3

The lively, safe, sustainable, and healthy city

Life in city space has a significant impact on how we perceive the space. A lifeless street is like an empty theater: something must be wrong with the production since there is no audience.

Life in the city is a relative concept. It is not the number of people that counts but the feeling that the place is populated and being used (local streets in Brazil and the Netherlands and a city street in Flushing, New York).

3.1
The lively city

City life as process

the lively city
— and the lifeless

While the inviting, lively city can be a goal in itself, it is also the starting point for holistic city planning that encompasses the vital qualities that make a city safe, sustainable and healthy.

When planners aim for more than just ensuring that people can walk and bike in cities, focus expands from merely providing sufficient space for movement to the much more important challenge of enabling people to have direct contact with the society around them. In turn this means that public space must be alive, with many different groups of people using it.

Nothing makes a more poignant statement about the functional and emotional qualities of life and activity in the common space of the city than its opposite: the lifeless city.

The lively city sends friendly and welcoming signals with the promise of social interaction. The presence of other people in itself signals which places are worthwhile. A theater with a full house and a theater that is nearly empty send two completely different messages. One signals anticipation of a common, enjoyable experience. The other signals that something is amiss.

The lively city and the lifeless city also send completely different signals. Architectural perspective drawings, which always show groups of happy people between buildings regardless of the actual qualities of the projects depicted, also tell us that life in public places is a key urban attraction.

the lively city
— a relative concept

With the happy throngs of people in the architectural drawings in mind, it is important to clarify that the experience of liveliness in the city is not limited to quantity. The lively city is a relative concept. A few people in a narrow village street can easily present a lively, beckoning picture. It is not numbers, crowds and city size that matter but the sense that city space is inviting and popular that creates a meaningful place.

The lively city also needs varied and complex city life; where recreational and social activities are mixed with room for necessary pedestrian traffic as well as the opportunity to participate in urban life. Overfilled sidewalks with large crowds in transit jostling their way from place to place do not at all indicate good conditions for city life. While the discus-

Nothing happens because nothing happens because nothing...
(Tuborg Harbor, Copenhagen).

Life in the city is a self-reinforcing process. Something happens because something happens because somehing happens. Once a children's game gets going, it can quickly attract more participants. Corresponding processes are at work with adult activities. People come where people are.

sion of the lively city revolves around quantity in the form of a meaningful minimum of participants, quality is an equally important concern and underscores the need for a multifaceted invitation.

life in the city — a self-reinforcing process

Inviting cities must have carefully designed public space to support the processes that reinforce city life. One important prerequisite is that city life is a potentially self-reinforcing process.

"People come where people are" is a common saying in Scandinavia. People are spontaneously inspired and attracted by activity and the presence of other people. From the window, children see other children playing outside and hurry to join them.

one plus one quickly becomes more than three

Combined with good habits and daily routines, good space and critical mass are prerequisites for processes in which small events can blossom. Once the process is underway, it is very much a positive spiral in which one plus one can quickly become more than three.

Something happens because something happens because...

We see quite the opposite in many areas with windy and ill-defined city space, with only a few people dispersed over a large area and few children "in the neighborhood." Under circumstances like these people are not in the habit of venturing out because the positive processes have never gained a foothold.

Nothing happens because nothing happens because...

concentrating or spreading people and events

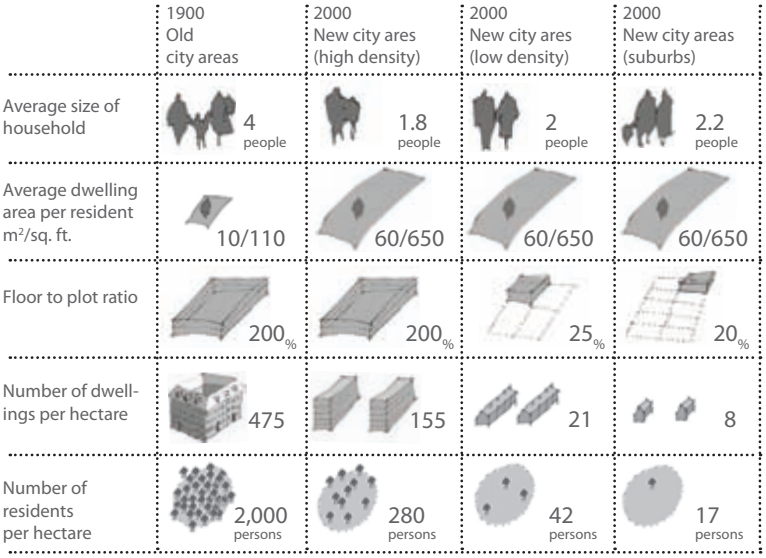
With people and events few and far between in many modern urban areas, there are fewer people and activities to populate city space. The potential of city life as a self-reinforcing process underscores the importance of careful urban planning that concentrates and breathes life into new urban areas.

Planning for events and parties has familiarized us with the principles of concentrating activities in order to kick start good processes. If we are expecting a limited number of guests, we need to concentrate them in a few rooms on the same floor. If things get a bit crowded, well, that is usually not a big problem — quite the contrary. If we try to spread this same event over many large rooms and perhaps even over several floors, it will almost inevitably fail to be memorable.

The principles that underlie successful events can be used in modern urban planning in places where we cannot count on a large number of visitors. Here we need to concentrate the people and activities in just a few rooms of suitable size and on the same level.

These simple principles have been used consistently in Venice, with its close-knit city structure and crowds of pedestrians. Although it has many streets, alleys and squares of all sizes, the basic structure is deceptively simple, concentrated around a limited number of main streets connecting key destinations and a strict hierarchy of major and minor

New residential areas are sparsely populated. A century ago seven times more people lived in the same amount of space.[1]



It is important to assemble people and events. However, too many and too large outdoor spaces are typically provided for new residential areas. The processes that encourage city life never have a chance to get started.

squares. The whole city is built around a simple network that provides the shortest routes and few but important spaces. When important spaces are few and routes logically follow the obvious desireable lines for walking, more effort can be put into the quality of the individual space.

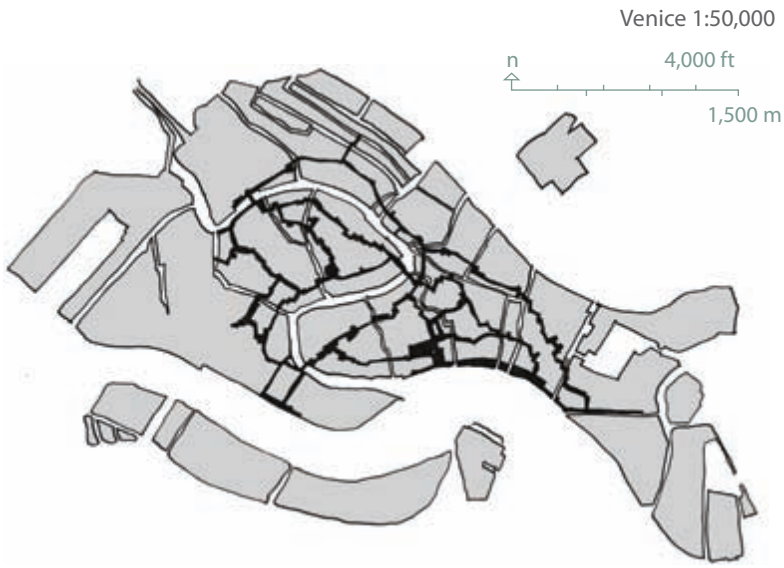
Shops, restaurants, monuments and public functions can be logically placed where people are likely to be passing by. Walking distances seem shorter that way and the trip more of an experience. You get the opportunity to combine the useful with the pleasurable — and all by foot.

wanted: short logical routes, small spaces and a clear city space hierarchy

These are the exact qualities that can be used to advantage in modern urban planning. Key words for encouraging life in the city are: compact, direct and logical routes; modest space dimensions; and a clear hierarchy where decisions have been made about which spaces are the most important.

These principles contrast strongly with the urban planning practiced in many contemporary urban areas. Here planners typically build too much common space and make the individual spaces far too big. Streets, boulevards, alleys, avenues, paths, balconies, gardens, roof gardens, courtyards, squares, parks and recreational areas are generously strewn over plans with little thought given to natural sequences, which spaces are important, or the extent to which it is even meaningful to build them. In almost every case the result is too many square meters and spaces that are too large for too few visits. It is only on the architectural drawings that the same few people can be in so many different places at once. In fact everything has been done to prevent the positive spiral from ever really gaining a foothold.

Nothing happens because nothing happens because . . .



Although it might look complicated, the network of main streets in Venice is both simple and compact. As directly as possible, the streets connect the city's most important hubs: the major bridges, the important squares and the transit terminals.

Dense city — lively city?

dense city, lively city
— a truth with qualifications

It is widely believed that the lively city needs high building density and large concentrations of dwellings and workplaces.

But what the lively city really needs is a combination of good inviting city space and a certain critical mass of people who want to use it. There are countless examples of places with high building density and poor city spaces that do not work at all. New urban areas are often dense and fully developed, but their city spaces are too numerous, too big and too impoverished to inspire anyone to venture into them.

