DESIGN STREETS AS PLACES FOR PEOPLE

INTEGRATED GUIDELINES FOR SUSTAINABLE NEIGHBOURHOOD DESIGN

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INTRODUCTION

A COMPLEX CIVIC INSTITUTION

The street is more than a traffic canal irrigating the urban grid. It is a complex civic institution, specific to each culture and capable of infinite variations and the subtlest nuances.

The Islamic city is structured by the triple hierarchy of streets leading from the gates to the mosque, streets bisecting city blocks and private blind alleys infiltrating the hidden, veiled interiority of blocks formed by the aggregation of houses with courtyards. Venice and the Dutch cities, Suzhou and the canal cities of southern China have all developed a juxtaposition of streets and canals, forming a nested, interdependent and hierarchical system of communication.

In the Baroque cities of the seventeenth century and in classical French cities, the vocabulary of the Grande Manière consisting of broad avenues pointing like arrows to monuments, or to the sun and infinity as in Versailles, became the European model of urban elegance in the nineteenth century, picked up in Paris, Barcelona and Vienna.

Street design should not only provide corridors for the movement of traffic. It should focus on social interaction. Before being a form, a street is a path. Streets exist by the paths they describe. In fact, it is the movement in very different streets (which are, moreover, changing) that institutes these paths and gives them a reality, for streets only exist in the minds of those who travel on them[1]. 'The street, by the richness of its functioning and its evolution, calls for a genuine hermeneutic, as if it were a matter of interpreting a complex text of multiple meanings artfully interwoven to yield a colourful changing reality that is neither univocal nor monovalent. Indeed, the street is anything but this. It is firstly the presence, en creux, of human bodies living together and sharing a space. The street is proximity above all. Then it speaks of the will to live together and, in this sense, it is a metaphor for the community. Next it is in a direct relationship to the activities that take place on it; thereby it assumes economic value, religious value, political value, and so on. And although people do not live long, streets can survive several millennia. Rome offers an example of several streets of ancient origin that are still in use today. What memory do streets harbour? How many times forgotten, buried and exhumed? Yes, streets act as witnesses to people's lives and as mirrors of the city. Thus, hidden behind the simple notion of the city's physical and geometric regularity lies another regularity, that of symbol, emotion and meaning.'[2]

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[1] Salat et al. 2011.
[2] Gruet 2006.

Carpaccio, detail of Healing of the possessed man (1494). Canvas 365 x 389 cm. Venice, Accademia.

NEIGHBOURHOOD STREETS FULFIL MANY ROLES

- Facilitating movement of vehicular traffic, pedestrians and cyclists.
- Fostering inclusive communities with safe and vibrant intergenerational social places.
- Integrating ecosystems and the water cycle in street landscaping.

Much of the interaction within a community takes place in the outdoor environment. Street design should create inclusive social spaces where children can play, people can stop to chat and enjoy, and other activities can take place safely. Car traffic should not dominate the street. Design should put people first.

STREETS ARE NOT ROADS

While roads are highways whose main function is to allow the movement of motor traffic, streets have several purposes whose 'place function' is the most important. We must draw a clear distinction between roads and streets as follows

- Roads are communication routes whose main function is to facilitate car traffic.

- Streets have important roles in the public domain other than those related to automobile movement. Buildings and public spaces line them. While traffic facilitation remains a key activity, they support a range of social, recreational, retail and commercial functions.

Streets can improve our quality of life and increase our desire to spend time in a place. Their success will depend on how they respond to different users' needs and how they fit in the surrounding area. All communication routes within urban boundaries should thus be treated as streets. No reference should be made to road hierarchies and terminologies such as local distributor/local access roads developed by road engineering practice for car-oriented cities.

People centred design should focus on the wholeness of streets, while traffic engineering tends to focus on one single function to the detriment of the ensemble. The sustainable paradigm for streets aims to maintain access and multiple functions. Streets should accommodate many uses in an inclusive way, not allowing one use or mode of travel to dominate. Streets should become again balanced human centred wholes that provide for diverse movement patterns, uses, activities, and social interactions. Street design should provide good connectivity for all groups of street users, respecting diversity and inclusion.

Besides being a system, each street is an important part of a wider system encompassing urban places at various scales. Their design should consider their context and their location within the neighbourhood and city wider connectivity and public realm. Each street should enhance the organization and clarity of the street system in which it is embedded.

Street design should acknowledge the environment and establish a unique sense of place. It should result from an intelligent response to location rather than being the rigid application of standards regardless of environment. Street design should focus on creating a sense of place supported by an appropriate movement pattern. It should enhance the character or atmosphere of an area and the connection felt by people. Sense of place is key to a more fulfilling neighbourhood. It comes from a strong relationship between the street, and buildings and trees that frame it. It encompasses many aspects: local distinctiveness, visual quality, social and economic activity[3].

This chapter comprises seven guidance sections.

INTEGRATED STREET DESIGN
STREETS AS PUBLIC PLACES
STREET DEFINITION AND ENCLOSURE
STREETSCAPES
DESIGNING BOULEVARDS
PEDESTRIAN REALM
SEQUENCES AND VISION IN MOTION

The guidelines sections are completed by five in depth case studies.

Strøget, Copenhagen
Piazza di Porta Ravegnana, Bologna
Via dei Giubbonari, Rome
Via del Corso, Rome
Rue des Pierres, Bruges

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[3] The Government of Scotland 2010.

INTEGRATED STREET DESIGN

PARTNERSHIPS

Early partnerships between urban planners, street designers, and environmental specialists, are essential to coordinate efforts and achieve a balanced street network. While it is essential to allow street traffic, designers must consider the appropriate balance between streets different functions and not treat only one. Often, all users can comfortably share the same street network. This has profound implications on how we design streets, blocks, and buildings within them. The design of streets, the cityscape and landscape should foster drivers to reduce speeds. The design should leverage physical design constraints and psychological considerations. Environmental and bioclimatic considerations should also inform the design.

Some streets will have important movement functions, while for others, place making will be more important. Balancing the different functions of a street will help determine appropriate design speeds, street geometry, and the adjacent level of development. The character of streets can change over time and design must be able to respond to changing circumstances. In the local area plan, it is important

- To define the functions of various streets.
- To adopt a coordinated and multidisciplinary design approach.
- To agree on the design approach between the local authority and the developer(s) at the earliest possible stage.

INTEGRATED STREET DESIGN OUTCOMES[4]

When evaluating streets, measures of effectiveness and street liveability should be more important than measures of efficiency. The performance dimension of effectiveness allows for measurements of both transportation and land-use derived demand management. It provides a more holistic approach than transport-only efficiency measures, and is therefore recommended. Streets should not be assessed isolated. Instead, each design provides an opportunity to ask what multiple benefits can be achieved.

- **Public Health and Safety**

  Every year, millions of people die needlessly from preventable causes, such as traffic accidents or chronic diseases related to poor air quality and lack of physical activity. Street design should promote safe environments for all users and provide healthy choices that facilitate active mobility, such as walking, cycling and using public transportation. Streets should improve access to healthy food, reduce noise levels, and provide landscaping and trees that improve air and water quality.

- **Quality of Life**

  As people experience a city through its public spaces, a city's quality of life depends heavily on its streets. Ensuring that a neighbourhood's streets are safe, comfortable, efficient and vibrant will affect its quality of life and its inhabitants' sense of connection. Streets can encourage social interactions and designs that provide natural oversight and help build stronger and safer communities.

- **Environmental Sustainability**

  Street projects offer the opportunity for local actions to improve the environmental sustainability and resilience of a neighbourhood. Promoting sustainable modes of transportation through well-designed streets can reduce carbon emissions and improve air quality. The integration of trees and landscaping can improve water management, promote biodiversity and increase access to the natural environment. The shape and orientation of streets can reduce the Urban heat

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[4] This section draws on Global Designing Cities Initiative n.d.

Island effect. It can create shaded urban fabrics that breathe and are naturally cooled.

- **Economic Sustainability**

    Great streets attract people and businesses. Street projects that increase safety, improve public realm quality, and accommodate multimodal use have positive economic effects such as higher retail sales and increased real estate values. Investing in streets has long-term economic benefits.

- **Social Equity**

    Cities must ensure that their most precious public spaces provide safe and equitable use for all, regardless of ability, age or income, thereby giving the most vulnerable users safe and reliable mobility choices.

INTEGRATED DESIGN CRITERIA

- **Sustainability**

    Priority should be given to walking, cycling and public transport, and car travel should be minimized.

- **Safety and inclusiveness**

    Streets, paths and bike lanes should allow users of all ages and mobility ability to move safely.

- **Readability**

    It should be easy for residents and visitors to navigate the neighbourhood.

- **Sense of place**

    Streets should contribute to the creation of attractive and dynamic places. The ground floors of the buildings should be interesting and varied with many openings on the street (shops, cafes, etc.). The use of street names related to the neighbourhood, the preservation of the old built fabric and the evocation of the past in new buildings can reinforce the sense of belonging. In cold and temperate climates, bright, sunny streets can foster a positive sense of place.

- **Ecosystems and water cycle integration in street landscaping**

    Street design should integrate natural landscape features and foster biodiversity. It should incorporate sustainable drainage as a landscaping element, and use permeable attractive, durable materials that can be easily maintained.

- **Solar gains and shading**

    In cold climates, arranging streets so that buildings can maximize solar gain reduces buildings' heat and light requirements. In hot climates, streets should offer shade and sheltering from the sun. in hot and dry climates, the aspect ratio (Height/Width) of streets can be as high as 4 to ensure shading of the streets. Shaping streets to minimize the sky view factor mitigates the Urban Heat Island effect and reduces building energy for cooling.

- **Cooling the urban fabric**

    Street design should consider orientation, wind flows, greening, shading to cool naturally the urban fabric. Traditionally, many street layouts evolved to respond directly to the prevailing wind direction. Designers should accelerate wind in hot climates. This has an impact on the direction and width of streets, the scale and wind permeability of buildings, and the relationship to natural landscape features.

Urban designers, landscape architects, and transportation engineers can work flexibly within the building envelope of an existing street. This includes adding trees, providing BRT – Bus Rapid Transit – stations, moving kerbs, changing alignments, corners and redirecting traffic where necessary. Many city streets were created in a car-oriented era and need to be reconfigured to become more sustainable and more pedestrian-oriented. Street space can also be reused for different purposes, such as parklets, bicycle parking and pop-up cafes. Medium-sized streets that run through the centre of a neighbourhood should be easy for pedestrians and vehicles to cross, thus promoting the free flow of people between home, shops, offices and schools. During the 20th century, the roadways of many mid-sized neighbourhood streets were widened in an attempt to accommodate more vehicle traffic. Sidewalks have been narrowed, trees have been removed, street parking has been restricted, and signals have been coordinated to handle more cars. Cities are now modernizing these streets to support new development and strengthen their neighbourhood human scale.[5]

STREETS AS PUBLIC PLACES

Streets are a neighbourhood major public space. They represent more than a quarter of urban land area. In traditional cities, much of the community life took place in streets. Communities should use the 'living street' concept. A living street is a street primarily designed for pedestrians and cyclists and a social space where people can meet and children can play safely. Vehicular access is subordinated to pedestrian use.

Reinforcing the intelligibility and visual coherence of streets is key to increase harmony between people and foster a sense of community. Well-designed streets are a vital social, economic and cultural asset. Street design should be at the heart of planning, transportation, urban design and architecture. It means abandoning the normative and single purpose attitude of road engineering to return to a flexible and people-centred approach that delivers vibrant, safe and attractive areas. Such streets create a spirit of place. They make a neighbourhood more 'legible'. They evoke a feeling of protective enclosure, human scale, coherence, image, and linkage.

