Obstructing the Path?
Designing Sidewalks through Object Placement

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Abstract

Vibrant multi-use sidewalks are designed in two phases. First there is the design of the physical infrastructure which determines sidewalk widths, materials, and the adjacent building façades and roadway. Then there is the design problem of organizing objects on the sidewalk: where should the trees be planted, where do the lampposts, benches, trashcans, and signs get placed. Object placement is what identifies the sidewalk as a multi-use environment – making it both a space to move through and a place to gather in. Objects are furthermore an expression of property rights and the presence and absence of objects on a sidewalk are used to stake claims to the space for different purposes. The placement of objects is an ongoing process involving many public and private stakeholders, and thus policy is needed to manage object placements.

This project utilizes a case study methodology and looks at the recorded sidewalk object policies in three of the most forward thinking cities in the US when it comes to utilizing sidewalks: New York, NY, Boston, MA, and Cambridge, MA. The municipal codes and written design guidelines are analyzed through the lenses of three claims to the sidewalk: the right to movement, the right to appropriation, and the right to commodification. With additional input from interviews with municipal staff members and consulting groups, this analysis reveals that municipalities are increasingly thinking about sidewalks as a space for more than just walking.

Objects on the sidewalk have been assumed to be obstructions, disruptions to the official purpose of the sidewalk - walking. But the policies that are currently developing in New York, Boston, and Cambridge designate places for objects to be, allowing them to be evaluated from a neutral starting point. This shift in thinking about objects is still largely unconscious but necessary for planners, designers, and engineers to make, so that objects can be recognized for their design potential. Reframing objects as design elements in municipal laws and guidelines will open up new possibilities for creating lively sidewalks.

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Chapter 1: Introduction

Sidewalks thrive as multi-use environments, not as pure pedestrian thoroughfares. - Anastasia Loukaitou-Sideris and Renia Ehrenfeucht, 2010

Every scholar of the pedestrian will tell you that the sidewalk is not just for walking and that walking is not any one thing. Walking is exercise, walking is transportation, walking is thinking, walking is protest, and walking is shopping. Walking is many things, and only occasionally just about the movement. This makes the sidewalk an interesting planning project. It is considered the most public of public spaces and on a daily basis it is a space in which many objectives are expressed. In this thesis I look at how sidewalks are designed to absorb everyone with their multitude of purposes and perspectives.

Every time someone steps out onto a downtown sidewalk they approach the trip with one of three mindsets: I am passing through this space on my way somewhere, I am here to be in public, or I am here for the commercial opportunities. Getting out of the subway when you're late for a meeting downtown, you become the pedestrian racing past everything around you. Taking the dog for a walk after work, you become the leisurely pedestrian, lost in thought as you circle the block. Waiting for a table at your favorite brunch spot on Sunday afternoon, you browse the racks outside nearby shops, becoming the commercially oriented pedestrian.

Streets just like people can express these three perspectives. A sidewalk that has a wide clear area for walking will encourage people to spread out and walk at whatever pace they choose. A sidewalk that has trees, sitting areas, and public art will invite people to think of it as a public space where they are welcome to sit and relax. A sidewalk populated with displays, cafés, advertisements, and street vendors, will inspire people to think about the street as a commercial space. The streetscape features on each of these scenario sidewalks sets its character. These features can of course be mixed on a single block, and the interactions of different objects and the users they encourage make the sidewalk a much more interesting place than one activity alone. Though these small objects described may seem inconsequential individually, collectively they can greatly alter how a sidewalk feels and what activities it inspires.

Research question and hypothesis

This thesis began with a broad question, how are sidewalks designed? There are two design problems when it comes to the sidewalk. First, there is the design of the physical infrastructure, how wide is the sidewalk, what materials are used, etc. Then there is the design problem of organizing the sidewalk, where should the trees be planted, where do the lampposts and benches, trashcans and signs, go. It is the public space equivalent of the relationship between architecture and interior design, architects design the structure a particular room, interior designers provide the tactile details that people interact with. On the sidewalk there are urban designers and transportation engineers who set the structure of the space designing the sidewalk surface and its relationship to adjacent buildings and roadways, but there is no one designer who organizes the space that the infrastructure has created. Instead there are many stakeholders including the same urban designers and transportation engineers, but also the abutting property owners and tenants, street vendors and artists, the general public who walks along the sidewalk, and a number of city agencies – transportation, parks and recreation, sanitation, zoning, and more. Some of the details that they add will be fairly permanent, like lampposts, while others are ephemeral like the A-frame sign announcing a 2-for-1 lunch special at the corner deli. With so many possible inputs, that have varying degrees of permanence, policy becomes an important tool for managing what gets added to the sidewalk. This is the topic I explore with this thesis: how do cities set policies for objects on sidewalks to manage the design and use of sidewalk space?

In the course of my research, I have found that the policies about placing objects on sidewalks are used to organize the space into areas for different activities. It is very difficult for a city to police where people walk and where people stand, but through design policy they can organize the sidewalk so that it works for people who come to the space with different motivations. I hypothesize that:

- The placement of objects is what identifies the sidewalk as a multi-use environment – making it both a space to move through and a place to gather in.

- Objects are improperly framed as obstructions, and the policies that manage object placement should treat items with neutral language
- A good sidewalk object policy will allow for a flexible mix of clear walking space, public amenities, and commercial uses.

How this project came to be

I come to the study of sidewalk objects after 5years of studying pedestrian behavior. I've studied where people position themselves on sidewalks in Manhattan, what induces people to walk in my suburban hometown's town center, how Copenhageners utilize the city's network of pedestrian streets, and most recently, how businesses utilize sidewalks. As an intern with WalkBoston, the country's oldest utilitarian walking advocacy group, I helped craft the "Good Walking is Good Business." I was exposed to a wide range of research showing that businesses, retail and otherwise, have a vested interest in the pedestrian experience taking place outside their doors. My role was to research simple and inexpensive ways for the business community to make improvements to the sidewalk, which led me to objects.

Businesses large and small place things on sidewalks. Restaurants and retail businesses are the most obvious, with their use of cafés, merchandise displays, and signs. But large businesses also place planters, bollards, cigarette receptacles, and in some cases larger objects like trees and benches for their employees to enjoy during breaks. In the course of the research we came across the issue that some of the ideas we were advising businesses use, might not conform to city codes. Would, for instance, this row of chairs (shown right) outside a San Francisco donut shop be problematic in terms of city approvals? We began investigating and found that city codes regarding abutters' use of sidewalks vary greatly from city to city.

In Annette Kim's *Housing and Land Use in Rapidly Urbanizing Regions* course, which discusses the role property rights play in the development of the urban fringe and urban public spaces, I chose to return to the issue of regulating abutters' use of sidewalks, though I studied Boston instead of a rapidly urbanizing region. I looked at how property rights scholars discussed public space and compared that to the evolution of Boston's sidewalk ordinances from 1795 to today. Concluding that Boston's newest policy, which divides the sidewalk into three distinct

zones, makes room for multiple claims to the sidewalk: the right of an abutting property to use the space at the building edge for their purpose, the right to free movement, and the right to space for public appropriation. This thesis has evolved out of that finding. Seeing that Boston is making space for many sidewalk users, I was curious to see how their policy compares with other cities.

Figure 1: A row of chairs for customers and the public across the sidewalk from Dynamo Donuts, San Francisco

Chapter 2: Move or Stay – Rights and Objects on the Sidewalk

There is an inherent dichotomy to sidewalks—they facilitate getting from place to place but they also are part of a city's public space network. The conflict between these two perspectives is strongest on busy commercial streets. On these streets, there might be shoppers racing to complete errands, people strolling after dinner, and workers who have stepped outside to pause and take a break. The varying speeds at which people utilize the sidewalk are what make it an interesting place to be but also a challenging space to plan.

Planning and managing sidewalk activity have been theorized by transportation planners and urban designers, but their analyses have often led to different conclusions. One of the major break points between the two groups of professionals is the issue of objects on the sidewalk. Urban designers see objects as anchors, elements that give the sidewalk definition and personality. Those who view the sidewalk as a space for movement conclude that objects get in the way, disrupt the flow, and are a nuisance. By exploring how both sets of practitioners have written about objects on the sidewalk we can unpack the debate about the purpose of the sidewalk itself and why sidewalk objects are controversial.

Though the debate about object placement is most often dealt with by spatially oriented municipal staff members, transportation engineers, and urban designers, their decisions are framed by property rights literature that portrays the sidewalks as a microcosm of social and political conflict. Sidewalks are the most diffuse, mundane, and readily accessible public spaces and the moments of dissent and social change taking place there challenge the nuances of our rights to public space more generally. In this chapter I will argue that that not only is it important to recognize the spatial implications of right to the sidewalk debates, but that the placement of objects is a way of expressing one's right to the sidewalk.

Sidewalk Rights

Rights to the sidewalk, manifested in the conflict between moving and static uses, are a part of the right to the city debate. There is a great deal of confusion as to who has access to this seemingly public space, what they are allowed to do there and for how long, and how their rights are enforced. In 1968, Lefebvre introduced the idea of the 'right to the city,' which consists of the right to participate in the making of space and the right to full use of urban space, no matter a person's social status or background. Lefebvre meant for the right to the city to be a revolutionary concept, leading to redistribution of space and services when the general populous became involved in spatial planning issues. More broadly he sought to challenge the institution of private property rights and capitalism (Purcell, 2002). Sidewalks, the most extensive, visible, and mundane of urban public spaces, are often overlooked but critical to the right to the city conversation.

Mark Purcell (2002) summarizes Lefebvre's use of space ideas as 'appropriation.' He writes that scholars generally use appropriation to include "the right of inhabitants to physically access, occupy, and use urban space;" he goes on to say that

> "Lefebvre imagines appropriation to have a much broader and more structural meaning. Not only is appropriation the right to occupy already-produced urban space, it is also the right to produce urban space so that it meets the needs of inhabitants. Because appropriation gives inhabitants the right to 'full and complete usage' of urban space in the course of everyday life, space must be produced in a way that makes that full and complete usage possible"(Purcell, 2002, p.103).

Bringing this down to sidewalks, Lefebvre's view of appropriation is that everyone has the right to full use of public space. Though Purcell does not explain what 'full use' means, he pits the right to the city against the use of public space for private gain: "The conception of urban space as private property, as a commodity to be valorized (or used to valorize other commodities) by the capitalist production process, is specifically what the right to appropriation stands against" (Purcell, 2002, p.103). Purcell sets up the premise that everyone, no matter where they are from or why they are there, should have use of the city's public spaces for stationary non-economic purposes.

But when applying this right to the city theory to sidewalks, there may need to be an adjustment in the argument. Yes sidewalks are public space, but they are also a place of movement. Does having the right to freely move constitute a right to the city? Some scholars say yes. In his 2004 article "How to Turn a Beggar into a Bus Stop: Law, Traffic, and the 'Function of the Place,'" Nicholas Blomley writes that "there is a long-standing association in liberal thought between mobility, individualism, and liberty such that 'to be free is to be mobile'" (p.1707). So which should be prioritized: the right to movement or the right to be appropriate space? What does activities fall under appropriation? And to what degree are the right to movement and the right to appropriation in competition?

Throughout the history of the United States the rights of mobility have been a part of social change; challenges to race, class, and gender relations have all played out on the sidewalk. An 1857 Richmond, VA code read that "Negros shall not at any time stand on a sidewalk to the inconvenience of [white] persons passing by. A Negro meeting or overtaking, or being overtaken by a white person...shall pass on the outside; and if it be necessary to enable such a white person to pass, shall immediately get off the sidewalk" (Loukaitou-Sideris & Ehrenfeucht, 2009, p.87). This law demonstrates that African Americans' rights to both appropriation and movement were constrained. By far the dominant priority was given to the right of the white person's free movement. African Americans were expected to defer to whites on the sidewalk, and in many places this lasted through the Jim Crow era. Claiming free movement on the sidewalk was one way for African Americans to assert their presence in public and political life.

Women's right to simply be present on the sidewalk was also heavily constrained, though more by social pressure than by law. Women's presence on the sidewalk was closely tied up with social class in the 19th century. Middle class women "moved within a private bubble of reserve when on the sidewalk" while working class, particularly young and single working women, "enjoyed public sociability and sought opportunities to meet men, display fashion, and have fun."(Loukaitou-Sideris & Ehrenfeucht, 2009, p.91) These two groups of women used the sidewalk for very different purposes. Middle class women simply passed through between the private sphere of their home and that of their destination, they used the sidewalk for movement.

Working class women used the sidewalk as recreation space, a place to gather that was outside of the control and crowding of their families' tenement homes. In the early 20th century the department store and the portrayal of middle class women as consumers began to break down the class barriers; "[window] displays and the downtown shopping districts extended [middle class] women's realm to the sidewalks, which were under the purview of the stores and therefore clean and controlled" (Loukaitou-Sideris & Ehrenfeucht, 2009, p.92). The domestication of the sidewalk opened up women's access to this space as a place to linger as well as move through. It has been argued that these cleansed downtown sidewalks where women felt welcome to gather later became rallying grounds for the suffrage movement.

In the 19th and early 20th century class conflicts over sidewalks centered on the public nature of the lives of the working class. Much more of the daily life of the working class happened out on the street; work, laundry, shopping, play, and many other daily activities occurred in public. The issue of youth on the sidewalk was a very visible and far-reaching class debate: "In the eyes of middle-class residents, the image of 'delinquent,' 'rowdy,' and 'unruly' children embodied the pathologies of tenement districts and the tenement classes" (Loukaitou-Sideris & Ehrenfeucht, 2009, p.93). Constraints on child labor, the construction of playgrounds and sports fields, education reforms, curfews, and safety campaigns all were attempts to get children off of the street and sidewalk. The issue of free-ranging children was not just that they were moving through the city between destinations, but that they were using the sidewalks as spaces for other activities. The visibility of their social lives was outside the bounds of the strictly separate private-domestic and public-working realms that the middle class lived by in the 19th and early 20th centuries; children belonged to the private-domestic jurisdiction while sidewalks lay squarely in public-working territory.

The examples above show that conflicts in the 20th century increased the mobility and political freedom of many, but these conflicts are still with us today. Ethnic and racial profiling of suspects and loiterers in public space is a persistent problem nationwide. One example of this is the laws against sagging pants that have been enacted across the country. Groups as diverse as the ACLU and the Costume Institute have recognized the racial overtones of the bans. The New

York Times traced the history of the trend; "Sagging began in prison, where oversized uniforms were issued without belts to prevent suicide and their use as weapons. The style spread through rappers and music videos, from the ghetto to the suburbs and around the world" (Koppel, 2007). These laws give police an excuse to stop and question men on the street who have made this fashion choice.

Women's presence in public space is challenged no matter their appearance. In each of three studies, New York (2007), San Francisco (2004), and Indianapolis (1995), 100% of women surveyed had experienced street harassment in some form. In a 2003 survey, 86% of Chicago teen girls age 10-19 said they had been catcalled, and 60% said they felt unsafe walking in their neighborhoods (Kearl, n.d.). Adolescents are generally an overlooked group in the design of public space, yet they are frequently subjected to laws that apply generally but are not enforced on adults or younger children. Additionally, curfews, loitering, and skateboard laws are explicitly aimed at preventing teenagers from gathering in public space (Németh, 2006).

The skateboarding subculture has been directly targeted as disorderly and disruptive in public spaces, argued primarily on the grounds that the activity has the potential to damage public infrastructure and that the municipality is liable if people are injured when utilizing public spaces in unintended ways (Németh, 2006). Each of the 21st century discussions comes down to specific policed issues: indecency, harassment, skateboarding. These stories show that the fight for rights to public space is still going strong, though the discourse has shifted from general presence to specific people and behaviors.

This discussion demonstrates that there are two divergent sets of rights: a set of rights regarding movement through space and a set of rights regarding more stationary use or appropriation of public space. In the 20th century the right to free movement was pursued most vigorously while today behavior and use of public space has come to the fore. There are public areas that squarely fit into one bundle of rights or the other: rights in parks are discussed in terms of use, while roadways are governed by movement rights alone. The sidewalk emerges as a contentious and ambiguous space. It is both a part of the street network (a place to move) and a part of the built environment (a space to be used). What we see from the property rights

discussion is that policing behavior can be difficult, whereas it is much easier for a city to police the objects that define the sidewalk as a space for one use or another. In selecting and distributing public and private objects, the city establishes how the sidewalk should be utilized. The following sections discuss the two ways sidewalk objects have been discussed: as anchors that make the sidewalk an enjoyable space to be in, and as obstructions that disrupt people's movement along the sidewalk.

Objects as Anchors

One of the most well-known descriptions of sidewalk objects is the sidewalk ballet in Jane Jacobs' *The Death and Life of Great American Cities*. The ballet she describes on Hudson Street in Greenwich Village includes residents putting out trashcans, the barber placing a chair outside his shop, the hardware store hanging a display of wire coils on their windows, and the delicatessen stacking empty crates outside their door (Jacobs, 1961, p.50). Without the stationary objects and activities we would only see the passersby on their way beyond Hudson Street, there would be no dance, no movement except forward. Together these items and activities define how Hudson Street opens for business at the start of the day. Each object and action adds a sense of variety and distinction to the street and makes it a more interesting place to be. Jacobs writes that the "ballet of the good city sidewalk never repeats itself from place to place, and in any one place is always replete with new improvisations" (Jacobs, 1961, p.50). The objects that are placed on the street are there to stop people. Sometimes it is the object's owner that pauses, like the barber who sits outside on his breaks between appointments, while at others it is the passerby who pauses – checks the price of wire and think if there is something she needs in the hardware store. Each object catches attention, causing a shift in someone's walking or bringing them to a full stop. These minor interactions between people and objects are the movements that stand out when people "people watch" and the improvisations, the different locations of the chair, the ever changing display outside the store that make walking down the sidewalk a unique experience each day.

People-watching is itself an activity of a vibrant sidewalk that depends on the placement of objects. Benches, ledges, and other things that someone can sit on or lean against offer space to view the street. William H. Whyte's *The Social Life of Small Urban Spaces* analyzes New York City's plazas and finds that sittable space is a major indicator of the level of activity in the space. He writes that a "good plaza starts at the street corner...the activity on the corner is a great show... [and] a front-row position is prime space; if it is sittable, it draws the most people" (Whyte, 1980, p.54-57). The show at the corner is

> "not just people waiting there for the light to change. Some will be fixed in conversation; others, in some phase of a prolonged goodbye. If there's a vendor at the corner, people will cluster around him, and there will be considerable two-way traffic back and forth between plaza and corner" (Whyte, 1980, p.54).

There are several pieces of the scene Whyte describes to dissect, but first and foremost is the idea that the busyness, the mix of moving and static people is *worth* watching. The plaza crowd does not face inward toward the trees or public art purposefully placed for their enjoyment, but turns outward to watch the sidewalk; "circulation and sitting, in sum, are not antithetical but complementary" (Whyte, 1980, p.33). For people to be able to do so there must be two things: people on the sidewalk to observe and a place to observe from.

Whyte's work focuses on the latter – the places to sit and watch. He catalogs the variety of sittable spaces in plazas large and small across Manhattan and comes away with several conclusions. First that while "ideally sitting space should be physically comfortable, it's more important, however, that it be socially comfortable. This means choice: sitting up front, in back, to the side, in the sun, in the shade, in groups, off alone" (Whyte, 1980, p.28). Objects to sit on offer different levels of formality and ownership. The undifferentiated length of a ledge means that a group or an individual can each take as much or as little space as they need. A bench with arm and backrests on the other hand is an enclosed singular object, and unless it is a crowded situation, the bench will usually be given over to one party whether that is a single person or a large group. Similarly if we look back at Jane Jacobs' Hudson Street, there are many places to sit, but most are understood as privately owned. Each brownstone stoop is a part of the building, generally utilized by that building's residents and their guests; the barber's chair is a privately

owned object, which the public passersby would unlikely register as a seat for them. For Jacobs' the ownership that residents and shopkeepers feel over their perches on Hudson Street reinforces the role each person plays as a caretaker of the public street. For Whyte the undifferentiated and overtly flexible ledges and steps in downtown commercial areas offer enough options to make the non-resident public feel welcomed to sit and comfortable taking control of the space.

Further to this point, Whyte concludes that "the best course is to maximize the sittability of inherent features" (Whyte, 1980, p.28). By building sittable space into the edges and entrances to plazas and buildings, sitting becomes a planned for and socially acceptable activity of the street. He showcases numerous examples where ledges and steps were necessary to deal with uneven site elevations, but go out of their way to make the ledges and stairs unwelcoming to sitters. Concerns overs security and itinerant people are often cited when fortifying ledges. Whyte finds that "places designed with distrust get what they were looking for and it is in them, ironically, that you will most likely find a wino" and he suggests that "the best way to handle the problem of undesirables is to make a place attractive to everyone else" (Whyte, 1980, p.61-63). Building in sittable space makes it accepted from the start that the sidewalk alongside the building can be observed and implicitly suggests that one might want to watch what happens on it.

Whyte's observations of sitting spaces also led him to see patterns in paused social interactions, in which the participants, who were walking, stop to talk. He observes that,

> "the great bulk of conversations were smack in the center of the flow—the 100 percent location, to use the real estate term. The same gravitation characterized 'traveling conversations'...this does not seem to be a matter of inertia but of choice—instinctive, perhaps, but by no means illogical. In the center of the crowd you have the maximum choice—to break off, to continue" (Whyte, 1980, p.21).

When these conversations occur, the participants become static obstacles for other pedestrians to navigate around. In Whyte's observations there were few direct complaints, though one might expect that the people hurrying by would grumble to themselves about the detour. An alternative pattern to stationary activity was the propensity of standing people to "station

themselves near objects, such as a flagpole or a statue" choosing "well-defined places, such as steps, or the border of a pool" and largely avoiding the middle of large spaces (Whyte, 1980, p.21). In the first arrangement the paused person is still part of the flow, they have just changed their pace momentarily. In the second arrangement the paused person has situated themselves to be an observer. The object serves to 'cover their back' and may even be something to lean against or sit on. In Whyte's observations objects anchor people to a spot within the public space. An inanimate object takes up space but also clears space, as people walking by make the detour well in advance of running into the item. This leaves space for the standing observer to occupy, to watch but not disrupt the pedestrian flow.

While Whyte's analysis demonstrates that a busy sidewalk is something that people will stop to observe, but that the presence of casual observers encourages people to walk. Whyte himself wrote that people self-congregate: "What attracts people most, it would appear, is other people" (Whyte, 1980, p.19). Jan Gehl, a Danish urban theorist and a contemporary of Whyte's, studies the social habits of people in Copenhagen's public spaces in his 1971 book, *Life between Buildings*. Gehl observes that "if given a choice between walking on a deserted or a lively street, most people in most situations will choose the lively street" (Gehl, 1971, p.25). He finds that people seek out a social life in public, that they choose to be where the action is, that they want to see *and* be seen.

One explanation that Gehl proposes is that public space offers a distinct social environment. By walking down a vibrant road or sitting on a bench, a person can engage with the world with almost no exertion; they could be part of the public without directly interacting with anyone. He suggests that:

> "Life between buildings offers an opportunity to be with others in a relaxed and undemanding way. One can take occasional walks, perhaps make a detour along a main street on the way home or pause at an inviting bench near a front door to be among people for a short while... [There is] an opportunity to establish and later maintain acquaintances in a relaxed and undemanding way... [and] more is always demanded of the participants when meetings must be arranged in advance"(Gehl, 1971, p.17-19).

He sees that lively social streets bolster casual acquaintances and make it possible to keep up with these less-intimate friends in a way that allows both parties to maintain a modicum of privacy. Social relationships that started as neighbors saying hello, petting dogs, and waving at children are able to build over time. Gehl observes that this process of making friends becomes much harder when neighbors drive by each other, and even more difficult when they enter their homes through garages without ever setting foot in the driveway or front yard.

Gehl defines a pedestrian as someone in public space. He begins his book by considering what motivates people to use public spaces, creating three categories: necessary, optional, and social activities. Necessary activities include commuting, waiting for buses and friends, and running errands: "activities in which those involved are to a greater or lesser degree required to participate." Optional activities are "those pursuits that are participated in if there is a wish to do so and if time and place make it possible," like taking a walk for exercise or sunbathing. Finally social activities "are all activities that depend on the presence of others in public spaces" ranging from active greetings and conversations to passive contacts of simply hearing and seeing others (Gehl, 1971, p.11-14). A pedestrian can be motivated by any or all of these activities in a single trip. A simple errand to the post office on a nice day may turn into a half hour stroll with moments of socializing along the way. A supportive built environment can make this possible, while an inhospitable environment discourages any activity that is not expressly necessary. In places that are unfriendly to pedestrians even some of the necessary activities like errand running and waiting for friends fall by the wayside.