In fact, we often see that poorly planned high density actually obstructs the establishment of good city space, thus quenching life in the city. Downtown Sydney is dominated by high-rise buildings. Many people live and work along dark, noisy streets with strong gusty winds. The streets allow people to get from one place to another, but are otherwise rather uninviting. New York City's Manhattan also has many examples of skyscraper clusters with dark, unattractive streets at their base.

reasonable density
and good quality city space

In contrast, Greenwich Village and Soho in New York City are less dense than Manhattan in general but still relatively high in density. The buildings are lower so the sun reaches into the tree-lined streets — and there is life. Building by building, having fewer floors and more attractive city space in these parts of New York City provides considerably more life than the high-density, high-rise areas where many more people live and work. Reasonable density and good quality city space are almost always preferable to areas with higher density, which often specifically inhibits the creation of attractive city space.

City life is a matter of quantity and quality. Density alone does not necessarily produce life in the streets. While many people live and work in high-density buildings, the surrounding city spaces may easily become dark and forbidding (Lower Manhattan, New York City).

Another problem that reduces city life around these high-rise buildings is that people on the top floors — of apartments as well as workplaces — venture into the city less often than those who live and work in the lower four to five floors. These lower floors give occupants visual contact with city space and the "trip" in and out is not perceived as so long and difficult.

Numerous studies of Danish housing areas show generally that developments with two- to two-and-a-half story town houses have considerable more street life and socializing per household than those with taller buildings.[2]

The conclusion is that erecting tall buildings to create very high density and poor public space is not a useful recipe for lively cities, even though contractors and politicians often use the argument of infusing life into the city for constructing tall dense building areas.

have: high density
— wanted: better density

City life does not happen by itself or develop automatically simply in response to high density. The whole issue requires a targeted and considerably more varied approach. Lively cities require compact city structure, reasonable population density, acceptable walking and biking distances and good quality city space. Density, which represents quantity, must be combined with quality in the form of good city space.

There are many ways of applying an intelligent architectural approach to relatively high building density without making buildings too tall, streets too dark, and without constructing psychological barriers that discourage residents from making the "journey" from inside to outside.

density and good city space
— in old cities

Many older urban quarters demonstrate a combination of compact density and good city space, as exemplified by the city centers of Paris and Copenhagen. The world-famous Cerdà city structure in Barcelona also has fine city space, vibrant street life and actually a higher development density than Manhattan in New York City.

density and good city space
— in new urban areas

One outstanding new urban area is Aker Brygge on the waterfront in Oslo, Norway (1984 – 1992). Careful consideration was given to density, mix of functions and good city space. Despite a high building density (260%), the buildings do not seem tall, because those along the streets have fewer floors than those set further back.

City space is well proportioned with active ground floor frontages, and thanks in great part to the good design, the area has become one of the few new urban areas in Europe where people actually enjoy spending time. Density is high, but it is the right kind of density.

The Aker Brygge complex (1984 – 1992) in Oslo is one of the relatively few new built-up areas that has tall buildings, high-density, and good inviting city space. This combination has made the district very attractive and popular.

Life in the city is very much a matter of numbers and time. There is life on the streets of pedestrian cities because people are present in the field of vision for a long time (Venice, Italy, and hutong in Beijing, China).

Fast-moving traffic on the motorway comprises many units but they are quickly out of sight. When traffic is moving slowly or grinds to a halt, there is much more to look at.

How many and how long: quantity and quality

life in the city — a question of numbers and time

As already mentioned, it is widely believed that life in city space is largely a question of number of users, but the issue is not nearly that simple.

The number of users, the quantity, is one factor, but another equally significant factor for life in the city is the amount of time users spend in public city space. Life in city space as we experience it when moving about the city is a matter of how much there is to see and experience within the social visual field of about 100 meters (328 feet). The activity in the visual field is linked to how many other people are present and how much time each user spend at the site. The activity level is simply a product of number and time. Many people moving quickly through the space can result in considerably less life in the city than a handful of people who spend time there.

On Strøget, one of Copenhagen's main pedestrian streets, foot traffic is 35% slower in summer than in winter. This means that the same number of people provides a 35% increase in the activity level in the street.[3] It is generally true that the activity level in city space often increases dramatically in good weather. The difference is not that there are neccesarily more people in town, but that the individual user spends more time there. We walk slower, stop more often and are tempted by offers to stay a while on benches or in cafés.

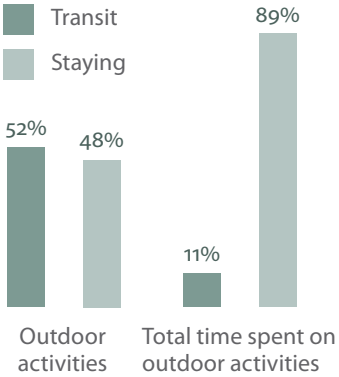
slower traffic means lively cities

Recognizing that life in the city is a product of "how many" and "how long" helps us understand a number of urban phenomena. Calculating both number and time is a necessary planning tool for reinforcing life in cities.

Venice has a remarkably high level of activity although the population has been reduced dramatically. The explanation is that all traffic is on foot, everyone walks slowly and there are many spontaneous stays. The gondolas and other boat traffic also move at a pleasant tempo. So despite the small number of people and boats, there is always something to look at because slow traffic means lively cities.

In contrast, our many modern car-oriented suburbs contain far more people, but traffic moves quickly and few people stay. Cars move out of our field of vision almost before they enter it. This also explains why there is little to experience. Fast traffic results in lifeless cities.

One important argument in discussions about reorganizing traffic and traffic principles for streets is that there is more life in urban neighborhoods when people move slowly. The goal of creating cities where more people are invited to walk and bike will bring more life to the streets and a greater wealth of experience because fast traffic will be converted into slower traffic.



A study of outdoor activities in 12 Canadian residential streets. "Come and go" activities make up more than half of the number of activities but are all very short in duration. Staying activities last an average of nine times longer and therefore contribute 89% of life in the streets.[4]

lengthy stays mean lively cities

Studies in Canada of a number of residential streets in Waterloo and Kitchener in 1977 recorded activities in public space. Half of all activities along the streets could be categorized as going to and from — whether by car, bicycle or on foot. The other half concerned people on or alongside the streets engaged in activities such as playing, maintenance, gardening, talking and sitting, the latter specifically residents in their front yards or porches following what was going on.

So as many people were going to and from as were staying near their homes. But going to and from did not take many seconds because the distance from the front door to the street corner was only 100 meters (328 feet). Nor did walking from car to front door on returning home take long — an average of 30 seconds, a fact that did not contribute much to life on the street.

In contrast, staying activities lasted considerably longer and various staying activities accounted for 89% of street life. Only 11% of life on the streets was due to purposeful movement. These statistics support the connection between lengthy outdoor stays and lively cities.[5]

A number of studies of city life conducted in new and old car-free squares in Copenhagen and Oslo underscore the importance of working with duration as well as numbers to create lively, attractive city space. The sites studied have on the order of 5,000 to 10,000 pedestrians daily. Nonetheless some of the sites seem deserted while others teem

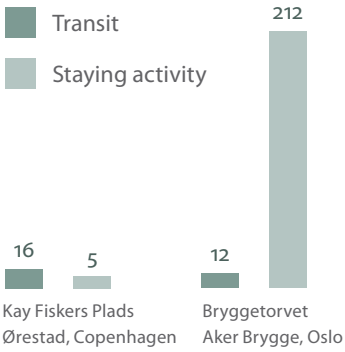
with life. The difference is simply that some squares only serve to ferry pedestrians from one side to the other, while others combine the opportunity to walk with staying, experiences and comfort. Squares that combine walking and staying register an activity level of between 10, 20 and sometimes even up to 30 times times higher than transit squares.[6] If lively and attractive cities are the goal, there is every reason to look at staying opportunities and attractions.

more people — or more minutes?

At a time when politicians, contractors, realtors and architectural draftsmen are showing a commendable interest in ensuring lively and attractive cities, it must be pointed out that focus on high-rises and compact density barely skirts the issues — and not even the most crucial ones at that.

In a given situation life in the city can be influenced quantitatively by inviting more people to come or qualitatively by inviting them to stay longer and slowing down traffic. It is almost always simpler and more effective to increase quality and thus the desire to spend time than to increase the number of visitors to the space.

Working with time and quality rather than numbers and quantity also generally improves city quality for the benefit of everyone every day of the year.



