborhood streets must be designed to encourage pedestrian and bicycle travel by providing short routes to connect residential uses with nearby commercial services, schools, parks, and other neighborhood facilities within the same or adjoining Towns or Villages. Sidewalks and rows of street trees must be provided on both sides of all neighborhood streets...

(iii.) Neighborhood streets do not have to form an orthogonal grid and are not required to intersect at ninety-degree angles. These streets may be curved or bent but must connect to other streets...

(vii.) A continuous network of rear and side alleys and/or lanes is desirable to serve as the primary means of vehicular ingress to individual lots...

viii. Cul-de-sacs are not permitted except where physical conditions such as freeways provide no practical alternatives for connection for through traffic.

ix. Street stubs must be provided to adjacent undeveloped land to ensure an integrated street network is achieved over time.

St. Lucie County, Fla., Land Dev. Code ch. 3, § 3.01.03. EE.2.k(2) (2009)

San Diego, California

Street Pattern. The layout of the street system shall be in a grid pattern or modified grid pattern, emphasizing interconnected streets and the ability to reach local destinations without crossing major streets or primary arterials. It is desirable to have streets with block faces of 400 feet in length or less. The use of alleys is encouraged. Where possible, streets should frame vistas of the mixed-use core, public buildings, parks, and natural features.

San Diego, Cal., Mun. Code § 132.1109(a) (2009)

Streets: Block Length

Long street blocks are inconvenient and unsafe for pedestrians. Long blocks commonly have crosswalks only at intersections, imprisoning cautious pedestrians on one side of the street and indirectly encouraging unsafe mid-street crossings as the only practical means to access places directly across the street.

Long blocks also encourage higher vehicle speeds due to fewer traffic calming mechanisms than shorter blocks, with more frequent intersections, provide. Vehicles are less likely to anticipate pedestrians on the road, leading to more collisions, and vehicle-pedestrian collisions at higher vehicle speeds are more serious and lethal. Long blocks also require pedestrians to go out of their way to get to locations that are on the next block over.

Shorter blocks and more crossings provide flexibility and options for pedestrians. Mid-block street crossings and pedestrian walkways through the middle of large blocks or buildings also help address these problems, but mid-block pedestrian crossings must be designed to be safe and clearly apparent to vehicle operators. These approaches make walking more direct and convenient by offering more opportunities for pedestrians to safely access destinations around their community.

Code Examples

Madison, Wisconsin, takes a very simple approach to restricting block length, providing a general limitation of 500 feet and permitting limited exceptions. The exception for topography provides flexibility in recognition of local conditions. By requiring approval for exceptions, the code provides some safeguard against overuse of the exceptions process.

Albuquerque, New Mexico, adopts an approach that is slightly more complex. Albuquerque's code requires considerably smaller blocks, limiting block size to 400 feet and requiring that blocks over 300 feet provide mid-block pedestrian access. Albuquerque also provides for some flexibility in recognition of existing conditions, but includes provisions requiring that mid-block access points be provided during redevelopment in areas where block size exceeds 400 feet.

Madison, Wisconsin

Block Size. Block perimeter for new development shall not exceed a maximum of 1600 feet. No block shall exceed 400 feet in length measured from center of R.O.W. [Right of Way]. Block lengths longer than 300 feet shall be provided with mid-block access points. If a block size in a developed area exceeds these standards, mid-block pedestrian access points shall be included in any redevelopment projects such that block lengths do not exceed 400 feet. The Planning Director may modify block size standards based on limitations of existing conditions.

Madison, Wis., Code § 28.08(13)(i) (2009), subsequently revised by Madison, Wis., Code Ch 28 (adopted 2011)

Albuquerque, New Mexico

In the R2S District, block lengths shall not, as a general rule, exceed 500 feet in length between street lines, unless required by exceptional topography or other limiting factors when approved by the Plan Commission.

Albuquerque, N.M., Code § 14-16-3-22(B)(1)(i)(1) (2009)

Streets: Road Widths

Wide streets with many lanes of traffic are common, but they are difficult and dangerous for pedestrians to cross or cyclists to navigate. Multiple lanes of fast-moving cars can be dangerous and often feel threatening to pedestrians walking along a thoroughfare.

Encouraging narrower roads is one of the best ways to increase safety and comfort for pedestrians and cyclists. Where appropriate, communities can make large, wide roads safer and more attractive by expanding sidewalks and adding landscaped "planting strips" that buffer the sidewalk from the street. Other helpful additions include bicycle lanes, bulbouts, and landscaped medians. Bulbouts extend the sidewalk into the intersection, shortening the crossing distance for pedestrians, while medians provide a safe waiting place for pedestrians who are not able to cross all lanes at once.

With fewer lanes and the addition of pedestrian and cycling infrastructure, drivers not only drive at safer speeds, but they also become more aware that the road is a shared space. But if narrowing existing roadways, expanding sidewalks, and installing medians is not feasible, communities can achieve some benefits through traffic-calming mechanisms, speed limit enforcement, and appropriate signage and pedestrian crossings along roadways.