Planning

- Enhance context.
- Help build and strengthen the community.
- Define fine grain urban fabric and a variety of public spaces.
- Delineate small blocks with buildings aligned along streets, not surrounded by modernist vast open green spaces.

- Meet the needs of all users by embodying the principles of inclusive design.
- Be cost-effective to construct and maintain.
- Keep street width appropriate.
- Enhance safety.

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[5] An example is Vanderbilt Avenue in Brooklyn, New York. It formerly consisted of four travel lanes, two in each direction, with parking on either side. The City and the community worked together to develop a solution. One travel lane was removed and one was converted to a centre turn lane. The remaining space won was given over to wider parking areas and bicycle lanes on either side. Planted medians were installed to shorten the crossing distance for pedestrians. Since implementation, vehicles have slowed down, cyclists increased by 80% and injuries from traffic crashes have gone down significantly

[6] This box draws on English Partnerships and Housing Corporation 2007.

Design

- *Context* – The position within the movement hierarchy will determine the intensity of a street use.
- *Attractiveness and distinctive identity.*
- *Design streets as public open space* – Landscape and street furniture must make it comfortable to share street space among pedestrians, public transport and vehicles. A coordinated design should harmonize signage and street furniture.
- *Activities bordering streets* – Surrounding land uses and plot widths affect the street vibrancy. The edges are usually the most populated parts of a public space, because people are looking for niches in which they can see passing-by activities.
- *Activities within the streets* – Street design should accommodate a range of activities at different times of the day or year.

- *Microclimate* – People are searching places sheltered from the wind and that can offer both sunshine and shade.
- *Scale* – The scale must be appropriate to the desired functions of the street or square. Bigger is not better. Over-sizing will result in a dull place with insufficient activity.
- *Proportion* – Proportions define the enclosure of a street or a square. They determine if streets are well-defined places. Any sense of belonging will be lost without enough enclosure.
- *Objects within space* – Trees, level changes, and public art provide places around which people can gather.
- *Management* – Streets as places require coordinated management to ensure the maintenance of quality and safety.

DETAILING

The details of the public realm have a significant impact on place quality. Many of the items in streets can be dispensed with. Consider quality, not quantity. Specifications must ensure fitness of function and minimize physical and visual clutter. Designers should contact the agencies responsible for maintaining street furniture to ensure that quality will not be compromised in future repairs. The essential elements can be grouped together. Signage and lighting can be cleaned by removing posts and columns. Lighting and signage may be attached to buildings, if planned in advance, and if appropriate legal provisions are in place before the sale of the building[7]. A coordinated lighting strategy that works with both the public realm and architecture can reduce clutter. Lighting levels can match the street hierarchy, rather than being of uniform brightness. Avoid light pollution, but consider the role that architectural lighting can play on important buildings to help people find their way around[8].

CASE STUDY: NEW YORK CREATES PEDESTRIAN PLAZAS AND REVITALIZES INFRASTRUCTURE

New York City creates pedestrian plazas from street space[9]

Streets make up about 25% of New York City's land area, and yet they provide few places to sit, rest, socialize, and enjoy public life. To ameliorate the quality of life for New Yorkers and introduce more opportunities for social engagement, the city has created more open public space by reclaiming underutilized street space and turning it into pedestrian plazas that transform underutilized streets into vibrant public spaces. In the NYC Plaza Programme, DOT (Department of Transport) and its non-profit partners create public plazas that are active local destinations. Launched in early 2008, the initiative works to ensure that all New Yorkers need only walk ten minutes to find an open and welcoming public space. The effort aims at enhancing local economic vitality, pedestrian mobility, access to public transit, and safety.

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[7] English Partnerships and Housing Corporation 2007.
[8] English Partnerships and Housing Corporation 2007.

[9] See also ULI 2013.

With community input through public visioning workshops, DOT and its partners draft a vision for each plaza that complements the architecture, culture, and history of the surrounding neighbourhood. As capital projects, DOT works with the Department of Design and Construction and professional design teams, including landscape architects and engineers, to synthesize the conceptual designs and community comments through a collaborative design process.

Left: Pearl Street, New York. Underutilized spaces used for parking. Right: Pearl Street, New York. Plaza activated with seating and planting.

These street-to-plaza conversions use simple elements like moveable tables, umbrellas and chairs; colourful, patterned surface treatments and plantings; and lively and entertaining programming to create more publicly accessible open space. Changes can include new amenities, such as planters and public art, new configurations of the street using paint and bollards, and space for events and activities. After the transformation takes place, the pedestrian plazas often host a variety of community-friendly happenings, such as neighbourhood movie nights, weekend farmers' markets, and free concerts.

According to the Global Designing Cities Initiative, there were 71 plazas in various stages of design, construction, or completion in New York as of 2015. Of those, 49 were available for public use[10]. More have appeared since then. These pedestrian plazas allow many New Yorkers experiencing their neighbourhood in an entirely new way.

Times Square before and after. Source: New York DOT.

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[10] https://globaldesigningcities.org/publication/global-street-design-guide/streets/pedestrian-priority-spaces/pedestrian-plazas/case-study-plaza-program-new-york-city-usa/

STREET DEFINITION AND ENCLOSURE

'Enclosure, or the outdoor room, is, perhaps, the most powerful, the most obvious, of all the devices to instil a sense of position, of identity with the surroundings… It embodies the idea of here ness.'[12]

BUILDING FRONTS MUST BE ALIGNED ON THE STREETS

Street form has to be defined by a continuous solid boundary. During the Baroque era, as in Haussmannian Paris, strict rules of urbanism governed the visual appearance and the architecture of the lateral 'walls' formed by streets. At the heart of the street definition and legibility stands the relationship between the line of the street and the line of the buildings. When the two are superimposed, the structure of public space is clear and unequivocal.

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[11] City of New York 2019.
[12] Cullen 1961.

Buildings aligned along streets create a vibrant street life. Little India in Georgetown, Penang, Malaysia.

In the definition of urban architecture, the building fronts along the street have to submit to the overall structure of the street[13]. The status of self-contained, isolated objects should only be conferred upon public buildings. The residential and commercial fabrics should be continuous and composed of contiguous buildings, as if the streets had been hollowed out of a continuous solid mass.

VISUALLY ENCLOSING STREETSCAPES

Enclosure refers to how buildings, walls, trees, and other vertical elements define streets and public spaces. Raymond Unwin[14], the author of *Town planning in practice; an introduction to the art of designing cities and suburbs*, recommends the visual enclosure of streetscapes: 'much of the picturesqueness of old gothic towns springs from the narrowness of the streets. Not only does this narrowness give the sense of completeness and enclosure to the pictures in the streets, but it is much easier with such narrow streets to produce the effect of enclosure in a place into which they may lead.'[15] A sense of enclosure is created when lines of sight are so decisively blocked by the vertical elements as to make outdoor space seem room-like. To maintain a feeling of enclosure, the total width of the street (from building to building) should not exceed the building heights. Enclosure is determined by height and width or, more precisely, the aspect ratio (ratio of height to width – H/W) of a street. Spaces where the height of vertical elements (buildings or trees) is proportionately related to the width of the space between them have a room-like quality.

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[13] Kostof 1992.
[14] Raymond Unwin lived from 1863 to 1940. He was an engineer who worked in mining towns and villages. He had a passion for improving the housing conditions of the working classes. He designed a whole model village at New Earswick on the edge of York in 1902. In 1903, he drew up the master plan for the first Garden City at Letchworth. Unwin's work and ideas were important because they acted as a work of synthesis and innovation, with ideas and concepts of how to make a beautiful town that worked.
[15] Unwin 1909.
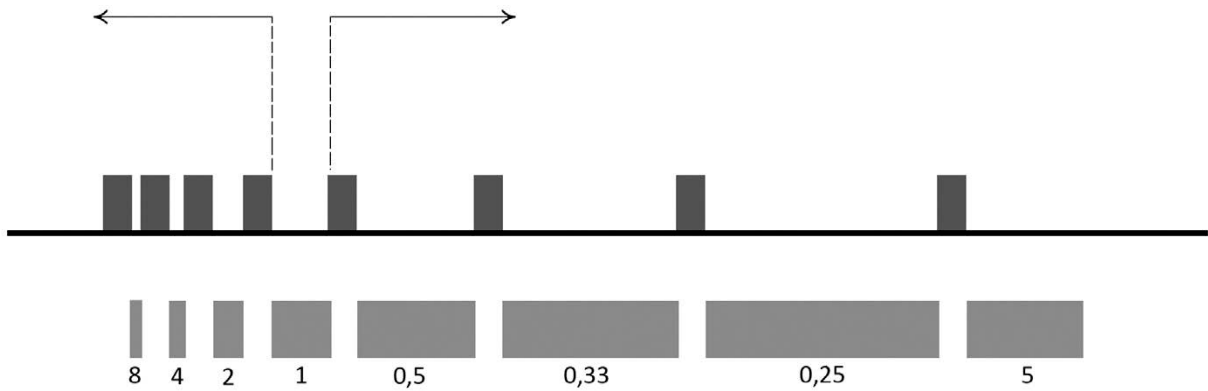
Impact of the aspect ratio (H/W) of streets on enclosure. A balanced street corresponds to H/W = 1. A H/W over 1 gives the sensation of a protective enclosure. A H/W lower than 1 gives a sense of separation between buildings. Low H/W values cause the street space to lose its definition.

DESIGNING FOR ENCLOSURE

In an urban setting, enclosure is formed by lining the street or plaza with unbroken building fronts of roughly equal height. The buildings shape the 'walls' of the outdoor room. The street becomes the 'floor'. If the buildings are roughly of equal height, the sky converts into an invisible ceiling. Enclosure is eroded by breaks in the continuity of the street wall. Intervals filled by nonactive uses (vacant lots, parking lots, driveways) and large building setbacks develop dead space. 'Building setbacks from the street have helped greatly to destroy the street as social space.'[16]

Top: Street facades rue de Chanzy. Bottom: Block organization along rue de Chanzy.

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[16] Alexander, Ishikawa, and Silverstein 1977.
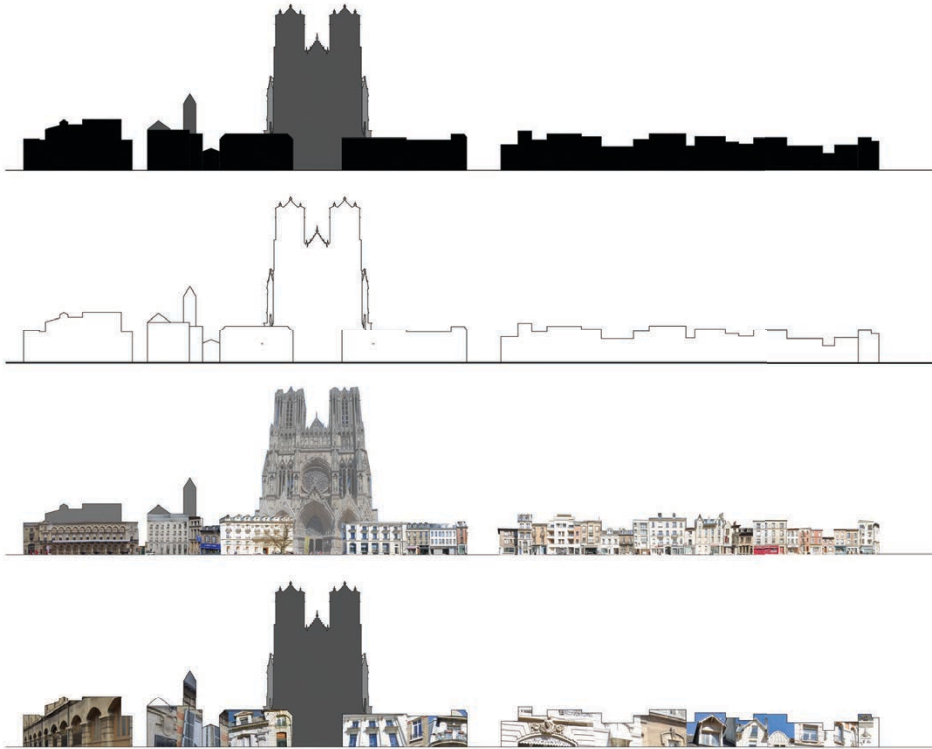
From top to bottom:
1. Positive/negative elevation rue de Chanzy on the Cathedral side.
2. Skyline
3. Facades
4. Façade detailing

From top to bottom:
1. Positive/negative elevation rue de Chanzy on the side facing the Cathedral.
2. Skyline
3. Facades
4. Façade detailing
Drawings and analysis by Alexandre Pham. École Spéciale d'Architecture, Paris.