Gehl has written extensively on how pedestrians interact with the built environment and how the built environment can be designed to support optional and social uses of public space. He first considered the human body; "Human movement is by nature limited to predominantly horizontal motion at a speed of approximately 5km per hour (3mph), and the sensory apparatus is finely adapted to this condition. The senses are essentially frontally oriented....and distinctly horizontal" (Gehl, 1971, p.65). He believes that by designing around how the body moves through and senses space, places can be made more comfortable for people. Scale becomes an important consideration: walking speed "architecture is based on the cornucopia of sensory

impressions, spaces are small, buildings are close together and the combination of detail, faces, and activities contributes to the rich and intense sensory experience...Taking a walk in [driving speed] architecture is an impoverished sensory experience: uninteresting and tiring" (Gehl, 2010, 44). Ultimately Gehl evaluates spaces based on how much outdoor activity there is; "It is not the number of people or events, but rather the number of minutes spent outdoors that is important" (Gehl, 1971, p.79). The more comfortable people feel in a public space the more time they will spend there and the livelier it will be. People attract people, attract people.

When it comes to the act of walking Gehl suggests that visual interest is what directs people's choice of routes. He writes that pedestrian networks should follow the shortest distances between natural destinations in an area but that long and straight streets should be avoided; "Winding or interrupted streets make pedestrian movement more interesting" (Gehl, 1971, p.143). He also writes that sidewalks should be "dimensioned in proportion to the number of prospective users, so that pedestrians move in an intimate clearly defined space and do not 'drift about' in a large, half-empty area"(Gehl, 1971, p.143). Ultimately the sidewalk is a fixed space in the city's road network. Located at the street edge, sidewalks inherently offer a variety of experiences:

> "Movement at the edge of a space makes it possible to experience simultaneously both the large space as well as the small details of the street façade or the spatial boundary along which one walks. On one side one experiences the open field or the square, on the other side, at close quarters, the edge of a forest or a building façade. Walking along the edge of a space gives two varied experiences instead of one, and in the dark or in bad weather, being able to move along a protecting façade is, as a rule, a further advantage" (Gehl, 1971, p.144).

The sidewalk experience includes the conditions on both sides of the walkway – the pedestrian responds to the open space of the roadway on the outer edge and the building façade on the inner edge. Though the sidewalk position is basically fixed, the interaction between walkway and building and street edges can be altered relatively easily.

Understanding that visual interest is possibly the main driver of pedestrian path choice, design is then an important aspect of creating vibrant lively sidewalks. The design of the

sidewalk surface, the adjacent buildings, and the design and mix of objects on the sidewalk can all increase visual interest. Signs, street furniture, merchandise, trees, etc. add to the rich detailing of the space. This encourages more people to walk on a given sidewalk section and the presence of places to sit, shade, etc. makes it easier to be a casual participant in the public space.

Objects as Nuisance

As much as designers and urbanists advocate for liveliness, a logic of optimization governs the engineering of sidewalks. Engineering has been applied to sidewalks in terms of both their construction and management. Construction is intrinsically linked with design and deals with optimizing the durability of the sidewalk surface: materials, grade changes, curbs, tree roots, etc. all are dealt with to make the surface safe for as long as possible. The engineering-management of sidewalks is of much greater concern to the issue of object placement, both temporary items like A-frame signs and permanent items like bollards or signal boxes.

One of the most prominent transportation engineering concepts in sidewalk management is the idea of level of service. Level of service (LOS) is a traffic engineering metric that gives roadways grades A to F, based on their ability to maximize traffic flow through a particular road segment. The idea of applying level of service to pedestrian infrastructure was introduced in 1971, in John Fruin's book: *Pedestrian Planning and Design.* Fruin applied the LOS concept to sidewalks, stairwells, and elevators, and created equivalent A to F grades based on pedestrian volumes he observed in and around the Port Authority Bus Terminal and Penn Station in New York City. He stated that "Pedestrian volume... is the most important walkway design parameter...A favorable environment is created if the walkway section is sufficiently wide to allow for normal walking convenience and avoidance of conflicts during all the expected fluctuations in traffic demand" (Fruin, 1971, p.43). He was concerned with both conflicts between people and conflicts with stationary objects. By his calculations people generally kept 18inches between themselves and anything stationary, unless in a *very* crowded situation. Even if the stationary object was someone window shopping, the passerby would skirt 18inches around the

standing person (Fruin, 1971, p.73). Thinking more about the 18inch 'shying distance' that pedestrians generally give objects, we can also assume that they will also stay 18inches from the façade of a building. This affects the sidewalk in two ways: first that the main flow of pedestrians will be 18inches from the street wall, second that abutting properties have control over how the innermost 18-36 inches of a sidewalk is utilized. If the property attracts observers or window shoppers they will expand their sphere of influence to 36inches as the passersby will shift to be 18inches from the stationary figures. Fruin's detailed measurements were very similar to those made by Jan Gehl, and in almost the same year, but were aimed at keeping people moving rather than getting them to stop.

Figure 2: Pedestrian Dimensions with 18" Shy Distance

Fruin was mesmerized by the fact that people generally avoid running into things and each other: "Somehow pedestrians, through use of vision and their own specialized mental computer, are able to keep track of the varying speeds and angles of oncoming pedestrians and to accurately adjust their pace and speed to avoid collision" (Fruin, 1971, 25). He hoped that the LOS metric would help designers and engineers build sidewalks that make it easier for people to navigate and avoid contact with others. Fruin wrote about two of the most pedestrian-congested locations in Manhattan where collisions were frequent. But what is lost in this perspective is that a collision between two pedestrians is nowhere near as problematic as a collision between vehicles, and that many 'collisions' are in fact voluntary and expected. Running into someone may be a matter of frustratingly having your toes stepped on during rush hour at Penn Station, but at the corner of Jane Jacobs' Hudson Street or one of William H. Whyte's plazas, running into someone is far more likely to be a meeting between friends, neighbors, or colleagues.

Collisions between two people on the sidewalk, whether leading to a heated shout of "Watch It!" or a welcomed "Hello!" involve only the two people who have collided. However when a pedestrian collision involves a stationary object, the issue of liability brings many more parties to the table, most importantly the owner of the object and the city government. As a matter of course, an altercation with a stationary object will bring the city government into the debate, as they own and control the sidewalk and allowed the item to be there. In his 2010 book, *Rights of Passage: Sidewalks and the regulation of public flow*, Nicholas Blomley outlines the idea that there is an unwritten philosophy and theory of sidewalk management that is utilized by municipal administrators (engineers and planners alike) and judges at all levels of the courts. He names this philosophy 'pedestrianism' and writes that:

> "Pedestrianism understands the sidewalk as a **finite public resource** that is always threatened by multiple, **competing interests and uses**. The role of the authorities, using law as needed, is to **arrange the bodies and objects** to ensure that the primary function of the sidewalk is sustained: that being the **orderly movement of pedestrians from point a to point b**" (Blomley, 2010, p.3, added emphasis).

Pedestrianism is concerned with the relative placement and location of people and things. The sidewalk "is understood as a particular space, owned by the city, in trust for the 'public.' People and things are only problems when, like dirt, they are deemed to be in the wrong place" (Blomley, 2010, p.10). The public in the above statement is a walking public, those who are moving. But even the pedestrians are not given particular favor. Blomley interviewed municipal engineers in nine cities and found that in both Canada and the United States pedestrianism is administered through a pervasive "logic of calculation and evaluation that has become a routinized professional practice" (Blomley, 2010, p.34). When drawing up and evaluating sidewalks, "the personhood of the ped is absent from such calculations," it does not matter who the person is, where they are going, where they have come from, or at what speed they are walking (Blomley, 2010, p.42). Pedestrianism depoliticizes the sidewalk, and instead deals with the relative sizes, positions, and speeds of people and objects. It turns this space of complex social constructs into a physics problem. Blomley's interviews show that among municipal engineers this is a deeply engrained way of thinking about the sidewalk, "it is simply the way the

sidewalk is understood" (Blomley, 2010, 34). All the value judgments are removed and replaced with a calculation of whether or not people can pass unimpeded.

Objects on sidewalks are considered as either encroachments or obstructions. Encroachments are activities of private actors (mostly abutting businesses and residents) that take over public space for private use. Obstructions can be caused by public or private actors and simply block movement. As Blomley says, "all encroachments obstruct, not all obstructions encroach" (Blomley, 2010, 48). These two categories have different treatment even in relatively judgment-free pedestrianism. In determining what falls within the municipality's purview, engineers draw hard lines between public and private property. The engineers Blomley surveyed strongly defend the public-ness of the sidewalk and he writes that encroachments then become "doubly objectionable ... [as] both an avaricious enlargement of an individual's estate and an illegitimate usurpation of a public entitlement" (Blomley, 2010, 48). Privately owned objects are thus more problematic than publicly owned ones: the A-frame sign is voluntarily placed while the fire hydrant is necessary for public safety. Still, the division is fluid and many sidewalk uses that once were considered nuisances are now seen as public amenities; the sidewalk café chief among them. Cities like Boston, New York, and San Francisco all embraced sidewalk cafés attached to restaurants more than ten years ago, and have now begun to accommodate mobile food trucks and sidewalk food carts as well. This is a major change considering that for much of the 20th century, food served outdoors was considered a public health problem. Not all private uses have gained such favor; newsracks are likely the most vehemently disliked sidewalk objects today and are seen as encroachments of private companies. Blomley highlights a campaign by the Municipal Art Society of New York, "a self-declared champion of intelligent urban design, which ... launched a series of campaigns against what it terms 'newsrack blight,' even producing a 'Nasty Newsracks' YouTube movie, with calls for better enforcement of city ordinances" (Blomley, 2010, 55). He quotes a 2009 article by the Municipal Art Society which reads: "vendors and street furniture are a key amenity to the public life of the street but often unregulated vendors and poorly placed or planned furniture restricts pedestrian access...Cluttered sidewalks not only impede access but also negatively affect the visual environment" (Blomley, 2010, 55). They are inconsistent in their treatment of encroachments and their judgment is made outside

of pedestrianism's physics logic. Still, they depend upon pedestrianism's goal of moving people as the means to clear those objects that they deem unsightly.

Whether or not an object is considered a public nuisance, its presence on the sidewalk is governed through a city ordinance. Sidewalk ordinances are most frequently found within the traffic code that governs uses of public rights-of-way. Blomley notes that these laws are "flexible, wide-ranging, and discretionary" and that their logic "is often that of permissions (i.e. acts are illegal unless expressly allowed) as opposed to a negative liberty logic of inclusion (such and such is legal unless expressly prohibited)" (Blomley, 2010, p.45). Everything is an obstruction unless specifically given permission to be an amenity. In general, it is "felt better to police and enforce as needed;" by having a flexible and relatively vague ordinance on the books a municipality can make discretionary decisions about objects on a case by case basis (Blomley, 2010, p46). At a busy intersection a café may be too much of a disruption, while down the block it may be a welcomed amenity. This discretionary power has been endorsed by the courts, which "are frequently deferential to municipalities when it comes to such local regulation, even when they violate fundamental rights... given that they are seen to represent a legitimate and defensible governmental interest – the regulation of traffic and the promotion of circulation" (Blomley, 2010, p.46). In one important 1999 case, the US Court of Appeals argued that "the City was not required to provide actual evidence of pedestrian flow on specific sidewalks but was said to be 'entitled to advance its interest based on appeals to common sense and logic'" (Blomley, 2010, p.83). The possibility of blockage is all that matters.

Objects on the sidewalk are thus assumed to be nuisances. Transportation engineering provides the framework for planning pedestrian infrastructure based on volumes of people moving through. Even though people walked long before they drove vehicles, the logic of calculating levels of service is derived from models for road and highway capacity. And despite the fact that many urban planning and design researchers have shown that pedestrian and driver behavior are very different, Blomley finds that the engineering logic of managing pedestrian flow is engrained in city administrations and has been defended by the courts. City ordinances assume all objects may obstruct the flow that the city is entrusted to defend.

Objects and Rights

Connecting back to the property rights framework we see that urban design tends to favor Lefebvre's right to appropriation while transportation engineering favors the right to free movement. In urban design, right to appropriation claims are made by placing objects to designate spaces for social activities. In transportation engineering, the right to free movement is expressed by clearing objects to the edges of the sidewalk if not off of it entirely. This jockeying over object placement is how these two fundamental rights to the sidewalk are expressed.

Not all objects are treated equally. Whyte and Gehl are most encouraging of seating and sidewalk objects that contribute to making the sidewalk a social space, and Blomley's research reveals that even among those who staunchly defend the right to free movement, some objects like seating are starting to be recast in a positive light, while private use encroachments are still definitively viewed as nuisances. The right to free movement contends with all things that stand in the way of passage but it differentiates between things that simply get in the way, obstructions, and privately owned encroachments.

Lefebvre's right to the city theory includes a similar distinction. Lefebvre sets up an opposition between the right to appropriation and the commodification of public space. Some objects like benches, drinking fountains, and bus shelters make it easier for people to utilize the public space, but the same cannot be said for A-frame signs and merchandise displays: these are commercial uses of the sidewalk.

Whether you start from the position of the transportation engineer or the urban designer, there appear to be three competing claims to the sidewalk. There is the claim to movement, the claim to appropriation, and the claim to commodification that both the others are contending against. This last position is taken up by business interests: brick and mortar stores along the edge of a sidewalk looking to draw people in, street vendors and performers who operate on the sidewalk, and advertisers who seek to attract the attention of passing pedestrians. All three groups of professionals organize sidewalk objects to assert their right to the space. Every object has a hand behind it that is proclaiming their right to use the space.

These claims to the sidewalk are asserted by the stakeholders who control object placement decisions, but the general public also desires each of these in turn and in commercial centers large and small, all three uses of the sidewalk are often sought in the same trip. Think through a hypothetical commute. An office worker arrives downtown running late for the first meeting of the day. All she wants to do is get to her office as fast as possible. As she races past other pedestrians, she sees that the coffee cart has no line so she stops to grab coffee and a muffin. But now she's carrying breakfast, her wallet and her briefcase so she heads for a bench where she quickly rearranges, she puts the wallet and muffin in her bag, throws the bag over her shoulder, picks up the coffee and she's off again. The woman primarily exercised a right to free movement, but she gladly utilized the commodified section of the sidewalk where the coffee cart was placed, and avoided spilling coffee by exercising her right to appropriate space and pause at the bench. Though she had no control over any object placement decisions the decisions to have wide enough sidewalks so she could pass others, and the decisions to include spaces for appropriation and commodification affected how she used the sidewalk.

The three rights to the sidewalk asserted by stakeholders and desired by the general public are expressed as spatial claims to the sidewalk:

Table 1: Rights and Claims to the Sidewalk

Right to the Sidewalk - Desired Use of the Sidewalk	**Spatial Claim**
The Right to Free Movement – The desire to move between destinations	CLEAR SPACE
The Right to Appropriation – The desire to leisurely be in public space	PUBLIC AMENITIES
The Right to Commodification – The desire for visible commercial activity	COMMERCIAL USES

To move efficiently, pedestrians need safe open pathways to walk along. The claims that pedestrians make for clear space include having sufficiently wide spaces for the anticipated volume of walking traffic, having clear zones that are accessible to those with mobility and vision-related disabilities, and having clear walking paths throughout the year. The claims that

visitors make for public amenities include having comfortable walking conditions with shade, seating, and possibly restroom and drinking facilities, and having a clean and well maintained sidewalk - ideally with distinctive features like plantings or public art. Finally, those who operate businesses in these areas make claims to utilize sidewalks for their purposes, for transferring goods into their spaces and for attracting customers with signs, merchandise displays, and outdoor dining. Though the general public desires a mix of these sidewalk uses, it is the stakeholders: the designers, engineers, and business owners that actually contend for sidewalk object placement. This thesis investigates the role of municipal governments in mediating between the stakeholders to achieve a balance between the claims to the sidewalk.

Chapter 3: Scope and Methods

One of the challenges of the thesis process was defining the scope of the project. I have chosen to look at the second phase of sidewalk design, where the sidewalk is furnished to fulfill a mix of purposes. With this design problem in mind I was able to limit my research to the space of the sidewalk and not the design of the infrastructure itself. This means that I will not discuss the surface conditions. Material choices, slope, and cross slope, are all outside the bounds of this paper because they are part of that first design phase. Additionally I will not discuss the design of building façades or the mix of building uses. Certainly this has an effect on the mix of sidewalk uses but those zoning and design choices are also part of the infrastructure design problem and are made a step before the sidewalk is furnished. Finally, while this way of thinking about multi-use sidewalk design can apply to any street, I have focused on commercial and mixed use corridors, where the claims on the sidewalk tend to be the most often in conflict.

Why look at municipal policies?

In this thesis I hypothesize that the multi-use sidewalk is created through object placement and that object placement is a design problem which is managed through policy. My research methods have therefore focused on the policies that control object placement. Though there are national standards and guidelines, every city still manages sidewalks in their own way.

National standards are the driving force behind most sidewalk geometry decisions, but provide only limited direction for sidewalk objects and furniture. This distinction is driven by liability. The engineers who are responsible for the final design of streets and sidewalks are also held responsible if something goes wrong. By following national standards and guidelines, they can mitigate the effects a liability suit will have on them (L. Pessah and J. Mortell, personal communication, May 11, 2012). The basic standards documents are the American Association of State Highway and Transportation Officials' *A Policy on Geometric Design of Highways and Streets* (the AASHTO Green Book), the Federal Highway Administration's *Manual of Uniform Traffic Control Devices* (MUTCD), and the *Americans with Disabilities Act Accessibility Guidelines* (ADAAG) and *Proposed Right-of-Way Accessibility Guidelines* (PROWAG) both administered by

the US Access Board. These standards affect the design and construction of sidewalk surfaces, and even the placement of traffic control devices, but other objects are not discussed in much detail.

The most relevant standards for this thesis are the ADAAG and PROWAG standards for accessible paths of travel. The 2010 ADAAG sets today's standard for walking surfaces (indoor and outdoor), and requires a 3ft wide clear travel space with passing spaces of 5ft by 5ft at intervals of 200ft (US Department of Justice, 2010, §403.5.1 & §403.5.3). However PROWAG specifies a standard clear accessible path width of 4ft, with the same passing space requirement. Communities are beginning to work with this proposed standard in anticipation of PROWAG's passing in the next couple years (US Access Board, 2011, R302.3).

Additional changes beginning to take shape in various unenforced guidelines. The most relevant are the Institute of Transportation Engineers' *Designing Walkable Urban Thoroughfares: A Context Sensitive Approach* (ITE Guidelines) and the Federal Highway Administration's *Designing Sidewalks and Trails for Access* (FHWA Guidebook). The ITE Guidelines are an ITE Recommended Practice published in 2010 after seven years of draft documents. The ITE Guidelines are part of the shift to complete streets thinking, and the "report is intended to facilitate the restoration of the complex multiple functions of urban streets" that dissolved in the latter half of the 20th century and to illuminate "the flexibility that is inherent in the [AASHTO} 'Green Book" (Institute of Transportation Engineers [ITE], 2010). The ITE Guidelines includes an overarching framework for organizing sidewalk objects, but does not get into the placement of specific features. The FHWA Guidebook provides a lot of similar information as the ITE Guidelines but looks at sidewalks through the lens of persons with mobility and vision related disabilities. The FHWA Guidebook states upfront that "the information presented in this guidebook is meant to be used as guidance only and should not be construed as requirements or regulations" (Kirschbaum et. al., 2001, 1-1). It focuses on the design of objects themselves which at times informs placement.

As informative as these national standards and guidelines can be about designing sidewalk infrastructure and thinking about sidewalk objects, they have not delved deeply into the issue of organizing sidewalk furniture and objects. Both the ITE Guidelines and the FHWA

Guidebook suggest that the sidewalk should be organized into four zones: the curb zone, the furniture zone, the pedestrian or throughway zone, and the frontage zone. Objects get placed in the furniture and the frontage zones. No more detail about placement is given, that is for local governments and sidewalk users to figure out. Municipal policies are where the rubber hits the road and sidewalk object policies really become context specific, not just in terms of physical environment but also the administrative context. Every city has a unique administrative culture that affects how object policies are written and implemented.

Selecting Case Cities

Case selection was also challenging. My hypothesis identified municipalities as the planning scale that I needed to research, but which cities should be included? There is an atlas of cities with complete streets policies produced by the National Complete Streets Coalition, but most of those policies are focused on organizing the full right-of-way and do not necessarily address sidewalk object placement. Knowing that that database alone would not allow me to narrow my selection down to a few workable choices, I looked elsewhere. I searched the internet and talked to colleagues at MIT and WalkBoston. I learned about interesting sidewalk policy developments in a number of cities including: San Francisco, CA; Boston, MA; Philadelphia, PA; Cambridge, MA; Houston, TX; Alexandria, VA; Mansfield, CT; Portland, OR; and New York, NY. Ultimately I chose to select three cities that I was personally familiar with, and that had similar development histories.

In this thesis you will see analysis of the sidewalk object policies of New York, NY, Boston, MA and Cambridge, MA. All three cities developed before the invention of the automobile and all continue to be transit oriented cities. All three contend with winter weather, all have universities with car-free student populations, and each city has a relatively fine grained mix of residential and commercial uses. These are old walkable cities. This comes with positive and negative effects. It means that there are sidewalks on most streets and most of those have sidewalks on both sides of the street, but it also means that the public rights-of-way are constrained and that ideal sidewalk widths with the perfect mix of sidewalk uses may not be achievable. These cities have had constrained sidewalks for at least a century if not longer

(congested streets are older than the automobile) and as such have some of the oldest sidewalk use policies in the country. In an earlier paper I analyzed the evolution of Boston's sidewalk policies and they have ordinances about objects on the sidewalk going back to 1795. This means that these cities have institutional legacies that are reflected in their current policies. While I do not go into that topic in this thesis, it is something that ties these cases together and differentiates them from Houston, San Francisco, and Portland where street and sidewalk infrastructure and sidewalk use policy is newer. Though this research deals with these old walkable cities, the principles for setting sidewalk policy that developed out of it are more broadly applicable and further research should compare sidewalk object policies in these old cities with those in newer and developing cities.

Case Research Methods

In my research I utilized three types of source material: municipal laws, citywide design guidelines, and interviews with municipal staff and consulting firms that work with the case communities. The municipal law is the city's most official policy statement. When it comes to the topic of sidewalk use and object placement, the cases show that municipal ordinances are utilized to widely varying degrees. Design guidelines are a relatively new municipal output, with the general purpose of conveying preferred design ideas to design professionals, developers, and engineers. Each of the three cities selected has a citywide design guideline document though they are used to slightly different ends. Together the municipal ordinances and the design guidelines constitute each city's published policies; they outline the city's requirements and intentions for sidewalks.

These policies are closely linked to but distinct from procedures for sidewalk object placement. To understand the links between legal requirements, design guidance, and procedural nuances I interviewed municipal staff members in each city and some of the private and non-profit partners they work with. I informed each interviewee about the subject matter of the interview, and each consented enthusiastically. The following chart includes a brief overview of each interview I conducted. One of the weaknesses of the thesis is that I did not conduct the same level of procedural research on the three cities. For this reason, only those comments from

interviewees that directly relate to published policy are discussed in the body of the thesis. The additional procedural information collected on Boston and Cambridge is discussed in Appendix A: Permit Procedures.

My research is qualitative and document focused. This is a study of each city's intentions as recorded in ordinances and guideline documents. I limit this thesis to the policy conversation. The literature and the national standards and guidelines discuss how to arrange objects on the sidewalk but all of that information is filtered through a municipal approval process and the municipality has the ultimate authority over object placement. By researching how municipalities express their authority in policy documents we can better understand what role the local government has in shaping the mix of uses on sidewalks. I could have looked more closely at the streets themselves, mapping objects, measuring pedestrian flow, etc., but that analysis would add to the already extensive body of research on what elements make a multi-use sidewalk successful. This thesis offers a new perspective on how to make that multi-use sidewalk possible.