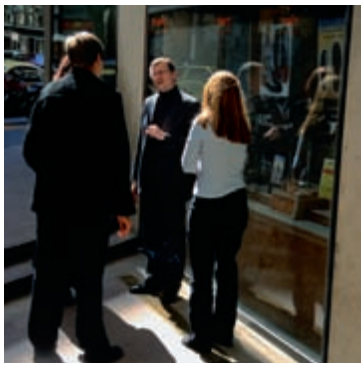
The bar graph shows the average number of people who stay on two newly built squares in Copenhagen and Oslo respectively, on summer days between 12 noon and 4 pm.
Top right: Pedestrians race through this square between the Metro station and a shopping center in under a minute (Kay Fiskers Plads, Ørestad, Copenhagen, Denmark).
Below right: The activity level at this square on a typical summer day is 10 times greater because the public is invited both to walk and to stay here. (Bryggetorget, Oslo, Norway).[7]

Chatting by

Entering and leaving

Walking alongside

Standing alongside



Taking a break by

Standing in doorways

Shopping next to

Interacting with

Looking at displays with

Sitting on

Sitting next to

Looking in and out of

Soft edges — lively cities

where city and building meet

The treatment of the city's edges, particularly the lower floors of buildings, has a decisive influence on life in city space. This is the zone you walk along when you're in town, and these are the frontages you see and experience close up and therefore intensely. This is where you enter and leave buildings, where indoor and outdoor life can interact. This is where city meets building.

edges that define space

The edges of a city limit the visual field and define individual space. Edges make a vital contribution to spatial experience and to the awareness of individual space as a place. Just as the walls of a home support activities and communicate a sense of well being, the city's edges offer a feeling of organization, comfort and security. We recognize space with no edges or weak edges from many urban squares with heavily trafficked roads on all four sides. Their function is considerably more impoverished than the city space where life is directly reinforced by one or more attractive edges.[8]

edges as exchange zone

The edge along ground floors is also a zone in which doors and exchange points between inside and outside are located. The edges provide the opportunity for life in the buildings or immediately in front of the buildings to interact with life in the city. This is the zone where activities inside the buildings can move out into the common space of the city.

edges as staying zone

The edge zone also offers some of the city's prime opportunities for sitting and standing. The local climate is best here, our backs are protected, and our frontal sensory apparatus can comfortably master the situation. We have a full view of everything going on in the space and are in no danger of unpleasant surprises from behind. The edge is a really good place to be in a city.

The general tendency for people to keep to walls is confirmed in public as well as private space, both indoors and out. You could say that life grows from the edge in towards the middle. At dances we talk about wallflowers lining the walls between dances. At receptions guests typically hug the walls and only later move more freely around the room. Children begin their outdoor activities by hanging around the front door, only taking over the entire space when play starts. In pauses between activities, children once use again the edge zone for waiting and watching until a new game or activity gets underway.

People who have to wait in public spaces find good spots along the edges for lingering. Edge placements are also carefully selected for longer stays on benches or at sidewalk cafés. Our backs are protected when

In the French colonial period, regulations ensured narrow units and many doors throughout the city of Hanoi, Vietnam. This principle can also be recommended for new built-up areas (Sluseholmen, Copenhagen, Denmark (2007 – 2009)).

All over the world the same rhythms are found in attractive shopping streets: 15 to 20 shops per 100 meter/328 feet of street means new experiences for pedestrians every four to five seconds (Changcha, China; Middlesbrugh, UK; and New York City).

we sit along the edge and good view of the space is in offer. When the edge also has umbrellas and awnings, we can have an overview yet still be hidden in the shade. Obviously, this is a good place to be.

city edges as experience zone

As pedestrians, we experience ground floors closely and intensely. The upper floors are not part of our immediate field of vision, nor are the buildings on the other side of the street. We view the floors above us and

the buildings across the street from a considerably greater distance, and for the same reason our perception of them lacks detail and intensity.

The situation is quite different for the ground floors we pass while walking. We intensely appreciate all the details of the façades and display windows. We experience close-up the rhythms of the façade, the materials, colors and people in or near the buildings and they largely determine whether our walk is interesting and eventful. For city planners there are heavy arguments in favor of concentrating on ensuring active and interesting ground floors along important walking routes. In terms of visual and other types of experience, all the other elements play a far less significant role.

good rhythms — fine details

Walking in the city leaves ample time to experience everything that ground floors have to offer and to savor the wealth of detail and information. Walks become more interesting and meaningful, time passes quickly and distances seem shorter.

However, where there are no interesting edges to skirt or where ground floors are closed and monotonous, walks seem long and impoverished in terms of experience. The whole process can become so meaningless and tiring that people give up walking altogether.

Physiological studies of people in a room with no stimulation show that our senses need stimulation at fairly short intervals of four to five seconds, which appears to ensure a reasonable balance between too few and too many stimuli.[9] It is interesting to note that shops and booths in active, thriving commercial streets all over the world often have a façade length of five or six meters (16 – 20 feet), which corresponds to 15 – 20 shops or other eye-catching options per 100 meters (328 feet). At an ordinary walking speed of about 80 seconds per 100 meters (328 feet), the façade rhythm on these streets means that there are new activities and sights to see about every five seconds.

narrow units — many doors, please

The principle of many narrow units and many doors along commercial streets provides the best opportunities for buyers and sellers to interact, and the numerous doors provide many exchange points between inside and out. There is much to experience and room for many tempting offers. Not surprisingly, many new shopping malls also use the principle. of narrow units with many doors. This too makes room for many shops along walkways.

and with vertical relief in the façades, please

But where shops are located on the ground floor and at the many other edges in cities where housing or other functions are accommodated, it is important to ensure that the ground-floor façades have vertical façade articulation. This ploy makes walking distances seem shorter and more interesting. In contrast, façades designed with long horizontal lines make distances seem longer and more tiring.

Scale and Rhythm
The 5 km/h – 3 mph scale, compact and full of interest with narrow units and many doors.
The 60 km/h – 37 mph scale works for drivers on the move, but not for pedestrians.

5 km/h – 3 mph

or 60 km/h – 37 mph scale

Transparency
Walking in the city is enhanced for pedestrians if they can see goods on display and what is going on inside buildings. And that works both ways.

Open

or closed

Appeal to Many Senses
All our senses are activated when we are close to buildings that provide interesting impressions and opportunities.
In contrast, eight posters do not inspire.

Interactive

or passive

Texture and Details
City buildings hold attractions for pedestrians walking slowly. Appealing ground floors offer texture, good materials and a wealth of details.

Interesting

or boring

Mixed Functions
Narrow units and many doors supplemented by a wide variation in functions provide many points of exchange between in and out and many types of experiences.

Varied

or uniform

Vertical Façade Rhythms
Ground floors with primarily vertical façade rhythms make walks more interesting. They seem shorter too, compared to walks along horizontally oriented façades.

Source: "Close encounters with buildings," Urban Design International, 2006.

Vertical

or horizontal

soft edges – and hard

Narrow units, many doors and vertical relief in the façades help intensify the walking experience. Ground-floor activities and functional interaction with life on the street also have significant impact on city life.

To keep things simple, we can describe opportunities for experience from two extremes. One extreme is the street with a "soft edge" with shops lined up, transparent façades, large windows, many openings and goods on display. Here there is much to see and touch, providing many good reasons to slow down or even stop. The other extreme, the street with a "hard edge," is a diametrical contrast: the ground floors are closed and the pedestrian walks past long sections of façades of black glass, concrete or masonry. There are few or no doors and all in all little to experience or even reason to choose that particular street, short of necessity.

seven times more city life in front of active façades

Over the years many studies have been conducted on the impact of edge quality on city life, and they point to a direct connection between soft edges and lively cities. A study conducted in Copenhagen in 2003 looked at the extent of activities in front of an active and a passive façade section in several city streets.[10]

In front of the open and active façades there was a noticeable tendency for pedestrians to slow down and turn their heads towards the façade, and they stopped frequently. In front of the closed façade sections the walking tempo was markedly higher, and there were fewer turned heads and stops. In conclusion it could be shown that with the same stream of pedestrians in the active and passive street segments, the average number of people who walked by or stopped in front of active façade sections was seven times greater than the activity level in front of the passive façades. This is because people walked more slowly, made more stops and walked more often to and from the shops on the street with the soft edge.

A 2003 study of Copenhagen shopping streets shows that the activity level in front of active façade is seven times greater than in front of passive façades.[11]

According to the sign, the supermarket is open seven days a week, but certainly not towards the sidewalk (Adelaide, Australia).

Before and after photos of a street corner in Melbourne and a street in Stockholm. Both cities have adopted active façade policies.

It is perhaps even more interesting that numerous other activities unrelated to shops and façades also took place on this active street segment. People talked more on their cell phones, stopped to tie their shoes, organized their shopping bags and conversed to a far greater extent than in front of the passive façades. Very much in keeping with the principle that city life processes are often self-reinforcing: "People come where people are."

closed ground-floor façades — lifeless cities

City streets with soft edges have a significant influence on activity patterns and the attractiveness of city space. The transparent, welcoming and active façades give city space a fine human scale just where it means most: up close and at eye level.

The quality of ground floors is so crucial to a city's overall appeal that it is difficult to understand why ground floors in many new and old cities are treated with such diffidence. Long closed walls, few doors, sterile glass sections that signal "move on" have propagated in cities, giving pedestrians numerous good reasons to give up and go home.

lively cities need an active ground-floor policy

As part of efforts to improve the quality of the city environment in central Stockholm, a scale for mapping the attractiveness of the ground floors was drawn up in 1990.[12] The assessment method was later refined in the course of corresponding projects in other cities.