Vary heights of adjacent buildings according to the street width. To create a sense of enclosure, urban designers should strive to achieve an aspect ratio (H/W) of at least one.

- Buildings lining large 30-metre wide boulevards should be between 21 and 30 metres high.
- Buildings lining medium 20 m wide boulevards should be 21 metres high (typical Paris boulevards for example).
- Buildings lining 10 m to 12 m local streets should be between 12 metres and 21 metres high (A height of 21 metres corresponds to Paris fabric and to most street sections of Paris local streets).

Increasing building heights along wider streets or parks presents several advantages:

- Creating a sense of enclosure in the boulevards and parks.
- Allowing for more generous ceiling heights makes possible flexible shifts of uses between residential and commercial according to market demand changes. It ensures economic resilience and vibrancy.
- Defining the edges of neighbourhoods with more formal and higher lines of buildings, like in Bo01 in Malmö, Sweden.

- Creating in contrast a less formal and more varied street scape within the inner blocks. A key to successful design is to have strong neighbourhood identity. For achieving this, each neighbourhood should have differentiation between edge and inside.

Create an uninterrupted building line and minimize or suppress setbacks[17]. A common building line creates facade vitality and establishes definition and enclosure along the street. This ensures a new development integration into an existing street. Minimizing setbacks increases a building's ability to interact with the public domain. Seamless construction lines along a block edge are more successful in providing a good delineation and enclosure to a street or square and generating an 'active frontage', with frequent doors and windows animating the public realm. A direct relationship between the buildings' facade and the sidewalk contributes to the commercial viability and vitality of the streets. Use unbroken facades as much as possible, adhering to a common building line. While securing continuity of the street frontage, narrow openings permitting to navigate within blocks and cross them can increase fine grain connectivity. When buildings are allowed to stand back from the construction line, it must be ensured that the resulting spaces are accessible and attractive.

When designing towers, establish a transitional street level to define enclosure. To create successful streets in a city with towers, separate layers of architecture to form unbroken public spaces at ground level, with a layer distinct from the tower that rises above. Lower floors should spread out at the base, giving human scale, enclosure, and definition to streets and plazas. Upper floors should step back before they ascend.

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[17] Setbacks have been invented in the 1960s in the context of automobile-oriented road engineering and urban planning. However, with smaller blocks that enhance connectivity and walkability, setbacks are a most inefficient use of land. Applying road engineering setbacks of 15 m to a 100-m side block leads to using half of the land (a half-ha) just for setbacks, and does not leave enough inner block space for creating an interesting pattern of courtyards and green spaces.

Vue de la Rue neuve   Veduta di Strada Nuova   63.4.
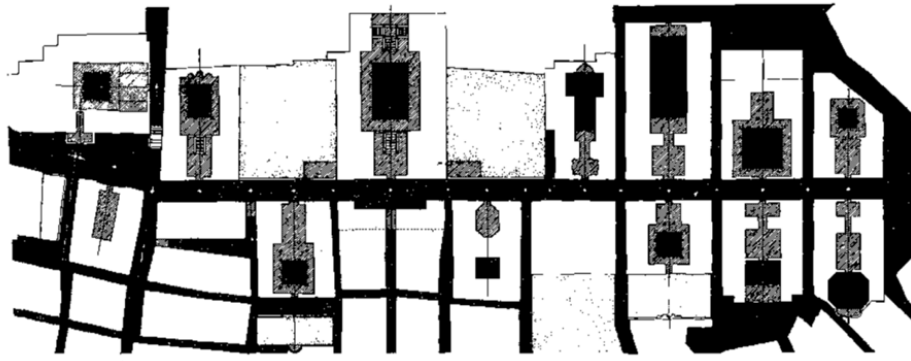
The Strada Nuova, sanctioned in 1550, was built in 1558–1583. The street is 250 metres long and 7.5 metres wide. Genoa's Strada Nuova is a remarkable example of a street defined by buildings that nevertheless establish, a consistent wall. The facades belong both to the buildings and the street. The buildings along the street are freestanding, yet their volume is part of a much larger urban mass. This results in a high degree of street unity. Connecting walls and horizontal bands define the base of buildings and differentiate the lower and upper floors. On the Strada Nuova, a consistent vocabulary of cornice details adds further to the unity of street space.

STREETSCAPES

As stated by Kevin Lynch (1960): 'Nothing is experienced by itself, but always in relation to its surroundings, the sequence of events leading up to it, the memory of past experiences.' People watch the neighbourhood as they move, and, along these paths, the other urban elements should be arranged and connected. Linkages should create a coherent streetscape and sequence of spaces.

Variety in the streetscape can emphasize the character. Punctuating key views with landmarks or green edges can provide visual cues that aid navigation and help establish areas of character within the urban structure. A series of linked spaces with distinctive identities can also facilitate movement while imparting a cohesive personality to a neighbourhood. By employing a network of diverse streets, each with its characteristics, a streetscape with varied visual interest can be achieved. Modifications in scale and density can reflect the types of activities that take place in the area[18].

REGULARITY AND IRREGULARITY, CURVED AND STRAIGHT LINES IN THE DESIGN OF A BALANCED STREETSCAPE[19]

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[18] The Government of Scotland 2010.

[19] This section draws on Salat et al. 2011.

Left: Tallin Street patterns within a square 400 m × 400 m. Source: Salat et al. 2011. Right: Tallin. Photo: ©Françoise Labbé.

Bologna street pattern with straight streets and curved streets. Source: Salat et al. 2011.

In street patterns that grew organically, in addition to the main radiating paths, cross streets ran through the city linking secondary centres between which traffic developed. In many cases, original rectilinear plans, like the Roman plans, were considerably deformed over the long term to resemble convergent organic plans. From his study of medieval city plans, Camillo Sitte concluded that they were designed on curved lines for reasons of traffic convenience but also in accordance with principles of art. These lines created the beauty of medieval cities. Sitte advocated irregular, curving lines, and greater variety of street width and alignments, irregularity in public squares, and effects of discovery and surprise.

Curved street in Tallin. Photos: ©Françoise Labbé.

The urban fabric of cities like Toledo or Siena shows a large number of small triangular squares that create urban variety and irregularity. In each case, the perspectives are closed and most often culminate in monuments embedded in the urban fabric. A truly balanced network of paths comprises wide straight axes like those pierced by Haussmann in Paris still medieval fabric. Indeed, the straight street has advantages that make it a good through-street. As Raymond Unwin writes, 'these advantages, shortly stated, are directness of access from point to point; convenience and economy in the arrangement and laying of tram lines; the symmetry and simplicity of the character of the street picture produced; the convenience of rectangular buildings and construction sites; the production of long vistas, which, where they can be terminated by a suitable building or view, have great charm; or where trees are planted, the avenue effect is in itself a delightful one. the chief disadvantage of the straight street, on the other hand, is a tendency to monotony, due to the fact that the street picture remains much the same for its whole length; and that, except in the immediate foreground or in the terminal feature, the acute perspective at which the buildings

are seen tend to destroy any interest they might have; this disadvantage may to some extent be met by a judicious breaking of the building line.'[20]

Thus, in many European cities, the treatment of building corners on cross streets works to highlight intersections and adds interest to vanishing perspectives. On the other hand, the disruption of the building line through the creation of open courtyards must be done judiciously and sparingly to avoid breaking the unity of the street. A street whose line is overly disrupted by setbacks looks disorderly.

Ultimately a suitable mix between straight and curved streets is needed. Straight streets, despite their tendency to regularity, uniformity and monotony, are useful for joining points and opening perspectives on monuments. Curved streets, on the other hand, maximize connections. They are also much more flexible. 'One must equally admit […] the great advantage for traffic of changing directions by means of curves instead of abrupt angles, the ease with which curved roads can be adapted to the contours of the ground, made to link up existing tracks, or to avoid

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[20] Unwin 1909.

obstacles or features of interest, which it may be desirable to preserve. Furthermore, the curved road affords to those passing along it an ever-changing picture, a new grouping of the buildings coming into view at every point.'[21] Thus we can see that in planning a neighbourhood we should neither apply a regular theoretical figure on the ground nor seek irregularity for its own sake.

Curved Streets and the Enclosure of Concave Space[22]

Unwin emphasizes that the treatment of intersections determines to a large extent the appearance of the city.

For Unwin, the enclosure of concave space is an essential element of urban composition: 'We have seen in speaking of places and squares, how important to the effect is a sense of enclosure, the completion of the frame of buildings, and much the same applies to street pictures. When considering the buildings therefore, in order to secure a fairly frequent completion of the street picture, we shall desire to close from time to time the vista along the street; this result is secured by a break in the line of the street; or by a change of direction, or curve, either of which has the effect of bringing into view at the end of the street some of the buildings on the concave side.'[23]

THE EFFECT OF NARROW STREETS ON STREETSCAPE DEFINITION

Variations in street width lend themselves to a varied cityscape. Unwin joins Sitte in recommending a great variety of street widths, which would enhance the specific character of each street. In the design of neighbourhoods, the interior streets should not be too wide. Wide streets planted with trees should be reserved to the outer boulevards where they offer the threefold advantage of serving as promenades, ensuring traffic between neighbourhoods and delimiting the neighbourhoods. This is the case for the Parisian boulevards built where the successive fortifications once stood. On the other hand, within the neighbourhoods, a network of increasingly narrow streets needs to be designed: 'much of the picturesqueness of old Gothic towns springs from the

narrowness of the streets. Not only does this narrowness give the sense of completeness and enclosure to the pictures in the streets, but it is much easier with such narrow streets to produce the effect of enclosure in a *place* into which they may lead. Where roads are wide and bounded by small buildings, the definite street effect is apt to be lost altogether, the relation between the two sides is not sufficiently grasped, and on such streets some quite different effects may need to be worked out, if they are to be successful. There seems to be no reason why a certain number of narrower streets and passages could not be usefully provided, even in modern towns, to give access to buildings of a character for which it is not necessary to secure a large amount of open space.'[24]

DETAILING AND COMPLEXITY

Detailed design is where the identity and quality of a place is finally won or lost. The size, texture and articulation of physical elements should create human scale. They should match the size and proportions of humans and correspond to the speed at which people walk. Construction details, pavement finish, trees and street furniture are all components contributing to human scale. Moderate-sized edifices, narrow streets, and small spaces establish an intimate environment. The opposite is true for large structures, wide roads, and open spaces.