Table 2: Interviews

Name	Position	Date
New York		
Skye Duncan	Associate Urban Designer, New York City Department of City Planning	3/28/2012
	This conversation centered on the forthcoming document – *Active Design: Shaping the Sidewalk Experience*. It frames the sidewalk as a room that has walls, floor, ceiling, and contains many physical elements, placed by multiple stakeholders. The document focuses primarily on the building edge of the sidewalk and how zoning policy can shape the building-sidewalk relationship and the pedestrian's experience.	
Boston		
Charlotte Fleetwood	Senior Transportation Planner, Boston Transportation Department	3/9/2012
	Fleetwood discussed the Boston Complete Streets Guidelines and complete streets philosophy in Boston. We discussed how the Boston Transportation Department has been working with complete streets ideas for 10 years and is now producing official guidelines. The document aims to bring everyone on board including all relevant city departments with additional input from consultants (Toole Design Group), advocates (WalkBoston), and researchers (MIT-Senseable City Lab)	

William Egan	Chief Civil Engineer, City of Boston Public Works Department	3/29/2012
	Egan commented on the *Boston Complete Streets Guidelines* from the perspective of the Public Works Department. He explained how Boston Public Works Department's divisions and how each division relates to sidewalks. An issue he raised that I do not address is the temporary use of sidewalks for trash collection.	
Kristen McCosh	Commissioner, Mayor's Commission for Persons with Disabilities	4/4/2012
	We discussed how Boston prevents and responds to accessibility concerns on sidewalks. McCosh alerted me to the developments in ADAAG and PROWAG and the ways in which Boston is already exceeding state minimum requirements for sidewalk clearance. McCosh also touched on the issue of snow clearance.	
Amy Cording	Chief Engineer, Public Improvement Commission (PIC), City of Boston Public Works Department	4/5/2012
	This discussion focused on the PIC process for making changes to the public-right-of way which includes any infrastructure change or permanent furniture placement. Cording alerted me to the challenges of recording and mapping streetscape improvements.	
Peter O'Sullivan	Program Director, Boston Street Furniture Program	4/10/2012
	The conversation centered on the Boston Street Furniture program, how it came to exist, and O'Sullivan's role in managing the approval processes for items suggested by the furniture supplier, JCDecaux.	
Cambridge		
Vincent Best	Compliance Officer, City of Cambridge Public Works	11/17/2011
	We discussed Best's role as compliance officer for all sidewalk matters including object permitting and enforcement, snow clearance, and bicycle parking on sidewalks. Best explained that much of his time is spent educating stakeholders about what is and is not allowed and negotiating a balance between public and private sidewalk fixtures.	
Rosalie Anders	Environmental and Transportation Planner for the City of Cambridge	04/25/2012
	This conversation focused on the City's *Pedestrian Plan* (2000). Anders explained how the plan was developed collaboratively among the city staff and was one of the first pedestrian plans in the country. The plan is required as part of Cambridge's Vehicle Trip Reduction Ordinance (1992) and is currently being updated.	
Non-municipal Perspectives		
Bernard Parisot and	President & Co-CEO and COO, JCDecaux North America	04/20/2012
	We discussed the history of coordinated street furniture programs in the United States, which date back to JCDecaux's expansion to the US in 1992. Coordinated	

Nicolas Clochard-Bossuet	street furniture programs partner for-profit media companies with cities to pay for street furniture through advertising. JCDecaux has five municipal contracts in the US: Boston, Chicago, San Francisco, St. Louis, and Los Angeles. JCDecaux operates in 1,759 cities globally.	
Laurie Pessah and Jessica Mortell	Senior Transportation Planner and Staff Engineer, Toole Design Group	05/11/2012
	Pessah and Mortell are part of the consultant team putting together the *Boston Complete Streets Guidelines* and they have also worked on complete streets policy questions in other cities and have provided comments on federal standards and guidelines. We discussed the Boston guidelines and sidewalk object policy more generally. One interesting issue they alerted me to is the lack of sunset policies for sidewalk objects; policies allowing cities to remove deteriorating furniture need further exploration.	
Wendy Landman	Executive Director, WalkBoston	4/4/2012
	Landman is on the Boston Complete Streets Advisory Board and has been involved in the sidewalks section of the guidelines throughout the process. Around the guidelines we discussed the need to preserve the sidewalk's transportation function and the need for maintenance oversight. We also discussed snow clearance; WalkBoston has been working with several Massachusetts communities and the state to implement stronger snow clearance ordinances and inspection procedures.	

Analytic Lenses: Objects Staking Claims to the Sidewalk

In the last chapter I argued that objects are the primary way that people stake claims to the sidewalk. I argue that sidewalk activity can be distilled into three expressed rights to, or desired uses of, the space and that each of these translates into a spatial claim to the sidewalk, as show in the table below:

Table 1a: Rights and Claims to the Sidewalk	
Right to the Sidewalk - Desired Use of the Sidewalk	Spatial Claim
The Right to Free Movement – The desire to move between destinations	CLEAR SPACE
The Right to Appropriation – The desire to leisurely be in public space	PUBLIC AMENITIES
The Right to Commodification – The desire for visible commercial activity	COMMERCIAL USES

In each of the cases I explore how city policies design multi-use sidewalks as divided into these three claims to the space. I use each claim to the sidewalk as a lens to examine the municipal laws and design guidelines. Each document is discussed separately to pull out the distinctions between legally enforceable policies and those policies that are encouraged in guidelines. After breaking the policies down into those points that affect each claim individually, I pull them together in a discussion of how the city sets an overall framework to balances the three uses of the sidewalk. Finally each case study includes case findings, three major issues that the policies address.

Table 3: Case Chapter Outline

I. Introduction to the City
II. Laws
    a. Clear Space
    b. Public Amenities
    c. Commercial Uses
III. Guidelines
    a. Clear Space
    b. Public Amenities
    c. Commercial Uses
IV. Striking a Balance
V. Case Findings

Chapter 4: New York, NY

New York City is the densest city in the US and by many standards is considered the most walkable. Walking is so commonplace, that roughly 40% of all New York City households (including all 5 boroughs) do not have a car and instead rely on a combination of walking, transit, bicycles, and cabs to get around (US Census, 2010). New York recognizes that it has a strong walking constituency and the New York City Department of Transportation and Department of City Planning have several programs to make walking more enjoyable in the city. A unique problem that New York faces is its many overly congested sidewalks. The city has recently taken steps to relieve the congestion by widening sidewalks and pedestrianizing streets in high volume areas like Times Square and the Bronx Hub.

Sidewalk Objects in the Law

New York City municipal laws are divided into three categories: The New York City Charter, which distributes powers and duties, the New York City Administrative Code, which is a collection of laws, codes, and ordinances affecting the city, and the Rules of the City of New York, which is the official record of rules and regulations promulgated by municipal departments (New York Legal Publishing Corp, 2006-2012). The City Charter includes some broad overarching statements about sidewalks and objects, and the Administrative Code and Rules of the City fill in more specific policies. All three are examined for information relating to clear space, public amenities, and commercial uses of sidewalks. The Charter sets the baseline assumption that objects, labeled as encroachments and obstructions, are bad for the city. The council "shall not pass any local law authorizing the placing or continuing of any encroachment or obstruction upon any street or sidewalk," with a few exceptions of course (New York City Charter, §28, 1989). Even in this broadest of municipal documents, every object on the sidewalk is considered an obstruction unless specifically given permission to be an amenity.

Clear Space

New York City goes above and beyond the federal standards for clear space. At minimum, the City requires that 8ft or 50 percent "of the sidewalk width, whichever is greater, from the curb to the building line is free of all obstruction and reserved for pedestrian use" (Rules of the City of New York [RCNY], Title 6, §2-52, 2003). This clear space is regulated by both the Department of Transportation and the Department of Consumer Affairs. Consumer Affairs says that the preferred clear path is 12ft wide, and anything that reduces the clear width below 12ft requires a revocable license (see commercial use section for explanation) (RCNY, Title 6, §2-46, 2004). The Dept. of Transportation does not indicate that preference, but instead sets clear width policies based on the presence of specific public amenities. Though both departments have the same clear space minimum, an important policy that the Consumer Affairs' *Sidewalk Clearance Standards* sets is the stipulation that "sidewalk passage clearance ... be measured from the improvement to the nearest obstruction directly opposite an intersecting line of pedestrian passage" (RCNY, Title 6, §2-46, 2004). Even though the city requires double the PROWAG minimum standard, this requirement recognizes that the passage zone of a sidewalk should be continuous and not divided into lanes by free standing objects.

The language surrounding the Consumer Affairs clearance standards is about the location and control of cafés. The City's concern that cafés will disrupt walking space on the sidewalk is so strong that they actually require all applicants for fenced-in dining areas to conduct pedestrian level of service analysis. Applicants are required to calculate the current pedestrian level of service around their proposed location and then recalculate based on their design. The café cannot degrade the level-of service more than one letter grade or below level D, as defined by the Transportation Research *Board's Highway Capacity Manual* (RCNY, Title 6, §2-46, 2004). The Department of Transportation might request similar analyses from applicants looking to place other items, but it is only required for enclosed cafés.

Public Amenities

As previously mentioned, the Department of Transportation sets clear walking path requirements based on the location of public amenities; this works both ways, the clear path standards are set by the amenities and the placement of amenities is based on available sidewalk widths.

- 10½ ft clear walking space is required in front of benches, information kiosks, or bicycle racks with bicycles parallel to the curb, and roped off queuing areas
- 12½ ft or half of the sidewalk width must be kept for a walking path where bicycle racks with bicycles turned perpendicular to the curb are located (RCNY, Title 34, §7-06, 2003)

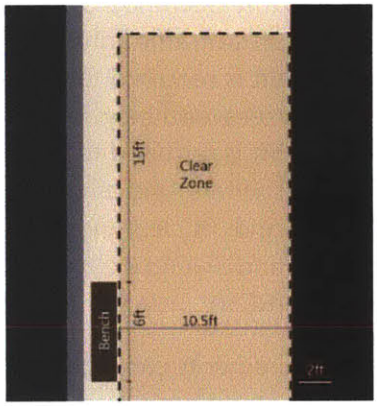

Figure 3: New York City requires that the specified clear path width is maintained for 15ft in either direction from the object (RCNY, Title 34, §7-06, 2003)

The Department of Transportation controls the placement of many public amenities. Standards for a variety of objects are included in *Rules of the City of New York, Section 7-04: Eligible Improvements; Standards; Annual Rates* (2003), where design standards and annual fees for licenses (if any) are listed. This section covers items that are placed by private individuals and organizations, many of which are explicitly for public use. That list includes: benches, clocks, flagpoles, informational signs and kiosks, trash receptacles, planted areas, posts and bollards, and streetlamps. This ordinance mostly explains limits on each item's dimensions, but the standard for benches does include placement restrictions. Benches for public use placed by abutters, "shall be installed no more than six inches from the building face and, if multiple benches are installed, they shall be at least three feet apart" (RCNY, Title 34, §7-04, 2003). This description of public amenities blurs the lines between private and public uses of the street. Private groups place the items, but they do so for the benefit of a broader public.

The City attempts to spread out obstacles along the length of sidewalks, which makes the curb and roadway accessible to those who have parked their car on the street or those looking to flag down a cab. First the Dept. of Transportation requires that the listed clear path width be maintained for 15ft in either direction along the sidewalk from the "improvement"

(RCNY, Title 34, §7-06, 2003). Then, wherever possible, items are expected to "abut, be aligned with, or be located between other major obstructions such as subway entrances, bus stop shelters, newsstands, and sidewalk cafés" (RCNY, Title 34, §7-06, 2003). This statement demonstrates that orderliness is valued. In addition to this general statement, the Depts. of Transportation and Consumer Affairs both include a listing of required "adjacent clearances:" clear distances on either side of a public amenity along the path of travel.

- 15ft is required in front of the entrances to subway stations and to either side of fenced-in sidewalk cafés, bus stops and bus shelters, and approved oversized objects(larger than $15ft^2$);
- 10ft clearance is given to fire hydrants;
- 9ft to traffic lights;
- 8ft is required to either side of telephone booths/kiosks, mailboxes, lampposts, street trees, and bicycle racks (measured with bicycles);
- 5ft is required to the sides of benches, the closed ends of subway entrances and bus shelters, and all other street furniture (less than 15sqft);
- And 3ft clearance is required around cellar doors, transformer vaults/subway grates, and Siamese connections (fire hose pipe connections to buildings).
  (RCNY, Title 6, §2-46, 2004)

These requirements can significantly limit the number of objects that can be placed in a given block. If objects are to be aligned with each other this requirement for longitudinal clearance significantly limits how many objects a sidewalk segment can take.

Commercial Uses

New York City's laws are fairly liberal when it comes to commercial uses of the sidewalk. Even though the City Charter states that no encroachments or obstructions should be authorized, every abutting property owner can utilize the innermost 3ft of the sidewalk outside their property. They can do so for their own purposes, but are not allowed to lease the space to others, and any goods displayed or sold have to be like those that a business has inside the store. This general statement allowing commercial uses of sidewalks is set forward in the Administrative Code, and is then refined by a list of streets where outdoor displays have been

prohibited, and additional ordinances that place conditions on particular activities (New York City Administrative Code [NYC AC], Title 19, §19-136, 1994).

There are specific commercial uses of sidewalks that are governed temporally. Fir trees can be sold in the month of December and palm, myrtle, and willow branches can be sold in September and October. The law recognizes that holiday plants might be sold by ground floor shops or independent vendors, but defers use of the sidewalk to brick and mortar stores by requiring that independent vendors get the permission of the "owner of the premises fronting on such sidewalk" before setting up shop (NYC AC, Title 19, §19-136, 1994). Children's rides are also given special attention. Businesses can have up to three "fixed stand coin operated rides" along their frontage, but the rides must be taken inside from 11pm to 7am. Household furniture can be loaded and unloaded on sidewalks during daylight, but people must still be able to pass by. These time limits offer slight refinements of the general law regarding private sidewalk uses. (NYC AC, Title 19, §19-136, 1994).

Sidewalk cafés involve almost every nuance of the city's sidewalk object laws. Like most objects on the sidewalk, from the temporary to the permanent, cafés are governed by "revocable consents," meaning the city can withdraw their approval at any time (RCNY, Title 34 §7-06, 2003). There are two types of cafés – enclosed cafés (fully enclosed sun room like structures) and unenclosed outdoor cafés, both of which must abide by the city's clear space standards, including the level of service analysis (RCNY, Title 6 §2-46, 2004). They are limited temporally: outdoor cafés cannot operate past midnight on weeknights or 1am on Friday and Saturday nights, and cannot open until 11:00am on Sundays (NYC AC, Title 20 §20-226, 2003). They must be approved by local community boards and neighbors must be notified during their hearing process. Finally, the fees charged are based on the square footage of the café and where within the city the café is located (RCNY, Title 6 §2-45, 2003). This last point is very interesting because it makes it relatively easier for smaller business owners and businesses outside of the Manhattan core to open outdoor cafés or expand their business in to the first few feet of the sidewalk with an enclosed café.

Stoop line stands, like enclosed cafés, expand abutting businesses into public property. They are bounded vending areas outside of businesses in the approved 3ft deep area mentioned above. Stands must be:

> "enclosed at both ends and in front by a fence or partition constructed of wood or some other rigid material, and no box, barrel or any other obstruction shall at any time be maintained outside such enclosure. The outside surface of such enclosure shall at all times be kept smooth and free and clear of all projections which might tend to damage the clothing of passing pedestrians or which might cause bodily injury to such pedestrians" (RCNY, Title 6, §2-70.2, 2008).

The right of pedestrians to pass easily around such an outdoor display is protected with strict clear space standards. No stand can cover more than one third of the sidewalk width – this includes not only the physical structure and display but also a 4ft area for customers. If there is concern over a display, "a sidewalk stand license application may be denied where a showing is made that pedestrian traffic movement or public safety or convenience would be significantly impeded by the presence of the stand" (RCNY, Title 6, §2-70.2, 2008). The customer is included in the calculation of whether or not the stand constitutes an obstruction. This way of measuring could apply not only to these stands that are attached to brick and mortar stores, but also to customers at independent street vendors.

New York City licenses vendors to sell both general merchandise and hot and cold foods on the sidewalk. All vendors must abide by the placement standards set by the Dept. of Consumer Affairs. Vendors can only locate on streets where there is at least 12ft of clear passage, measured from property line to the curb or nearest object (the vendor's operation does not count in this measurement). Vendors must set up at the curb edge and can use a space that extends up to 3ft into the sidewalk (towards the building) and up to 8ft along the sidewalk. Displays must be at least 2ft off of the ground but cannot extend above 5ft high. Vendors may store items below their displays, but nothing can extend beyond the 3ft by 8ft by 5ft limitation. Vendors must be at least 20ft from any building entrance and cannot attach to or even touch nearby public amenities. They must also be at least: 20ft from sidewalk cafés; 10ft from buildings that are residential on the ground floor; and 5ft from bus shelters, newsstands, payphones, and disabled access ramps (NYC AC, Title 20, §20-465, 1989). Though they are allowed to use the

sidewalk, all of these dimensional requirements are ultimately used to limit the presence of vending on New York's streets.

The city offers slightly different but also highly contended dimensional requirements for newsstands. Newsstands are unique in that they can be placed in either the inner or outer edges of the sidewalk. Because every building has control of the first 3ft of the sidewalks, newsstands placed near the building side of the sidewalk must be at least 3ft from the property line. At the outer edge their requirements are roughly the same as those for temporary vendors. The dimension criteria for New York's newsstands were recently in the New York Times, which highlighted how contested the requirements can be. The story highlighted three cases. The first a proposed newsstand on the Upper East Side was prevented by a petition of a 1000 signatures of residents who thought the stand would be detrimental to their sidewalks and existing businesses. In the second case, residents rallied around a Chinatown newsstand that has been found to be 3inches too close to a building. Finally, the article follows an ongoing fight between an aspiring owner and the developers of a major Times Square building who are arguing over whether the proposed location would make the clear path one inch too narrow (Buckley, 2012). The article reveals that New York's precision measurements can and have become the cause of controversy. There is little room for negotiation and compromise when the location of objects is measured down to the inch.

Guidelines for Sidewalk Objects

New York City has two relevant guideline documents. The first is the *New York City Street Design Manual* (2009), which is billed as a "detailed guide to the city transportation policies." The manual defines a sidewalk as "that portion of a street, whether paved or unpaved, between the curb lines ... and the adjacent property lines intended for the use of pedestrians" and states that the benefits of a sidewalk include "speedy and unobstructed pedestrian movement" and "space for 'staying' activities such as relaxing, shopping, eating, and socializing" (New York City Department of Transportation [NYC DOT], 2009, 2.2.1).

The manual names thirteen supplemental sets of guidelines, of which only one begins to tackle the sidewalk directly. The *Active Design Guidelines* is an ongoing interagency project that responds to the link between obesity and environmental design. This document outlines general principles and strategies to make walking and biking for exercise easier in New York (New York City Department of Design and Construction, et al [NYC DDC, et al], 2010). The Department of City Planning is now in the process of refining the broad strategies provided for sidewalks into a companion document, *Active Design: Shaping the Sidewalk Experience*. Set to be released late in 2012, this document is designed to be a resource for those who shape the building edge of the sidewalk – developers, business owners, and city agencies. Rather than directly guiding outcomes, this document will lay out a new holistic way of thinking about the sidewalk, including the design elements that affect how someone experiences a sidewalk, and the policies that shape those features (S. Duncan, personal communication, March 28, 2012).

Clear Space

The *Street Design Manual* includes design guidance for full sidewalks and ribbon sidewalks. Full sidewalks are those that are paved from property line to the curb while ribbon sidewalks have unpaved areas to either side of the walking path. Ribbon sidewalks are proposed for low-to-moderate density residential areas and would not be found in the commercial areas pertinent to this paper, but the city includes design standards for these as well. Guidelines for clear walking space on fully paved sidewalks are the same as those in the municipal laws: 8ft or one half of the sidewalk, whichever is greater. But in addition to the base width requirement, the manual also promotes widening sidewalks as a traffic calming measure. The manual advocates for paved and landscaped curb extensions, bus bulb-outs, and mid-block street narrowing, all of which serve to increase the space devoted to the pedestrian experience (NYC DOT, 2009).

The *Active Design Guidelines* (NYC DDC, et al, 2010) is consistent with the *Street Design Manual* when it comes to clear walking space. It calls for sidewalk widths to be consistent with their use, the development of curb extensions in congested areas, and universally accessible sidewalk construction.

Public Amenities

The *Street Design Manual* includes much more detailed information regarding street furniture and landscaping. The manual is explicitly "designed to be a flexible document that will change and grow, incorporating new treatments as appropriate after testing" (NYC DOT, 2009, p.17). In its current state, the *Street Design Manual* includes chapters on geometry, recommended materials, lighting features, and street furniture. Each chapter contains details about sanctioned design elements and the standards and laws surrounding them.

The manual proposes concentrating public amenities in a furnishing zone. New York City defines the furnishing zone as the area between the curb and the edge of the requisite clear path. On fully paved sidewalks, the area "closest to the curb, where light poles, signs, fire hydrants, telephone booths, newspaper boxes, etc., are typically located, is referred to as the 'furnishing zone'" (NYC DOT, 2009, 2.2.1a). The zone is defined by the objects in it, not the other way around. The idea of dividing sidewalks into zones is relatively new while objects have been placed in the public right-of-way for centuries, long before there were sidewalks. This sentence reveals that New York is still grappling with how to define activity zones on the sidewalk.

Some design criteria for the furnishing zone have been put forward. The *Street Design Manual* says that "this area is generally 5 feet wide or as wide as the tree pits along the blockface" (NYC DOT, 2009, 3.4). The trees define the zone. This assumes that all streets with furnishing zones will have trees. New York has included street tree planting as one of its major sustainability projects, so this is an assumption that can be made in New York, but not necessarily in other cities.

However, furnishing zones are not a part of every street design. Furnishing zones are deemed most appropriate on:

> "streets with at least moderate levels of both pedestrian and vehicle traffic — usually commercial shopping streets. Furnishing zones are best used when applied to entire blocks or a series of blocks comprising a corridor, rather than to sidewalks in front of individual small properties which would create a "patchwork" effect" (NYC DOT, 2009, 3.4).

The furnishing zone is further defined as a buffer to protect pedestrians from fast moving vehicles. Bollards and security planters have the explicit purpose of keeping vehicles on the roadway, but trees, parking meters, and other fixed furniture items can further protect pedestrian space from drivers. Secondly, furnishing zones are defined as corridors, along at least a full block, if not many blocks in a row. Creating a consistent furnishing zone experience in front of so many properties requires strict design and placement standards for sidewalk objects like those presented throughout the laws and guidelines.

In New York, curb extensions are also suggested as places to put public amenities and greenery. The *Street Design Manual* suggests that:

> "In areas with inadequate sidewalk width to accommodate needed functional sidewalk elements for the community, the extra space provided by a curb extension can be used for bike parking, seating, public art, gardens, plantings, or trees, alone or in combination. Similarly, all paved curb extensions can also provide space for consolidating basic sidewalk furnishings such as trash cans, newspaper racks, newsstands, and light or signal poles, where foot traffic permits" (NYC DOT, 2009, 2.2.2b).

Curb extensions become wide sidewalks - the added area is devoted to public amenities leaving the original sidewalk for walking space. In addition to usable street furniture, the manual also suggests that curb extensions include plantings that everyone can enjoy. Where possible, the manual encourages ecologically functioning plantings like bioswales over more traditional landscaping (NYC DOT, 2009, 2.2.2a).

A full chapter of the *Street Design Manual* is devoted to the street furniture that might be placed on sidewalks or curb extensions. The furniture chapter includes examples of bike racks, bus stop and bike storage shelters, newsstands, public toilets, lamppost banners, benches, and waste receptacles and lists the site specifications that need to be followed when locating these items (NYC DOT, 2009, 5.0-5.8). For instance, Automatic Public Toilets (APT) must follow five guidelines as to where in the city they are located and seven guidelines as to what clear distances are required around them. These lists make the spatial details provided in the Rules of the City of New York much easier to understand. They pull out the relevant information for each item, identify the approving agency, and provide directed contact information for questions.

The *Active Design Guidelines* provide the big picture strategies behind the manual's details. It advocates for individuals, businesses, and the city government to create active sidewalks through the following public amenity strategies:

- Create a buffer to separate pedestrians from moving vehicles using street furniture, trees, and other sidewalk infrastructure.
- Provide seating, drinking fountains, restrooms, and other infrastructure that support increased frequency and duration of walking.
- Provide exterior lighting along streets and outdoor paths.
- Include trees to provide shade and visual interest on streets and sidewalks.
- Create or orient paths and sidewalks toward interesting views.
- Provide marked, measured walking paths on sites as part of a wayfinding system targeted to pedestrians and bicyclists (NYC DDC, 2010, 2.9).

These aspirations all are meant to make walking more enjoyable. Buffer zones, street furniture, and shade trees make the sidewalk more comfortable for people of all ages. Lighting extends the timeframe in which sidewalks are comfortable. And interesting views and measured routes make walking for exercise a more attractive option.

Commercial Uses

Neither guideline document deals much with private commercial uses of the sidewalk. The *Street Design Manual* only discusses newsstands because they are part of the city's coordinated street furniture program, and thus the design specifications are centrally structured. There are actually nine newsstand models with widths of 4, 5, and 6ft and lengths of 8, 10, and 12ft so that they can fit in a variety of sidewalk conditions. The manual only includes the required clear path (9ft 6in) and distance from the curb (18in) as the most important siting criteria, directing people to the Department of Consumer Affairs for more specifics (NYC DOT, 2009, 5.4).