Code Examples

Although streets that are wider than two to four lanes pose considerable challenges for pedestrians, it is the rare community today that is able to do away entirely with the demand for such streets. The following provisions demonstrate two attempts to address this issue.

Oregon's administrative rule 660-012-0045(7) instructs local governments to establish standards to minimize excessive width requirements for streets, to reduce design speed and provide for the needs of pedestrians and bicyclists. The rule also balances emergency vehicle requirements, a common source of concern for jurisdictions considering narrower streets. The rule is worded generally and could apply to both the width and number of lanes.

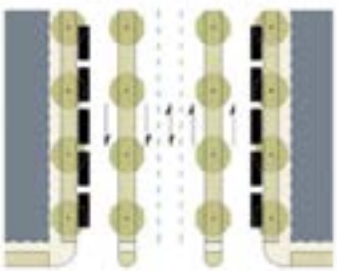
Albuquerque, New Mexico, provides for the boulevard as the widest permissible street type, and the code provides a number of restrictions and controls to make these streets somewhat safer and more welcoming for pedestrians. By providing for one-way slip roads separated from the primary three or four lanes, the boulevard ensures that pedestrians walking along the right of way experience slower traffic and are buffered from the rapidly-moving bulk of vehicular traffic. Additionally, the landscaped medians that separate the slip from traffic provide some refuge for pedestrians who are crossing, ensuring that they need not make their way across so broad and inhospitable an expanse of roadway.

Oregon State

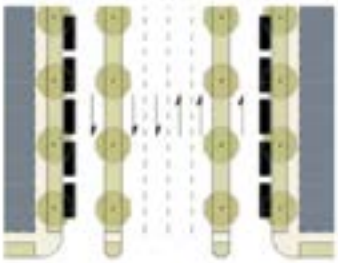
Local governments shall establish standards for local streets and accessways that minimize pavement width and total right-of-way consistent with the operational needs of the facility. The intent of this requirement is that local governments consider and reduce excessive standards for local streets and accessways in order to reduce the cost of construction, provide for more efficient use of urban land, provide for emergency vehicle access while discouraging inappropriate traffic volumes and speeds, and which accommodate convenient pedestrian and bicycle circulation.

Or. Admin R. 660-012-0045(7) (2009)

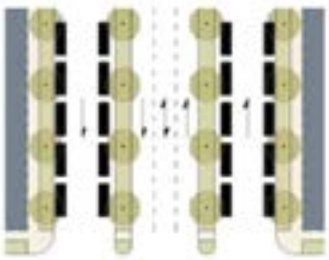
Albuquerque, New Mexico



BV-115



BV-125



BV-135

Thoroughfare Type	Boulevard	Boulevard	Boulevard
Right-of-Way Width	115 feet	125 feet	135 feet
Pedestrian Realm	15 feet, each side	13 feet, each side	13 feet, each side
Walkway Type	8 foot Sidewalk	8 foot Sidewalk	8 foot Sidewalk
Planter Type	5 foot Continuous planter	5 foot Continuous planter	5 foot Continuous planter
Landscape Type	Trees at 25' o.c. Avg.	Trees at 25' o.c. Avg.	Trees at 25' o.c. Avg.
Edge zone	2 feet	2 feet	2 feet
Roadway Realm	85 feet	80 feet	89 feet
Pavement Width	18 feet - 33 feet - 18 feet	18 feet - 44 feet - 18 feet	18 feet - 33 feet - 18 feet
Traffic Lanes	2 lanes w/ one turning lane & two one-way slip roads	4 lanes & two one-way slip roads	3 lanes, one turning lane & two one-way slip roads
Parking Lanes	8 feet	8 feet	8 feet
Curb Type	Curb	Curb	Curb
Curb Radius	15 feet	25 feet	25 feet

Albuquerque, N.M., Code ch. 14, art. 16, § 14-16-3-22(C)(4)(d) (2009)

Streets: Safe Crossings

Pedestrians must be able to cross streets safely. More than 40 percent of pedestrian fatalities take place where no crosswalk is available. Often, marked crosswalks alone are insufficient to protect pedestrians, and additional infrastructure is necessary to make the crossing safe. Crosswalk signal timing should be designed to allow potentially vulnerable populations, such as older adults, adequate time to cross and, wherever possible, the signals should have countdown clocks. In areas with long blocks, or where pedestrians use both sides of the street heavily, crosswalks located both in the middle and at the end of blocks are helpful.

However, mid-block crossings can be particularly dangerous because drivers may not anticipate or see pedestrians. Dangerous crossings can be made safer by installing features like signals, signage, crosswalk striping, flashing beacons or pedestrian-activated traffic signals, curb extensions or bulbouts, and median refuges.

There are additional safety considerations for crossings. Ramps and curb cuts leading to crossings should feature high-contrast detectable warning strips to alert pedestrians, particularly those who may be vision-impaired, that they are approaching traffic. Bus stops should be located after crosswalks so that transit riders crossing the street for a bus stop won't be hit by a bus, and so that stopped buses don't block drivers' view of pedestrians in crosswalks.