The design should develop a continuous flow of spaces, routes and views. Quality detailing unfolds a rich and constantly changing information and activity field for pedestrians. It enhances the vibrancy of interactions within the public realm. The visual richness of a place depends on the variety of the physical setting, the number and types of buildings, landscape elements, street furniture, and human behaviour. The differences to which a viewer is exposed per unit of time create complexity. Slow-moving pedestrians require a high level of complexity to hold their curiosity.

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[21] Unwin 1909.
[22] 22 This section draws on Salat et al. 2011.

[23] Unwin 1909.
[24] Unwin 1909.

An interesting walking environment will have the psychological effect of making the distance seem shorter by dividing the trip into manageable stages. Narrow constructions in varying arrangements add to complexity, whereas thick buildings subtract. People require many different surfaces over which light is constantly moving to keep eyes engaged. They need changes in the textures, widths, and heights of edifices, and in building shapes, articulation, and ornamentation.

Complexity supports walking. Crucial to determining the acceptable distance are both the physical extent and the experienced interval. A stretch of 500 metres considered as a straight, unprotected, and dull walk is suffered as very long and tiring, while the same length can be felt as a short distance if people perceive the route in stages. The visual information field should be rich at all scales – from near and afar. The number and composition of the facade elements, and the contrasting relationships that unite them – seen from near and far – determine optical quality and interest. Great urban architecture requires that, whatever the viewing distance, the surface of a building appears rich in detail. A key is to focus on the vertical rhythm and avoid exposing empty walls.

CASE STUDY: STREETSCAPES FULL OF DISCOVERY IN BO01, MALMÖ, SWEDEN

The Bo01 plan establishes a rhythm of moving and stopping for the slower pace of pedestrians and cyclists. Variations in the grid shield inner areas from the weather that buffets the district. Unpredictable building orientation and placement create a dynamic character, full of surprising spaces and views within a walking environment. A series of triangular shapes closes and opens the streetscape and vistas in a dynamic way creating sequences of discovery along people progression.

Streetscapes in Malmö are based on opening and closing spaces through funnel effects. Photos: © Françoise Labbé.

This effect of discovery is created by the mix of formal and informal spaces at many scales, including a mix of streets, pedestrian walks, alleyways, squares, and water banks. As stated in the Quality Programme[25], the plan 'provides many different opportunities for approaching and exploring the district'. The design of triangular squares and funnelling streets creates opportunities for many different choices of direction and experiences.

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[25] Bo01, the City of Malmö, and Developers' Representatives 1999.

A central axis extends from the city castle toward the sea. This tree-lined avenue is the symbolic main entrance to the Western Docks. At right angles to this axis, a canal and street access link the docks in the Wihlborg area with new housing on the Bo01 site. The cross articulates four city quadrants with different features and content. A key layer of linkage is the diversity of informal irregular funnelling pathways where people can stroll and bicycle. They complement the straight streets with a rich web of pedestrian cross connections offering varied vistas. The use of these varying interior open spaces facilitates many social interactions and creates a character for the area as a whole.

DESIGNING BOULEVARDS[26]

Within street patterns, wide, long and straight streets have a role to play. They should represent less than 30% of the street network, the rest being local streets less than 12 metres wide. In car-oriented traffic engineering approaches, these longer and larger streets are called arterials. Boulevards should replace them. They are an entirely different paradigm. They offer usually between 50% and 70% of their width to the pedestrian realm. In contrast with arterials, they do not disrupt the continuity of the city but articulate it through different scales. Boulevards offer the versatility of carrying both through traffic and local traffic.
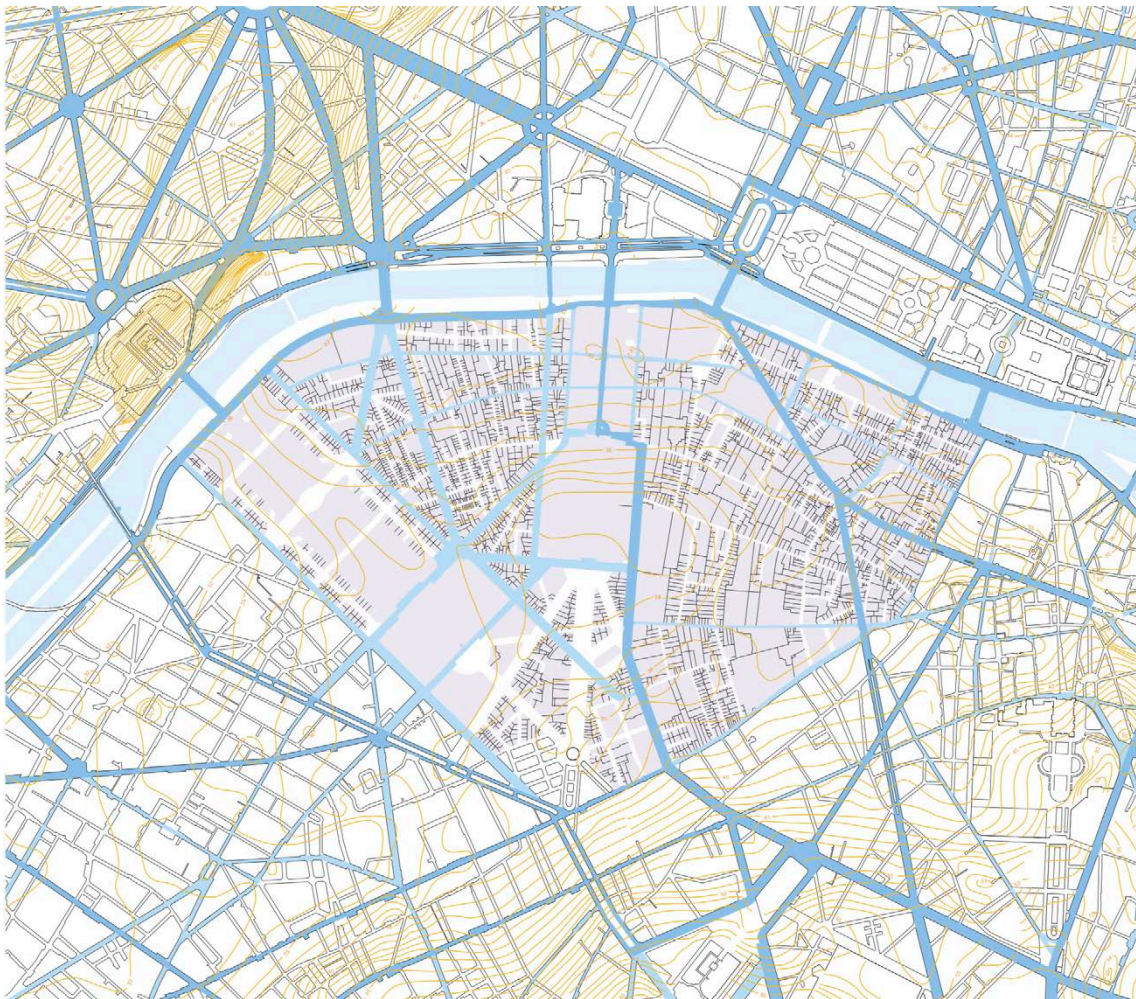

Boulevards define the edges of neighbourhoods and link them to the upper scales of the city. Paris 7th arrondissement. Source: APUR.

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[26] This section draws on Jacobs et al. 2002.

Boulevard typology is rooted in the axial planning of 16th century Italian cities, particularly Rome, and was further refined in Paris during the latter half of the 19th century. Boulevards play many positive roles in urban environments. These roles span a variety of scales.

- Determining the city basic structure.
- Linking distant parts and defining neighbourhood edges.
- Providing local streets for access to stores, homes and recreation.
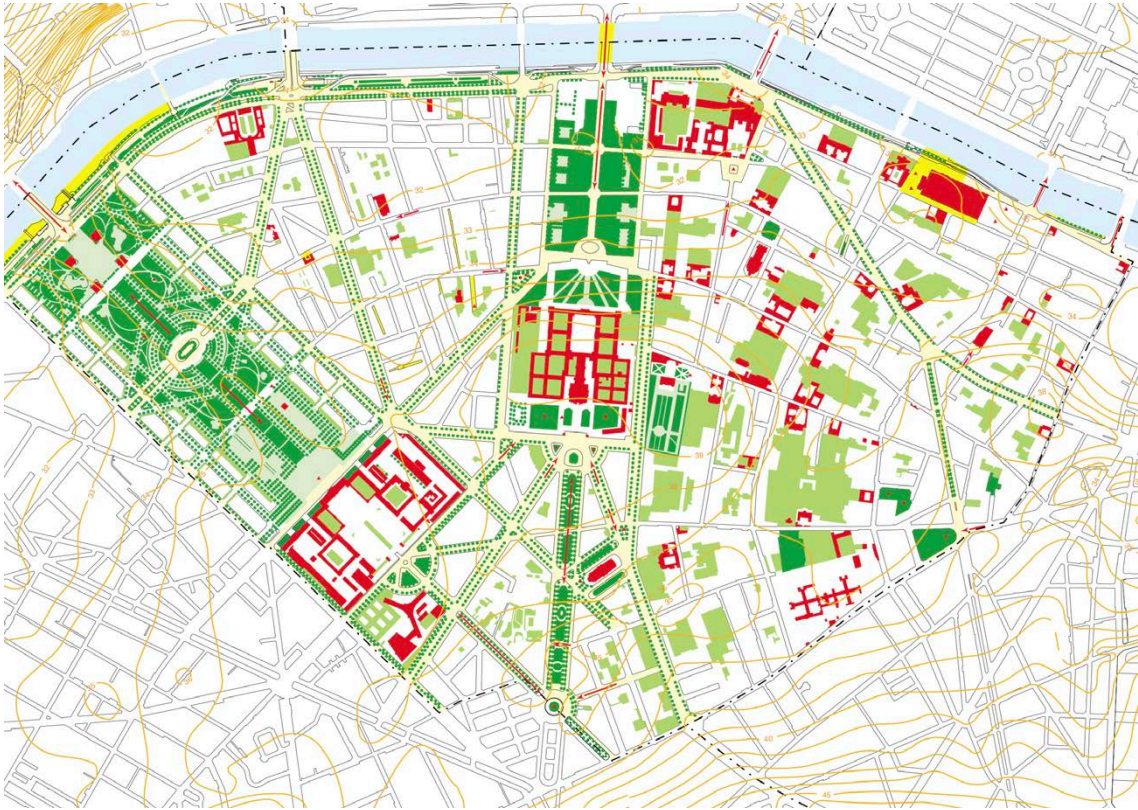
Tree-lined boulevards articulate Paris 7th arrondissement different neighbourhoods. They are lined by trees and link monumental garden compositions. A multiplicity of smaller gardens is connected by local neighbourhood streets. Source: APUR.