The *Active Design Guidelines* do not address commercial uses of sidewalks, but *Active Design: Shaping the Sidewalk Experience* will extensively discuss the relationship between buildings and sidewalks. The document focuses on the building wall, and how its design along the length of a block affects the sidewalk experience. The building wall design deals with a

complex set of negotiations between the public sidewalk and private land owners. Skye Duncan, Associate Urban Designer at the New York City Department of City Planning, explained that, "how the building wall touches the sidewalk is what [the Dept. of City Planning is] particularly passionate about. This is where we see the biggest difference between different types of sidewalk experiences" (S. Duncan, 2012). The building wall is broken up by driveways, design changes between façades, entrances, windows into interior spaces, and variations in building heights and setbacks. This is just the periphery of the sidewalk, but it determines the available destinations, the number of people on that section of the street, the amount there is to look at, and the number of abutting resident and business stakeholders that have a claim a given piece of sidewalk. Every debate about the public-private line at the building edge of the sidewalk can be controlled though the zoning code and the forthcoming *Active Design: Shaping the Sidewalk Experience* document will delve into the zoning policies that can be turned to creating an engaging sidewalk that encourages people to walk.

What New York's forthcoming research suggests is that the periphery of the sidewalk ought to be considered as part of vibrant sidewalk design and that there may be opportunities in traditional zoning codes to connect sidewalk and building design policies. Unfortunately, the full results their research was not available at the time of this project, but in future *Active Design: Shaping the Sidewalk Experience* should be looked at in conjunction with this work to determine if there are ways to connect sidewalk design policy with traditional zoning codes.

While commercial uses of the sidewalk at the building edge might be addressed through zoning, New York City also has curbside vendors to manage. The city's guiding documents for street design do not address street vending, but an independent set of guidelines, *Vendor Power!*, has been produced by the Center for Urban Pedagogy (2009). The non-profit has created a set of guidelines that explains the laws regarding street vending to current and future vendors with simple graphics and explanations in five languages. The regulations regarding street vendors are very complex, leaving both vendors and enforcing agents confused. Mr. Bert Stein, a disabled veteran who sells general goods, says that, "The police don't know the rules. The book is written in such a way that everybody scratches their heads and wonders what

they're talking about" (Basinski, Chang, Mangin, & Woo, 2009). *Vendor Power!* puts visuals to the laws, hoping to clarify expectations for everyone involved in the process. This document calls attention to the fact that unclear policies make doing business on New York's sidewalks a risky operation. Siting and dimensional requirements are the primary means through which New York controls vendor operations, so clarity between all parties is needed to ensure that vendors are treated fairly and that vendors respect the needs of other sidewalk uses.

Striking a Balance

New York City has long-established design polices for many aspects of sidewalk life, but the city is just beginning to develop an overarching framework for thinking about the sidewalk as a space. *Active Design: Shaping the Sidewalk Experience* is set to be released late in 2012, and will lay out a holistic view of the sidewalk that connects sidewalk design policy with traditional zoning codes. The document approaches the sidewalk as a room. Skye Duncan explained that "the analogy of the room... helps us deal with the complexity of the sidewalk. We start by breaking it down: the roadside plane, the canopy plane, the building wall, and the ground plane" (S. Duncan, 2012). Each edge has different physical elements that can be used in its design. The canopy plane might have awnings, tree canopies, and balconies in it. The roadside plane might include tree trunks, bollards, and parking meters. The two most complex boundaries are the ground plane and the building wall.

Figure 4: My rendering of the sidewalk room, based on explanations from S. Duncan

The ground plane is what most people think of when planning sidewalk features. Says Duncan (2012), "a lot of people talk about sidewalks in plan and section but that's not how you experience it." Most guidelines talk about three sidewalks zones, referring to different areas of the ground, and the sections they draw are perpendicular to the path of travel, showing the

relationship of items to the buildings and street but not to the experience of walking past them along a block.

The sidewalk room will include the whole length of the block and New York City already has policies that take a longitudinal view of the sidewalk. Objects are required to be spaced out, and in fact, New York has more direct policies about this than about the spacing across a sidewalk from building to curb. Items have specified "adjacent clearances" that dictate how they are arranged along a sidewalk, but only the clear width dimensions dictate placement across the sidewalk. What this means is that the clear path might migrate from one side of the sidewalk to the other (RCNY, Title 6, §2-46, 2004). Both lateral and longitudinal spacing requirements are needed to shape the full experience of the sidewalk, and both types of analyses are proposed in the new set of guidelines.

While the new *Active Design* document will set the framework for thinking about sidewalks, it is much more of an aspirational resource than the laws and *Street Design Manual* which describe the city's current policies. These existing policies set the balance between clear space, public amenities, and commercial uses. Of the three, clear space is definitively the most favored, commanding at least one half of every sidewalk in the city. Between commercial and public amenities, the private commercial uses definitely win out.

Of all of the case studies, New York has the most abutter-friendly policies and the most direct policies regarding licenses for business use of curbside space. The dimensional requirements for clear walking space and "adjacent clearance" along the path of travel that come with each amenity add a lot of calculations to street furniture siting decisions. When a new item is placed, say a trash can, its placement needs to take into account the clear walking path it needs to maintain, its requirements for adjacent clearance, and the requirements of surrounding objects. If its placement across from a café would reduce the clear path below the standards for a café it would need to be moved further down the street, but it also needs to be 9ft from the traffic light and 8ft from the hydrant. These calculations make siting decisions a bit of a puzzle, whereas an abutting business owner can always choose to utilize its 3ft of sidewalk space.

Case Findings

In reading New York City's guiding documents for their policies regarding sidewalk objects, there are few strategies that stand out. The New York case suggest that object placement policies should generally:

- Establish measuring standards
- Ensure buffers between vehicles and pedestrians
- Consider the full length of a sidewalk

Establish measuring standards

New York's ordinances outline how to measure clear space around sidewalk objects. The "sidewalk passage clearance ... [is to] be measured from the improvement to the nearest obstruction directly opposite an intersecting line of pedestrian passage" (RCNY, Title 6, §2-46, 2004). Only that space which is unencumbered, counts toward the walking space of the sidewalk. Objects in the middle of the sidewalk do not split the walking area in two but instead cut it in half. This measuring method forces objects toward the edges of the sidewalk to preserve the required 50 percent of the sidewalk for walking space.

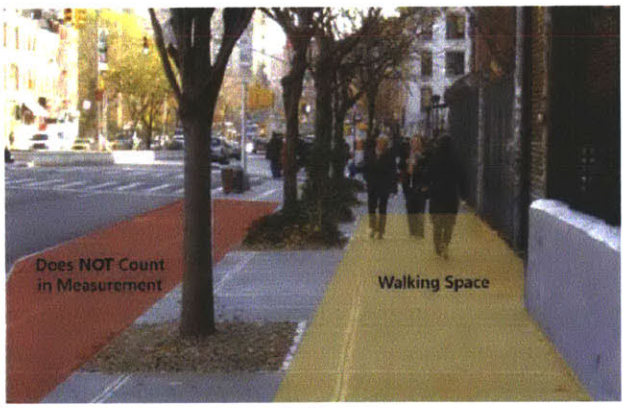

Figure 5: The clear path is measured as one unobstructed area

A second principle is that space for stationary people be included for vending locations. When stoop line stands are built, the walking space measurement includes a buffer area around the display, taking into account the fact that shoppers will become part of the "obstruction." People passing will walk around the people buying fruits and vegetables as well as the tables of produce. This is explicit for the stoop line stands but is also built into the extra-wide 12ft walking

space required in front of newsstands and vendors (12ft = 8ft min. clear space + 4ft for customer buffer).

Thirdly, New York stands by the theory that walking space should be measured in terms of flow as well as width. Pedestrian level of service analysis, a metric of flow, is required for cafés and some additional large obstacles. If the city thinks that the item will significantly compress the amount of available space for pedestrians, or create a bottleneck, they will request this study. The width of the clear walking space on a sidewalk can only tell us how many people it can comfortably accommodate at a time. In New York, where sidewalk congestion can be worse than vehicle congestion, the ability to walk through a block with reasonable speed becomes very important.

Finally, New York includes requirements for access to the curb in their walking space measurements. The longitudinal adjacent clearance measurements separate objects out along the sidewalk, mostly along the curb edge. By requiring space between items, the city ensures access between the roadway and the walking space. As much as the city advocates for a buffer between vehicles and pedestrians (see next section), New Yorkers also rely heavily on on-street parking, taxis, and curbside deliveries of goods, all of which need direct connections between the pedestrian walking network and the roadway. Limiting these connections to intersections would mean a huge increase in people walking in the street. This safety hazard is obviated by requiring that there be open walking space between objects on the sidewalk.

Figure 6: Much of New York City utilizes on on-street parking and deliveries, so access to the curb is important

New York demonstrates that when measuring walking space on sidewalks we should consider: the width of the clear space (the space moving pedestrians will utilize), the flow of people along the street, and the amount of access to the curb that is needed.

Ensure buffers between vehicles and pedestrians

As important as access is between the roadway and the walking space, the city also makes it clear that a buffer between pedestrians and vehicles is desirable and that objects can be that buffer. The furnishing zone is actually defined by the presence of objects: the area "closest to the curb, where light poles, signs, fire hydrants, telephone booths, newspaper boxes, etc., are typically located, is referred to as the "furnishing zone" (NYC DOT, 2009, 2.2.1a). There are dual purposes to this use of objects.

First, things at the edge of the sidewalk protect the walking space from vehicles. Transportation Alternatives, a New York City complete streets advocacy group, has been challenging New York City's policy that allows government workers to park personal vehicles on sidewalks. Their blog, *Uncivil Servants,* shows the wide variety of standard violations that government workers get out of across the city, including this annotated image of fire fighters' vehicles blocking a Manhattan sidewalk. The purpose of bollards and security barriers is to prevent such crossings between vehicle and pedestrian space, but meters, benches, and trees would do so as well.

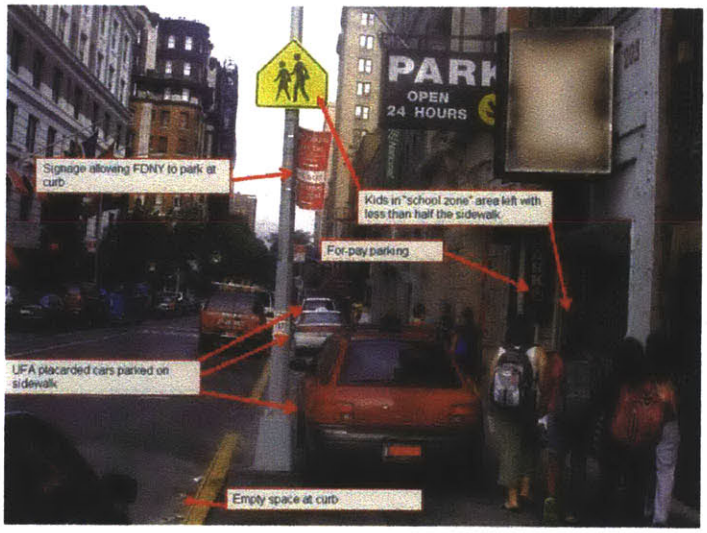

Figure 7: New York City fire fighters are allowed to park on the sidewalk, from *Uncivil Servants* – taken at 77th and Amsterdam Ave

The second purpose of buffering between vehicles and pedestrians is to make walking more comfortable and enjoyable. Plantings are the primary way that sidewalks are made more appealing. The benefits of shade trees are well recorded and range from lowering the temperature of the sidewalk to slowing down traffic. New York's *Street Design Manual* includes them as an integral part of the furnishing zone: "this area is generally 5 feet wide or as wide as the tree pits" (NYC DOT, 2009, 3.4). Trees define the dimensions of the buffer area, but where

trees are not possible because they would block sight lines between vehicles and pedestrians at intersections, lower plantings are allowed and vegetated curb extensions are encouraged.

The curb extension is itself a way to expand the buffer area. The *Street Design Manual* promotes curb extensions to slow traffic and benefit the pedestrian simultaneously. In addition to greenery, the "extra space provided by a curb extension can be used for bike parking, seating, public art" or more mundane objects like trash cans and newsracks (NYC DOT, 2009, 2.2.2b). The additional width makes it possible to have a sizable gathering space in addition to the necessary walking path.

New York's sidewalk policy shows that a buffer zone between the walking space and the roadway can protect the sidewalk for pedestrian use and make the sidewalk experience more enjoyable and that curb extensions can be a way to turn the buffer zone into a public gathering place.

Consider the full length of a sidewalk

The *Active Design: Shaping the Sidewalk Experience* introduces the idea of the sidewalk as a room, a single space extending from one intersection to the next (S. Duncan, 2012). If we think about a sidewalk as someone would experience it along a full block, we begin to see new challenges and opportunities.

First, there is the challenge of spacing. The city's adjacent clearance measurements require items to be spaced out, but that may reduce the benefits that could be gained from items interacting. For instance, a bench that is under a tree and next to a trashcan might get more users in the summer than one that is 8ft from the tree and 5ft from the trashcan as the adjacent clearances require (RCNY, Title 6, §2-46, 2004). Groupings are sometimes allowed, but even then the clear space between items must be 3ft and this still might not be close enough for a bench to be shaded (RCNY, Title 34, §7-06, 2003).

Relatedly, there is the pacing of the sidewalk experience. If the full block or street corridor is a single experience as suggested in the *Street Design Manual*, how will designers maintain consistency in object placement? The mix of abutting uses changes along a street and in New York at least, most objects are placed by abutters. This is a topic that should be considered in future studies of how sidewalk design relates to zoning. The number of abutters will affect how they use the sidewalk and the number of active entrances along a block. Objects can break up the monotony of a long building frontage and where large frontages are allowed, objects might be encouraged to make the sidewalk feel more active. The research that will be presented on the connection between Euclidian zoning and sidewalk experiences in *Active Designs: Shaping the Sidewalk Experience* will inform this discussion about creating a consistent sidewalk corridor.

The adjacent clearances that New York currently uses to spread objects out along the sidewalk may need refining, but this policy is a starting point for thinking about how objects affect the pedestrian's experience walking down the block. The affect that zoning may have on the spacing of sidewalk objects is a topic for further study.

Chapter 5: BOSTON, MA

Boston branded itself "America's Walking City" in the 1980s, well before walkability was measured (Viser, 2007). By all of today's metrics it is one of the most walkable cities in the country, though not always listed first. Still, the city promotes walking among residents and visitors; the city is well known for the freedom trail, a 2.5 mile long red line on the sidewalk that connects visitors to the city's many historic destinations. Boston hosts the nation's oldest utilitarian walking advocacy group, WalkBoston (founded in 1990), which works with the city and surrounding communities to keep walkability at the forefront of transportation conversations.

Sidewalk Objects in the Law

Boston's laws on sidewalk objects provide a mix of specific and general information. References to sidewalk objects in the city code are split between ordinances about what departments manage particular objects and object categories and ordinances about the procedures and consequences for placing specific things on sidewalks. Though the mix can make reading the laws confusing, it reveals which objects are considered most problematic, and therefore most worthy of specificity within the law.

Clear Space

Boston's laws relating to clear paths of travel are written in response to specific issues. We can piece together Boston's policies regarding the walking area of the sidewalk through the city's ordinances on markets, construction, and snow clearance. The market ordinance states the city's directive: "No person shall, within any market limits, so occupy or obstruct any sidewalk as not to leave a clear and direct passage for travelers thereon" (City of Boston Municipal Code [Boston Code], §16-10.2, 1992). To conform to federal and state standards this sentiment is in practice applied citywide and not just in markets.

The construction ordinance calls out the laws that actually govern clear passage space. Those receiving construction permits must maintain "an accessible path of travel which meets both Americans with Disabilities Act and Massachusetts Architectural Access Board requirements" (Boston Code, §11-6.9.f, 2008). Massachusetts AAB requires 4ft passage zones and the ADA requires 3ft walking space with $5ft^2$ passing zones for wheelchairs every 200ft along a sidewalk. Because the state law is more stringent it must be followed, so Boston like other Massachusetts cities is required to have 4ft wide walking spaces with $5ft^2$ areas every 200ft (K. McCosh, personal communication, April 4, 2012).

Finally, Boston's snow clearance law describes an accessible path of travel: "the full width of the sidewalk should be cleared, but at minimum there needs to be 42 inches of clear space" (Boston Code, §16-12.16, 2011). The definition of an accessible path during winter storm conditions is tighter than the usual requirement, with an understanding that snow has to be put somewhere, and that part of the sidewalk may be devoted to storing snow after major storms. In Massachusetts snow clearance is regulated locally, and Boston is progressive among municipalities in that it requires all sidewalks to be cleared and within just 3 hours of a snowfall (Boston Code, §16-12.16, 2011).

Pulling these three together, it becomes clear that Boston is interested in protecting walking space. If sidewalk space is threatened by either a construction project or a snowstorm, safe spaces to walk must still be provided. The law recognizes that walking is a primary transportation mode in Boston and that safe routes for pedestrians are important for the city to function.

Public Amenities

The law does not include much about public amenities but explains where to seek more information. The Public Works Commission is empowered to manage the "use of public ways for any temporary obstruction or projection in, under, or over the same" (Boston Code, §11-6.3, 2009). All objects are referred to as *obstructions* and *projections* including both public amenities

and private commercial uses. Just as in New York, objects are assumed to be in the way, disrupting the official purpose of the sidewalk - walking.

Commercial Uses

The majority of object references in Boston's municipal code deal with commercial uses of sidewalks. Commercial use ordinances are split between those about abutters and those relating to other users. Fist for abutters, is the ordinance that allows the Public Works Commission to issue permits to raise or lower items into a building (Boston Code, §11-6.11, 1975). This mostly affects businesses moving large bundles of goods, but a resident may encounter this law if they want to move large furniture into upper story apartments. In addition to the permit, the ordinance includes a requirement that "good and sufficient barriers [be set up] across the sidewalk...sufficient to protect travelers from injury or danger" and that the sidewalk not be blocked for "more than fifteen minutes at a time" (Boston Code, §11-6.11, 1975). The barriers are necessary to ensure the safety of passersby and the time restriction shows that the passing pedestrian's value of time matters more than that of the person blocking the public space.

The Commissioner of Public Works is also authorized to set policy regarding the "storage and sale of merchandise" on sidewalks (Boston Code, §11-6.3, 2009). The law does not specify what these policies or tactics might be, but recognizes that sidewalk vending and displays are something that will need to be controlled. By not including specifics, the Commissioner is given the freedom to make nuanced policy decisions for different parts of the city and to edit policy on an as needed basis without going through the lengthy process of editing the municipal code.

Mobile food truck vendors are a new business type in Boston, and the activity they generate on the sidewalk is closely monitored. The code requires food trucks to get permits for any ancillary items that they choose to place on sidewalks or other public property, comprising "any dining area, including but not limited to tables, chairs, booths, bar stools, benches, and standup counters" (Boston Code, §17-10.8, 2011). Boston's food trucks are issued permits for

particular locations in the city. They are mobile in that they leave at the end of the day, not that their location changes. As such they use the sidewalk much like any other abutting business, with a modicum of responsibility for the sidewalk adjacent to their premises.

Newsracks are the only object for which the laws provide detailed positioning information. Newsracks are widely viewed as clutter because they can be moved easily so that they disrupt pedestrian traffic and because they are often poorly maintained. The newsrack ordinance includes the following eight parameters for locating newsracks; they cannot be placed:

1. At any location whereby the clear space for pedestrian passage is reduced to less than four (4') feet;
2. Within five (5') feet of any marked or unmarked crosswalk;
3. Within five (5') feet of any fire hydrant, fire lane, fire call box, or other emergency facility;
4. Within five (5') feet of any traffic control signal or traffic sign;
5. Within five (5') feet of any mailbox, bicycle rack, City trash receptacle: telephone booth or stand;
6. Within five (5') feet of any part of a curb return of a curb ramp or driveway, or in the case of a curb ramp or driveway without a curb return, within five (5') feet of the point where the curb edgestone or edging begins a change in grade toward the driveway or ramp on each side thereof, or in the case of a termination of the curb, edgestone or edging without a change in grade or a turn, within five (5') feet of the point of the same terminates on each side of the ramp or driveway;
7. Within five (5') feet ahead or fifteen (15') feet to the rear of any designated bus stop, taxi stand, valet parking area, loading zone or fire lane; and
8. Which in any way protrudes onto a street or interferes or hinders city removal of snow, ice, and debris from the streets and sidewalks
(Boston Code, §16-38, 2008)

Newsracks must defer to all of these other streetscape elements. Most of it is safety related and does apply to the placement of other furniture, even though those regulations are not outlined in the city code. For instance, placement of anything near intersections can block sight lines between pedestrians and drivers and get in the way of wheelchair access. But the requirement that newsracks be at least 5ft from mailboxes, trash receptacles, and phone booths has no such purpose. In my estimation, it serves to differentiate between the preferred 'amenities' and the 'nuisance' newsracks and reduce the available space where the offending items can be located.

Newsracks and food trucks are the only two sidewalk uses that are called out in the city ordinances for direct regulation. Both of these laws were written the last five years; the newsrack ordinance was significantly revised in 2008, and the food truck ordinance was new in 2011

(Boston Code, §17-10.8, §16-38). The fact that these are both recent ordinances suggests that the city might be shifting toward more direct records of their policies within the city laws.

Guidelines for Sidewalk Objects

Boston will soon add a set of complete streets guidelines to its policies regarding sidewalk objects. This document has been in the works for several years and is an interdepartmental effort to pull together all of the information that designers, developers, and city staff will need to create vibrant multimodal streets. Charlotte Fleetwood, Senior Transportation Planner with the Boston Transportation Department (BTD), explained that complete streets has "been the philosophy and now we're putting it in writing" (C. Fleetwood, personal communication, March 9, 2012). The process has been about bringing together "a lot of different departments: Public Works, Parks, Environment, Boston Redevelopment Authority, etc., and really trying to devise a policy and a set of guidelines that the city as a whole sees as our future" (C. Fleetwood, 2012). The guidelines will formalize and synthesize a decade's worth of thinking about individual streetscape elements and present the City's vision for what good sidewalks should look like. This discussion of the forthcoming document is based on the draft version published online in July 2011 with input from my conversations with Charlotte Fleetwood at BTD and Laurie Pessah and Jessica Mortell at Toole Design Group, who are consultants on the project.

The *Boston Complete Streets Guidelines* divides sidewalks into activity zones. Boston uses four zones: curb zone, greenscape/furniture zone, pedestrian zone, and frontage zone. ***Curbs*** in Boston are standard across the city:

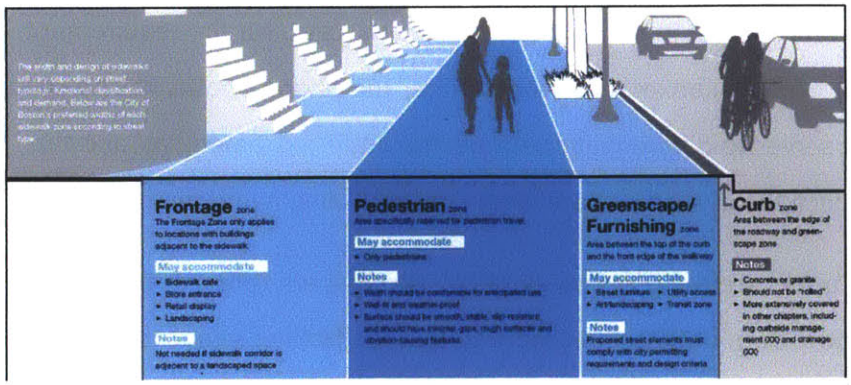

Figure 8: Sidewalk Zones, *Boston Complete Street Guidelines* (BTD, 2011)

"six inch wide granite with a six inch vertical reveal" (Boston Transportation Department [BTD], 2011, p.21). The ***greenscape and furniture zone*** is just inside the curb. This is where the functional and amenity features of the sidewalk are placed: benches, trash cans, hydrants, bike parking, street lights, etc. The ***pedestrian zone*** is the clear space that is essential to the transportation function of the sidewalk and is in the center of the sidewalk. Lastly, the ***frontage zone*** is where building meets sidewalk and this space is activated by commercial uses (BTD, 2011). Except for the curb, the dimensions of each zone are flexible and meant to respond to the immediate context of any given project.

The guidelines divide Boston streets into nine categories. Each street type has a different balance between the three zones. High volume downtown commercial streets prioritize clear space over everything else while neighborhood main streets include a lot more space for greenscape and furniture amenities. The chart below shows the preferred widths for each of the sidewalk zones on the nine street types from the February 2012 draft (C. Fleetwood, 2012).