Code Examples

Louisville, Kentucky, requires pedestrian connectivity to destination uses (such as schools, parks, and shopping areas) by requiring a 10 foot pedestrian easement through non-residential blocks or a 10 foot walkway for residential blocks greater than 800 feet in length. Hailey, Idaho, utilizes a range of strategies to create safer pedestrian conditions such as the provision of medians, signals, increased crossing times, and curb extensions.

Louisville, Kentucky

All new blocks created by any major subdivision of land hereafter proposed shall conform to the following standards of design:

A. Pedestrian Access – Sidewalks bisecting non-residential blocks may be required within non-residential blocks where necessary to improve pedestrian circulation by providing more convenient access to schools, parks, shopping, etc., than is possible with sidewalks within the street right-of-way. Such walkways shall have an easement width of at least ten feet.

B. Mid-block Walkways – When residential blocks are over 800 feet in length, a walkway bisecting the block and dedicated to public use not less than ten feet wide, may be required to provide proper access to schools, playgrounds, shopping centers and other facilities.

Louisville, Ken., Land Dev. Code, § 7.3.20 (2009)

Hailey, Idaho

Form Based Code: Street Design

1. Design Solutions at Wide Intersections. The following techniques are appropriate to use to improve pedestrian conditions and access at wide intersections, particularly on Main Street where appropriate right-of-way exists, and maybe incorporated into a design:

a. Center medians to provide a refuge for slower pedestrians;

b. Accessible pedestrian signals to assist in providing people with vision impairments enough time to cross the street;

c. Increase crossing times so that people who walk slowly will have sufficient time to cross before the signal indication changes;

d. Increase the crossing times so that people who delay the start of their crossing to confirm the WALK interval will have sufficient time to cross before the signal indication changes;

e. Prohibit left turns during the WALK interval;

f. Restrict right turns on red;

g. Enhance the visibility of the crosswalk markings or consider a raised crosswalk with detectable warnings (truncated domes) at both ends;

h. Reduce crossing distances and increase visibility through the construction of curb extensions;

i. Reduce traffic speed;

j. Clarify the pedestrian crossing area by installing stamped or raised crosswalks with detectable warnings (truncated domes) installed at both ends;

k. Pedestrian lead time and an accessible pedestrian signal so pedestrians, including those with vision impairments, can assert themselves in the crosswalk before motorists start making right and left turns;

l. Mid-block signalized crossing with accessible pedestrian signal opportunities at busy intersections to encourage people to cross where there are fewer potential points of conflict between pedestrians and motorists;

m. Traffic and pedestrian signal indications if they do not already exist.

Hailey, Idaho. Municipal Code, Mobility Design. Chapt 18 §18.06.016 (E)(1) (2012)

Streets: Traffic Buffers

Providing a physical barrier between traffic and the sidewalk makes pedestrians feel less exposed and increases their safety by providing protection from vehicles. Planting strips and furniture zones enhance the attractiveness and utility of the sidewalk, by providing space for trees (and shade), seating, transit stops, and other amenities. On-street parking serves as an effective buffer from traffic for pedestrians and can have a traffic calming effect, although street parking poses dangers to bicyclists. Some cities have worked around this problem by moving bicycle lanes between sidewalks and parking strips.

Code Examples

Louisville, Kentucky, requires that the sidewalk be a minimum of seven feet wide and include a streetscape zone that buffers the pedestrian zone from traffic. The pedestrian zone must be a minimum of four feet wide, and if less than five feet wide, must include frequent wider areas to allow wheelchairs to pass one another. The streetscape zone has no specific size requirement, except when trees are present. The code provides considerable flexibility regarding the contents of the streetscape zone, allowing trees and other landscaping, street furniture, transit stops, and other uses. Because there are no firm requirements, this flexibility could lead to a narrow and barren streetscape zone. However, the wide minimum sidewalk size makes it likely that the streetscape zone will function as a barrier even when other features are not included in the zone. Provincetown, Massachusetts, also explicitly calls for a buffer zone, which is required to be a minimum of 10 feet wide, and visually separate parking from the road. Plantings are required, and the code calls for a sufficient setback from the road to limit traffic visibility hazards.

Louisville, Kentucky

Sidewalks shall be at least 84" wide measured from the face of curb to the building facade, shall include a pedestrian zone and a streetscape zone, and may include a storefront zone.

1. Pedestrian zone. The pedestrian zone is that portion of the sidewalk that is maintained free of any obstructions to allow for the passage of pedestrians. The pedestrian zone shall be at least 48 inches wide and shall not be shared with the streetscape or storefront zones. If the width of the pedestrian zone is less than five feet wide for more than 50 linear feet, passing spaces must be provided at intervals of no less than 200 feet apart and must provide an area of at least five feet by five feet to allow two wheelchairs to pass each other.