Mapping the attractiveness of ground floors can pinpoint problem areas in the city and be used to assess the situation in the city's most important streets. With this information as a platform, city planners can draw up an active, targeted ground-floor policy to ensure the attractiveness of the ground floors in new developments and address and gradually correct problems in the existing building mass, particularly along the most important pedestrian routes in the city.

In Melbourne just such a ground-floor policy has led to significant improvements, and a number of other cities and areas are making targeted

Registration of problem ground-floor façades in Copenhagen and Stockholm. In the 1950s and 1960s, inner Stockholm was subjected to extensive urban renovation. Buildings from that period often have dismissive façades, a problem that this registration clearly pinpoints (the registration method is shown on page 241).[13]

Copenhagen 1:25,000

Stockholm 1:25,000

efforts to deal with the issue. Plans for the new urban areas along Oslo's waterfront highlight the stretches and places where attractive ground floors will be crucial to future city quality. One way to make sure that plans are carried out is to reduce the rent in those ground floor areas that are critical to the attractiveness of the quarter. If the quarter is popular and attractive, overall rental income will be easily generated by the other properties.

soft edges
— in residential areas

The edge — where building and city meet — is also vital to the quality of housing and the vitality of the surrounding urban area. The edge zone is the most active outdoor area in a residential area. Here are front doors — the exchange zone between the private and public spheres — and this is where the activities from the residential areas move out to the terrace or front garden, in good contact with public space. The edge zone is also the one pedestrians see and experience when they walk through the area.

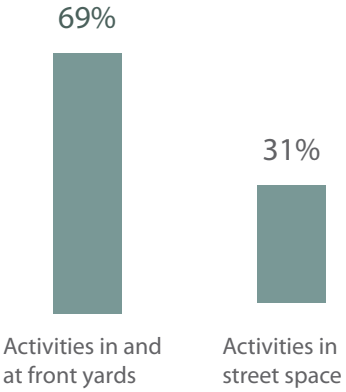
The significance of the edge zone can be summed up in the good advice given to the author by architect Ralph Erskine (1914 – 2005): "If the complex is interesting and exciting at eye level, the whole area will be interesting. Therefore try to make the edge zone inviting and rich in good detail, and save your efforts on the upper floors, which have far less importance both functionally and visually."[14]

Many places around the world offer interesting examples of the design and use of edge zones in residential areas: the front gardens of English semidetached houses, Dutch "stoops," edge zones by traditional Japanese city houses, the North American "porch," steps and landings leading up to Brooklyn's brownstones in New York City, and the front yards of the low-rise row houses in Australian cities. All are examples of designs of semiprivate zones in older residential neighbourhoods. Quite a few new complexes worldwide also have inspiring examples of carefully designed edge zones in residential areas.

However, many new residential areas have allowed parking places and garages to usurp edge zones. Or they have done away with all ground-floor articulation, so that houses rise up from lawns and sidewalks like cliffs from the sea. People who live in this type of housing move directly from the private to the public sphere with no transition or variation.

soft edges
— and life on residential streets

Numerous studies proclaim the importance of semiprivate front yards and staying zones for life and activity on residential streets. In 1976 the University of Melbourne conducted an extensive study of 17 residential streets, some in older quarters with semidetached houses, some in suburbs with single-family dwellings. The study was based on detailed observations over entire days and included areas with and without semiprivate front yards. The study provided a comprehensive look at the nature of the activities on the streets, as well as the exact location of the



The impact of soft edges is unmistakeable in the study of outdoor activities on 17 residential streets in Melbourne, Australia. Of all the registered activities, 69% took place in or around the semiprivate front yards. The remaining 31% of the activities took place in the streets.[15]

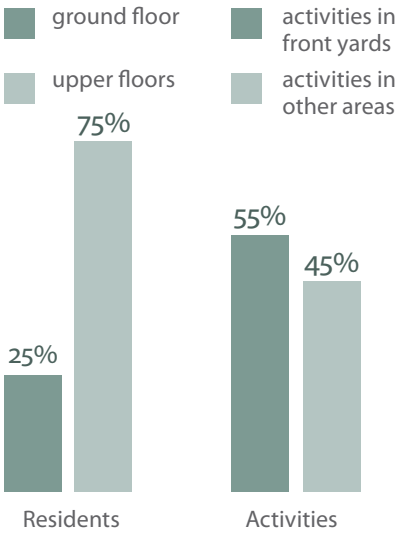
activities.

The streets with the most extensive activity level were the older residential streets with densely built townhouses and small, meticulously designed outdoor terraces between the dwelling and the sidewalk. Of all the activities — coming and going, staying, maintenance, conversations and play — 69% took place in the front yards or near the hedge and gates to the front yard. Only 31% of the activities took place in the other parts of the street space. A substantial portion of the activities combined staying outside — resting, drinking coffee and enjoying sunshine — with the opportunity to follow life on the street.[16]

The prerequisite for street life was the building density, which encouraged many people to get around the area by foot. Only when there is a certain amount of life on foot in front of the houses does it become meaningful and interesting to spend time on the public side of the houses. In areas with front yards and outdoor terraces in front of the housing units, but primarily car traffic on the roads, almost no one stayed outside in front of the residences.

Researchers carried out a series of studies in Waterloo and Kitchener, Canada, in 1977 with focus on typical North American residential streets with rather densely built family dwellings with a porch and yard fronting the street. They found an activity pattern that answered very closely to the pattern of the Australian residential streets. When the time spent on the various activities was studied, it turned out that it was activities carried on in or near the semiprivate edge zones that accounted for almost

Studies of new Copenhagen residential areas in 2003 show that the activities in and around semiprivate outdoor space in front of ground-floor units account for over half of all outdoor activities, even though residents on the ground floor comprise only 1/4 of the residents.[18]



89% of life on the streets.[17] As mentioned earlier, it is the number of minutes spent outside per day rather than the number of people outside that determines whether a street is lively or lifeless. In the semiprivate front yards some of the private sphere activities can be introduced into the edge zone. It is safe, comfortable and people have visual contact with their surroundings, which naturally is important to life on the street in general.

A series of studies conducted in residential streets in Copenhagen in 1982 illustrates the situation in streets of row houses with and without front yards. The studies were conducted on parallel streets with identical dwellings and comparable categories of residents. In all of the studies the activity level in the streets with soft edges was between two and three times higher than in corresponding streets with hard edges.[19]

soft edges
— in new residential areas

A study of activity patterns in new residential areas conducted in Copenhagen in 2005 shows how balconies, front yards and other types of outdoor area are used in a contemporary urban context. The studies illustrate a general tendency for outdoor activities to shift from public to more private space. As in earlier studies, this study shows that the semiprivate outdoor space immediately in front of ground-floor level residences continues to play a remarkable role for the overall level of life in residential areas.

In the areas studied, street-level residences with a semiprivate front area comprised between 25% and 33% of the total number of residences, while the activities in these semiprivate front yards comprised 55% of all registered activities in the areas.[20] It is interesting that the front yards, where proximity to residence, space, plants and good local climate can be combined with contact with surroundings, were used far more than balconies where space, climate and contact are poorer.

Soft edges in front of residences have a crucial impact on the extent of outdoor activities (hard edges in a Norwegian housing area and soft edges in Solbjerg Have, Frederiksberg in Denmark).

Soft edges in older urban areas (Tokyo, Japan; Sydney, Australia; and Montreal, Canada).

Right: Soft edges throughout the district (The French Quarter in New Orleans, Louisiana).

Soft edges in new urban areas (Bogota, Colombia and Cape Town, South Africa).

Opposite page: street life near houses and front yards (Jakarta, Indonesia).

soft edges
— in various cultural contexts

In studies conducted over three decades on several continents in large and small cities, city centers and suburbs are mentioned above. Naturally the studies include areas and households representing a wide spectrum of cultures, living conditions and economic standards. In addition, usage patterns and housing cultures change over time in step with changes in lifestyle, buying power and demography. A well-rounded discussion about the function of soft edges in a residential context must then include cultural and socioeconomic dimensions. However, we will not take up this discussion here, where the subject is a more general illustration of the importance of soft edges for patterns of activity in city and housing areas, of options for people walking trough these areas and of the possibilities for contact between indoor and outdoor activities.

One m^2 (11 sq. feet) adjacent to home or ten m^2 (108 sq. feet) around the corner?

The studies mentioned above show an unambiguous picture of the soft edges as a simple and valuable element of city architecture that makes a inviting contribution in every area mentioned. The easier and more inviting it is to use city space or the edge of city space, the more lively it will be. In almost all situations, one m^2 (11 sq. feet) adjacent to home is more useful and used more often than 10 m^2 (108 sq. feet) around the corner.

lively cities with soft edges, please

No single topic has greater impact on the life and attractiveness of city space than active, open and lively edges. When the rhythms of the city's buildings produce short units, many doors and carefully designed details at ground-floor level, they support life in the city and near buildings. When the city's edges work, they reinforce city life. Activities can supplement each other, the wealth of experience increases, walking becomes safer and distances seem shorter.