Table 4: Sidewalk Zones by Street Type, *Boston Complete Streets Guidelines (Feb 2012 draft)*

	Frontage Zone		Pedestrian Zone		Greenscape / Furniture Zone		Curb Zone	Total Widths	
Street Type	Preferred Width	Min. Width	Preferred Width	Min. Width	Preferred Width	Min. Width	Preferred Width	Preferred Width	Min. Width
Downtown Commercial	2ft	0ft	12ft	5ft	6ft	1ft-6in	6in	20ft-6in	7ft
Downtown Mixed-Use	2ft	0ft	10ft	5ft	6ft	1ft-6in	6in	18ft-6in	7ft
Neighborhood Main Street	2ft	0ft	8ft	5ft	6ft	1ft-6in	6in	16ft-6in	7ft
Neighborhood Connector	2ft	0ft	8ft	5ft	5ft	1ft-6in	6in	15ft-6in	7ft
Neighborhood Residential	2ft	0ft	5ft	5ft	5ft	1ft-6in	6in	12ft-6in	7ft
Industrial	2ft	0ft	5ft	5ft	5ft	1ft-6in	6in	12ft-6in	7ft
Shared Street	2ft	0ft	Varies	5ft	NA	NA	NA	Varies	7ft
Parkway	NA	0ft	6ft	5ft	10ft	5ft	6in	16ft-6in	7ft
Boulevard	2ft	0ft	6ft	5ft	10ft	5ft	6in	18ft-6in	7ft

Clear Space

One of the guiding principles for sidewalks is that they be "accessible to all." To achieve this, "sidewalks must have continuous and unobstructed pathways and sight lines" (BTD, 2011, p.18). Beginning with the federal and state mandates, every sidewalk must have a "minimum of

4ft clear width ...plus 5ft of width every 200ft to allow wheelchairs to pass each other" (BTD, 2011, p.22). To simplify this, the *Boston Complete Streets Guidelines* (2011) begins with a minimum 5ft clear width. The minimum is used for industrial and residential streets but from there it goes up to 6ft on parkways and boulevards, 8ft on neighborhood connectors and main streets, 10ft on downtown mixed-use streets, and 12ft on downtown commercial streets (see Table 4). The variations are based on relative traffic volumes; the more people there are the more space they need to walk (L. Pessah & J. Mortell, 2012).

The guidelines additionally advise that the pedestrian zone follow a straight, direct path, within the full sidewalk space (BTD, 2011, p.22). People with vision impairments have a harder time navigating meandering paths, so the walking area should roughly stay in the same lateral position along a route. This also helps to set the norm within the city, not only for sidewalk designers and builders, but also pedestrians and those placing objects. The *Complete Streets Guidelines* will be widely read among professionals engaged in sidewalk issues, but the general public will not likely read this document. Following standard arrangements throughout the city will help the average pedestrian know what to expect of their sidewalk experience.

Public Amenities

The zone organization gives space to objects that would normally be considered obstructions. The Boston guidelines distinguish the outer greenscape/furniture zone as the public space portion of the sidewalk. The furniture zone can take on unique identities in different sections of the city. It can act as a small linear park with trees, benches, and maybe even a chess board. It also may serve much more utilitarian functions and be filled with parking meters, bike corrals, and newsracks. In the other direction, it may become a purely natural landscape of bioswales, tree pits, and flower beds. In Boston, all of the above are welcome solutions, depending on the context.

The guidelines suggest using trees and landscaping as a way to differentiate street types and sidewalk experiences. Collectively all vegetation planted in the sidewalk is referred to as

"Greenscape." Trees, plantings, and vegetated storm water systems take up space on the sidewalk to serve Boston's sustainability goals and to make the sidewalk a more comfortable place for people. The guidelines tout the social and economic benefits of sidewalk greenery: it keeps the sidewalk cooler in summer, reduces people's exposure to UV rays, reduces people's stress levels, and "signals that a place is well managed and maintained" (BTD, 2011, p.49). For the most part the greenscape section of the guidelines simply makes the case to readers that greenery should be included in sidewalk designs.

Shade trees are the most traditional greenscape element, and the one landscape feature for which the guidelines provide specific siting information. Tree plantings are directed to first consider the stature of the tree, smaller trees should be planted closer together than large ones. Second, trees are guided to be placed at specified distances from the curb, lampposts, overhead wires, underground utilities, driveways, fire hydrants, loading zones, and intersections, to protect the tree from damage and to prevent disruptions to other street functions (BTD, 2011, p.59-61). Tree planting is not only about the visible trunk and canopy but also the roots. Tree roots need to have access to water which is provided by having soil areas open to the sky. This space needs to be sufficiently large to prevent the roots from migrating toward the surface in search of water, which often causes broken and uneven sidewalks. Tree pits and trenches may be covered by grates, which allow people to walk in that space, but grated areas do not count toward accessible paths of travel (K. McCosh, 2012). Considering all of the geometric constraints on tree placement, it then makes sense that the preferred widths for the furniture zone range from 5ft on residential and industrial streets up to 10ft on boulevards and parkways.

As to the furniture in the greenscape/furniture zone, the guidelines reflects a general preference for public amenities over commercial uses. It includes detailed information on seating, bollards, bicycle parking, bicycle racks, bicycle shelters, trash compactors, recycling bins, and newsracks (BTD, 2011). Of these items bollards, newsracks, and seating can be placed by private entities while everything else, including some additional bollards and seating, are placed by the city government. All are suggested for the furniture zone; only seating is suggested for both the frontage and furniture zones (BTD, 2011). These placement guidelines got me thinking

about how objects for general use, like seating, might be perceived differently in the two areas for stationary activity. The furniture zone buffers between two different areas of public use while the frontage zone buffers between private and public space. In my opinion objects alongside the building edge are automatically associated with the abutter, while objects across the walking path are a bit more ambiguous.

Bus stops extend the clear walking path to the curb. In Boston, bus stops extend accessible paths out from the pedestrian zone and at minimum there must be an 8ft by 8ft clear space to allow for safe loading and unloading. When buses stop, they pull directly to the edge, and the furnishing zone is advised not to include anything along the full length of the bus (60 to 100ft, depending on if articulated buses are used on that route) (BTD, 2011, p.84-85). Bus shelters are allowed in bus stops, but their placement is based on specific dimensions for loading zones at the front and back of the bus, the depth of the sidewalk, and volume of travelers along the sidewalk and bus route (BTD, 2011, p.84-87). Shelters are part of the city's

Figure 9: MBTA Bus Stop marked by signs at the front and back, Massachusetts Ave and Albany St, Boston, MA

coordinated street furniture program and are closely managed by the city and the city's contractor, JCDecaux. What is interestingly not explained in the guidelines is that bus stops are marked by signs at each end. This Google Street View image of a Boston bus stop shows how the curb edge of the sidewalk is clear of all furniture, even the utility boxes have been pushed to

the inside edge. Though the signs are primarily directed at drivers, it also sends a clear message to those placing things on sidewalks.

Commercial Uses

Even though public amenities are prioritized, private commercial uses are encouraged in the frontage zone. The guidelines first and foremost promote active street-walls. Ground floor storefronts are encouraged to have clear windows for at least 50% of their frontage, entries roughly every 75ft, and to utilize wall-mounted encroachments, like "awnings, lighting, signs, and foliage," to make the building edge dynamic (BTD, 2011, p.32). These suggestions come through in the city's zoning code. The frontage zone allows businesses to fully break the building edge and spill out into the street; "with the exception of Parkways and Residential Street Types, vending in the frontage zone is encouraged where sufficient space exists to accommodate it" (BTD, 2011, p.32). The guidelines condone the sale of food, print materials, goods, and clothing, as well as performers without amplification, as long as all accessibility requirements are met.

Sidewalk cafés are particularly encouraged in the guidelines, even though they are not mentioned in the ordinances. Semi-permanent cafés are encouraged "for all street types where commercial activity occurs, including industrial areas" (BTD, 2011, p.35). Cafés rent sidewalk space from the city on a seasonal basis; the monthly rate depends on the size of the café, and all are allowed to operate between May 1st and October 31st (A. Cording, personal communication, April 5, 2012). Cafés extend the frontage zone out to at least 6ft, so that there is space for wheelchair accessible tables within the seating area. As a result, the clear pedestrian zone may be shrunk around cafés, but not below the state standard of 4ft, though even that is tight. Kristen McCosh, Commissioner for Persons with Disabilities, explained that her commission signs off on any sidewalk object, even if it doesn't disrupt the clear path of travel (2012). When it comes to cafés they almost never sign off on projects that reduce the width of the walking space below 5ft because cafés generate additional pedestrian traffic (K. McCosh, 2012). Cafés break

the preferred widths set in the zone width chart (see Table 4). On every street type the preferred frontage zone is 2ft wide, but cafés in Boston must be in the frontage zone and must be a minimum of 6ft wide. Additionally cafés can reduce clear pedestrian zones down to 5ft, which on a downtown commercial street would be less than half of the preferred width (K. McCosh, 2012). The lack of any pedestrian volume considerations in the stated policies for sidewalk cafés is worrisome. In my opinion, the policy would make much more sense if street types where cafés are anticipated had frontage zones up to 6ft wide and that standards for clear widths around cafés took into account the base clear width preference or pedestrian volume to prevent bottlenecks.

Striking a Balance

Boston emphasizes guidance over legislation and guides developers and designers to think about the context of a sidewalk when organizing activities in that space. The zone system sets up a framework for thinking about the balance between sidewalk activities on different street types. Boston's zone definitions roughly coincide with our three claims to the sidewalk, and we can analyze the amount of space devoted to each zone.

The frontage zone, for commercial uses, is held constant across all street types. However the text of the guidelines reveals that the frontage zone can actually be flexible and is at times allowed to expand beyond the initial 2ft and reduce the clear walking space. For the most part though, Boston only balances between clear walking

Table 5: Boston - Clear Space to Furniture Zone Ratio

Street Type	Clear Space Width	Greenscape/ Furniture Zone Width	Ratio of Clear Space to Furniture Zone
Downtown Commercial	12ft	6ft	2.00
Downtown Mixed-Use	10ft	6ft	1.67
Neighborhood Main Street	8ft	6ft	1.33
Neighborhood Connector	8ft	5ft	1.60
Neighborhood Residential	5ft	5ft	1.00
Industrial	5ft	5ft	1.00
Shared Street	Varies	NA	-
Parkway	6ft	10ft	0.60
Boulevard	6ft	10ft	0.60

space and public amenities in the furnishing zone. The balance between the two is different on each street type. Table 5 shows the ratio of walking space to the furniture zone and reveals that the further a street is from commercial activity the more the furniture zone is favored.

Though the guidelines do not include pedestrian volume calculations, clear space is prioritized in busier areas to accommodate the increased walking traffic. The dimensions of the furniture zone are still sufficiently large to accommodate trees, benches, and other public space amenities. Overall, I would characterize Boston's policy as favoring public space uses of sidewalks, accommodating walking, and tacitly accepting commercial uses. This becomes increasingly clear as we look a little closer at tools Boston uses to maintain the balances set forward in citywide policy.

Case Findings

There are two main findings from Boston's laws and guidelines regarding sidewalk objects that are applicable more generally:

- Identify decision makers
- Differentiate between streets

Identify decision makers

Boston's laws explain who makes sidewalk object decisions, but does not include much information about object placement. Amy Cording, Chief Engineer at the Public Improvement Commission, explained that the city ordinances are "loose and open-ended as far as permitting and regulation is concerned. It is just the broad strokes that are in the actual laws, and the rest is policy that develops over time" (2012). Policies around specific sidewalk objects have been developing in Boston for roughly two centuries now and the Complete Streets Guidelines is a great step to pull disparate practices and procedures into one place. However, the *Complete Streets Guidelines* are managed by the Boston Transportation Department, while the ultimate

authority over sidewalk objects lies with the Public Works Commissioner: "the Commissioner shall have the jurisdiction vested by statute in the Board of Street Commissioners in relation to the planting and removal of trees in the public ways and to the use of public ways for any temporary obstruction or projection in, under or over the same" (Boston Code, §11-6.3, 2009).

The Public Works Commissioner designates agents to make decisions within the policies that he or she has set. The Department of Public Works is broken into several divisions that each deal with different aspects of the sidewalk design/object placement question. The Permit Division deals with all things that are temporary and movable: planters, benches, trash cans, etc. The Public Improvement Commission handles all permanent installations: bus shelters, phone booths, etc. The Street Lighting Division manages all lampposts. The Engineering Division oversees sidewalk construction, reconstructions, and widenings and the Construction Management Division executes those projects. The Highway Field Operations Division is responsible for litter control, object installation and maintenance, and snow removal enforcement and, finally, the Waste Reduction Division takes care of waste related uses of sidewalks for dumpsters, trash pick-up days, etc. Each division operates by its own set of internal policies but collectively it is the Public Works Department that has primary control over where things go on Boston's sidewalks (Boston Public Works Department, 2012).

By clearly identifying a decision making body, Boston can streamline their procedures for getting objects on the ground. There are many stakeholders involved in designing the sidewalk space, all of whom want something different out of it, but in Boston they all go to one office to get their projects approved. Even if different divisions deal with different items, the Public Works Commissioner can oversee how they all come together in the streetscape. Bernard Parisot and Nicolas Clochard-Bossuet, CEO & COO of JCDecaux North America, contract with Boston to provide bus shelters, public toilets, and information kiosks. They work with five US cities (Boston, Chicago, Los Angeles, San Francisco, and St. Louis) and explained that the strong mayor governments in Boston and Chicago make the implementation process for street furniture much smoother and faster (Parisot & Clochard-Bossuet, personal communication, April 20, 2012). In Boston they have a partner within the Mayor's Office, Peter O'Sullivan, who takes their proposed

furniture locations through the Public Works Department procedures, working with the Public Improvement Commission to get all of the necessary approvals that a single bus shelter might need, from community groups, to utility companies, and abutting business owners (P. O'Sullivan, personal communication, April 10, 2012). By having point people and agencies, it is easier to manage the stakeholder engagement process for each item.

As of the July 2011 draft, there was no connection to these departments written into the *Complete Street Guidelines*. However, Pessah & Mortell (2012) explained that there is an implementation chapter in production that will tie the work of these decision makers to the design proposals in the guidelines. The municipal code is very clear about who is in charge of sidewalk use, but the guidelines could confuse that clarity by introducing all of the public agency stakeholders together. The implementation chapter will help to distinguish the Public Works Department as the ultimate authority on sidewalk design, as articulated in the city's laws.

Differentiate between streets

Boston's *Complete Street Guidelines* provide both a standard format for organizing sidewalk objects and show that not all sidewalks have the same needs. The three sidewalk zone divisions are the same on every street – the frontage zone will always be associated with the abutting user, the pedestrian/walking zone will always be down the center of the sidewalk, and the furnishing zone will always be at the edge. The zones are a simple and consistent organizing principle that can be quickly explained to abutters and sidewalk users and the idea is well on its way to becoming a national convention. But what is unique about Boston's sidewalk zones is that their dimensions are tied to broader street classifications.

The guidelines divide the city's streets into nine categories that emphasize the "character of the entire street" (BTD, 2011). Traditional highway classifications only consider vehicle traffic volumes and divide streets into four classes: limited access highways, arterials, collectors, and local roads. The guidelines' street types also consider flows, but they consider pedestrian,

bicycle, transit, and vehicle traffic volumes and how the four transportation modes can be balanced to serve abutting land uses (BTD, 2011, p.5).

Land uses change more frequently than street infrastructure and directly impact the volumes of people and goods. For instance, a new grocery store would add truck traffic to the streets, while the addition of an office building would instead add huge flows of people during the morning and evening rush hours. Every street has a different mix of uses and a different base infrastructure to work with, but rather than handle the mix of traffic volumes on a case by case basis, Boston's guidelines create categories. The nine categories: downtown commercial, downtown mixed-use, neighborhood main street, neighborhood connector, neighborhood residential, industrial, shared street, parkway, boulevard are based on the abutting uses and available or potentially available transportation infrastructure. Categorization might be different in each city, but as Boston shows it is a way to make more nuanced decisions about street design than the federal highway classification system but more easily regulated choices than individual case analysis for each block.

Chapter 6: Cambridge, MA

By Walk Score's metrics, Cambridge is the most walkable city in the country. Even the lowest scoring neighborhood, MIT, has a "very walkable" score of 73/100 (Walk Score, 2012). Cambridge has a large student population which helps keep the city's auto-ownership rate low and walk to work rate high (more than 25% of Cantabridgians walk to work) (Cambridge Community Development Department, 2010). This is mostly the result of a strong city hand in discouraging auto use and encouraging alternative modes.

Sidewalk Objects in the Law

Cambridge's laws regarding sidewalk objects are written in general language, starting with a unique law that prioritizes pedestrians in the city's transportation agenda. In 1992, Cambridge passed its Vehicle Trip Reduction Ordinance to help the city meet federal clean air standards, which requires that "steps be taken to reduce the amount of drive-alone traffic" (Cambridge Municipal Code [Cambridge Code], §10.17, 1992). The law includes the creation of a citywide Bicycle and Pedestrian Mobility Program (Seiderman & Anders, 2003, p.620). Though there are no direct edits to the City's other sidewalk laws, the ordinance forming this program creates a Bicycle and Pedestrian Coordinator position, requires a "Cambridge Pedestrian Master Plan," and lays out funding for pedestrian amenities (Cambridge Code, §10.17, 1992). The law sets in place a structure for making improvements to the pedestrian realm as design theories and technology evolve.

Clear Space

Cambridge's ordinances provide broad directions. There is no ordinance outlining appropriate clear walking widths, meaning that the Massachusetts state standard applies in full. Cambridge thus requires sidewalks to be "not less than 48in, excluding curb stones" with an

"unobstructed path of travel ... which is at least 36 inches (36" = 914mm)" and per the federal standard 5ft^2 passing areas every 200ft also applies (Massachusetts Architectural Access Board, 521 CMR 22.2, 2006). The city ordinances says that "No person shall place, or cause to be placed, upon any sidewalk, any article whatsoever, so as to obstruct a free passage for travelers for more than fifteen minutes," and second that no one should spill ash, dirt, or any slippery substance on the sidewalk (i.e. fruit peelings) (Cambridge Code, §12.16.100, n.d.). General public safety, not dimensions, is what the ordinance is concerned with. The same is true of the city's snow clearance policy; there is no specified width that must be cleared but "abutting owner or occupant must clear snow within 12 hours during a daytime snow and before 1pm for overnight snow." (Cambridge Code, §12.16.110, n.d.). The law does not answer many questions but sets the general expectation that there should be a clear path to walk along the sidewalk at all times.

Public Amenities

In keeping with the ordinances' general tone, the Cambridge Code of Ordinances does not mention public amenities that the city provides on the sidewalk.

Commercial Uses

Cambridge's laws are a little more direct when it comes to commercial uses of sidewalks. In 2009, Cambridge updated its ordinance regarding private encroachments - activities taking place at the property line, but in public space. The city now requires abutters to get permits for any item that extends more than 6in into the public right-of-way including items that are located on, under, or above the sidewalk (Cambridge Code, §12.08). Any private use of the sidewalk for display and sale of merchandise also requires a permit, and permits can be given for up to 25% of the sidewalk (Cambridge Code, §12.08, 2009). Cambridge additionally requires a permit to engage in any advertising activity on public property: "No person shall, without authority from the Superintendent of Streets, place or carry, or cause to be placed or carried, on a sidewalk, a showboard, placard, or sign for the purpose of there displaying or attracting

attention to the same" (Cambridge Code, §12.08, 2009). Advertising is not defined as a commercial pursuit, but anything intended to draw attention.

Street performers are welcomed in Cambridge. The street performers ordinance opens with the following:

> "the City Council finds that the existence in the City of street performers provides a public amenity that enhances the character of the City and seeks to encourage such performances to the extent that they do not interfere with the reasonable expectations" of residents and businesses (Cambridge Code, §12.16.170, 1996).

The ordinance goes on to explain that the Cambridge Arts Council has authority over performers, to outline the procedures for getting a permit, and where, when, and at what noise level performances may take place on public property including sidewalks. As far as spatial requirements go, performers may not utilize "more than 20% of the width of the sidewalk" and "drums shall be inaudible at a distance of 150ft" (Cambridge Code, §12.16.170, 1996). In an interesting use of the line between public and private property, performers "may set up a display on the public sidewalk in front of a doorway to a business if the business is not open" (Cambridge Code, §12.16.170, 1996). The area in front of a doorway of a building is an ostensibly private space even though the sidewalk is public. This law extends the activity in front of a business into the evening hours. Performers are a great way to seed an area with activity because they stay. They add eyes on the street for hours at a time and the Cambridge law recognizes their contribution while structuring their schedule so as to limit negative impacts on local businesses and residents.

Figure 10: Street Performer Mary Lou Lord plays in the alcove of a closed business in Harvard Square Cambridge (Photo Stephen Baird)

Newsracks are the only specific object mentioned in the Cambridge's sidewalk ordinances. The newsrack ordinance walks readers through the complicated application process

that publishers go through to get newsrack space: the fees they must pay, the placement standards they must follow, the maintenance they are required to perform, and the enforcement procedures if they do not comply with all of this. The placement standards are specific:

- "Parallel to and not less than 18" nor more than 24" from the edge of the curb"
- Newsracks must face the sidewalk, not the street
- If placed along a wall, they must be "parallel to and not more than 6" away from the wall
- On sidewalks wider than 8', newsracks cannot be placed such that the clear pedestrian space is less than 8' wide
- On sidewalks less than 8ft wide, newsracks cannot be placed such that they reduce the clear space to less than 5ft (the Commissioner of Public Works may grand exemptions as long as 4ft clear space is maintained)
- Newsracks cannot be placed within 5ft of:
    - a crosswalk or handicapped ramp
    - "fire hydrant, fire lane, fire call box police call box, or other emergency facility, mail box, telephone booth or stand"
    - Curb ramps and driveways
    - Any traffic control signal or traffic sign
    - Bicycle racks
- Newsracks cannot be placed within "5ft ahead or 15ft to the rear of any designated bus stop, taxi stand, valet parking area, loading zone or fire lane, or any disabled parking space," unless the newsrack is against the wall
- Newsracks cannot protrude into the roadway
- They are prohibited on sidewalks abutting public schools
- Newsracks cannot be placed "within 3ft of any structure's window or within 3ft of any pre-existing sign"
  (Cambridge Code, §12.18.040, 2005).

All of these specifics are out of place with Cambridge's overall approach to their sidewalk object ordinances. While everything else is prohibited unless given a permit, newsrack placement is detailed in the law itself and not just the subsequent permit documents. While I do not have evidence to support my hypothesis, my guess would be that this is because newsracks are placed by companies that do not have an immediate local presence, and in part because newsracks are generally unpopular. Newsracks are managed by regional and national companies, and the person responsible for their maintenance is neither the adjacent shop owner nor the City of Cambridge, making it much harder for someone to lodge a complaint. The fact

that the detail about newsracks is built into the law makes the city's stance more powerful: yes they are allowed, but with many constraints.

Guidelines for Sidewalk Objects

The Vehicle Trip Reduction Ordinance states that the Bicycle and Pedestrian Mobility Program includes a Cambridge Pedestrian Master Plan. The first Pedestrian Plan was written in-house and published in 2000 as a record of the city's philosophy regarding design and development that would encourage walking. The plan is the guiding document for the City's pedestrian infrastructure investments and is oriented around a list of specific action items for particular locations. Building up to that, the plan first provides important background information on the pedestrian network in Cambridge, design guidelines for sidewalks, and guidelines for managing intersections and pedestrian-vehicle interactions (R. Anders, personal communication, April 25, 2012).

The design guidelines portion of the plan divides sidewalks into three zones: the curb zone (equivalent to what others now call the furniture zone), the travel zone, and the building or comfort zone (more frequently referred to as the frontage zone). The plan does not include any dimensions for the zones but suggests that generally sidewalks are split into these three areas of activity.

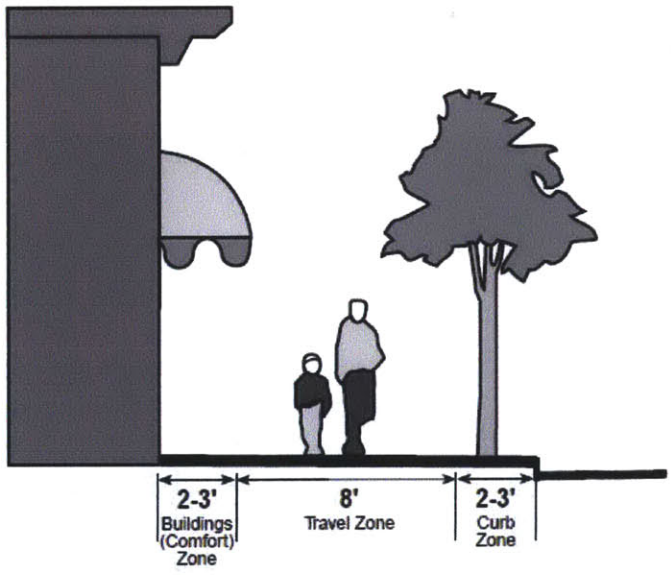

Figure 11: Sidewalk Zones from the *Cambridge Pedestrian Plan* (2000)

Clear Space

Cambridge defines the travel zone as the portion of the sidewalk that "should always be kept clear of obstructions" (Cambridge Community Development Department [Cambridge CDD], 2000, p.3.1). But more importantly, Cambridge wants the sidewalks to feel peopled. The ideal width for clear walking space in commercial areas is 8'; "wide enough for two pairs of pedestrians to pass each other comfortably" but avoiding the feeling of emptiness on overly wide sidewalks (Cambridge CDD, 2000, p.3.2-3.3). The guidelines state that if pedestrian levels of service are calculated, level C is appropriate for commercial areas. At this level, walking speeds and passing are partially restricted, pedestrian flow is relatively fluid, and the sidewalk is used at 40-65 percent of its maximum capacity (Cambridge CDD, 2000, p.3.3, 9.28). The sidewalk clear space guidelines go well above the ADA minimum but also provide a suggested maximum to concentrate pedestrians and make commercial districts feel busier.