2. Streetscape Zone – That portion of the sidewalk located between the curb line and the Pedestrian Zone in which the following elements are located, following authorization by the Public Works Department: Street trees/grates, planting strips, raised planters, Street light standards, Street signs/pedestrian wayfinding signs, Transit stops, Media boxes, Postal/freight collection boxes, Parking meters, Utility boxes/public phones/ fire protection, Seating (with/without tables), Trash receptacles, Public art/water feature, Bike racks. The Streetscape Zone shall be at least 48" wide when trees are included.

Louisville, Ky., Land Dev. Code § 5.8.1(C)(1)(b) (2009)

Provincetown, Massachusetts

A landscaped buffer strip at least 10' wide continuous except for approved driveways shall be established adjacent to any public road to visually separate parking and other uses from the road and which shall be planted with medium height plant materials set back a sufficient distance at intersections to prevent any traffic visibility hazard.

Provincetown, Mass., Zoning Bylaws art. 4, § 4053(2)(a) (2009)

Streets: Traffic Calming

For decades, streets have been designed with the primary goal of moving cars as quickly as possible. But high-speed driving environments increase the number of collisions and the severity of injuries, both for motorists and for pedestrians.

Reducing how rapidly cars drive on a street is crucial not only for pedestrian safety, but also for the livability and social and recreational functions of a street. To reduce traffic speed and increase pedestrian visibility, communities can introduce narrow streets, roundabouts, medians, speed humps, street signs alerting drivers to the presence of pedestrians, and bulbouts at places where pedestrians cross the street.

Code Example

San Antonio acknowledges that street design can lead to excessive speeds, and provides for various traffic calming devices, such as bulbouts, roundabouts, and median islands. The city's code permits longer length streets where there are traffic calming features.

Las Cruces, New Mexico, details a procedure for evaluating and implementing traffic calming measures for residential streets in the city. In addition to describing data for inclusion in a traffic calming study, the design guidelines include descriptions of the potential benefits or disadvantages and costs for a range of traffic calming measures. Traffic calming measures range from more affordable options such as speed humps to higher value investments like traffic circles.

San Antonio, Texas

Traffic Calming. The purpose of this section, is to protect the public health, safety and general welfare by ensuring that speeds on local streets are suitable for their intended purpose. The city hereby finds and determines that long blocks, wide street cross sections and uninterrupted traffic flows can encourage speeding on local streets. Accordingly, these design standards will slow traffic on local streets while allowing flexibility in design and offering applicants the choice of treatment that works best for the streets in a proposed development.

(3) **Traffic Control Calming Features.** A longer street length may be allowed through the placement of an approved traffic calming feature at a location which produces an unimpeded length of the street link which does not exceed the block length standards (subsection 35-515(b)(4)). Table 506-8 provisions describe and establish standards for permitted traffic calming devices [such as bulbouts, roundabouts, speed humps, median islands, t-intersections] where traffic calming measures are permitted as part of the roadway design elements.

San Antonio, Tex., Unified Dev. Code art. V, div. 2, § 35-506(t)(3)(2009)

Las Cruces, New Mexico

CHOKER:

a. *Definition*. A physical constriction built at the curbside of the roadway effectively reducing the width of the travel lane.

b. *Placement*. Normal turning radii should be accommodated. Visibility should be a key design consideration with features such as advance warning signs, reflective channelization, reflectors on curbs and elevated landscape elements.

c. *Advantages*. Effective lane narrowing results in lower speeds, provides parking protection, and shortens pedestrian crossing distance.

With landscape enhancements, improves aesthetic value of intersection.

d. *Disadvantages*. Potential drainage problems; increases maintenance costs.

RAISED CROSSWALK:

a. *Definition*. A raised hump (a pavement undulation) in the roadway with an eight-foot to ten-foot' wide flat top, extending across the road perpendicular to the direction of traffic flow. The top is typically striped with MUTCD-compliant crosswalk markings.

b. *Placement*. Where significant number of pedestrians (ten–20 per hour in a minimum four-hour period of a typical day) cross the roadway with 85th percentile speeds greater than 30 mph, speed hump placing considerations apply.

c. *Advantages*. Effectively reduces speeds, provides improved visibility for crossing pedestrians.

d. *Disadvantages*. Slows emergency vehicles and buses; increases noise and maintenance cost.

TRAFFIC CIRCLE:

a. *Definition*. A circular intersection which provides counter-clockwise, one way operations by placing an elevated area in the middle of the intersection. Approaching vehicles yield to traffic already in the circle.

b. *Placement*. Street grades approaching the intersection should not exceed ten percent.

c. *Advantages*. Effectively reduces speeds, fewer left-turn crashes, can be visually attractive.

With landscape enhancements, improves aesthetic value of intersection.

d. *Disadvantages*. Placement of circle may require parking removal.