In his book *A Pattern Language* (1977), Christopher Alexander summarizes the importance of edges by saying: "If the edge fails, then the space never becomes lively."[21]

It can — almost — be said that simply.

If only the edges work… Shopping street in Camden, London, and a residential area with steps (Brooklyn, New York).

Lively city — process, time, numbers and invitation

lively cities — and lifeless

The previous chapter on senses and scale, describes how planning principles featuring large-scale traffic solutions and introverted buildings in combination with widespread scale confusion have resulted in impersonal and dismissive cities. These deserted and discouraging cities are a biproduct of planning that has had other priorities.

City life was a matter of course in old traditional cities until the mid-1950s. In fact, city life was taken for granted, and for good reason. Now in many parts of the world, city life is no longer a matter of course, but a valuable and relatively limited resource that city planners must manage carefully. Changes in society and planning methods have since drastically changed the situation.

In this chapter, attempts have been made to outline the methods that can be used to strengthen life in cities. Various tools are offered as ways of bolstering the human dimension depending on the situation and job at hand.

lively cities
— the product of careful planning

City vitality and tranquility are both desirable and valuable urban qualities. Peace and quiet are highly valued qualities in the lively active city . Arguments promoting the lively city should not aim specifically on creating as much life in the city as possible in as many places as possible.

The problem, however, is that desolate areas arise unaided in new urban areas. No one has to try very hard to achieve this result. It takes careful and concentrated effort to ensure a combination of lively and quiet places in the city.

When the goal is to develop cities, when the human dimension and the meeting between people are prioritized, when you wish to invite people to walk and bike, it is essential to work carefully to encourage life in cities.

It is important to remember that the answer is not to be found in simple, fixed principles about greater development density and getting more people in buildings, but in working carefully on many fronts with city life as a process and the main attraction.

Processes, invitations, city quality, the all-important time factor and inviting soft edges are key words for this work.

Since cars conquered the streets, fear and worry have become an integral part of daily life in cities the world over.

Bicyclists are in an extremely vulnerable position in many cities that still lack a good bicycle infrastructure. This sign from Japan shows that bicycling on sidewalks is not a good alternative.

3.2
The safe city

The safe city

feeling safe in the city
— a vital city quality

Feeling safe is crucial if we hope to have people embrace city space. In general, life and people themselves make the city more inviting and safe in terms of both experienced and perceived security.

In this section we deal with the safe city issue with the goal of ensuring good cities by inviting walking, biking and staying. Our discussion will focus on two important sectors where targeted efforts can satisfy the requirement for safety in city space: traffic safety and crime prevention.

Safety and traffic

more room for cars
— as a dominant city policy?

In the more than 50 years since cars seriously invaded cities, both car traffic and the accident rate have increased apace. Fear of traffic accidents has risen even more sharply, with a dramatic impact on pedestrians and bicyclists and their enjoyment as they move about the city. As more cars have filled the streets, politicians and traffic planners have become increasingly focused on making room for even more car traffic and parking.

Conditions for pedestrians and cyclists have deteriorated as a result. Narrow sidewalks have gradually become filled with traffic signs, parking meters, bollards, street lamps and other obstacles placed there so as "not to be in the way." Understood as "in the way of the more important motorized traffic." Added to physical obstacles are the frequent interruptions in walking rhythm caused by long waits at stoplights, difficulty crossing streets, bleak underground tunnels and elevated pedestrian bridges. All of these examples of city organization have one purpose: to provide more room and better conditions for cars. As a consequence, walking has become more difficult and far less attractive.

Conditions for bicycles are even worse in many places: bike paths have been eliminated altogether or dangerous so-called "bike routes" painted on the road next to fast-moving cars, or there is a total absence of infrastructure for bicyclists, who must manage as best they can.

The concept of shared or complete streets suggests equality between traffic groups, which is a utopian ideal. Integrating various types of traffic is not satisfactory until pedestrians are given a clear priority (shared space in Haren, the Netherlands, and a pedestrian priority street in Copenhagen, Denmark).

Throughout this entire period of car encroachment, cities have tried to remove bicycle traffic from their streets. The risk of accident to pedestrians and bicyclists has been great throughout the rise in car traffic, and the fear of accident even greater.

major differences in various parts of the world — but exactly the same problems

Many European countries and North America experienced the car invasion early on and have watched city quality deteriorate year by year. There have been numerous counter reactions and an incipient development of new traffic planning principles in response. In other countries whose economies have developed more slowly and modestly, cars have only begun to invade cities more recently. In every case the result is a dramatic worsening of conditions for pedestrians and bicycle traffic.

In cities where the car invasion began early and has lasted decades, we can now see a strong reaction against the myopic focus on cars that has dealt such harsh blows to city life and bicycle traffic.

modern traffic planning ensures better balance between types of traffic

In many countries, especially in Europe, traffic planning in the 21st century has changed dramatically compared to the traffic planning of twenty or thirty years ago. The importance of promoting pedestrian and bicycle traffic has gradually been acknowledged while better understanding of the nature and causes of traffic accidents has produced a considerably wider variety of planning tools.

When the first pedestrian streets were introduced in Europe in the 1960s, there were really only two street models: those for vehicular traffic and those for pedestrians. Numerous types of streets and traffic solutions have since been developed so that today's traffic planners have quite a wide range of streets to choose from: vehicular traffic-only streets, boulevards, 30 km/h (19 mph) traffic, pedestrian priority, 15 km/h (9 mph) areas, pedestrian-streetcar, pedestrian-bicycle and pedestrian only. The experience gained in the intervening years has also made it possible to reduce the number of traffic accidents and make walking or biking considerably safer and more comfortable.

In choosing street types and traffic solutions, it is important to start with the human dimension. People must be able to move comfortably and safely in cities on foot or by bicycle, and when traffic solutions are adopted special consideration must be given to children, the young, the elderly and people with disabilities. Quality for people and pedestrian safety must be key concerns.

pedestrians must have priority in mixed traffic

A number of recent urban planning ideologies deriving from accident statistics contend that the risk of accident can be reduced by physically mixing types of traffic in the same street under the heading of "shared space."

The underlying idea of these so-called shared streets is that they will give trucks, cars, motorcycles, bicycles and pedestrians of all ages the opportunity to travel quietly, side by side and with good eye contact. Serious accidents will rarely occur under such conditions, or so it is thought, because pedestrians and bicyclists need to be extra vigilant at all times.

Obviously, if people are sufficiently frightened and keep a close watch on traffic, nothing untoward will happen. However, the price is high in terms of dignity and quality. Children cannot be allowed free rein, and older people and others with reduced mobility may be forced to drop walking altogether. In any discussion about people and traffic safety the risk of accident must be weighed against quality for pedestrians and bicyclists. Much of modern traffic planning continues to pay far too little attention to the quality of city life.

Mixing types of traffic is certainly possible, but not on the equal terms implied by the shared street concept. As the British "home zones," Dutch "woonerfs," and Scandinavian "sivegader" have demonstrated for years, pedestrians can thrive with other forms of traffic as long as it is crystal

Copenhagen-style bicycle lanes take advantage of parked cars to protect bicyclists (street scenes from Copenhagen, Denmark).

The principle of having bicyclists bike outside a lane of parked cars does not solve many safety and security problems. It does help to protect the parked cars, however!

clear that all movement is based on the premises of pedestrians. Mixed–traffic solutions must prioritize either pedestrians or provide appropriate traffic segregation.[22]

pragmatic, flexible and considerate traffic planning

There is every reason to applaud the many new types of streets and policies that ensure safety for pedestrians and bicyclists while allowing service vehicles to make door-to-door deliveries.

From project to project, planners must consider which types of streets and degree of traffic integration would be a good solution. The actual and perceived safety of pedestrians must always be the determining factor. It is not a natural law that motorized traffic should be allowed access everywhere. It is generally accepted that cars are not welcome in parks, libraries, community centers and houses. The advantages to not having car traffic everywhere are obvious, so even though there are

compelling arguments for allowing car traffic all the way to the front door, in many situations there are equally good arguments for establishing car-free areas surrounding the residences.

the Venice principle
— as inspiration

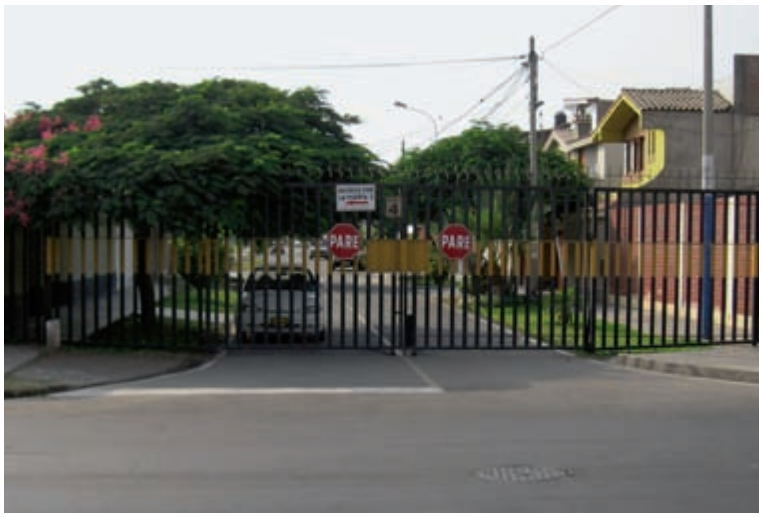
For centuries traffic in Venice has functioned on the principle that the transition from rapid to slow traffic does not take place at the front door but at the city limit. The Venice principle is hard to beat when prioritizing city quality. As mentioned above, a number of options have been developed for coexistence between pedestrian and motorized traffic. While these options open new doors, they also create more problems.