The guidelines also propose creating object-free buffer areas around the travel zone. In addition to the 8ft clear path an additional 2ft-3ft comfort zone is provided between the travel zone and abutting buildings and another 1.5ft is suggested from objects in the curb zone because "people tend to avoid the edges close to the street or to abutting buildings" and tend to stay a step away from obstructions (Cambridge CDD, 2000, p.3.2). While these are not mandated distances, they definitely have merit. People like elbow room when they are walking, especially if they are carrying things. The risk of hitting an object with your arm goes down if you're a step away from it. I recently made the discovery in my own walking habits that if

Figure 12: To avoid hitting the hedge with my elbow, I walk a little ways away from it. Even though I am carrying a bag, I can walk close to the low tree pit without worrying about h

I'm walking next to a fence that rises above my waist, I walk about 18in in from the edge, but if the fence is below my waist I walk at least 6in closer, knowing that I don't risk a bruised elbow.

Though my observation needs more research, the Northwestern University Traffic Institute at least agrees with me that the shy distance people give objects can vary. The Cambridge Pedestrian Plan includes a table produced by the institute that lists the "preemption widths" that common fixed obstacles take away from a sidewalk. They say that, "To account for the avoidance distance normally occurring between pedestrians and obstacles, an additional 1.0 to 1.5 feet must be added to the preemption width for individual obstacles" (Cambridge CDD, 2000, 9.40). So a fire hydrant takes up between 2.5–3.0ft of sidewalk width, including the object itself and the area around it that people will avoid.

Public Amenities

Placement guidelines for street furniture in Cambridge are flexible. Most objects are directed to be placed in the curb zone, the "portion of the sidewalk immediately adjacent to the curb" (Cambridge CDD, 2000, 3.1). Street furniture including "mailboxes, signs, posts, benches, trash cans, signal control boxes, and other" items are guided to be placed in the curb zone so as not to interfere with pedestrian movement or sight lines between pedestrians and motorists at intersections (Cambridge CDD, 2000, 3.2).

The *street furniture and amenities* section includes more specific information about public streetscape elements. Newsracks and banners are governed by regulation and simply include reference material to those standards; newsracks are referred back to the ordinances, and banners to the sign portion of the zoning code. Bollards, kiosks, lighting, planters, and trash cans are all guided to be placed in the curb zone with the stipulation that all items should be placed at least 2ft from the curb. A few other objects are directed by more qualitative considerations:

- ***Benches*** can be placed in the building or curb zone, though they must be a minimum 2ft from the curb. Bench placement is encouraged to consider if

seating can be placed under shelter from the elements and/or in places where there is opportunity to watch passing pedestrians.

- ***Bicycle parking*** is always curbside (min 2ft from curb), but the orientation of bikes depends on the available sidewalk width. An additional consideration is that the parking structures must be designed to prevent bicycles from falling and becoming obstructions themselves.
- ***Trees*** are allowed to reduce the clear travel space on sidewalks down to 3ft. They also can be placed in curb extensions as long as sight lines to intersections are maintained.
- **Utility structures** can be placed anywhere except in the travel zone, but the city's preference is that utility companies locate their structures on private property. (Cambridge CDD, 2000, 3.5-3.7).

Trees are the big surprise in these guidelines; they are allowed to constrain the clear walking path to the bare federal minimum. While every other object defers to the clear space, trees are given priority over those moving along the sidewalk. Even if the sidewalk is sufficient to maintain a C level of service, this placement strategy will create choke points where pedestrians will be forced to pass single file past the obstructing tree.

Commercial Uses

The Cambridge Pedestrian Plan says virtually nothing about commercial uses of sidewalks, but it is out of date with the city's actual policies. The plan states that the building or comfort zone, the inner portion of the sidewalk where public meets private property, "can be used for café seating or merchandise displays as long as they do not intrude on the pedestrian path of travel" (Cambridge CDD, 2000, 3.2). This is true, but in the intervening 12 years, Cambridge has developed a robust policy favoring cafés in both the building and curb zones.

In 2009, the City Council decided to embrace sidewalk cafés, and outdoor dining is now encouraged throughout the city's commercial districts (V. Best, 2012). Cambridge allows

sidewalk cafés at the building edge and in the curb zone, though the latter position is currently favored. A 2011 presentation says that it's the city's "desire to maintain a minimum of ½ of sidewalk width for pedestrians" and that a clear width of "4ft is the absolute minimum" (Muehe & Watkins, 2011).

Striking a Balance

Citywide sidewalk object policy in Cambridge is loose, flexible, and aspirational. The vehicle trip reduction ordinance brings attention to the planning of pedestrian facilities and requires the city to include pedestrian infrastructure and amenities in the agenda and budget. But what those investments will look like is not included in any official citywide document. Both the city ordinances and the guidelines in the pedestrian plan express the city's broad goal to strike a balance between transportation modes but do not get down to the specifics of a physical balance between sidewalk uses. Instead Cambridge balances sidewalk uses on a case by case basis, influenced by federal and state standards and the pedestrian plan's ideology that creating lively sidewalks is worth the city's investment.

The philosophy put forward in the city ordinances and pedestrian plan encourages a hierarchy between clear space, public amenities, and private use, even though few dimensions are not articulated. The measured pedestrian clear space with referenced buffer zone puts that as the top priority. Between public amenities and commercial uses it is a little harder to tell, because in Cambridge, private commercial uses are talked of as both amenities and encroachments.

In November 2011, I met with Cambridge Compliance Officer Vincent Best, who oversees the city's Business Use of Sidewalk procedures. He explained that his "basic duties are to make sure that residents and businesses comply with any matters dealing with the sidewalk" and can include working with people on issues of "the placement and permits of A-frame signs, the permits for outdoor dining (alcohol and non-alcohol businesses), cleanliness of sidewalks, abandoned bicycles, botanical obstructions, accessibility, and snow removal" (V. Best, personal

communication, November 11, 2011). Since he is involved in both public and private use of sidewalk conversations, he can broker compromises between objects as individual improvement projects come forward.

Mr. Best explained that much of his work is talking to permit holders as the city's sidewalks evolve (2011). The City of Cambridge maintains all sidewalks, which means they are constantly doing repairs and reconstruction; "the Department of Public Works has a five year business plan, so whenever reconstruction of sidewalks occurs we rethink the placement of dining corrals, etc." (V. Best, 2011). Reconstruction is seen months or even years in advance of the project which gives everyone involved time to think about reorganizing the use of that space. Reconstructions frequently involve widening a sidewalk or the movement of utilities and city owned furniture, particularly bicycle parking. The balance between city-owned furniture, privately owned seating and displays, and walking space is considered in each reconstruction and each siting decision.

I take this case-by-case approach to sidewalk objects to mean that balance in Cambridge is about balance between travel space and stationary activity rather than public versus commercial use. It seems that it is less important to limit privatization of public space and more important that the space be utilized by people in some way, be it for a commercial purpose or a purely public one.

Case Findings

Cambridge's policies regarding sidewalk objects are much looser than the other two cases and other cities might find their take on the following topics useful:

- Use written policies to set a vision
- Design sidewalks that feel populated
- Buffer around objects

Use written policies to set a vision

Cambridge aspires to have active sidewalks. While Cambridge's policy documents contain almost no detail about object placement, this vision is dispersed among the city's ordinances and sections of the pedestrian plan. At the forefront of the vision is the conviction that pedestrian infrastructure should be a city priority. The vehicle trip reduction ordinance requires that the city have a point person to address pedestrian planning issues, that the city maintain a citywide pedestrian plan, and that funding be set aside to invest in pedestrian infrastructure. All of which demonstrates a concerted commitment to sidewalks and those who use them.

The Cambridge Pedestrian Plan was one of the first comprehensive plans for walking infrastructure in the country, and is written with generalizations rather than specifics. Rosalie Anders, Environmental and Transportation Planner for the City of Cambridge, explained that the plan's very existence was a big deal in 2000 as it was a commitment to the complete streets philosophy, before that title existed. The value was first, that it brought together many city departments to discuss walking and sidewalk design; and second, that it showed developers and businesses that the city was taking sidewalks seriously (R. Anders, 2012). The plan outlined the general vision and framework that the city was using to think about sidewalks, and only included specifics within the action items section of the plan. The vision set forward is for sidewalks to be universally accessible, comfortable, clean, and accommodating of social amenities. Though the vision is never explicitly stated these four points come up again and again. I call this a vision because every statement is used to paint the picture of a better future. Where existing laws and policies are discussed it is in a framework that they will lead to one of the four goals listed above. And every description of objects and where they are placed has a general aspirational tone: this "should be" like this.

The general tone is actually very productive for Cambridge, where policies can change at the drop of a hat. Best explained that policy flexibility is highly valued. Business Use of Sidewalk permits are issued annually, so there is time to rethink object placement each year. In recent years the city has decided to "be a little more flexible and move the outdoor dining to the curb

side. Not every business is permitted to do so, so we have to go business by business talking about the change from inside edge to curbside" (V. Best, 2012). A similar location change is happening with A-frame signs. Until this year A-frame signs had to be against the building edge, but starting 2012 Cambridge will "have businesses place A-frame signs at the curb" too (V. Best, 2012). These examples are in fact changes in policy, but they are dealt with in the course of daily practice instead of through written laws and guidelines. The written policies express major directions and ideas, but the full detail of the city's sidewalk object policies are handled in daily operations.

Design sidewalks that feel populated

Cambridge's vision for active sidewalks includes social uses. The pedestrian plan states that "city sidewalks are important social spaces as well as travel routes, and space for people to stop and talk or to stand and watch must also be factored into calculations" (Cambridge CDD, 2000, p.3.2). The city endorses benches, shade trees, and lighting that make the street more comfortable and encourage people to think of the sidewalk as a place to congregate as well as a space to move through.

The city also endorses kiosks, street performers, and other commercial uses to draw activity out onto the sidewalk. Performers are particularly encouraged and are one of few sidewalk uses directly addressed in the city ordinances; performers populate the street and assemble others around them. They also stay in place for long periods of time and make the street safer simply by being there and being observant. Kiosks, cafés, and other business uses of sidewalks are encouraged through the city's simple and inexpensive permitting process. As outlined in the 2009 ordinance for "Advertising Signs and Displays," every private use pays a flat $75 a year in permitting fees (Cambridge Code, §12.08, 1989). This applies to everything from a small sign to a large café making it very economical to set up shop outside (see Appendix A for full discussion on permitting procedures). Like the street performers, those operating businesses outside are additional eyes on the street, and their customers further populate the sidewalk.

The pedestrian plan goes so far as to suggest that the clear walking space on sidewalks may actually need to be limited. The plan takes issue with the A to F Level of Service grading system that favors sidewalks with low volumes; "...'Having too much space is just as undesirable as having too little'...While some traditional pedestrian level of service (LOS) descriptions rate uncrowded sidewalks as 'A' and extremely crowded sidewalks as 'F,' a level of 'C' is often the most desirable for a commercial area" (Cambridge CDD, 2000, p.3.3). Cambridge strongly believes that successful sidewalks attract people rather than dispersing them.

Buffer around objects

Cambridge's design guidelines emphasize buffers. The guidelines include buffers between the walking route and buildings, buffers between objects and the curb, and buffers around objects. The frontage zone in Cambridge's design guidelines is just 2-3ft, a buffer between the abutting buildings and the walking path that leaves a little space for stationary activities, maybe answering a phone call, but mostly just takes into account the space people give the street wall so that they can avoid variations in the façades. Objects placed near the curb are required to be 2ft in, which ensures that pedestrians do not have to get too close to moving traffic and leaves space for doors to open when people get in and out of cars on roads with on-street parking.

The most interesting set of buffers in my opinion are those around objects themselves. Though the design guidelines only include the broad statement that "people generally keep about 1.5 feet from objects in the curb zone—trees, signposts, etc." the table of preemption distances included in the appendix incorporates the shy distances directly into the measurements of common sidewalk objects (Cambridge CDD, 2000, p.9.40). Cambridge does not include any specific measurements in their guidelines, but the presence of this appendix shows that the city is thinking about how people move around obstacles.

The city's research on shy distances breaks down however when it comes to trees. Trees are allowed to compress the clear walking distance down to the federal minimum, 3ft, and they

are sometimes placed with 3ft clear space between the tree and a fence or hedge, as shown in the image below. Now if the expectation is that people will walk 1.5ft from the fence and 1.5ft from the tree, that covers the full 3ft of available sidewalk. Yes people can walk through there, but it is uncomfortable. So as much as Cambridge brings forward the need to consider buffers around sidewalk objects, they have yet to fully embrace buffering into their policies.

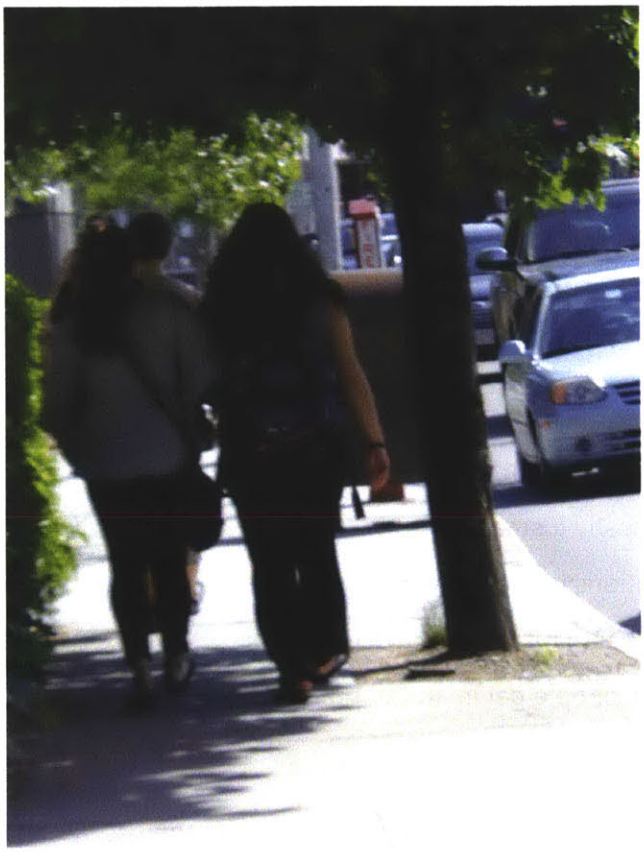

Figure 13: There is just 3ft between the tree pit and hedge. Two people fill the whole space, even when touching

Chapter 7: Comparative Analysis

New York, Boston, and Cambridge are three of the most progressive cities in the United States when it comes to pedestrian planning. Each city has a national reputation as a walkable place, but each handles the design of its sidewalks differently. New York relies heavily on its laws to set detailed citywide policy, Boston is pouring its energies into creating guidelines that divide the city's sidewalks into nine typologies, and Cambridge trusts that its staff will broker good spatial compromises on a case-by-case basis. Each approach is unique to the needs and political structures of the case city but the three approaches to sidewalk objects lead to a set of general points that every city needs to consider when discussing how sidewalks are designed. In this chapter I will compare and contrast how the three city policies handle clear space, public amenities, commercial uses and the balance and policy structures that the three cities utilize.

Clear Space

The common themes that arise around clear space are the issues of setting ideal clear path widths and measuring them. New York sets its clear space as a percentage of the space, while Boston and Cambridge rely only on dimensions. All set the minimum clear space for commercial street sidewalks at 8ft. As Cambridge says, this is "wide enough for two pairs of pedestrians to pass each other comfortably" (Cambridge CDD, 2000, p.3.2). The 8ft minimum makes it convenient for people to walk in groups and well exceeds the ADA minimum standards.

Table 6: Ideal clear space widths on sidewalks in commercial areas	
New York	8ft or 50percent of the sidewalk
Boston	Different for each street type, but ranging from 8-12ft on commercial streets
Cambridge	8ft

The larger issue is how to measure the clear space. Should the clear space be in a straight line along the sidewalk as Boston advises, dictating where everything else on the sidewalk should go? Or should it be more responsive and shift left and right in reaction to different sidewalk objects like in New York? The benefit of the Boston's direct path is that it

makes object placement decisions very easy and makes the sidewalk easier to navigate with a cane. The advantage of New York's responsive measuring is that the policy can more flexibly take on large objects at the building and curb edges. A café might push the clear space all the way to the curb side for a stretch but then further down the block a newsstand shifts it back to the inside edge of the sidewalk.

In addition to measuring where the clear space should go along the sidewalk, there is the question of where to lay the measuring tape. New York is the only one of the cases that states how the clear space widths should be measured: "sidewalk passage clearance must be measured from the improvement to the nearest obstruction directly opposite an intersecting line of pedestrian passage" (RCNY, Title 6, §2-46, 2004). There are a few objects that have more specific measuring criteria: bicycle racks are measured with bicycles and stoop line cafés are measured with customer standing space included as part of the obstructions. The stoop line stand is the only law that includes a buffer around the object; otherwise as the above quote states, the clear space is measured from the edge of one object to the next.

Though all of the case cities deal with the issue of buffers, none of them really include buffers in their measurement of the clear space. New York explicitly requires that the buffer be included in stoop line stand measurements because that space will often be filled with people and may even be bounded by windbreaks. New York measures the adjacent clearances around every object, but that does not affect the main clear walking path. Boston includes some buffer measurements in the *Complete Street Guidelines* but they are not systematically included. Cambridge's guidelines educate readers that there is a buffer around every object where people will not walk, but does not include this in any official policy about their own streets.

The three cities have very different reactions to pedestrian congestion. Though an 8ft wide object-free walking area is the agreed minimum clear width, each of the three cities has sidewalks where that will be insufficient for the volume of people passing through.

New York deals with congestion in two ways. First, they build wider sidewalks. The law requires that 8ft or 50 percent "of the sidewalk width, whichever is greater, from the curb to the building line is free of all obstruction and reserved for pedestrian use" (RCNY, Title 6, §2-52,

2003). Sidewalks in New York commercial districts range from 15-20ft wide; a newly constructed sidewalk at 96th Street and Columbus Avenue in Manhattan measures about 21ft wide, guaranteeing more than 10ft of clear walking space and that much of the block will have the full 21ft clear of obstacles. Second, they conduct level of service analysis for any new large object. If a café would reduce the level of service along a sidewalk more than one grade, it has to be made smaller. The sidewalk clear space is not only about the dimensions but also the flow of people along it.

Boston does not put its faith in level of service calculations, but does recognize that some streets will have higher pedestrian volumes than others. The nine street typologies take into account abutting land uses and associated pedestrian volumes and require additional clear space for the busiest street types. Boston understands that some streets will be congested, but tries to manage that through additional clear space width.

Cambridge wants to maintain a medium level of congestion on its commercial streets. The city actually has a negative view of the pedestrian level of service metric; the Pedestrian Plan criticizes the system for favoring sidewalks that are not actually vibrant. In Boston and New York, 8ft clear space width is the minimum, but in Cambridge it is the ideal. In the other two cities, the clear width is expected to be wider in some places to handle additional congestion, but Cambridge would prefer to have the sidewalks feel lively than spacious.

In all of the cases, clear walking space is considered the most important part of the sidewalk. It is what makes the sidewalk function. All of the cities agree that 8ft of clear walking space should be provided in commercial areas, be they small neighborhood centers, or the central business district. To varying degrees the case cities allow for their sidewalks to get congested, but we see that there are three options for mitigating extreme congestion:

- Requiring a set proportion of the sidewalk be reserved for walking space
- Measuring the clear space in terms of functionality (flow)
- Setting a range of clear space widths for streets with varying pedestrian traffic volumes

Cities and towns of every size can utilize these strategies in their commercial centers. There is consensus that 8ft wide clear spaces can accommodate groups of pedestrians. Every social use of sidewalks will be done in groups, so commercial areas of all sizes should expect them. In places that experience crowds, whether on weekends, seasonally, or all year round, the strategies that Boston and New York are utilizing to protect more clear space could be valuable as well.

Public Amenities

Though no city has a precise definition of sidewalk amenities, they all place this category of objects in a "furnishing zone" at the outside edge of the sidewalk. In New York, the furnishing zone is that part of the sidewalk "closest to the curb, where light poles, signs, fire hydrants, telephone booths, newspaper boxes, etc., are typically located" (NYC DOT, 2009, 2.2.1a). In Boston this area is known as the Greenscape/Furniture Zone and is characterized more by shade trees and other plantings. In Cambridge, the outer edge is the preferred location for both public amenities and commercial uses. Though the objects that accumulate in the furnishing zone vary between and within cities, all of the case city policies agree that the outer edge of a sidewalk should be filled with objects.

The primary purpose of placing public amenities (be they trees, bicycle parking, or benches) at the curb edge is that it separates the vehicle space from the pedestrian space. Every city brings up this desire to create a buffer between fast moving vehicles and slow going pedestrians, but Boston is the most direct: "this zone collects the objects that may obstruct pedestrian flow and simultaneously provides a buffer for pedestrians from the roadway" (BTD, 2011, 21). Fast moving traffic is known to degrade the sidewalk experience (see chapter 2) and creating even a porous barrier like the furnishing zone makes people feel further removed from the traffic and safer on the sidewalk. These objects also affect the drivers, who shy away from things just like pedestrians. The objects, especially any that are tall like trees, make the street seem narrower, which makes drivers more cautious than they would be on street with the same dimension and no visual barriers between the sidewalk and the street.

Figure 14: These two suburban streets have the same dimensions, but the one on the right appears much narrower because the trees are at the edge of the road. Recorded speeds on the second street are on average 7-8mph lower than on the first street. (Burden, 2006, p.13)

The second purpose of organizing objects into a furnishing zone is that it secures a designated space for stationary activities on the sidewalk. In all three cases, the underlying assumption is that objects need to be controlled because they obstruct the flow of pedestrians, inconveniencing people and creating safety hazards. Street furniture is rarely discussed in a neutral tone; objects are at times considered amenities, but most often discussed as obstructions and encroachments. The chart below shows the three broad anti-obstruction ordinances that the cities have. All include both permanent and temporary uses of the sidewalk under the obstruction label.

Table 7: Broad Obstruction Prohibitions in Each Case City	
New York	The city council "shall not pass any local law authorizing the placing or continuing of any encroachment or obstruction upon any street or sidewalk" (New York City Charter, §28, 1989).
Boston	The Public Works Commission oversees the "use of public ways for any temporary obstruction or projection in, under, or over the same" (Boston Code, §11-6.3, 2009).
Cambridge	"No person shall place, or cause to be placed, upon any sidewalk, any article whatsoever, so as to obstruct a free passage for travelers for more than fifteen minutes" (Cambridge Code, §12.16.100, 1996).

The furnishing zone designation can turn an obstruction into an amenity simply because that portion of the sidewalk now has a different purpose. This has not yet infiltrated and of the cities' ordinances, but is clear in their guidelines. The introduction to street furniture in Boston's *Complete Street Guidelines* captures this transition: "Street furniture that is not thoughtfully laid out can result in obstructions and clutter in the sidewalk environment ...A key goal of these guidelines is to organize the City's

street furniture in a way that maximizes safety, comfort, and function for all users" (BTD, 2011, p.73). Objects out of place are obstructions, those in the right place make the street function better and more comfortable for pedestrians - they are amenities.

The furnishing zone, may have started as a space for putting things so that they are out of the way, but now is expected to do many things. This zone is expected to serve some essential street functions and house objects related to public safety (i.e. fire hydrants), objects related to utilities, and objects related to bicycle and vehicles networks (i.e. bike racks and parking meters). The zone is also increasingly called upon to meet people's demand for comfortable public spaces and include amenities like benches, art, drinking fountains, and wayfinding signs. The furnishing zone is now an emerging area for managing ecological functions. Shade trees are rethought of as a way to reduce urban heat island effect and designs for plantings in Boston and New York are encouraged to include stormwater collection and storage. Boston also highlights the usefulness of the furnishing zone as a place to store snow so that the roadway and sidewalk walking path can be fully cleared (BTD, 2009, p.21). The many uses of the furniture are in competition for space, and future research should address how the three should functions should be mixed along a block.