Among boulevards most important functions are that of giving structure and legibility to the whole city and being monumental links between important destinations. The combination of the uses that they accommodate, the buildings and trees that line them, and the pedestrian experience they offer, make them, when designed right, unique and memorable.
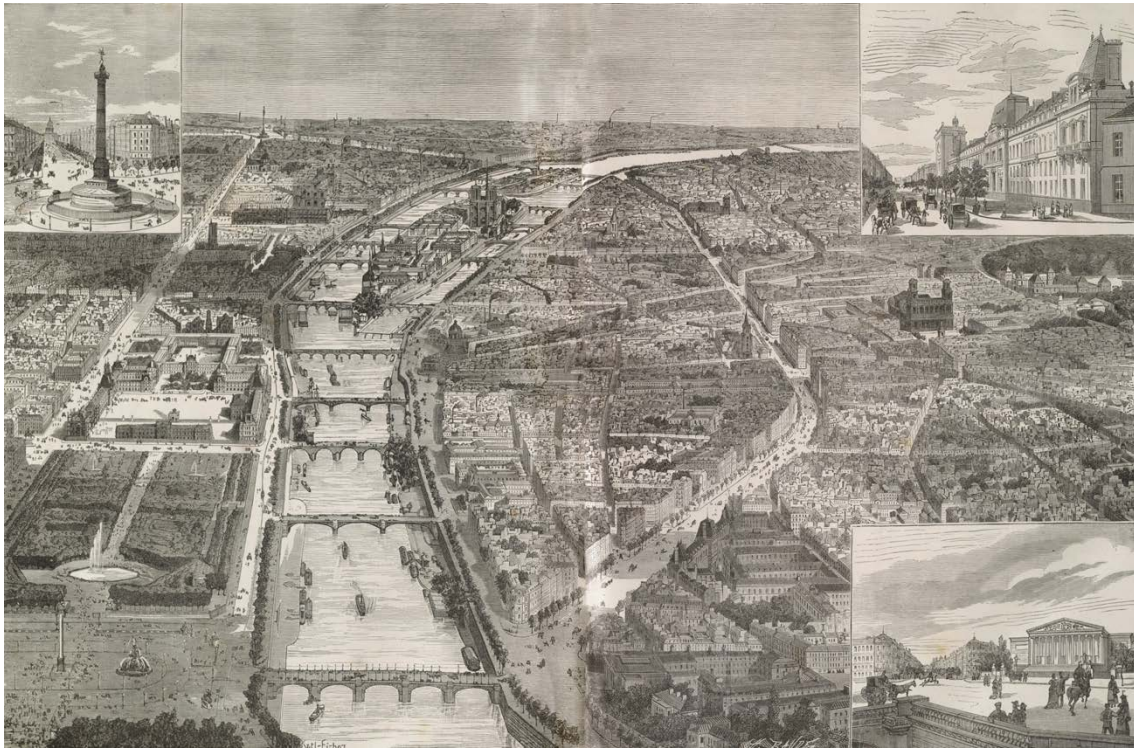
View of Paris in 1878, during the World Fair. The boulevard Saint-Germain (following a line symmetrical to the shores of the river Seine, on the right side of the picture) had been renovated and redesigned by Haussmann during the Second Empire, and was now completed. The image on the top right-hand corner is a view of the boulevard Saint-Germain. Collection: Brown University Library.

For urban street design, the boulevard epitomizes a different paradigm than road engineering arterials. It embraces complexity and coexistence of different modes and movements over simplicity and separation. Protected and continuous pedestrian experience and access to building uses are central. Boulevards allow for an endless variety and adaptation to local context in

- their dimensions.
- the uses along them.
- the amounts and speed of vehicular traffic they carry.
- the pedestrians that use them.
- a multiplicity of design details.
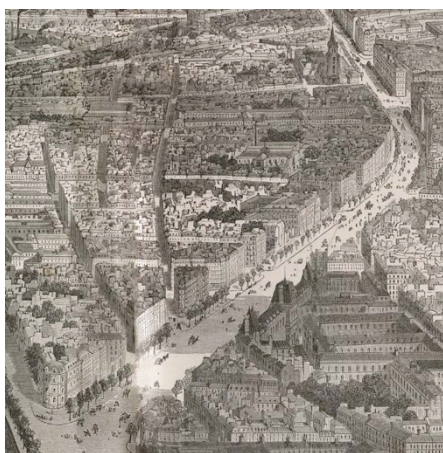
Boulevard Saint Germain in Paris. It curves in a 3.5-kilometre arc from the Pont de Sully in the east (the bridge at the edge of the Île Saint-Louis) to the Pont de la Concorde (the bridge to the Place de la Concorde) in the west and traverses the 5th, 6th, and 7th arrondissements. At its midpoint, the boulevard is traversed by the north-south Boulevard Saint-Michel. Photo: Celette.

THREE DISTINCT BOULEVARD TYPES

The *boulevard street* is simply a wide street with generous, tree-lined sidewalks.
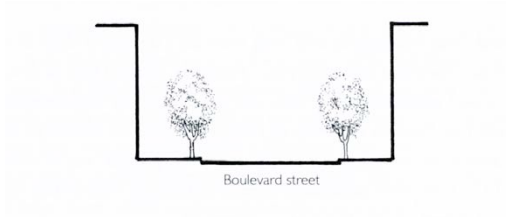
Left: Jacobs et al. 2002.

Right: A boulevard street. Boulevard Saint-Germain in Paris, width: 30 m. Paris. Photo: David McSpadden.

The *centre-median boulevard* has two roadways separated by a wide-central tree-planted median. It may also have tree-lined sidewalks.
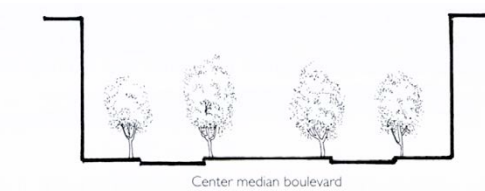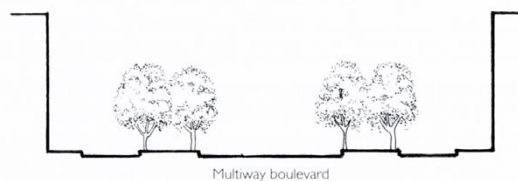

Left: Jacobs et al. 2002.

Right: A centre-median boulevard. La Rambla in Barcelona. The avenue consists of a central pedestrian lane bordered by two car lanes in opposite directions. The set measures on average 35 m wide and 1.2 km long.

A centre-median boulevard. Avenue de l'Observatoire in Paris. Length: 800 m. Width: 82 m. Photo: Serge Salat.

The ***multiway boulevard*** has three roadways, a wide one in the centre and two narrower ones along each side, separated by tree-lined medians and sidewalks, also tree-lined.


Source: Jacobs et al. 2002.

A multiway boulevard: Avenue Montaigne, Paris. Length: 600 m. Width: 38.4 m. Photo: Colette.

Multiway boulevards separate through traffic from local traffic and provide special pedestrian ways on tree-lined malls. They comprise a central roadway of four lanes for non-local traffic. On either side, are tree-lined medians that separate it from parallel, one-way side access roads for slow-moving traffic. Boulevards directly address the coexistence of through movement and access to land uses on major urban streets. They ensure the continuity and safety of the pedestrian realm. This zone lies between the buildings facing the streets and the central roadway and includes sidewalks, access streets, and tree-lined medians. It mediates between vehicular movement and slow pedestrian movement.

Avenue Montaigne shows how the pedestrian realm is key to create the highest concentration of great fashion houses in Paris. If we examine a cross-section of Avenue Montaigne, we observe that the area devoted to pedestrians on the sidewalks and on the medians is 44% of the total street width (38 metres). Moreover, in Avenue Montaigne, the side access lanes are part of an extended pedestrian realm. It stretches from the buildings to the outer edge of the medians. We see then that **67% of this boulevard width is geared to pedestrian scale and speed.**
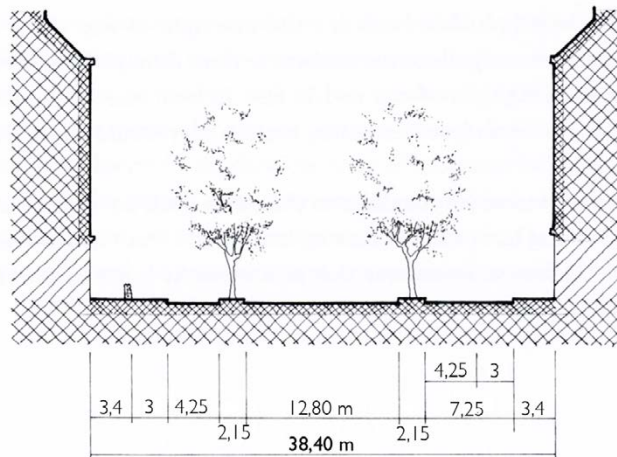
Avenue Montaigne section.

Avenue Montaigne runs for only five uneven blocks – or about 600 metres – from the Rond Point on the Champs-Élysées, south-west to the Seine. Average distance between intersections is 100 m with only one through cross street; the others are T-intersections. The street is lined with chestnut trees and elegant six – to seven-story buildings, many with designer salons, cafés, and banks on the ground floor. Except for those in the hotel, upper floors are a mixture of residential and office uses. Avenue Montaigne is 38-metre wide from building to building. The central roadway is 13-metre wide and carries 4 lanes of traffic. The side medians are approximately 2.1-metre wide and contain chestnut trees spaced at 4.5 to 5.5-metre apart and forming a dense screen of trunks and foliage. The access lane on each side is 4.3-metre wide with one parking lane and sidewalks are 6.4-metre wide.

If Avenue Montaigne were designed to *minimum* American standards, its width would increase by 15% without increasing carrying capacity. Using American traffic engineering *desirable* standards would increase its width by 25% without adding capacity but with a significant speed increase, making the Avenue unsafe for pedestrians. Using traffic engineering standards, the pedestrian realm would drop from 67% to a mere 25%, completely disturbing the balance between speeds, between pedestrian and vehicular movement, and between local and through traffic.

GUIDELINES FOR DESIGNING BOULEVARDS OR RETROFITTING EXISTING ARTERIALS INTO BOULEVARDS

Location, context, and use

- Boulevard types are appropriate for streets with high residential and commercial density, streets that incorporate public transit, or streets with a significant presence of public institutions.

- Boulevards define neighbourhood edges and link special points in the city at a wider scale. They should articulate the neighbourhood and the city scale and not segregate it.

Buildings that face boulevards
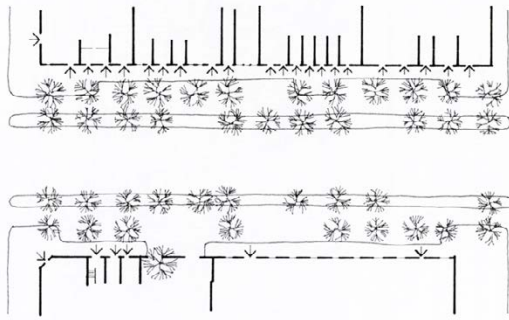
Buildings should offer a multiplicity of entrances with direct access along boulevards. Source: Jacobs et al. 2002.

▪ Buildings facing boulevards should have a height proportionate to the width of the boulevard to create a sense of enclosure. More formal buildings with an articulated and continuous skyline reinforce enclosure and definition of boulevard edges.

▪ Buildings should continuously face boulevards without setbacks or vacant lots. They should offer many pedestrian accesses from the sidewalks.

▪ When a boulevard borders a public park or a major institution like a museum or civic centre, it can be one-sided, with an access street only on the side of building frontage. Along the park or institution side, a widened and tree-lined pedestrian promenade can create enclosure while merging the boulevard with the park.