A pedestrian in Venice can be forgiven for thinking that many of the recent traffic solutions represent various forms of compromise compared to the vision of a true city for people. Or put in another way, in Venice it is easy to surmise that "there is only one thing better than slow cars — and that is no cars."

But as also mentioned, it is important to be pragmatic and flexible. There are many good new compromises, but they must be assessed and carefully selected.

In Venice the shift from rapid to slow traffic occurs at the city limits rather than at the front door. This is an interesting and inspiring for the contemporary vision of creating lively, safe, sustainable and healthy cities.

A profusion of bars, fences, signs and cameras signals the insecurity and fear that have crept into communities around the world.
Above right: Apartment block in Beijing, China.



Right: residential streets in Lima, Peru, converted to gated communities.

Safety and security

safe city — open city

Already in the first chapter of her 1961 book *The Death and Life of Great American Cities*, Jane Jacobs discusses the importance of safety in the streets. She describes the crime-preventive effect of life in the street, of mixing functions in buildings and of residents' care for common space.[23] Her expressions "street watchers" and "eyes on the street" have since become integral to city planning terminology.

Being able to walk safely in city space is a prerequisite for creating inviting well-functioning cities for people. Experienced as well as perceived safety is crucial for life in the city.

The safety discussion has a general and a more detailed dimension. The general focus is maintaining and supporting the vision of an open society in which people from all socioeconomic groups can move about side by side in the common room of the city as they go about their daily business. Within this general framework, safety can also be promoted through careful consideration for the design of the many detailed solutions in the city.

safety and society

Juxtaposed with the idealistic visions of safe open cities is the reality of many urban societies. Social and economic inequality is the backdrop for high crime rates and the fully or semiprivate attempts to protect property and private life.

Barbed wire and iron bars fortify houses, security patrols cruise residential areas, security guards stand in front of shops and banks, signs threaten "armed response" outside houses in exclusive quarters, gated communities abound: all of these are examples of people's attempts to protect themselves against invasion and trespass of private property. The examples also illustrate a general retreat to the private sphere by some population groups.

It is important to point out that simple individual urban crime-prevention solutions are not of much help, where the invasive sense of insecurity is often deeply rooted in social conditions. On the other hand, many urban communities are less gridlocked, including hard-hit city districts. In these areas there is every reason to make a solid effort to avoid the retreat of the population behind bars and barbed wire.

Other parts of the world do have cities and societies in which cultural tradition, family networks and social structure keep crime low despite economic inequalities.

To conclude, in almost all situations there are good arguments for working carefully to reinforce real and perceived safety, a prerequisite for using common city space.

The light from buildings along city streets can make a significant contribution to the feeling of security when darkness falls. Above: Bakery in Amman, Jordan, and Apple Store in Sydney, Australia.

Seven thousand people live in central Copenhagen, and on an ordinary weekday evening during the winter there are approximately seven thousand lighted windows visible from the street.[24]

If we shift the focus from defending the private sphere to a general discussion about feeling safe while walking in public space, we will find a clear-cut connection between the goal to strengthen city life and the desire for safety.

life in the city means safer cities — and safe cities provide more life

If we reinforce city life so that more people walk and spend time in common spaces, in almost every situation both real and perceived safety will increase. The presence of others indicates that a place is acceptly good and safe. There are "eyes in the street" and often "eyes on the street" as

well because it has become meaningful and interesting for people in nearby buildings to follow what is going on in the street. When people make their daily rounds in city space, both the space and the people who use them becomes more meaningful and thus more important to keep an eye on and watch out for. A lively city becomes a valued city and thus also a safer city.

life in buildings means safer streets

Life in the street has an impact on safety, but life along the street also plays a significant role. Urban areas with mixed functions provide more activities in and near buildings around the clock. Housing in particular signifies good connections to the city's important common space and a marked reinforcement of the real and perceived safety in the evening and at night. So even if the street is deserted, lights from windows in residential areas send a comforting signal that people are nearby.

Approximately 7,000 residents live in Copenhagen's city center. On an ordinary weekday evening in the winter season a person walking through the city can enjoy the lights from about 7,000 windows.[25] The proximity to housing and residents plays a key role in the feeling of safety. It is common practice for city planners to mix functions and housing as a crime prevention strategy and thus increase the feeling of safety along the most important streets used by pedestrians and bicyclists. The strategy works well in Copenhagen, where the city center has buildings between five and six stories high, and there is good visual contact between residences and street space. The strategy does not work as well in Sydney. Although the Australian metropolis has 15,000 people living in its heart, the residences are generally from 10 to 50 stories above street level, no one who lives high up can see what is happening down on the street.

soft edges mean safer cities

Ground floor building design has a disproportionately large impact on the life and appeal of city space. Ground floors are what we see when we walk past buildings. It is also from the lower floors that people inside can follow what is going on outside, and vice versa.

If ground floors are friendly, soft and — in particular — populated, pedestrians are surrounded by human activity. Even at night when little is happening in cafés and front yards, furniture, flowers, parked bicycles and forgotten toys are a comforting witness of life and proximity to other people. Light streaming from the windows of shops, offices and dwellings at night helps increase the feeling of safety in the street.

Soft edges signal to people that a city is welcoming. In contrast, in streets with retail, where solid metal shutters close off shops outside opening hours a sense of rejection and insecurity is produced. The streets are dark and deserted in the evening, and there is not much reason to be there on weekends and holidays either. Given the general desire for safe cities and inviting ground floors, preferred façade options

Tall buildings can also land softly and elegantly along streets and soften the transition between out and in (Lloyd´s of London. Architects: Richard Rogers Partnership, 1978 – 86).

Soft edges in a Chinese shopping street and a residential area in Frederiksberg, Denmark. In any case, soft transitions mean more activities in outdoor space and greater security.

have open metal grills and other types of transparency to protect goods but allow light to stream onto the street, and the also give nocturnal pedestrians the pleasure of window shopping.

ordinary concern means safer cities

Life in the street and on the street, mixed functions along the street and friendly edge zones are key qualities for good cities — also in terms of safety and protection. The polar opposite is the perfect recipe for an insecure urban environment: lifeless streets, mono-functional buildings devoid of activity for most of the day, closed, lifeless and dark façades. To this list we can add insufficient lighting, deserted paths and pedestrian tunnels, dark nooks and crannies, and too many bushes.

In the face of this rather depressing scenario it is important to remember that almost any enticement to invite people to walk, bicycle and stay in city space will also contributes to a greater sense of security.

clear structures mean safer cities

Another contribution to our sense of security is a good city layout that makes it is easy for us to find our way around. It is a mark of good urban quality when we can directly find the destination we're looking for without hesitation and detours. Clear structure and organization do not require large dimensions and broad straight roads from point to point. It is fine for the streets to be winding and the street network varied. What is important is that the individual links in the network have clear visual characteristics, that space has a distinctive character and that important streets can be distinguished from less important ones. Signs and directions and good lighting at night are crucial elements of the relationship between city structure, sense of locality and feeling of security when walking in the city.

clear-cut territories mean safer cities

In the chapter on human senses, it was mentioned how different distances are used for various types of communication between people, and how these distances are continuously used to reinforce the character and intensity of contacts. Interacting with others and protecting our private sphere are two sides of the same coin. Just as close contact necessitates precisely defined territories, a clear articulation of private and public territories on the larger arena is an important prerequisite for social opportunities and a sense of security.

Human society is subtly organized around various social structures that define and reinforce the individual's sense of affiliation and security. A university student is part of a structure with faculties, departments, classes and study groups that provide a framework. Workplaces have divisions, departments and teams. Cities have quarters, neighborhoods, housing complexes and single dwellings. Coupled with well-known designations and signals, these structures in themselves help reinforce a sense of affiliation within the larger entity and security for the individual group, household or person.

Sibelius Park, a housing complex in Copenhagen, has cooperated with the Danish Crime Prevention Council to carefully define private, semiprivate, semipublic and public territories in the complex. Subsequent studies have shown that there is less crime and greater security than in other similar developments.[26]

Security and the ability to read a situation are reinforced when social structures are supported by clear, physical demarcations. A sign at the city limit tells us we are now entering the city. Quarters can also be marked by signs or gates, as they are known in the Chinatowns in many American cities. Neighborhoods and individual streets can be marked with signs, gates or symbolic portals, and our arrival at a housing complex can be marked with gates and welcome signs.