Commercial Uses

When it comes to commercial uses of sidewalks, the three case cities separate policies relating to abutters from policies relating to independent users. All three have policies that favor adjacent property owners and tenants over independent users, particularly over independent vendors, but they also all require abutters to be active participants in the maintenance of the public sidewalk.

Where private entities have use of the street, abutters are almost always favored. In New York it is lawful for every abutting property owner to place items on the sidewalk as far as 3ft in

from the building edge and up to 5ft high (NYC AC, Title 19, §19-136, 1994).[1] Businesses can apply also for a stoop line stand permit which allows them to partially enclose this area. Cambridge is nearly as accommodating, allowing abutters to use up to 25 percent of the sidewalk for merchandise displays, with a simple and inexpensive permit process. Boston is the least friendly of the three cases to outdoor business activity, but they give abutting owners and tenants the power to veto any independent commercial uses of the sidewalk in front of their property (see Appendix A). To varying degrees, each city shows a preference for commercial uses of the sidewalk that are associated with abutting properties.

Independent commercial uses are given widely different degrees of discussion in the cities' policies. New York has 6,000 licensed street vendors and approximate 6,000 more that operate illegally; and as such, the city has very detailed policies regarding where vendors can set up shop (Basinski, Chang, Mangin, & Woo, 2009). Boston has a few street vendors but they are not mentioned in either the city ordinances or the city's *Complete Street Guidelines*. Vendors may get a mention in Boston's guidelines before the final version is published (Pessah & Mortell). Cambridge does not include street vendors in their policy documents, but does encourage performers in its ordinances: "street performers provide a public amenity that enhances the character of the City" (Cambridge Code, §12.16.170, 1996). In the laws at least, New York and Cambridge recognize the possibility of independent private sidewalk users.

I find it interesting that all three cities chose not to include independent commercial uses in their guidelines. Vendor policy is considered separately from sidewalk design and use in each case, even though all three cities have vendors. In fact, Boston is the only case city to include abutting sidewalk uses in their guidelines. The lack of references to private commercial uses in Cambridge and New York's guidelines may be more an issue of audience than anything else. The Cambridge Pedestrian Plan was written to structure city investments, and that does not

[1] (NYC AC, Title 19, §19-136, 1994). The text of the ordinance, *Administrative Code 19-136.a*, reads: "It shall be unlawful for any person to hang or place any goods, wares or merchandise, or suffer, maintain or permit the same to be hung or placed, at a greater distance than three feet in front of his or her house, store or other building and a greater height than five feet above the level of the sidewalk, or to lease or permit any other person to use any space on the sidewalk located adjacent to such house, store or other building for the purpose of selling or displaying any merchandise." I interpret this as a condoning of sidewalk uses 3ft into and 5ft above the sidewalk, though the courts may interpret it differently.

include commercial uses. The New York *Street Design Manual* and *Active Design Guidelines* also have more of an interagency focus. In comparison, Boston's *Complete Street Guidelines* are written for an audience wholly unfamiliar with complete streets ideas, including those involved in real estate development or retail and restaurant businesses. None of these guideline documents includes vendors or street artists among their audiences, so commercial uses are sidelined and discussed separately from public investments.

Overall, private commercial uses tend to be thought of as slightly tangential to the function of a sidewalk. These activities are more or less favored in each city, with abutters preferred over independent private users, but they are not considered essential to the success of the sidewalk, the way walking space and some public amenities are. Going off of the policy documents alone, Boston and Cambridge seem to be ambivalent about commercial uses. Based on my conversations with staff members in both cities, they are, in practice, very interested in involving the private sector in creating vibrant sidewalks, it just is hard to tell in the written record. New York on the other hand comes across as overtly catering to private users. The laws detail opportunities for cafés, merchandise displays (stoop line stands), newsstands, and street vendors, revealing that there are many routes to using the sidewalk for private use. Even still, these ordinances are within the section pertaining to the Department of Consumer Affairs while those for public amenities are within the section regarding the Department of Transportation. Vending is seen as a separate issue, but when it comes to allocating space on the sidewalk it is just as important as public amenities and clear walking space.

Balancing Uses

In all three cities, clear walking space is the most important part of the sidewalk, but the cities also employ overarching frameworks that make room for stationary public and commercial uses. Before comparing the frameworks, I think it is helpful to summarize how each city prioritizes sidewalk uses. Each case city is most concerned about protecting a wide enough clear space for the sidewalk to function well for pedestrians. Sidewalk objects then fall into one of two categories: public amenities and commercial uses, the ranking between the two differ for each

city. New York puts commercial uses ahead of public furniture, in Boston it's the reverse, and in Cambridge the two are on equal standing. These are very rough estimations of how the cities prioritize uses of the sidewalk. What matters most is how space is actually allocated and not the written preferences.

Table 8: Sidewalk Use Priorities –Ranked 1st to 3rd			
	Clear Space	Public Amenities	Commercial Uses
New York	**1**	**3**	**2**
Boston	**1**	**2**	**3**
Cambridge	**1**	**2**	**2**

Representing Overarching Frameworks

The case cites use two frameworks for sidewalk design: sidewalk activity zones and the sidewalk room. All three cities use the zones to some degree. New York just mentions the furnishing zone in the *Street Design Manual*; Cambridge uses the zones as an organizing principle but it is a very fluid differentiation of the space; and Boston embraces the zones as the city's main sidewalk design policy. New York is pioneering the idea of the sidewalk room, but the seeds for this bigger picture thinking are also visible in some of Boston's diagrams. The frameworks can most directly be compared by how they visually represent the sidewalk.

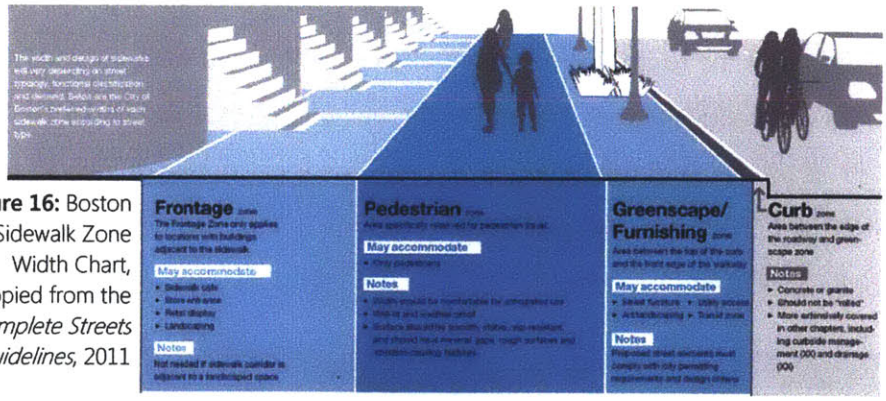

Figure 16: Boston Sidewalk Zone Width Chart, copied from the *Complete Streets Guidelines*, 2011

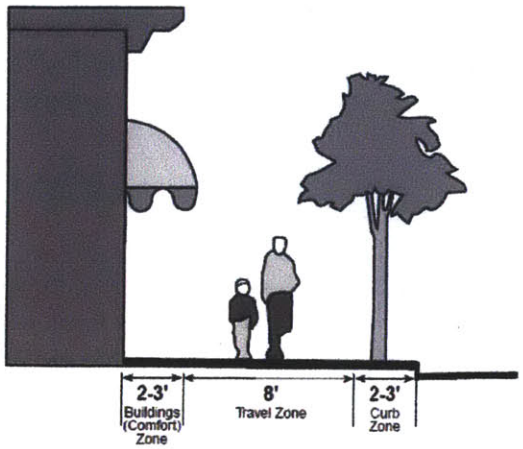

Figure 15: Sidewalk Zone Diagram, from *Cambridge Pedestrian Plan* 2000

The zones are understood from the perspective of the pedestrian. The most common way or representing the zones is in section. Here are the zone diagrams used in Boston and Cambridge. Because we only see one moment along the length of someone's walk the zones appear to be fixed. But that section is not necessarily going to be the same along the full length of a block. When there is no object next to you in the furniture zone that space essentially becomes a part of the walking space.

The sidewalk room attempts to capture the full experience of the sidewalk. New York has chosen to present the walls of the room as planes in perspective. The room is still viewed from the perspective of the pedestrian but this time looks down the length of the block rather than across it. I've created a diagram to illustrate this way of thinking about the sidewalk in perspective as the *Active Design: Shaping the Sidewalk Experience* is not yet public. It is meant to demonstrate the use of perspective, and does not reflect the drawing styles of in New York's new document. What I found difficult when making this drawing, was deciding where to draw the edges of the room. I had two impulses – to draw the walls around the clear walking path and to draw the edges at the curb and at the building edge. I also had a hard time deciding how high up the plane of the ceiling should be. The forthcoming guidelines will show how New York drew the boundaries. This exercise showed me that bounding the sidewalk, defining its edges is not an easy task.

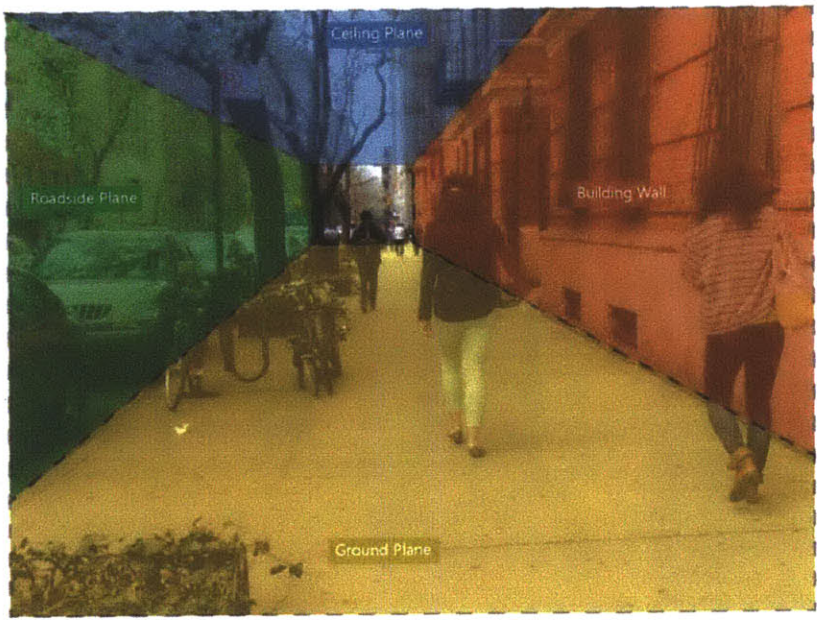

Figure 17: My rendering of the sidewalk room, based on explanations from Skye Duncan (2012)

Another way to look at the sidewalk is from above. None of the guidelines actually include plan views of the sidewalks, but Boston includes several axonometrics which show the plan view and long section simultaneously. This is a very clear way to show the relationship between elements along the block and the relationship between items and the building wall. This way of representing the sidewalk zooms out more than either the section or the perspective. This bird's eye perspective is not yet a convention in sidewalk planning, and it is a viewpoint that still needs to be drawn.

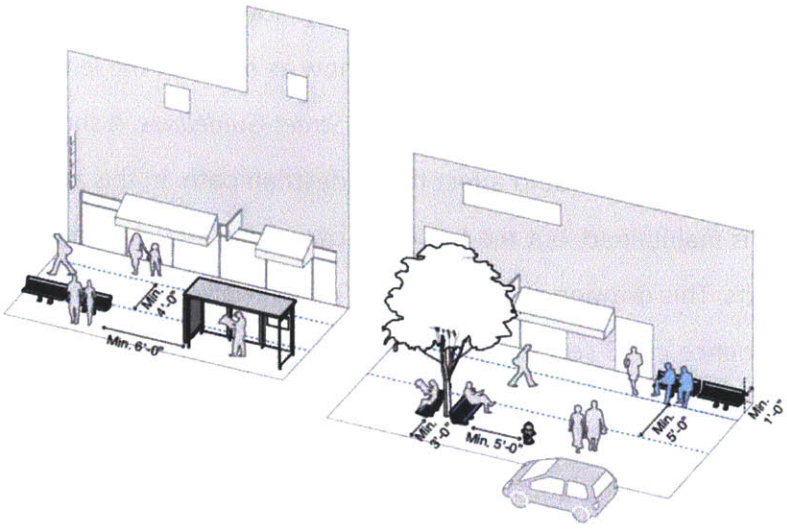

Figure 18: Sidewalk Axonometric, *Boston Complete Streets Guidelines*, 2011

The same is true of the plan view. Even though Google Earth and Bing have made satellite imagery commonplace, neither has a high enough resolution to see the detail of the sidewalk, and the overhanging objects – awnings, tree canopies, etc. would make it impossible to use satellite images for object placement analysis. Based on this study, I have put together the below plan view diagram. It shows

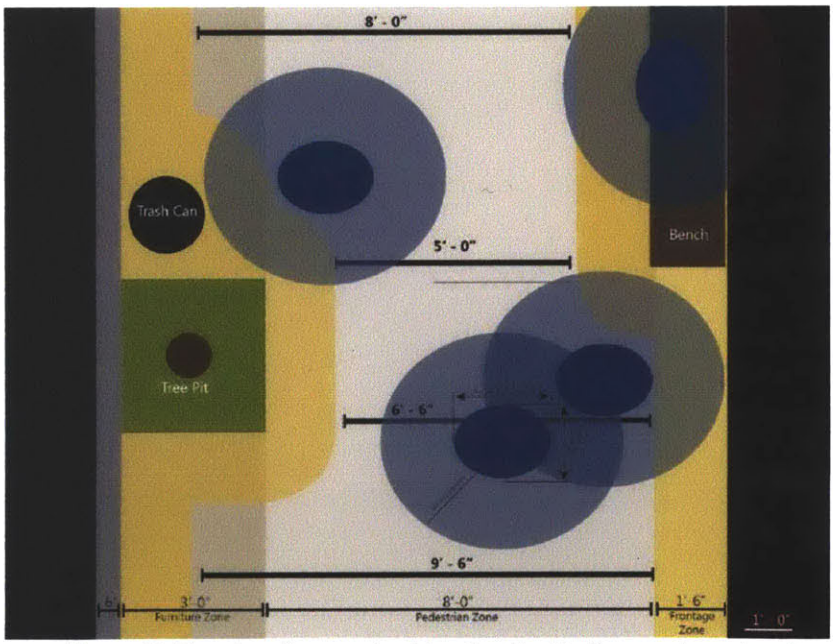

Figure 19: Plan view diagram of a sidewalk, object buffers are shown in yellow; pedestrian buffers are shown in blue

the interplay of buffers around objects (yellow) and buffers around the pedestrians (light blue). Even though this diagram does not show as much of the length of the sidewalk as the axonometric from Boston's *Complete Street Guidelines*, it shows how items interact and how the object placement would affect the pedestrian path. In this arrangement a 5ft wide accessible path is maintained, but the full width of walking space expands up to 9.5ft where there are no objects. This drawing shows only 13ft of sidewalk length, an area that most pedestrians would experience in 5.3 seconds or less (based on 145ft per minute) (Fruin, 1971, p.40).

How these sidewalk design frameworks are represented matters just as much as how they are articulated. Boston has not yet stated a longitudinal view of the sidewalk but they are representing one. Comparing the sidewalk representations that each city uses, I see that there is a need for images and diagrams that put the reader in the mindset of a pedestrian, and for a second set of visuals that give show the reader how objects relate to each other and their surrounding contexts. Everyone experiences the sidewalk at eye level but drawings are needed to analyze the sidewalk from above. What this analysis of design frameworks suggests is that by expanding the drawing tools used in designing sidewalks we can better integrate sidewalk objects into the field of pedestrian planning.

Chapter 8: Conclusion

Table 1b: Rights and Claims to the Sidewalk	
Right to the Sidewalk - Desired Use of the Sidewalk	Spatial Claim
The Right to Free Movement – The desire to move between destinations	CLEAR SPACE
The Right to Appropriation – The desire to leisurely be in public space	PUBLIC AMENITIES
The Right to Commodification – The desire for visible commercial activity	COMMERCIAL USES

Making Room for Many Users

In essence, this thesis is about allocating sidewalk space to different users. Unlike many of the property rights scholars who are currently studying sidewalks, I focused on what activities the public engages in and not who is included in that public. The two subjects are intricately linked, but on the sidewalk, what you are doing defines your role. When walking, everyone is the pedestrian. When stopped everyone becomes an object of sorts, a part of the landscape. We can break down the stationary uses of the sidewalk into many thousands of activities, but they can be grouped into those activities that express a right to appropriation and those that express a right to commodification – activities that are about being in public or engaging in commercial activity. By using the sidewalk for stationary activity, a person either contributes to the area's identity as a public space or as a commercial center.

This is actually the opposition that Lefebvre sets up. He pits the "right to the city" against the use of public space for private gain: "The conception of urban space as private property, as a commodity to be valorized (or used to valorize other commodities) ... is specifically what the right to appropriation stands against" (Purcell, 2002, p.103). But as these case studies have shown, on the sidewalk, even though people act with either appropriation or commodification in mind, they are not conflicting but complimentary uses. New York, Boston, and Cambridge's

sidewalk policies make space for both public and commercial activities – they plan for multi-use sidewalks.

By including space for these stationary activities alongside clear space for walking, these cities also make room the right to free movement, Lefebvre's right to appropriation, and the right to commodification. These cities are most concerned with the right to move. Charlotte Fleetwood from the Boston Transportation Department (2012) stated very directly that it "is a civil right to be able to walk safely and have access" to the sidewalk. Sidewalks connect private properties together and are a great equalizer, people of all ages, levels of mobility, economic status, and positions in society can use the sidewalk. On every other transportation mode, there are fiscal and regulatory constraints dictating who can use them, but there are no imposed constraints on who can use sidewalks. It is the most public piece transportation infrastructure, until you consider design.

Design affects who feels comfortable on a sidewalk and what they feel comfortable doing. Everyone wants different things out of their sidewalk experience and at different times each individual wants different features to be available. Most of the time, the various rooted stakeholders: local government, abutters, and neighborhood organizations want to attract the same sidewalk activities. But occasionally conflicts arise when it comes to people who are deemed undesirable. William H. Whyte's observations of public spaces in New York led him to conclude that "the best way to handle the problem of undesirables is to make a place attractive to everyone else" (Whyte, 1980, p.61-63). His point was not that those who were unwelcome would go away, but that they would become part of the crowd, and their presence would seem less influential. So whether it's the homeless or skateboarders that a stakeholder takes offense to, the solution is to create an inclusive sidewalk environment.

Jane Jacobs, William H Whyte, and Jan Gehl all first published their studies on active street life more than 40 years ago. Their ideas have been picked up by countless designers, officials, and advocates, and have widely circulated among those who have a hand in designing sidewalks. In these three case cities, the elements of a well-functioning sidewalk are almost common knowledge. In New York, Boston, and Cambridge the average person now expects to

go into a traditional commercial center and find street trees, cafés, and people strolling. This vibrancy is built into city policy. I spoke with eight people with municipal positions, all of whom expressed concern for balancing between many uses of the sidewalk. New York, Boston, and Cambridge are best practice communities but they are far from the only places in the country with this view of sidewalks and there are now guidelines from the Federal Highway Administration and the Institute of Transportation Engineers that make the case for vibrant sidewalks to cities and towns of all shapes and sizes.

The commitment to vibrant street life that I saw in my research contrasts with Nicholas Blomley's evaluation of the state of affairs in sidewalk planning. Blomley argues that there is a unique philosophy among municipal sidewalk stakeholders, which he terms pedestrianism:

> "Pedestrianism understands the sidewalk as a **finite public resource** that is always threatened by multiple, **competing interests and uses**. The role of the authorities, using law as needed, is to **arrange the bodies and objects** to ensure that the primary function of the sidewalk is sustained: that being the **orderly movement of pedestrians from point a to point b**" (Blomley, 2010, p.3, added emphasis).

I found that this philosophy exists but is not nearly as one sided as Blomley has articulated it. The sidewalk policies in New York, Boston, and Cambridge would agree with the first three points:

1. Sidewalk are a finite public resource
2. There are competing interests and uses
3. Role of the government is to arrange bodies and objects

But when it comes to the fourth point, that organizing sidewalk activities is used "to ensure that the primary function of the sidewalk is sustained: that being the orderly movement of pedestrians from point a to point b," I think that Blomley's evaluation is too cut and dry (Blomley, 2010, p.3). His language is excessively confrontational in light of the wave of complete streets policies sweeping the country, including those in these three pedestrian oriented communities. His definition of pedestrianism does not leave any room for the mutually beneficial activities that are allowed by these cities' policies and does not acknowledge that placing objects on the sidewalk is an expression of property rights.

Based on my research of cities with progressive sidewalk policies that incorporate multiple users, I would rewrite the definition of pedestrianism to say:

> "Pedestrianism understands the sidewalk as a **finite public resource** to which there are **many competing claims.** The role of the local authorities is to **create policies that arrange objects** to ensure that **everyone's right to free movement is respected** and that **distribute any additional space among public and commercial activities**."

In my definition I've made the language more forgiving. If pedestrianism is supposed to explain how sidewalks are thought of within local governments, it has to be flexible enough to accommodate variations between cities and maintain relevancy over time. In a similar vein, I have also broadened the scope of the local authorities' activities exchanging "law" for "policies" because local ordinances are just a one way that cities manage the design of sidewalks. I also removed "bodies" from what the authorities arrange. The local government has no direct control over where people walk and stand, but instead influence behavior through object placement.

I have also tied pedestrianism more closely to property rights. Blomley finds that local governments do not have a rights-based understanding of the sidewalk. Though they do not use the language of property rights, every object has a hand behind it that is using the object to stake a claim to the sidewalk. To reflect this, I have changed "competing interests and uses" to "competing claims" to introduce the idea that any sidewalk use has a basis in property rights. This carries through to the government's purpose for getting involved: "to ensure that everyone's right to free movement is respected and distribute any additional space among public and commercial activities." This maintains movement as the primary purpose of the sidewalks, but it also recognizes, in a loose way, that other users need to be accommodated.

The pedestrianism philosophy that Blomley identified is evolving very quickly. The viewpoint that sidewalks are only for walking that he presents is still an entrenched philosophy in many cities and towns across the country. But, by looking at a few of those communities that are most progressive in reframing sidewalks as multi-purpose spaces, I am confident that this is what pedestrianism is evolving toward. Therefore, the new definition for pedestrianism that I have written above does not supplant Blomley's. It is Pedestrianism2.0.

Setting Policy with Pedestrianism2.0

> Pedestrianism2.0 understands the sidewalk as a **finite public resource** to which there are **many competing claims.** The role of the local authorities is to **create policies that arrange objects** to ensure that **everyone's right to free movement is respected** and that **distribute any additional space among public and private activities.**

This thesis began with the question: how do cities set policies to manage the design and use of sidewalk space? In the course of my research I have found that managing object placement is how the city organizes the sidewalk and that when it comes to sidewalk objects New York, Boston, and Cambridge belong to an evolving school of thought that I have named Pedestrianism2.0. The goal of creating lively multi-use sidewalks is embedded in their sidewalk object policies. By analyzing their policies individually and together through the lenses of the three claims to the sidewalk, I have put together a set of recommendations to direct the writing of sidewalk object policies that create vibrant sidewalk.

When setting object policies within Pedestrianism2.0, a municipality should go through three steps. First the municipality should embrace their role in designing sidewalks by writing ordinances that authorize municipal staff to set object placement policies. Second, the municipality should consider its physical and political contexts when writing their object policies. Finally, the municipality should draft guidelines to communicate their decisions to rooted stakeholders and sidewalk users.

Throughout this section, I use 'the municipality' to mean the city staff, legislators, and members of the public who engage in writing an object policy. There are many stakeholders involved in placing objects on the sidewalk, and participatory policy writing processes are encouraged, but since the policies are ultimately upheld by the municipal government I will use it as the entity to which I direct my recommendations.

Authority to set policy

Municipal laws regarding sidewalks should at minimum be used to give the government the authority to "arrange objects." In Boston, they concentrated on using the law to identify the agencies that would have the power to arrange objects and enforce object placement. In Cambridge the law requires the writing of a pedestrian plan. In New York, the laws govern every object placement down to the inch. Though each city uses the ordinances to a greater or lesser extent, they all give the city government the authority to control where things are placed on sidewalks. Whether sidewalk object policies are written into city law, guidelines, or other planning documents, the municipality needs to have the authority to write and enforce those regulations.

I would call this the "Sidewalk Object Ordinance." None of the cities researched in this thesis have a simple statement about sidewalk objects. Instead, their laws regarding items on the sidewalk are dispersed through several transportation and commerce-related ordinances. By having a direct statement about sidewalk objects, a municipality would be able to streamline their rulings on objects as diverse as utility boxes and café tables, recognizing that they all come together as a part of designing the sidewalk. Secondly, by writing a new coordinated object ordinance, the city can remove the negative tone set by the term "obstruction" used in older laws. Things only obstruct if they are in the wrong place. .