Boulevard realms and size
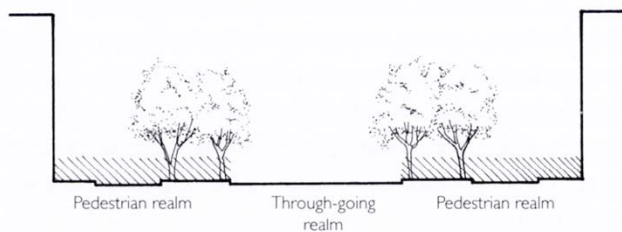
Boulevard realms. Source: Jacobs et al. 2002

Multiway boulevards comprise two realms: a through-going realm[27] and a pedestrian realm. The central roadway is devoted to through going traffic and may include a tree-lined median separating the opposing traffic streams. On the outer side of this roadway and separating it from the abutting buildings, is a pedestrian realm, which includes a continuous tree-lined median, a narrow access roadway, and a generous sidewalk. People and vehicles in this pedestrian realm move slowly, at a pedestrian pace. These parts of the boulevard provide access to the buildings along the street and accommodate slow, local traffic. They define a protected pedestrian realm.

▪ Twenty metres is a good width for *boulevard streets* with generous, tree-lined sidewalks. Most boulevards in Paris and most streets in Manhattan correspond to this type and size.
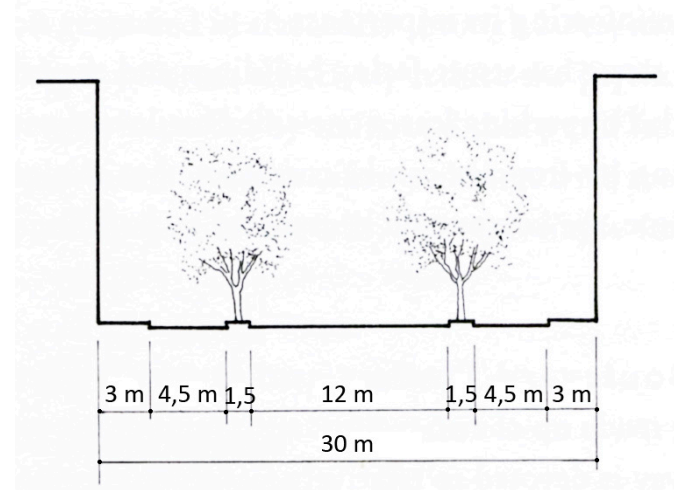
Multiway Boulevard recommended section. Source: Jacobs et al. 2002.

▪ Thirty metres is an appropriate size for multiway boulevards. It is the typical size of Paris main boulevards. Right of ways of 38 metres in a few exceptional boulevards[28] allow for more versatility and a generous public realm. Larger widths[29] should be reserved for the iconic boulevard defining the whole city identity. They require a high

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[27] The through-going realm is the roadway centre on which main traffic circulates. It does not comprise the medians on which cars and bicycles can park and it can be separated from the medians by tree alignments.

[28] Examples are Avenue Montaigne and Avenue Franklin Roosevelt in Paris.
[29] For instance, 70 m wide Champs-Élysées in Paris and 60 m wide Passeig de Gràcia in Barcelona.

density of amenities and exceptional architecture to become vibrant and successful[30].

The through-going[31] realm

- The width of the centre realm should balance considerations of available right-of-way, traffic, capacity desired, and the need for safe street crossing for pedestrians.
- Public transit is best accommodated on the centre roadway along the medians.

The pedestrian realm

- The pedestrian realm should extend from the building frontage to the edge of the median along the central roadway.
- It should be more than 50% of the right-of-way total width from façade to façade. In the best boulevards, it reaches 70%[32].

Amenities along Passeig de Gràcia medians in Barcelona.

Continuous tree-lined medians with amenities

- One or more lines of trees, closely spaced, continuous and reaching all the way to the intersections.
- Amenities such as benches, water fountains, kiosks, flower stands, etc. to encourage pedestrian use.

Rows of trees and tree spacing

- Trees should have a maximum spacing of 7.5 to 10 metres. Spacing can go as low as 3.6 m depending on the species. Spacing should be close enough to allow branches to form a continuous overhead canopy.
- Deciduous trees are preferable as they provide shade in summer and allow the sun in winter.

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[30] Beyond a certain width, it becomes difficult to maintain a boulevard attractiveness for pedestrians, a sense of enclosure and definition, and to achieve a balance between pedestrian and through-going realms.
[31] The through-going realm is the roadway centre on which main traffic circulates. It does not comprise the

medians on which cars and bicycles can park and it can be separated from the medians by tree alignments.
[32] Examples are Avenue Montaigne, in Paris, and Passeig de Gràcia, in Barcelona.

- Buses or streetcars stops should be on the medians as should subway access points.
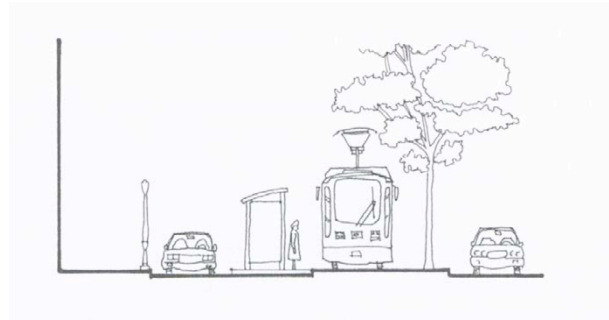
*Possible arrangements of light rail on a median. Source: Jacobs et al. 2002.*

PEDESTRIAN REALM

For a neighbourhood to regain its urbanity and civic life, the pedestrian realm has to be introduced and protected along all its streets. Policies should aim to build and sustain great streetscapes and pedestrian experience in all neighbourhoods regardless of income or local capacity, while also expanding street greening, and installing high-quality street furniture.

CASE STUDY: PEDESTRIAN REALM AND STREET ASPECT RATIOS IN MANHATTAN, SAVANNAH, AND BARCELONA[33]

Manhattan
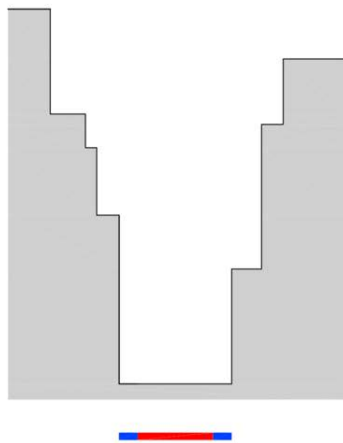
Avenue 30m
33% Pedestrian space
67% Vehicular space
Building height/Street width prop.:
Front plane: 1.5V/1H
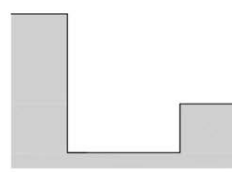
Major cross street 30m
40% Pedestrian space
60% Vehicular space
height/width prop.: 1.2V/1H

Standard street 18m
45% Pedestrian space
55% Vehicular space
height/width prop.: 0.75V/1H

― Pedestrian
― Vehicular

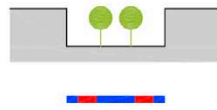[33] Source: UN-Habitat 2015.

Savannah Street types
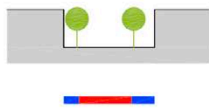
Vertical major street 24 m

40% Pedestrian space
60% Vehicular space
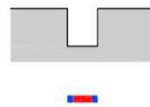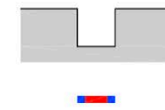Building height/Street width prop.: 1V/2.4H

Horizontal major street 26 m

60% Pedestrian space
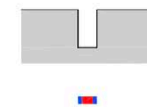40% Vehicular space
height/width prop.: 1V/2.6H

Standard street 10 m

40% Pedestrian space
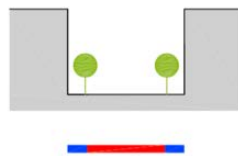60% Vehicular space
height/width prop.: 1V/1H

Grid unit main street 16 m

40% Pedestrian space
60% Vehicular space
Building height/Street width prop.: 1V/1.6H

Grid unit standard street 8 m

60% Pedestrian space
40% Vehicular space
height/width prop.: 1V/0.8H

Service street 5 m

40% Pedestrian space
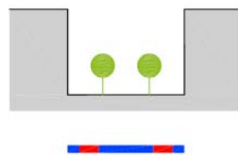60% Vehicular space
height/width prop.: 1V/0.5H

—— Pedestrian
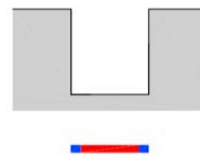—— Vehicular

Barcelona Street types

Main street 30m

Standard street 20m

Aragó street

33% Pedestrian space
67% Vehicular space
height/width prop.: 1V/1.5H

Balmes street

25% Pedestrian space
75% Vehicular space

Rambla Catalunya

67% Pedestrian space
33% Vehicular space
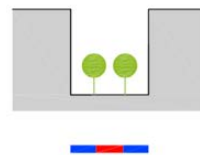
Enric Granados

65% Pedestrian space
35% Vehicular space

—— Pedestrian
—— Vehicular

WIDTH AND STRUCTURE OF THE PEDESTRIAN REALM ALONG BOULEVARDS

The pedestrian realm should be more than 50% of the boulevards right-of-way total width from façade to façade. In the best boulevards, it reaches 70%[34].

- An uninterrupted median, planted with at least one continuous, closely spaced line of trees should define the edge of the pedestrian realm.
- Only one car travel lane in the pedestrian realm with slow traffic.
- Bicycle lanes.

- Pedestrian amenities on the medians.
- Transit stops and subway entrances, kiosks, benches, fountains, or flower stands encourage many crossings between the sidewalk and the median, thereby increasing pedestrian domination on the access roadway.
- A slight change in elevation compared to the through lanes and a different surface material can indicate the slow-moving nature of the pedestrian realm.
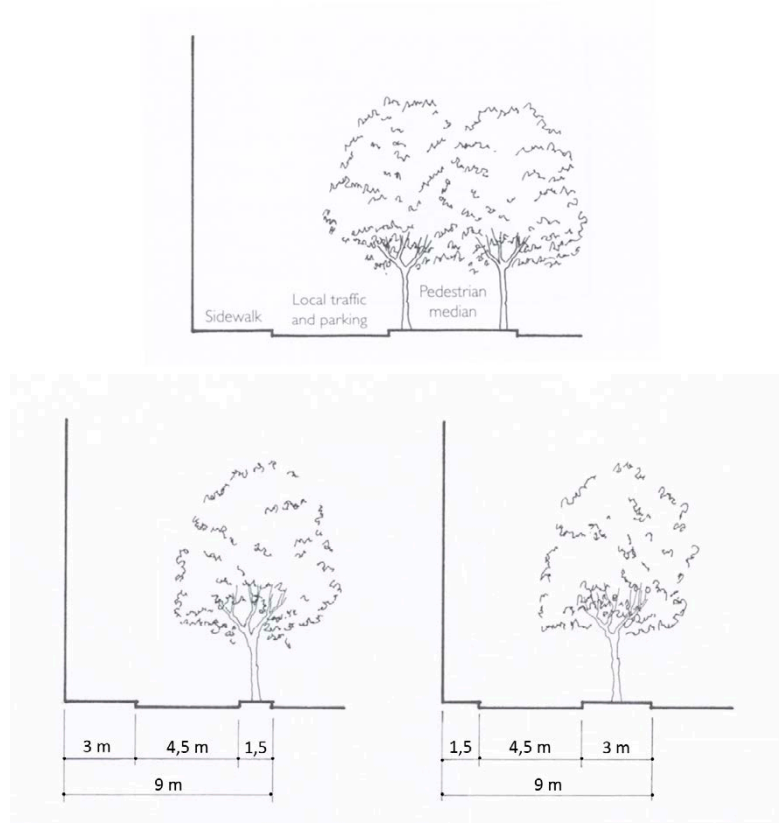
Possible widths and configurations of the pedestrian realm. Source: Jacobs et al. 2002.