CROSSWALK REFUGE:

a. *Definition*. A physical constriction (a median) built in the middle of the roadway with a cut provided for the crosswalk.

b. *Placement*. Where significant number of pedestrians (minimum of ten–20 pedestrians per hour for a minimum four hours of a typical day) cross the roadway. Special consideration can be given to designated school walking routes.

c. *Advantages*. Provides refuge for pedestrians when crossing the roadway; effective lane narrowing results in lower speeds. May allow space for landscape enhancements with increased aesthetic value of the crossing point.

d. *Disadvantages*. Increases maintenance cost.

CHICANE:

a. *Definition*. Physical constrictions (three/set) built at the curbside of the roadway to create a 45-degree bend in a formerly straight street. This forces cars to negotiate the narrowed street in a snake-like fashion. The 45-degree bend can also be achieved by alternating parking from one side of the street to the other.

b. *Placement*. Normal turning radii should be accommodated. Chicane sets are to be placed 400–600 feet apart. Visibility should be a key design consideration with features such as advance warning signs, reflective channelization, curb-mounted reflectors, and elevated landscape.

c. *Advantages*. The snake-like alignment and the lane narrowing result in lower speeds provide parking protection, shorten pedestrian crossing distance.

With landscape enhancements, improves aesthetic value of street.

d. *Disadvantages*. May contribute to head-on collisions, potential drainage problems and higher maintenance costs.

DIVERTER:

a. *Definition*. Physical barrier constructed to completely restrict passage of traffic and/or disallow certain movements through an intersection.

b. *Advantages*. Effective control in reducing traffic volumes.

c. *Disadvantages*. Placement of diverters can have an adverse impacts to local traffic.

STREET TREES:

Street trees planted along both sides of the street ROW can make the street appear narrower than it is and can result in traffic calming. Landscaping and street trees have been shown to reduce traffic speeds by creating a more pedestrian-friendly and enclosed environment. Vertical elements such as street trees serve to alert vehicles to the presence of pedestrians, and cause them to reduce their speeds. Street trees and a landscaping strip are often used in conjunction with other traffic calming techniques such as traffic diverters and chicanes.

Las Cruces, NM. Ord. No. 2663, § I(exh. A), 9-4-12

Streets: Trees

Good street shade trees have a large canopy that hangs relatively low but is high enough not to endanger pedestrians walking underneath. Placed between the street and the sidewalk, shade trees provide a physical and psychological barrier between vehicles and pedestrians. When properly spaced, shade trees offer a continuous canopy of shade that adds to pedestrian comfort and physical well-being, especially in warm climates. Shade trees give a sidewalk a sense of security and enclosure, add natural color and beauty, mitigate storm water runoff, and improve air quality.

Urban forestry projects can also qualify as carbon offset credits in California's cap and trade market if certain requirements are met, such as a 100 year lifespan for the trees and an average spacing of no less than five meters. Shade trees can thereby raise some money for local governments as well as mitigating some greenhouse gas emissions.

Code Examples

Both Arlington and Peoria require that street trees be spaced at an average spacing of not more than 30 feet apart, a distance that meets street tree spacing recommendations.

Arlington County, Virginia, requires trees on every street within the design area. Arlington also requires a minimum amount of unpaved ground, in order to promote health of the trees, and requires the trees be a minimum size when planted. Peoria, Illinois, makes developers responsible for planting trees along the property that is being developed. Peoria allows some flexibility in spacing of trees, but prohibits spacing more than 45 feet apart. In a related provision, Peoria requires a minimum unpaved area per tree, and also requires the bare ground to be covered with a plant groundcover.

Arlington County, Virginia

Each STREET shall have canopy shade trees (STREET TREES). Wherever the REGULATING PLAN does not show specific STREET TREE placement, STREET TREES shall be planted along the STREET TREE ALIGNMENT LINE at an average spacing not greater than 25 to 30 feet on center (measured per BLOCK face). Required tree planting area widths are specified on the typical street cross sections in the Master Transportation Plan – Part I. However, open soil surface area shall be not less than 60 square feet (with a minimum of 5 feet in any direction) per isolated tree, and connected (tree strip) planting areas are encouraged. The planting area's minimum dimension shall be not less than 5 feet. At planting, trees shall be at least 4 to 4.5 inches in diameter (4 feet above grade) and at least 12 feet in overall height. Species shall be selected from the Columbia Pike Special Revitalization District Street Tree List. Consult the ADMINISTRATIVE REVIEW TEAM for the designated tree species for a particular STREET.

Arlington County, Va., Zoning Ordinance § 20, app. A (V)(B) (2009)

Peoria, Illinois

At the time of development, the applicant is responsible for installing/planting the following street trees in the space fronting their property between the required building line and the travel lane: ... Each street-space shall have street trees planted along the street tree alignment line (generally three feet, six inches from the back of the curb) at an average spacing not greater than 30 feet on center (measured per block face). Required tree planting area widths are specified in the Street Type Specifications or on the regulating plan. Where necessary, spacing allowances may be made to accommodate curb cuts, fire hydrants and other infrastructure elements, however, at no location shall spacing exceed 45 feet on center.