The level of detail included in this ordinance will necessarily vary to fit the institutional culture of the municipality it is written for. In New York every single detail is written into a legal document. The Rules of the City of New York list operational regulations for every city agency. In Boston and Cambridge, municipal laws deal with broad main points, and only include detail about select things. A Sidewalk Object Ordinance for New York would include all of the placement detail. In Boston and Cambridge, it would just include the minimum statement that authorizes the city to fulfill the last point of Pedestrianism2.0: "to create policies that arrange objects to ensure that everyone's right to free movement is respected and that distribute any additional space among public and private activities."

Writing Policy – Physical and Political Contexts

Context specificity is the challenge of writing sidewalk object policy. Every city will have to respond to their climate and urban development and their institutional and local political culture. The Institute of Transportation Engineers' sidewalk guideline is part of their series on context sensitive solutions. They press local governments to build upon national mandates to meet their own community's needs. My proposal for writing sidewalk object policy continues within this same approach; take the suggestions put forward by national guidelines and best practice cities and edit them to work for a specific community's context.

Municipalities developing Pedestrianims2.0 policies need to consider the physical context that they are planning for. If snow is expected then snow storage and snow clearance need to be considered. Conversely, municipalities in hot weather climates should use their object policy to encourage shade structures and trees. Additionally, municipalities need to consider the sidewalk infrastructure that they have and expect to add to their streets. Historic sidewalks are difficult to change and may require limits on what objects are allowed. In developing districts with brand new sidewalk infrastructure, developers can be encouraged to build sidewalks so that there is space enough for all the objects and activities that the city wants to see. Knowing the range of base infrastructure allows a city to tailor its object placement policies.

Another physical context consideration is the presence of crowding and queuing locations. People can become obstacles on the sidewalk just like objects. Around intersections, transit stops, and venues where people line up to enter or exit in a pack, object policies need to respond to the expected crowds of standing people.

Object placement policy may further need to be refined for areas with sustained crowding. Every city will have places where people walk more and places where people walk less and the volume of people walking through a sidewalk section should be considered. On high volume streets anything large and immovable, like café seating or a bus shelter, should be sited

to prevent bottlenecks. Pedestrian flow, level of service, analysis may be a helpful way of setting object policy on particularly busy sidewalks.

What all of this suggests is that municipalities need to differentiate between streets. Their object policies may need to be slightly different for historic versus new sidewalks, crowded versus quiet ones. Boston has chosen to use categories to differentiate between streets, while New York utilizes pedestrian level of service (LOS) analysis to differentiate between where some objects can and cannot be placed. Whether calculated analysis, neighborhood distinction, or street type categories are used, differentiating the city's sidewalks can add nuance to the object placement policy.

Cities that write object placement policies need to be conscientious of their ability to enforce their decisions. They should consider their available staff and resources and designate agencies to respond to particular concerns. In Cambridge, one public works compliance officer responds to all sidewalk issues. In New York, five city departments (Police, Transportation, Consumer Affairs, Health and Mental Hygiene, and Sanitation) have the power to enforce object laws (V. Best, 2012 & NYC AC, Title 19, §19-136, 1994). Cambridge is small enough that one person can handle most sidewalk object issues, but in New York they rely on those who are already out and about inspecting other things to inspect object placements.

This question of enforceability also extends to the language used in the policy itself. Object placement policies that are highly detailed need a great deal of oversight while flexible policies can be policed more loosely. Some objects might require more detailed placement information, like large cafés, while smaller objects like trashcans get looser placement parameters. An overarching design framework like the sidewalk zones can help organize those items that do not need specific criteria. A trashcan policy might read: "trashcans are encouraged to be placed in the furniture zone and should be 18" from the curb." The policy is written as a suggestion. It is clear where the city wants trashcans to be placed, but the language removes the responsibility of checking the items' exact locations. The zone framework therefore leaves some room for improvisation. As long as an object is in the appropriate zone, its exact position does not matter so much. Cities need to be realistic in evaluating what they can and want to enforce,

and should recognize the power of design frameworks to structure placement policies for items that are not directly monitored.

Communicating through guidelines

Municipal laws alone will not ensure a balance between claims to the sidewalk. Organizing the sidewalk into a multi-use space involves many people placing many unique items. Though municipal laws are public documents, they are not particularly accessible; they are written in legalese and include only direct statements, without examples or explanations to illustrate why a particular point exists. Object placement policies can be easy for everyone involved to understand if presented well. In each of the three case cities, a "guideline" document explains object placement to the public. I would suggest that every city working toward Pedestrianism2.0 policies create a guideline document to communicate their s priorities and goals to those who will use objects to stake claims to the sidewalk.

Guidelines should include all of the detail of a city's sidewalk object policy but also include simple principles that are easy for the public to remember. The details will really only matter in cases where the exact positioning of something is scrutinized. For items that the city decides not to directly enforce or only to occasionally enforce, the major principles will matter more. The design frameworks, sidewalk zones and the sidewalk room, provide simple ways of thinking about the sidewalk that can be explained quickly and spatially. You can look at a sidewalk and quickly understand the relative positions of the three zones or the walls of the room. Then by layering in broad principles: keep objects away from crowded areas, leave enough space for a group of people to pass, those placing public amenities and commercial uses will at least roughly be in the right location.

In many cases the rough location will be good enough. Each of the case cities has permit procedures for placing sidewalk objects, but they can be complicated, time-consuming, and expensive for the applicant and the permits are only periodically enforced, so that many items

end up on the sidewalk illegally. In providing easy to understand guidelines, it becomes much more likely that items will be in the right location, even if they are not sanctioned by the city.

These recommendations suggest a structure for a sidewalk object policy compatible with Pedestrianism2.0. Cities should have a sidewalk object ordinance that gives them the power to write more specific policies and actively manage object placement. After considering their physical and political contexts, they should determine what they need to mandate and enforce and what should be left as suggestions that allow for a little improvisation. Both the mandates and the suggestions should all be written up as a set of guidelines with an easy to understand overarching framework and set of principles that communicate the main points to the public.

These recommendations are built off of my findings from each of the case studies and the comparative analysis. In writing up my recommendations, I found that what mattered most about the cases was not the substance of how each city addressed the three spatial claims to the sidewalk, but the amount of detail and the way in which they presented their policies for each area. I would suggest that cities aim to write ordinances that more directly address sidewalk objects than any of those I have read. Those ordinances should include thoughtful decisions about what to enforce and what to leave up to change – this means being less specific than New York, but more specific than Cambridge. I would suggest that every city also produce guidelines that make the mandates and suggestions clear and comprehensible to the general public. Boston's *Complete Street Guidelines* are the closest so far; they use simple diagrams and short text explanations to make minute dimensional details accessible to a broad audience and explain the major principles of a balanced multi-use sidewalk.

The topic of measurement was prominent in my findings but did not end up playing a role in my recommendations, because these are about how to structure an object policy and measurements could and should be addressed throughout. Measurements can be mandated and suggested and incorporated into the guidelines' broad principles. Mandates will likely

include very specific dimensions, suggestions might include ball park figures, and a measurement principle would be that pedestrians give objects space. Because object placement polices provide answers to where things should go, measurements, articulated specifically and vaguely, are the primary content.

Final Thoughts

I have found that sidewalk objects are overlooked. The buildings and the street that bound a sidewalk can make the walk along it interesting to a point, but if there is no place to sit down, no tree to rest under, nothing to interact with, it is just a travel lane for walking. By layering in permanent and temporary objects the sidewalk becomes a public living room, a space to socialize.

For so long objects have been assumed to be obstructions, they are in the way because they had no place to be. This has even been extended to people who stop walking. In 2004, a 19 year old man was arrested in Times Square for standing around chatting with friends. Three years later, the New York State Court of Appeals unanimously agreed to drop the charges. Judge Carmen Beauchamp Ciparick wrote that "something more than a mere inconvenience of pedestrians is required to support the charge. Otherwise, any person who happens to stop on a sidewalk — whether to greet another, to seek directions or simply to regain one's bearings — would be subject to prosecution" (Ciparick, 2007). This case offers a precedent that being stationary is not an offense unless connected with another activity. The same logic should be extended to objects. Unless the item is offensive for another reason, its presence is not inherently problematic.

Though objects should be viewed neutrally, they can be disruptive if they are not organized well. Placing or removing an object is an expression of a right to the sidewalk. Removing all objects expresses the right to movement, public amenity objects assert a right to appropriation, and commercial objects declare a right to commodification. The antagonism between these three ways of using the sidewalk (walking, socializing, and buying/selling) can be

fierce and since the sidewalk is public space, it is the local government's role to negotiate a balance between the three. I have articulated the role of the local government as an emerging philosophy that builds upon Blomley's Pedestrianism. Pedestrianism2.0 understands the sidewalk as a finite public resource to which there are many competing claims, and that the role of the local authorities is to create policies that arrange objects to ensure that everyone's right to free movement is respected and that distribute any additional space among public and private activities.

The policies that a municipality would write under Pedestrianism2.0 would start with articulating the power of the city to control object placement. Then the municipality would write a set of policies that are specific to its physical and political contexts, and that manage objects through a mix of enforced mandates and unenforced suggestions. A guideline document would be used to pull all the policies together under the umbrella of a simplified framework and set of principles.

Though there is no city that fully operates with the Pedestrianism2.0 philosophy that I have laid out, many cities are starting to move in that direction, New York, Boston, and Cambridge among them. My hope is that by giving this way of thinking about objects on sidewalks a name and a definition, it will lead cities to examine my recommendations, and give sidewalk objects their due consideration.

Questions for Further Research

This project begins with the question: how do cities set policies for objects on sidewalks to manage the design and use of sidewalk space? Built into this, is my hypothesis that object placement is what identifies the sidewalk as a multi-use environment – making it both a space to move through and a place to gather in. I hope that I have convinced you that object placement is a design problem that can be addressed through design thinking and design policy. In putting forth this argument I hope that I have also convinced you to look at objects in a new light. Things on the sidewalk are only obstructions if they are in the wrong place. By

designating a space for things to be, like the furniture zone used in these three cases, the assumption that all items are in the way vanishes and objects can be evaluated from a neutral starting point. Finally I hope that these cases and my recommendations have convinced you that studying sidewalk object policy is worthwhile.

This thesis is a jumping off point for sidewalk design. I started the project with a strong interest in how things happen, how implementation of sidewalk object laws and guidelines affect where things go on the sidewalk. But in the course of writing this paper it became important to first make the case that sidewalks are designed through object placements and that object placement is managed through design policy. To keep the thesis to this point, a lot of the procedural nuances had to be set aside. Future research should investigate the how of object placement more closely.

The two areas where I see the greatest potential for further exploration are: studies of the connections between object placement and zoning policies and investigations into the procedures for placing objects. If the length of a street is to have a consistent experience, then there should be a connection to urban design strategies at the neighborhood level, much of which is regulated through zoning. By tying sidewalk object policy to zoning, general policies can be given more specific direction in each neighborhood. Another potential benefit of tying sidewalk object policies to zoning is that abutting property and business owners already interact with zoning regulations. Object placement is as much an activity of adjacent land owners as the city agency that controls the public right-of-way. Housing Pedestrianism2.0 object policies within zoning might make it easier for these non-governmental stakeholders to access and act upon them.

I also urge researchers to study procedures for placing objects. The appendix includes some of the information I gathered on object permit procedures in Boston and Cambridge. The two offer very different perspectives: Boston's procedures are very strict but also very clear, while Cambridge's are very flexible and there are both positives and negatives to that. A few topics that I think deserve further investigation include:

- Tracking and mapping objects on the sidewalk

All of the case cities have permit procedures for objects, but that permit data is for the most part still only on paper. I think there is a lot to learn from analyzing permit application data. It could show where applications are coming from, what people are applying for and what they are not, and how the sidewalk is actually being utilized.

GIS and GPS technologies also make it possible to track and map objects directly. Permit data will only show what has been officially sanctioned but there are many objects that do not go through official procedures. Directly mapping objects and comparing these inventories to permit application data could be very revealing.

- Pricing public space

  The commodification of public space is a big part of this thesis. Between advertising, cafés, and retailers there is lot of pressure for commercial uses of the sidewalk, but there is not much consensus on how to make sidewalks available to commercial users. Even within the same city there may be different prices for utilizing the sidewalk based on the particular activity. I think that studies of how public space is priced for object placement is another procedural topic that needs exploring

- Enforcing object placement policies

  The object placement policies I've discussed are the ideals – this is how city A wants to have objects arranged on the sidewalk. But how to ensure compliance is an unknown. In part this is an issue of figuring out who will enforce these policies. Then there is the question of how will they know if an object is in the appropriate place and if it is even licensed. Finally there is the question of how violations should be dealt with. Cambridge suggests that violators need to be educated about placement policies. New York starts with fines, the expense of which can be debilitating for street vendors or small business owners (Klein, 2011). Studies of how to enforce object placement could involve technologies

and techniques for reporting out of place objects, setting financial and other penalties, and non-penalty routes to compliance.

No matter the direction of future studies, I hope that researchers will remember that objects have people and intentions behind them and that the city's role is to create a balanced and inclusive sidewalk for all users.

Appendix A: Permit Procedures

A sidewalk once built is in place for years, decades even, but sidewalk objects change all the time. Management is important to maintain the balance set forward by city policy and issuing permits is the most direct way that a city can keep track of objects placed by public and private entities. The permit procedures add nuances to the city's object policies. They may require more or less of a fee depending on the object and some objects may require additional approvals from city agencies or surrounding community members. Boston and Cambridge have two very different permit procedures that have their own pros and cons.

Boston Object Permits

In Boston there are four distinct processes for placing items on the sidewalk. There are procedures for sidewalk café permits, stationary vending permits (display and sale of merchandise), projection permits, and special repairs.

Cafés – To set up a sidewalk café you would need to fulfill a seventeen item long checklist (Figure 20, opposite), including at least 10 letters of approval and "no objection." Notably among them are "letters from any or all neighborhood associations," which allow surrounding businesses and residents to weigh in on the design of cafés. Another important item on the checklist is the letter from the Commission for Persons with Disabilities. Kristen McCosh, the Commissioner for Persons with Disabilities, explains that the commission includes "an Architectural Access Specialist who reviews all of the changes to the public right-of-way. At a café we really require 5' of clearance, because cafés generate traffic... [When necessary] she'll offer technical assistance to [café owners] to try to help them design a scheme that is more compliant" (K. McCosh). Even if the checklist is easy to understand, it is not so easy to complete. Each letter takes time to write and get a response, and each may result in changes to the café design. Once the letters of approvals are squared away, cafés essentially rent space from the city. The fees are based on the square footage that is utilized and a café permit may run $500-$1200 a month, paid May through October (Boston Business Hub, 2011). This can be a hefty price to pay in addition to the restaurant space and café owners need to consider the added

visibility and variety of dining experiences that expanding into a café can offer, with the added cost of operating outdoors.

City of Boston
Public Works Department
Permits Division
Room 714 Boston City Hall
Boston MA, 02201
(617) 635-4910

City Of Boston Sidewalk Café Requirements

Check List

☐	A petition executed by person signing agreement that includes the limits and # of persons and tables café will be accommodating .
☐	Three fully executed café agreements after law dept. has reviewed draft.
☐	Three sets of plans.
☐	Certificate of Authority unless the owner of the café is signing.
☐	Letter from the BRA re: design review or letter of appropriateness from the landmarks commission if café is in a landmarks district.
☐	Original Certificate of Insurance with limits specified in agreement.
☐	Letter from Steve Spinetto (ADA) (635-3682).
☐	Letter from Licensing Board granting permission for café.
☐	Letters from any or all neighborhood associations.
☐	Three 8"x10" glossy photo of area to be rented; frontal view, sharp angle right and sharp angle left side.
☐	Letter from a certified Engineer stating that no vaults exist below the space where the proposed sidewalk café will be placed.
☐	Notarized copy of Rental Lease agreement if surface space is to be used by tenant , and not the property owner.
☐	Letter of no objection from the owner.
☐	Letter from Mayor's office of Neighborhood Services.
☐	Letter from Utilities.
☐	Letter from Street Lighting Division (Joe Banks) 635-7555.
☐	Letter from Parks and Recreation Dept (Ken Crasco) 635-4505.

BOSTON PUBLIC WORKS DEPARTMENT
http://cityofboston.gov/publicworks

Figure 20: The Boston cafe checklist requires 10 letters of approval and 'no objection' and engineer approved plans

Outdoor Merchandise - To sell goods on public property, whether as a shopkeeper utilizing the sidewalk out front or as an independent street vendor, Bostonians need a Stationary Vending License. The procedure requires signatures from:

- Abutting property owner
- Ground-floor tenant in abutting building
- Health Inspector
- Fire Inspector
- Boston Police Licensing Division
- Public Works Department

What is most interesting about this list of signatories is that both the abutting land owner and ground floor tenant have the power to say no to sidewalk vending in front of a building. The ground floor business has the option to use the space themselves or simply keep it clear of any competition that steps forward (Boston Public Works Department, 2000).

Projection permit – The projection permit is for any temporary item placed in, on, or above the right-of-way. This is the simplest permit procedure relating to sidewalk use and would be used for signs, marquees, planters, benches, barriers, etc. Information about the item is the only thing required; applicants need to record its dimensions, proposed location, and provide a sketch or photograph (Boston Public Works Department, 2001).

Specific Repairs – The specific repairs process is for any permanent, non-standard, installation in, on, under, or above the right-of-way. Bus shelters, bollards, phone booths, utilities, specialty trees, unique sidewalk paving and other long-lasting features are handled through this process (A. Cording, 2012). Applicants will need:

- A signed Specific Repairs Petition Form with the signature of the building's owner
- A *License, Maintenance, and Indemnification Agreement*, signed by the person who will ensure the maintain the item and the City Law Department
- A plan drawn by a civil engineer (24" x 36") that will get sign offs from the Design Reviewers, Division Engineer, Chief Engineer, and Commissioner of Public Works (Boston Public Works Commission, Public Improvement Commission [Boston PIC], 2011).

The Public Improvement Commission is tasked with walking each application through the many city departments that need to sign off on the design and/or provide letters of approval. Letters might be requested from:

- Utility companies – anything that is fixed in place needs approval in case placement disrupts access to utility lines
- The Parks Department – all plantings need approval
- Mayor's Office of Disabilities – ensures accessibility concerns are addressed
- The Boston Redevelopment Authority – certifies that the design is consistent with neighborhood urban design priorities
- Department of Public Works Street Light Division – for installation of lighting features
- Arts Commission - approves any art pieces
- Landmarks commission or Architectural District Commission – if a project is in an affected neighborhood
- Boston Transportation Department – reviews transportation access plan agreements when they are required
  (Boston PIC, 2011).

The process for specific repairs can be lengthy, as each department has the chance to comment, but the items that go through this process are licensed for several years at a time and are recorded as permanent features of the streetscape.

Complexity is the mark of the object permit procedures in Boston. There are four different processes, all but one of which requires at least six signatures. Getting all of these approvals takes time and in the cases of cafés and special repairs there are comment periods when agencies and neighborhood groups have the opportunity to change the design. This system allows everyone to give input before an applicant makes an investment, but it is also a barrier to entry. The café and stationary vending procedures are widely advertised to new businesses through a set of Guides to Licenses and Permits produced for small business (general), restaurant, grocery store, salon, and retail store owners (Boston Business Hub, 2011). The projection permit may be a faster way to engage with the sidewalks for time and money – pressed business owners, but this is not as widely discussed.

The forthcoming *Complete Streets Guidelines* are an opportunity to pull all of the procedures together and explain them to the general public. The guidelines are still in draft form, but have been publicly available for months, and there is currently no connection between how things get placed and the guidelines about where they should go. There are plans to add references to the procedures into the guidelines which will make the document more valuable, turning aspirations into actionable policy (Pessah & Mortell, 2012). Once the guidelines are fully published, the permit documents should all connect applicants to the guidelines to show them how their ideas fit into the full picture of what Boston wants its streets to become.

Cambridge Object Permits

In Cambridge there is one procedure for all objects on sidewalks, the *Business Use Sidewalk Obstruction Permit.* All applicants submit the following, no matter how large or small their proposal:

- The one page Sidewalk Business Use Petition Application
- A sketch of what the obstruction will look like
- Certificate of Insurance Coverage

The City Council reviews first-time applications and considers the context of the object, what it adds to the streetscape, and if it is consistent with accessibility requirements. Once they approve the item, the applicant pays the flat $75 permit fee and proceeds with installation. Business use of sidewalks permits must be renewed annually, but the City Council only gets involved with the initial applications. After that the Department of Public Works and its compliance officers review changes to approved obstructions (Cambridge Department of Public Works, n.d.).

The procedure is very flexible, and can handle cafés, signs, benches, merchandise displays, and anything new without a change in the documents or the people involved in the decision making. This makes Cambridge nimble; they can respond quickly to new ideas and be experimental. In 2012, A-frame signs will be placed at the curb for the first time (V. Best, 2011). The preferred positioning of A-frame signs is not recorded in any citywide document, allowing the City to make a change in their policy very quickly, and to reverse the decision if the new

placement does not work. This could be confusing for the various businesses and developers who have permits, but the annual renewal means yearly contact with the Department of Public Works and relatively frequent opportunities to tweak the object and its placement if something is not working from either the business' or the city's perspective.

What stands out about Cambridge's object permitting procedure is the investment in conversations. There is strikingly little paperwork involved in the process, a one page form is all it takes. However, each year the sidewalk compliance officer talks with individual permit holders about their objects and deals with each one on a case by case basis. This one individual holds all the institutional knowledge about the city's sidewalks and what is happening on them. Cambridge is a small city, but is densely populated, and has a great diversity of sidewalk typologies. Rather than invest in a complex reporting procedure and filing system, the city has invested in dedicated staff that get to know the city sidewalks extremely well, and get to know the permit holders.

This makes the enforcement part of the compliance officer's job much easier. When I met with Compliance Officer Vincent Best in November 2011, it was clear that he knows where everything should be and what it should look like, so that when he encounters something that is out of place or that he's never seen before, he knows there's a problem. Best aims first to educate community members before fining anyone for incorrect sidewalk use: "Citation is going to be my last resort. My first step is to visit the business and introduce myself, and I'll give them a formal letter of what's needed. There'll be an application attached to the letter...and then if I visit again and they haven't gone through the process, a [non-compliant] sign will probably come into my possession" (V. Best, 2011). Things that cannot be removed so easily will likely result in a fine at that point, but no matter what, the first step is to educate abutters about the appropriate use of city sidewalks.

Permit Procedures – Questions for Further Research

In the conclusion I suggested that future sidewalk researchers study the procedures around object placement. The procedures that I learned about in Boston and Cambridge led me to three more specific questions than those offered above. Boston's procedures are strict and complex while Cambridge's are simple and flexible. Comparing these two procedural systems left me with three research questions:

- What is the best and most appropriate way for getting community feedback on sidewalk objects, large and small?

  In their own ways, both systems make it possible for the public to give feedback on new object permits. In Boston the applicant must seek out community responses to large objects. In Cambridge the initial approval by the City Council means that there is a public meeting for any new sidewalk use. The Cambridge system is a little less direct, but the meeting means that anyone can offer their opinion, whereas the Boston system ensures feedback, but only from a set list of stakeholders. It would be interested to explore community responses in each system and figure out which is most effective in getting the community involved in sidewalk use decisions.

- How can the structure of permit procedures affect compliance rates?

  In researching these permit procedures, I was left questioning the extent to which they are actually followed. Neither city was able to provide me with statistics on how application rates, and particularly how they compared to ticketing rates. In large part this is because enforcement of illegal objects is sporadic and permit analysis is infrequent at best. Learning about Boston's requirements for signatures and official drawings made me wonder if the procedure itself is a barrier for small business owners, particularly those whose native language is not English,

who are interested in utilizing the sidewalk. In comparison, Cambridge's system with its low flat fee and simple one page document seems much friendlier to first time applicants. It would be interesting to explore how sidewalk object permits are distributed. This study would involve analyzing who applies for permits, what items they apply for, and where they place items on the street.

- How can procedural documents be more closely tied to object placement policies?

  One thing I noticed when researching the procedures for object placement in Boston and Cambridge, is that neither city provides much location information within the application documents. With the exception of cafés (which involve engineering and design professionals from the outset), the siting conversation happens after the paperwork is filed. This means that an applicant might come in with a proposal for something, maybe a new barber pole, which is completely against the city's object placement policy. If the permit application explained where things should go, applicants would be better informed and have proposals that met the city's policies. How to incorporate object placement policies into permit applications is an area that needs further consideration by researchers and practitioners alike.

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