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[34] Examples are Avenue Montaigne, in Paris, and Passeig de Gràcia, in Barcelona.

SEQUENCES AND VISION IN MOTION

SEQUENCES

Interesting streets are discovered through a series of fragments. A steady change creates a continual transformation of perception. This gives scale to the street. This is why curvilinear streets are important for structuring the urban landscape and ordering it into directional sequences. Once a street has a directional quality, it can also deliver a sense of position and scale: one can be able to understand its position along the street, and the distance travelled or still to go. A progression of known landmarks scales a street.

Marking identifiable regions as a street enters and leaves them is also a powerful way to provide direction and scaling. In European historic cities, gates were indicating entrances. Funnels also create rhythm and directionality in a street.

According to Gordon Cullen, the visual apprehension of a city is a source of emotion in three ways: motion, position and content.

Motion

You walk down a narrow winding street where the sun creates patterns of shadow softly stirring on the grey brick walls. At the end of this street is a small triangular square, filled with light. And nestled in this square is a building, a monument. The word monument shares the same etymology as memory. The monument serves as a reminder. It calls to mind personal emotions and situations but it is also permeated with the memory of the emotions and situations experienced on the way to

it. We appreciate the warmth of this sunny square all the more because of the coolness of the narrow street leading up to it. The narrowness of the street impacts the way we perceive the relative wideness of the plaza. The confined space of the street that fills the eye stands in contrast to the way in which the square opens the perspective onto the blue skies above. Walking at a uniform speed, the pedestrian encounters a series of successive, overlapping revelations.

Focal points closing perspectives. Light and shade in Toledo streets. Photos: © Françoise Labbé.

Gordon Cullen calls this phenomenon, 'serial vision'. As a result of serial vision, the human mind grasps space through contrasts, differences, and the variety of sounds, colours, and constructions of space. Thanks to these contrasts, surprises, and 'urban revelations', the

town becomes visible in a deeper sense. In Cullen's words, 'The city comes alive through the drama of

juxtaposition.'[35] Cullen divides serial vision into the existing view and the emerging view – to which we will add, the fading view. A part fades, a part is given, and a part is revealed. It emerges in our minds as we apprehend it and anticipate the future, in an altogether natural way. This overlay creates the sequential vision and the nearly indescribable feeling that a walk in a composed city can produce. And this feeling is renewed again and again, with the same street leading to the same square producing a different feeling every day, arising from the interaction between the city (its buildings, pavements, and spatial design), the individual (his feelings, desires, and personality) and the world (the sun, air, and clouds). The environment becomes emotionally nurturing. It is a gentle companion to our feelings, sharing and fostering them. As a result of serial vision, the human imagination can begin to shape the city into a coherent narrative filled with emotion. The creation of serial vision is a part of the art of relationship.

CASEBOOK: SERIAL VISION
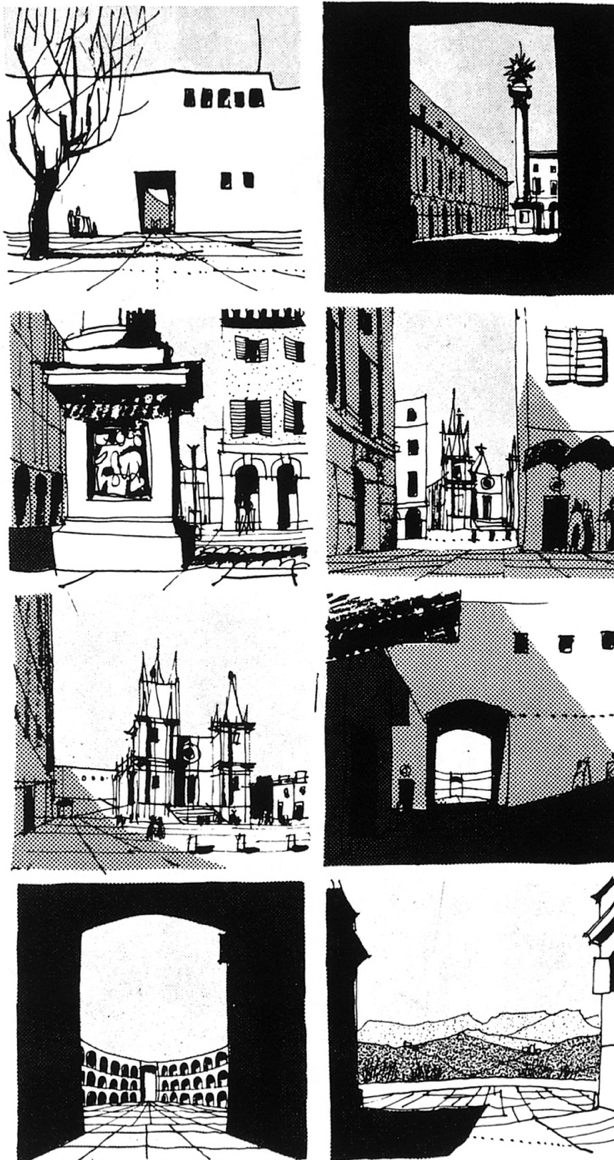
To walk from one end of the plan to another, at a uniform pace, will provide a sequence of revelations which are suggested in the serial drawings opposite, reading from left to right. Each arrow on the plan represents a drawing. The even progress of travel is illuminated by a series of sudden contrasts and so an impact is made on the eye, bringing the plan to life (like nudging a man who is going to sleep in church). My drawings bear no relation to the place itself; I chose it because it seemed an evocative plan. Note that the slightest deviation in alignment and quite small variations in projections or setbacks on plan have a disproportionally powerful effect in the third dimension.

A page from The Concise Townscape by Gordon Cullen (1961). This page shows the perceptual pleasures of a city fabric. It unfolds a well-organized sequence of movement in space. It reveals the complex melody of lines, nodes, edges and reference points in the design of an urban landscape. Source: Kostof 1991.

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[35] Cullen 1961.

Position

The second way through which space travels through us as much as we travel through space is by our body position. Toledo, for instance, offers sequences rich in beauty and meaning, in open and enclosed spaces. We move through space, leaving one place, entering another, situated in yet another. As Gordon Cullen notes, this involves working on the urban space to create a sense of here and there and subtly manipulating the relationship between the two. This is what others have called the *'genius loci',* the spirit of place, its distinctive atmosphere. Place has personality and soul.

Content

This last category examines the most concrete aspects of construction: colour, texture, scale, style, character, personality, and uniqueness.

These three keys for understanding the city and the personal relationship that we can have with it are keys for urban planning. Motion is not a straightforward, measurable progression. The experience of motion is composed of fading, existing and emerging views. We should heed Cullen when he says, 'in this way the void of statistics, of the diagram city, has been split into two parts, whether they be those of serial Vision, Here and there, or this and that. All that remains is to join them together into a new pattern created by the warmth and power and vitality of human imagination so that we build the home of man.'[36]

HOW TO CONDUCT A SEQUENTIAL ANALYSIS

An urban path is divided into sequences corresponding to modifications in the visual field. The figures, scenes or pictures and the transitions between them can be analysed using semantic grids like those proposed by De Wolfe (1966). The intervention on the morphology of a neighbourhood has to take these into consideration to reveal certain effects, to detect the initial intentions of a fabric, and thereupon preserve, recreate or eventually eliminate them.

'At once semantic unit and technical division, the notion of *visual sequence* is directly derived from

cinema. Applied to architecture and to the city, a sequential analysis allows us to study modifications in the visual field of a path. [...] For an observer moving in a given direction, any path we decide to study can be divided into a number of sequences, each one made up of a succession of 'shots' in which the visual field is determined in a constant fashion or undergoes minimal modifications. Each 'shot' is susceptible to being characterized. The transition from one 'shot' to another can be described.'[37] Philippe Panerai distinguishes between so-called shots and sequences. Shots, he argues, are codified pictures that can be named.

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[36] Cullen 1961.

[37] Panerai et al. 1999.
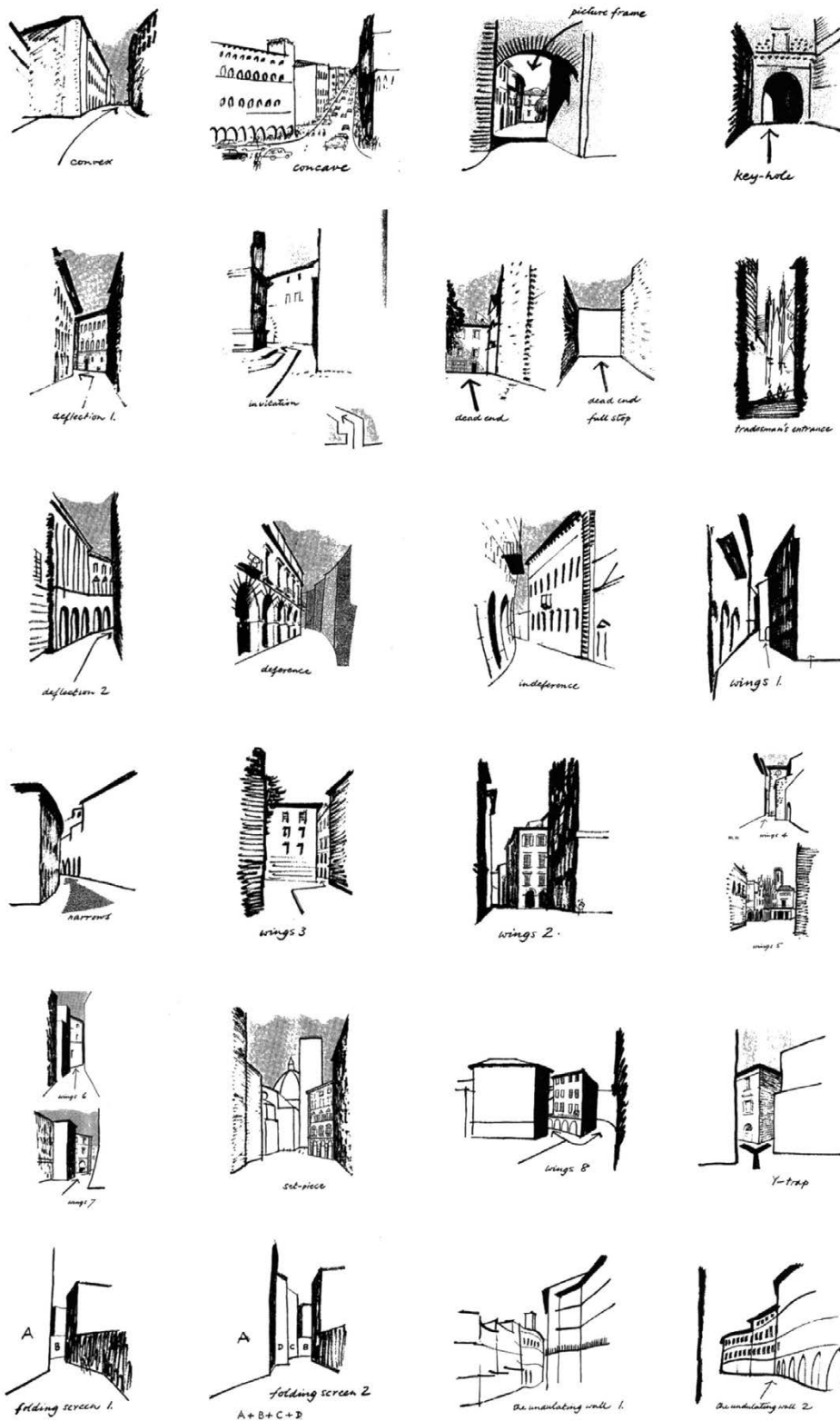
Perceptual linkages along streets. Ivor De Wolfe's work evidences the perspicacity of his gaze during his trip through Italy. This analysis comes to grips with the life that these forms allow. Nearly all of his interpretive sketches are reprinted here.
Source: Kenneth Brown, Ivor De Wolfe, a compilation of Italian Street types – streetscape – proposed in the chapter entitled 'the street' in De Wolfe 1966.
The list is as follows:
convex; concave; picture frame; keyhole; deviation 1; invitation; one-way; cul-de-sac 1; commercial entrance; deviation 2; difference; indifference; wing 1; narrowing; wings 3; wings 2; wings 4 and 5; wings 6 and 7; whole; wings 8; Y trap; unfolding screen 1; multiple unfolding screen (2); undulating wall 1; undulating wall 2.