Peoria, Ill., Code app. C, § 6.8.3(b) (2009)

Trail Networks

Well-connected bike paths and lanes can facilitate longer commutes and even encourage non-commuters to use their bicycles. Bicycle infrastructure, especially paths that separate bicycle from vehicular traffic, creates safer environments for all motorists by reducing potential for accidents and collisions. Transportation networks should provide continuous, well-maintained, and direct bicycle connections to key activity centers such as schools, commercial areas, and other public spaces.

Code Examples

Montgomery County, Maryland, utilizes a handful of strategies to create pedestrian and bicycle friendly rural village centers. The overlay zone emphasizes the need for pedestrian and bicycle connectivity. In contrast, the code in Seminole County, Florida, outlines a comprehensive list of strategies selected to ensure transit supportive planning for all users including the elderly and the disabled. Strategies include clustering a mix of compatible land uses around transit stations, orienting buildings toward transit facilities, and providing safe and direct pedestrian and bicycle connections to transit.

Montgomery County, Maryland

It is the purpose of this overlay zone to create attractive, cohesive, and pedestrian-friendly rural village centers, consisting of a mix of uses as allowed in the underlying zones, as limited in this section. Specifically, the overlay zone is designed to:

(a) Draw upon the open, green character of the surrounding area, emphasizing this character through streetscape design, open space, and landscaping.

(b) Maintain and enhance the rural village character through compatible scale, massing, siting, and setbacks for new and expanded uses.

(c) Emphasize the pedestrian and bicycle circulation through street design, including streetscape and traffic calming, and trail networks.

(d) Encourage a variety of uses that serve the needs of the local community, including mixed-use buildings that provide housing and commercial uses to the extent allowed in the underlying zone.

Montgomery County, MD. Zoning Code. § 59-C-18.23

Seminole County, Florida

Transit service must be competitive with the automobile in terms of access, cost, convenience, comfort, security and safety if it is to be successful. Therefore, transit service must be planned, designed and operated to respond to customer needs. Transit can be successful in attracting a significant number of users from the automobile if it provides user-oriented service. The planning and development of land use patterns and site designs that are sensitive to the needs of potential transit users can create a user-friendly environment which will enhance the attractiveness of transit. Transit compatible land use planning includes the following features:

(g) Provide for safe, convenient pedestrian and bicycle circulation with direct, logical connections between buildings and transit stops/stations.

Seminole County, Fla. Land Dev. Code. Appendix A. § 14.3.g

Transit: Access

Public transportation and walking complement each other, since transit users generally walk to and from transit, and transit increases the distance pedestrians can travel. Communities can arrange transit stops around popular destinations such as grocery stores and community centers.

Transit stops should be within 1/4 to 1/2 mile of destinations and residences, especially for residences or destinations of older adults and low-income families as they are less likely to own cars and have difficulty walking beyond these distances. When communities can meet these needs, public transportation becomes much more convenient for those who rely on it, and more attractive for those who might otherwise drive.

Areas surrounding transit centers benefit from increased foot traffic, which leads to an increase in local purchases and a decrease in automobile traffic. It's also important to provide the areas near transit stops with crosswalks and other pedestrian-friendly features to ensure that passengers are safe when walking to and from transit.

Code Examples

San Diego's general language calls for locating transit stops to "maximize access" and optimize pedestrian and cycling connectivity. The code provides more specificity in the context of major activity zones, stating that stops should be every quarter-mile in such areas.

Lauderhill, Florida, regulates the spacing, location, and design of future bus stops to maximize transit efficiency while encouraging pedestrian access and safety.

San Diego, California

Locate transit stops to maximize access and optimize transit service and pedestrian and bikeway connections. Where located near cross-roads and major activity centers, stops should be at one-quarter mile intervals.

San Diego, Cal., Mun. Code ch. 15, art. 14, div. 4, § 1514.0408(j)(1) (2009)

Lauderhill, Florida

Review criteria. The following four criteria shall be considered in determining whether a special permit for a bus stop shall be granted:

1. Access.

a. Proximity to major trip generators.

b. Availability of sidewalks, crosswalks and curb ramps.

c. Connection to nearby pedestrian circulation system.

d. American with Disability Act accessibility.

e. Convenient passenger transfer to other routes.

2. Traffic and safety.

a. Conflict between buses and other traffic.

b. Passenger protection from passing traffic.

c. Availability of all weather surface to step on and off the bus.

d. Open and lighted spaces for personal security and passenger illumination.

e. Street and sidewalk illumination.

Lauderhill, FL, Land Development Regulations, art.III, § 5.46

Transit: Facilities

More people use public transportation when transit facilities are attractive, safe, and functional. To make them more appealing and to optimize use, transit stops should be highly visible to pedestrians, and oncoming transit vehicles should be easy to see from the stop. Facilities should have some architectural verve to enhance the streetscape, provide benches and shelter from the elements, and address the challenges posed by local weather (for example, by including heating in cold climates).