The marking and detailing of structure and sense of affiliation on all the levels mentioned helps strengthen the feeling of security for groups as well as individuals. People who live in the area will think: this is my city, my quarter and my street, while outsiders will think: now I am visiting others in their city, quarter or street.

In the area of crime prevention, Oscar Newman's pioneering work on "defensible space" shows a strong connection between clearly defined territorial affiliation and security. He makes a compelling argument for working consistently with clear hierarchies in city planning in order to reinforce actual and perceived security.[27]

soft transitions between private and public space, please

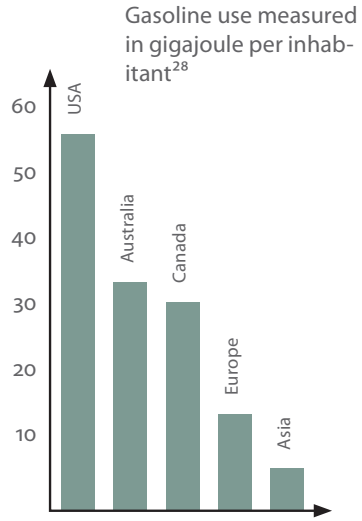
Also on a small scale — particularly in connection with individual dwellings — clarifying territories and affiliations is crucial for contact with others and for protecting the private sphere. Whereas efforts are made to graduate and soften transitions between private and public areas by building semiprivate and semipublic transition zones, the likelihood of contact from zone to zone increases, and residents gain the opportunity to regulate contacts and protect private life. A well-proportioned transition zone can keep events at a comfortable arm's length.

In the previous section soft edges and their importance for life in the city are discussed. It is emphasized that edge zones, porches and front yards can make a decisive contribution to vitalizing life in public space. These transition zones between the private and public sphere must be carefully articulated in order to clearly distinguish between what is private and what is public.

Changes in pavement, landscaping, furniture, hedges, gates and canopies can mark where public space ends and fully or semiprivate transition zones begin. Height differences, steps and staircases can also mark the transition zone, providing critical prerequisite for the important function of soft edges as the link between inside and out, between private and public. Only when territories are clearly marked can the private sphere afford the degree of protection that people need to make contact with others and contribute to life in the city.

A soft edge and clear distinctions between public, semiprivate and private territories provide good opportunities to signal where you live and decorate it with your favorite flowers (Almere, the Netherlands).

The bar graph shows dramatic differences in energy consumption in cities in various parts of the world. It also shows the opportunities to achieve lower energy consumption by investing more heavily in collective traffic and bicycles, as has happened in Europe and Asia. Photo: Brisbane, Australia, is one of the cities that has not dismantled motorways along the river — yet!



Copenhagen's bicycles save 90,000 tons of CO_2 every year. The balloon shows the volume of one ton of CO_2.

Pedestrian and bicycle traffic save a lot of space in the city. Bicycle paths have room for five times more traffic than car lanes. The sidewalk has room for 20 times more travellers than car lanes. Ten parked bicycles can easily fit into one parking space for cars.

3.3 The sustainable city

climate, resources and green city planning

There is growing interest in planning sustainable cities, and for good reason. The depletion of fossil fuels, escalating pollution, carbon emissions and the resulting threat to the climate are strong incentives for trying to increase sustainability in cities around the world.

The concept of sustainability as it applies to cities is broad, with the energy consumption and emissions of buildings being only one concern. Other key sectors are industrial production, energy supply, and water, waste and transport management. Transport is a particularly important item on the green accounting sheet because it is responsible for massive energy consumption and the resulting heavy pollution and carbon emissions. In the USA transport accounts for no less than 28% of carbon emissions.[29]

Giving higher priority to pedestrian and bicycle traffic would change the profile of the transport sector and be a significant element in overall sustainable policies.

a walking and bicycling city — an important step toward greater sustainability

Pedestrian and bicycle traffic use fewer resources and affect the environment less than any other form of transport. Users supply the energy, and this form of transport is cheap, near-silent and nonpolluting.

For a given distance the relative energy consumption ratio of biking to walking to driving a car is one to three to 60 energy units. In other words, biking will take you three times further than walking using the same amount of energy. A car consumes 60 times more energy than a bicycle and 20 times more than walking.

pedestrian and bicycle traffic takes less space

Pedestrian and bicycle traffic does not crowd city space. Pedestrians make very modest demands: two sidewalks 3.5 meters (11.5 feet) wide, or a pedestrian street seven meters (23 feet) wide can handle 20,000 people per hour. Two bike paths two meters (six feet) wide are sufficient for 10,000 bikers per hour. A two-lane, two-way street can take between 1,000 and 2,000 cars per hour (peak load).

A typical bike path can thus transport five times as many people as a car lane. And in terms of parking, there is plenty of space for ten bicycles in one ordinary parking slot. Pedestrian and bicycle traffic saves space and makes a positive contribution to green accounts by reducing particle pollution and carbon emissions.

good public transport and good city space — two sides of the same coin

Being able to walk, wait and ride comfortably are important aspects of the quality of collective transit. Quality of walking routes and comfort at stops are important issues (bus stop, San José, Costa Rica and rail commuters, Cape Town, South Africa).
Below: trolley car from Freiburg, Germany, shows the potential benefits.

Greater consideration for pedestrian and bicycle traffic can further facilitate the transition from cars to people traffic. The more people who walk and bike and the greater the distances traveled by foot or bike, the greater the rewards for total city quality and the environment. Strengthening bicycle traffic in particular provides major benefits.

developing more bicycle traffic opens promising perspectives all over the world

The topography, climate and city structure of many cities worldwide would make it simple and cheap to introduce or strengthen bicycle traffic. In addition to the many direct advantages of bike traffic in cities, bicycles will also be able to ease some of the transport burden.

For example, in the City of Copenhagen, the curbing of vehicular traffic has meant that bicyclists in 2008 accounted for 37% of commuting to and from work.[30]

In Bogotá, Columbia, pedestrian and bicycle traffic has been dramatically strengthened as a result of the overall traffic policy, showcasing the massive potential of many developing countries — with relatively modest investments — for increasing the mobility of the vast majority of their inhabitants while reducing impact on the environment.

good city space
— a crucial prerequisite for a good public transportation system

A good city landscape and good public transportation system are two sides of the same coin. The quality of journeys to and from stops and stations has a direct bearing on the efficiency and quality of public transportation systems.

The total journey from home to destination and back must be seen in its entirety. Good walking and bicycle routes and good amenities at stations are important elements — by day as well as by night — for ensuring comfort and a feeling of security.

Transport Oriented Developments

All over the world people are working on Transport Oriented Development (TOD) plans, concentrating on the interplay between pedestrian and bicycle structures and the collective traffic network.

TOD cities are typically built around light-rail systems surrounded by relatively high-density development. This structure is a prerequisite for providing a sufficient number of dwellings and workplaces with a reasonable walking and biking distance to stations. Compact TOD cities with short walking distances and good city space provide numerous other environmental advantages such as short supply lines and reduced land consumption.

Before the incursion of cars, old cities were all well-functioning TOD cities. Again Venice is a classic example. Public transport is handled by ferry buses, which ply many routes, with frequent stops creating a finely meshed transport net. No address in the city is more than 200 – 300 meters (655 – 985 feet) from the nearest ferry-bus stop, and walking along beautiful streets and squares is an important part of the total journey.

city space and social sustainability

Social sustainability is a large and challenging concept. Part of the focus is to give various groups in society equal opportunities for accessing common city space and getting around town. Equality gets a substantial boost when people can walk and bicycle in combination with public transport. People without cars must have access to what the city has to offer and the opportunity for a daily life unrestricted by poor transport options.

Social sustainability also has a significant democratic dimension that prioritizes equal access to meet "others" in public space. A general prerequisite here is easily accessible, inviting public space that serves as an attractive setting for organized as well as informal meetings.

basic needs – and social sustainability

Naturally there are differences in the needs and opportunities of the world's rich and poor cities. It is important to underline the idea that well-developed countries need to increase focus on social sustainability, a fundamental to creating a well-functioning and attractive city for everyone.