Code Examples

San Diego requires very simply that transit stops be attractive, visible, and provide shelter from the elements. The code also requires that developments along transit corridors include bicycle parking, benches, and other pedestrian-friendly features.

Minneapolis uses an incentive system to provide a much more comprehensive set of requirements in terms of functionality and usability of the transit stop itself. Developers can obtain floor area ratio premiums by building and maintaining transit facilities that meet a number of requirements. Facilities must include heat, light, and shelter, and must provide high visibility. In addition, facilities must contain resting spaces for 30 percent of the projected peak demand, and must be visually tied into related principal structures. These requirements reflect weather and comfort requirements necessary to accommodate transit riders year round in Minneapolis.

San Diego, California

(2) Design transit stops to be attractive, highly visible and provide shelter. Transit stop design and location should be acceptable to MTDB [Metropolitan Transit Development Board].

(3) Include transit shelters, bicycle parking facilities, canopies, patterned sidewalks, information kiosks, benches and other pedestrian amenities in developments located along transit corridors. Enhanced transit shelters are desirable.

San Diego, Cal., Mun. Code §§ 1514.0408 Guidelines for Discretionary Review (j)(2)-(3) (2009)

Minneapolis, Minnesota

Transit facility, subject to the following standards:

(c.) The transit facility shall be similar to the principal structure in design and materials, shall be weather protected, heated and lighted, and shall contain at least two (2) entries.

(d.) The transit facility shall be clearly visible from the street and sidewalk, and transit users shall be able to see oncoming transit vehicles from the facility.

(e.) The transit facility shall contain a combination of leaning rails and seating for at least thirty (30) percent of projected peak demand, trash receptacles and connections for transit schedule monitors.

Minneapolis, Minn., Code tit. 20, ch. 549, art II § 549.220(5)(c,d,e) (2009)

Underground Utilities

Putting utilities underground can greatly enhance the attractiveness of an area. Removing utility poles also often provides concrete benefits for pedestrians, preserving sidewalks for their use, maintaining a clear pathway for people with disabilities, and allowing for larger trees. If utilities can't all be placed underground, it's important to choose an aboveground location that minimizes interference with pedestrian use of the sidewalks.

Code Examples

Both Palo Alto and Flagstaff encourage the location of utilities underground. Palo Alto, California, requires underground utility location for all new construction, but provides flexibility where infeasible or impractical by allowing the director of utilities the discretion to allow exceptions. Flagstaff, Arizona, utilizes design standards to require all utilities in certain neighborhoods to be located underground, and also encourage their location in rear alleys so that access and utility boxes are also hidden from view.

Palo Alto, California

The council finds and determines that the public interest requires that all poles, overhead lines and associated overhead structures used in supplying electric service, communications service or similar associated service to be constructed in the city of Palo Alto after July 1, 1965, shall be placed in underground locations in order to promote and preserve the health, safety and general welfare of the public and to assure the orderly development of the city of Palo Alto. The director of utilities, or designee, may authorize poles, overhead lines and associated overhead structures for new construction when the director determines that an installation in an underground location in any particular instance would not be feasible or practicable. The decision of the director is final.

Palo Alto, Cal., Mun. Code § 12.16.010 (2009)

Flagstaff, Arizona

UTILITY PLACEMENT IN THOROUGHFARES: In Traditional Neighborhood developments all utilities shall be located underground in compliance with the following standards … (2) Electric, telephone, cable and gas utilities ("dry" utilities) shall be located in Alleys or Lanes where these are provided to minimize above ground utility meters and boxes in the front of the property

Flagstaff, Ariz, Engineering Design and Construction Standards and Specifications, 10-12-015.1

Water Features

Water features can make a pedestrian area much prettier and livelier. Water features can range from large public fountains with sculptural spray elements to small, wall-mounted fountains, and can include a wide variety of decorative drinking fountains, children's water-spray play areas, and natural or artificial ponds or canals.

As pieces of art and sources of entertainment, water features may become destinations in themselves. They can also provide resting space for pedestrians, serve as gathering spots, and act as landmarks that help people find their way. Beautiful water features can only truly be enjoyed on foot, so that the water can be seen, heard, and maybe even felt.

Code Examples

Zoning codes increasingly encourage water features as a pleasant option in pedestrian-oriented areas. Louisville, Kentucky, sets out an expectation that new or improved open spaces within the downtown area will contain a fountain or water feature among other pedestrian-friendly features. Pasadena, California, encourages fountains by requiring new projects within a certain district to include at least one "craftsmanship element" and two "building elements," and including fountains among the choices for each.

Louisville, Kentucky

Any newly developed or improved open space accessible to the public should generally: 1. Create a comfortable and interesting place to rest. 2. Let people clearly know it's there and that it's accessible. 3. Provide plenty of seating (about one linear foot for every 30 square feet of paved open space. 4. Have enough lighting to create a safe nighttime environment. 5. Use fountains or other water features. 6. Incorporate public art.