The problems are considerably more urgent in low-income urban societies, because the gap between rich and poor is so vast, with widespread poverty limiting the opportunities of marginalized population groups. Tackling the problems of these societies requires new resource priorities, visionary city policies and capable leadership like that demonstrated in Bogotá Colombia, in the period around the year 2000.

lively cities and social sustainability

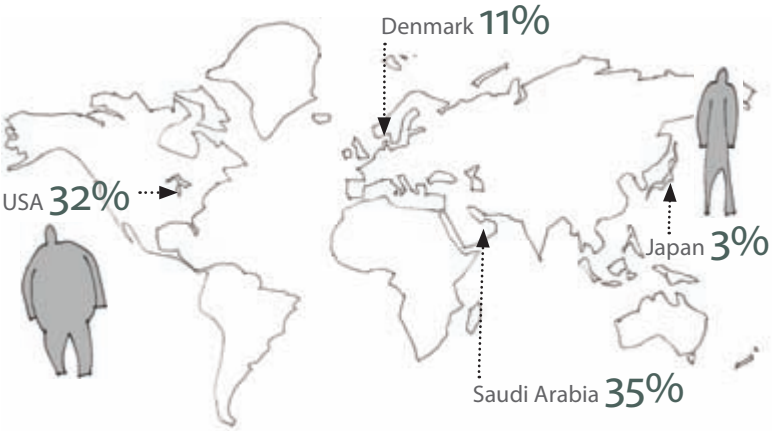
The principles underlying the creation of a lively city also support plans for social sustainability. The lively city tries to counter the trend for people to withdraw into gated communities and promotes the idea of a city that is accessible and attractive to all groups in society. The city is seen as serving a democratic function where people encounter social diversity and gain a greater understanding of each other by sharing the same city space. The concept of sustainability also implies thinking about coming generations. They too must be considered as communities around the world become increasingly urbanized. The city must be inclusive and there must be room for everyone.

For cities to achieve social sustainability, attempts must reach far beyond physical structures. If cities are to function efforts must focus on all aspects from the physical environment and social institutions to the less obvious cultural aspects that have great significance on how we perceive individual quarters and entire city societies.

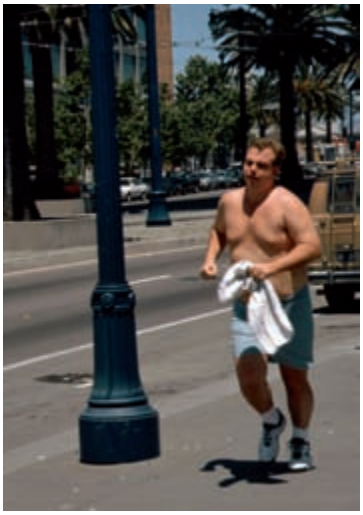
a sedentary life behind steering wheel and computer screen

An inactive life behind steering wheel and computer screen quickly turn into a serious health problem. In recent years obesity has become an epedemic in countries where natural exercise is not part of the daily pattern of activity.

Number of obese in the adult part of the population (≥ 15 years)[31]



Where walking and biking are not part of the daily program, people have to run for their lives in their lunch breaks. Another option: Park'n Sweat facilities like this one, seven stories of parking with a two-storey fitness center on top (Atlanta, Georgia).



3.4 The healthy city

good city space — a valuable contribution to health policy

The interplay between health and city planning is a comprehensive topic. In this section discussion will be limited to health and health policy seen in relation to work on the human dimension of city planning.

a sedentary life behind steering wheel and computer screen

Numerous changes in society in the economically developed world have led to new health policy challenges. Sedentary work has largely replaced the manual labor of the past, cars have increasingly become the dominant mode of transport, and simple activities such as climbing stairs are increasingly replaced by riding on escalators and elevators instead. If we add that much of our time at home is spent in an easy chair passively watching TV, we have a model in which many people do not have natural opportunities for using their bodies and energy on a daily basis. Poor eating habits, overeating and eating fat-saturated foods often reinforce the problem.

Country after country admits that the problem is epidemic in proportion. Following the history of the obesity epidemic in the USA makes for dramatic reading.

Year for year the problem has spread from state to state, while the situation in each state gradually worsens. The number of people classified as overweight in the USA has been relatively constant since the 1960s, but the number of obese people has risen sharply. Obesity is defined as people with a BMI over 30, the standard used by WHO and other organizations. In the 1970s one in ten Americans was obese. In the period 2000 – 2007 the rate has risen to one in three.[32]

The pattern for children is particular worrying, with the number of overweight children ages 6 to 11 having doubled in the past three decades from 1980 to 2006. The number has tripled for youth ages 12 to 19.[33]

In the past ten years these lifestyle-related health problems have spread quickly to other parts of the world with corresponding economies and societies. The problem of obesity is extensive in Canada, Australia and New Zealand and growing rapidly in other areas such as Central America, Europe and the Middle East. In the UK about a quarter of the adult population is obese, in Mexico about a third, and one-third of the population in Saudi Arabia is obese.[34]

The price of the loss of exercise as part of a daily pattern of activity is high: a decrease in quality of life, a dramatic rise in health costs and a shorter lifespan.

exercise by choice

Providing opportunities for exercise and self-expression is a logical and valuable answer to the new challenges (winter skating on Copenhagen square; skateboarding in New York; students compensating for their commuting in cars, University of Miami; and street scenes from China).

exercise as a cause, a choice and a business opportunity

The solution to these new challenges is that the individual must seek physical challenges and daily exercise, which are no longer an integral part of daily life. In Denmark the most popular form of sport in 2008 was "running" and in their free time people jogging flock to paths and parks where they make a valuable contribution to the activity level in cities. Other people choose organized sport or fitness centers for their exercise and quality of life boost. Many others have purchased their own fitness equipment and bike, step and run at home. Exercise has become a widespread and important daily activity, as well as a major business.

This entire development is logical and appropriate for the individual and for society, but individual and private solutions also have their limitations.

Voluntary exercise requires time, determination and willpower. Organized options and equipment also cost money. Some social groups and age groups can handle the challenges, but many people do not have the time, money or energy, and there are often periods during life where people do not get as much exercise as they should. "Fitness freaks" are often healthy and physically active, while the problems of too little exercise are widespread among children and seniors and to a surprisingly high extent even our youth.

exercise as a natural part of daily life

In the face of new and old challenges, one important aspect of overall health policy is near to hand. Why not introduce a broad, carefully conceived invitation to people to walk and bicycle as much as possible in connection with their daily activities? Naturally, invitations must comprise physical infrastructure in the form of quality walking and bicycling routes, coupled with an information campaign to let people know about the advantages and opportunities that await when they use their own personal energy supply for transport.

A number of cities, including Copenhagen and Melbourne, have recently introduced general objectives that more closely define the requirement of whole-hearted invitations to walk and bicycle as much as possible in existing and new urban areas. In several cities such as New York, Sydney and Mexico City work is ongoing to develop infrastructure and city culture so that pedestrian and bicycle traffic can occupy a prominent place in the daily pattern.

These cities have prioritized improvements, upgrading pedestrian networks with broader sidewalks, laying better surfaces, planting shade trees, removing unnecessary sidewalk interruptions and improving street crossings. The goal is to make it simple, uncomplicated and safe to walk any time of day or night. And it should also be a pleasure with beautiful space, good city furniture, fine details and good lighting.

For bicyclists in the years following the millennium in 2000, thousands of kilometers of good bicycle routes and paths have been laid out all over the world, offering uncomplicated, fast and safe travel through cities.

When walking and bicycling are a natural part of the daily pattern of activity, there is positive spin-off for the life quality and well-being of the individual — and even greater benefits to society.

In new urban areas adopting a policy of inviting people to walk and bicycle regularly might sound like an obvious and feasible prospect, but if the invitation is to mean anything, plenty of innovative thinking and new planning processes will be required. After all, urban planners worldwide have been accustomed to planning exclusively for car traffic for decades now.

Convincing invitations to walk and bike will require a change in planning culture. Plans for new cities must start by designing the shortest, most attractive walking and biking connections and then address the other transport needs. This planning priority will result in new city quarters that are more compact with smaller space dimensions. In other words, it will be far more attractive to live, work and move about in these neighborhoods than in the city quarters built to today's conventional standards. Life must come before space, which in turn must come before buildings.

"An apple a day keeps the doctor away," is a health slogan that has been around a long time. Today's advice for a healthier life is to walk 10,000 steps a day. If old and new city areas are laid out to invite pedestrian traffic or a combination of walking and biking traffic that can easily meet daily transportation needs, many health problems could be reduced and both life quality and city quality improved.[35]

In old cities almost all traffic was by foot. Walking was the way to get around, the way to experience society and people on a daily basis. City space was meeting place, market place and movement space between the various functions of the city. The common denominator was travel by foot.

In Venice it is easy to walk 10,000, 15,000 or even 20,000 steps on an ordinary day. You don't think of it as any great distance because of the wealth of impressions gained on route and the beautiful city space. You just walk.

city life, safety, sustainability and health as an integrated city policy!

A look back at the discussions in this chapter about lively, safe, sustainable and healthy cities underscores the interconnectedness of the issues and the enormous opportunities that increased concern for pedestrians, bicyclists and city life in general can mean for all four areas.

A single city policy change will strengthen city quality and key social objectives. In addition to other benefits, a stronger invitation to walk and bicycle in cities can be made quickly and cheaply. It would be visible, have major signal value and be a policy for all the users of the city.

However, actions must match words, and good physical frameworks must be established. And most important of all, we must work wholeheartedly to invite people to walk and bicycle in cities as part of their everyday routine. Invitation is the key word and in this connection city quality on the small scale — at eye level — is crucial.

A vital element in overall health policy should be for walking and bicycling in cities to be an obvious option. Benefits are substantial for increasing life quality and reducing health-care costs.