Louisville, KY, Land Dev. Code § 3.3B.B.12

Pasadena, California

1. Craftsmanship Element. Each project shall incorporate into the design at least one feature such as iron grates, tile fountains, cast terra cotta, wood work, stenciled ornament or other elements as approved by the Design Review authority.

2. Building Element. In addition to the above requirements, each new project shall incorporate at least two building elements. Building elements include: upper floor loggias, roofed balconies supported by brackets or by columns at the ground floor, exterior wooden or masonry stairs with closed risers, or tile or masonry fountain.

Pasadena, Cal., Zoning Code, s. 17.22.080(E)

Model Codes

The following model code examples reflect some of the most important components of a safe and comfortable pedestrian and cyclist experience. They are provided as a starting point for toolkit users looking to improve their existing zoning or subdivision codes.

Pedestrian-Oriented Entrances

Principal building entrances shall be located on the street frontage of the building. However, for buildings fronting other public spaces, such as public squares or plazas, the principal entrance may face the public space; some public entrance must face the public space. In addition, entrances must be provided at intervals no greater than [75] feet along a street to maximize street activity, to provide pedestrians with frequent opportunities to enter buildings, and to minimize any expanses of inactive wall.

Building Facade

1. At least [30] percent of the facade of each story of a building must consist of transparent windows or doors. For windows to be considered transparent, the window glass must transmit at least 50 percent of visible daylight. For retail stores, the ground story must have transparent storefront windows covering no less than [75] percent of its facade in order to provide clear views of merchandise in stores and to provide natural surveillance of exterior street spaces.

2. The building facade shall be built to the [required building/street property] line for at least [80] percent of the building length.

Pedestrian-Oriented Lighting

Lighting shall be designed and located at a pedestrian scale consistent with pedestrian movements and the neighborhood. Lighting shall be placed at [15] feet or lower, and shall be concealed or shielded to avoid glare and off-site impacts on abutting properties.

Street Trees

Each street shall have street trees that provide canopy and shade. Street trees shall be planted along the street tree alignment line at an average spacing not greater than [25-30] feet on center. Open soil surface area shall be not less than [60] square feet (with a minimum of [3-5] feet in any direction) per isolated tree, and connected (tree strip) planting areas are encouraged. At planting, trees shall be at least 4 to 4.5 inches in diameter (4 feet above grade) and at least 12 feet in overall height. Where necessary, spacing allowances may be made to accommodate curb cuts, fire hydrants and other infrastructure elements, however, at no location shall spacing exceed [45] feet on center.

Landscape Buffers

A landscaped buffer strip at least [5] feet wide, planted with street trees and medium height plant materials, shall be established adjacent to streets to provide a buffer to pedestrians and to visually separate uses from the street.

Appendix A: Resources

The following model policy resources may aid in your efforts to create more walkable, bikeable, and transit friendly communities:

Model Complete Streets

Conventional street design promotes traffic congestion, pollution, and collisions, and discourages physical activity. Complete streets, on the other hand, are designed and built so that people of all ages and abilities can travel easily and safely, while also getting the regular physical activity that is so critical to preventing obesity. ChangeLab Solutions has developed model laws and resolutions to help communities embrace complete streets, no matter how new or experienced they are with this idea.

Complete streets model policies are available at **www.changelabsolutions.org/publications/laws-resolutions-cs**

Model Bicycle Parking Ordinance

One clear impediment to bicycle use, however, is that most cities lack sufficient safe and convenient bicycle parking. Just as drivers need easy, secure parking, so do bicyclists. ChangeLab Solutions has developed a model bicycle parking ordinance to help local communities increase the availability and quality of bicycle parking, creating a more bike-friendly environment. Download our fact sheet below for a more complete overview, and contact us for help adapting the model ordinance to your community's needs.

The Model Bicycle Parking Ordinance is available at **www.changelabsolutions.org/publications/bike-parking**

New York City Active Design Guidelines

Implementing active transportation policies requires strong, evidence-based design practices. A partnership of New York City government agencies and professional groups developed a manual of strategies for building healthier neighborhoods and encouraging active living through building design. Information about trainings on the guidelines is also available at the link below.

The New York City Active Design Guidelines are available at **www.centerforactivedesign.org/guidelines/**

ENACT Local Policy Database

Additional best practices can be found in this searchable database of local physical activity and nutrition policies, compiled by Prevention Institute and maintained by the Strategic Alliance for Healthy Food and Activity Environments. The database is searchable by topic, keyword, state, jurisdiction, year and environment (e.g. school, workplace).

The ENACT Local Policy Database can be found at **www.eatbettermovemore.org/sa/policies/**

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Users of this document should be aware that every funding source has different requirements governing the appropriate use of those funds. Under U.S. law, no federal funds are permitted to be used for lobbying or to influence, directly or indirectly, specific pieces of pending or proposed legislation at the federal, state, or local levels. Organizations should consult appropriate legal counsel to ensure compliance with all rules, regulations, and restriction of any funding sources.

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