Casbah, Algiers. Drawings by Melissa Lyria Khali. École Spéciale d'Architecture, Paris. In red: Planned European grid. In green: Arabic organic pattern.
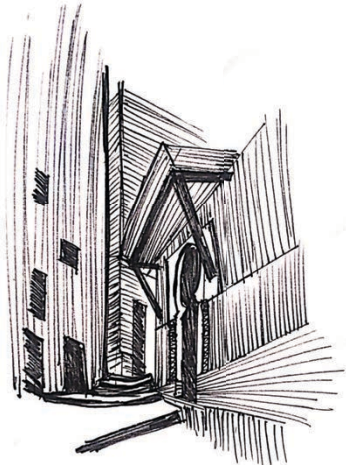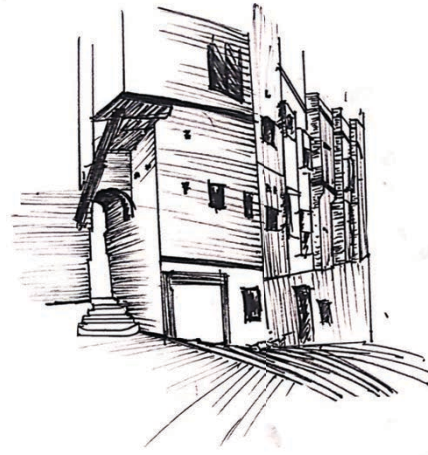

Picture frame

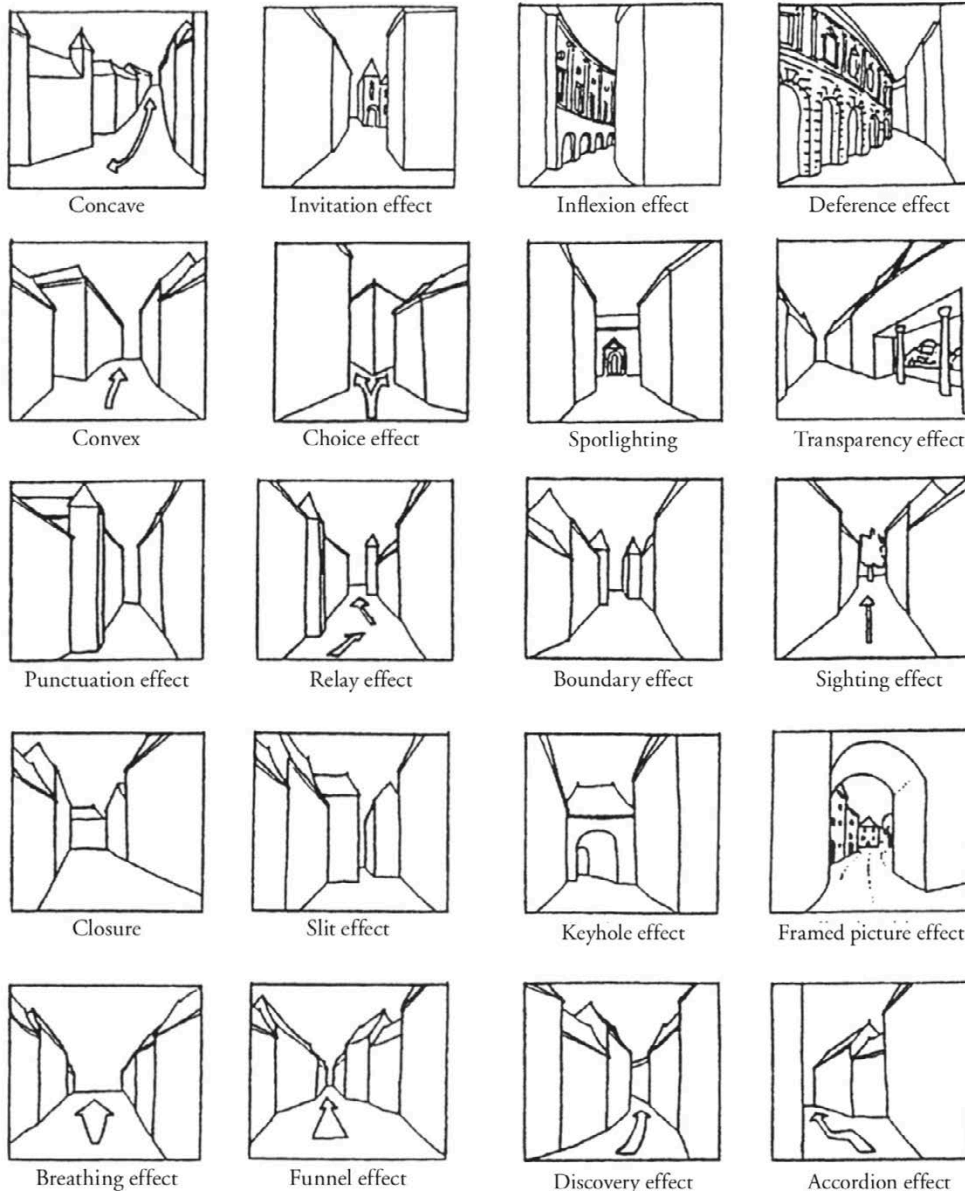Narrowing/Concave
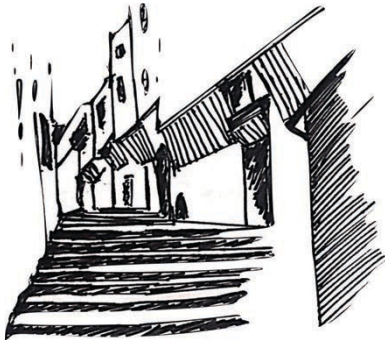
Concave/deviation
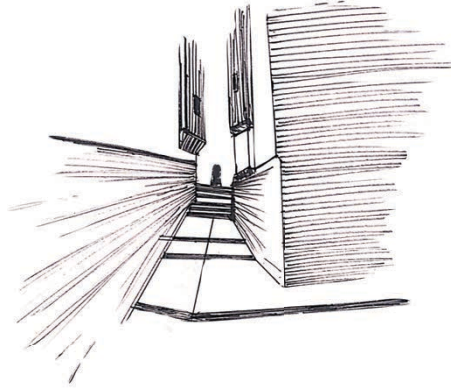
Wing

Concave/Invitation

Convex/Keyhole

Casbah, Algiers. Perceptual linkages in Arabic organic pattern.
Drawings by Melissa Lyria Khali. École Spéciale d'Architecture, Paris.

An urban path is divided into sequences corresponding to modifications of the visual field. The figures, plans, or pictures, and their sequences can be analysed using semantic grids, such as those proposed by De Wolfe (1963) or G. Cullen (1961). Any intervention on the morphology of a neighbourhood has to take this into consideration to reveal certain effects, grasp the intentions at the origin of a fabric, and recreate or eliminate them.
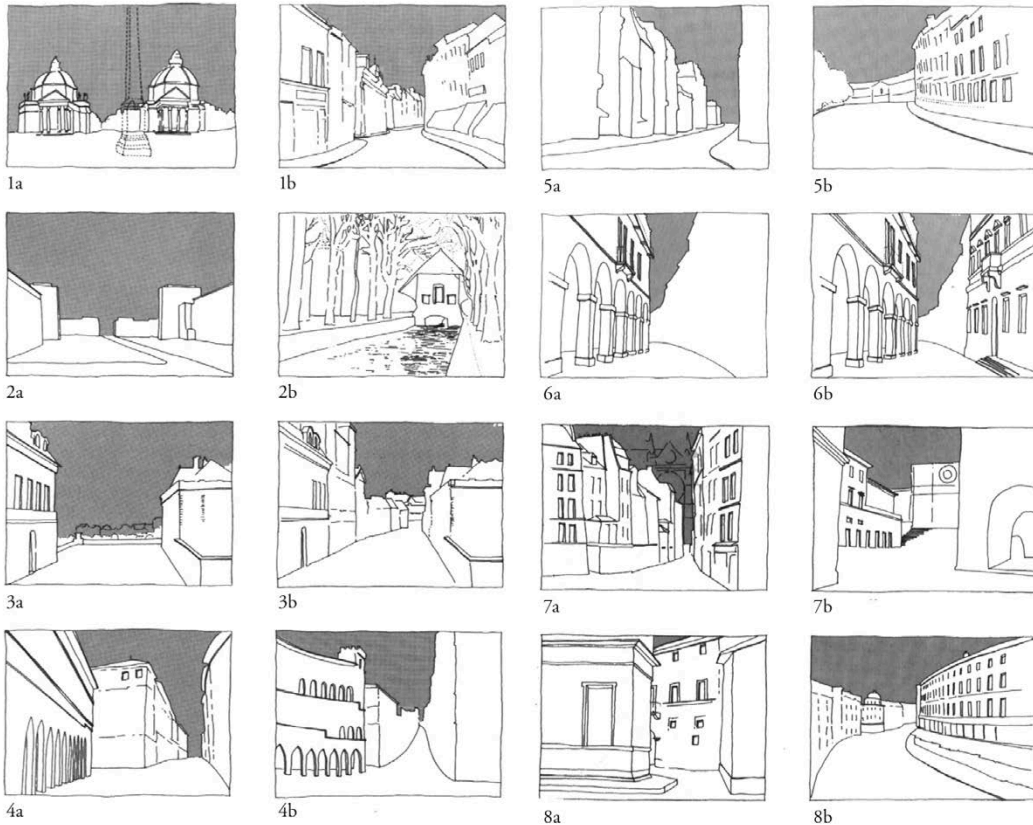
Elements of the picturesque. Urban sequences are ordered in a syntax built on a system of dialectical oppositions.
1a – Symmetry
1b – Dissymmetry
2a – Lateral definition
2b – Central definition
3a – Open
3b – Enclosed
4a – Convex
4b – Concave
5a – Profile
5b – Inflection
6a – Deference
6b – Competition
7a – Tightening
7b – Sliding
8a – Deflection
8b – Reflection
Drawings: P. Panerai et H. Fernandez, based on Ivor De Wolfe.
Source: Panerai et al. 1999.

'We can start from fairly broad categories of information.

- *Symmetry/dissymmetry.*
- *Lateral definition/central definition.*
- *Open/enclosed.*
- *Convex/concave.*

Then specify the definitions of lateral walls.

- *Vertical or horizontal division, screens, profiles, undulations.*
- *Relations between two sides.*
- *Deference/indifference/competition.*

Then study their role in the movement toward the vanishing point and beyond.

- *Narrowing, tightening or sliding effect.*
- *Overt or covert highlighting.*
- *Deflection or reflection.*
- *Boundary marking.*

Finally, characterize the frontal enclosure of the visual field.

- *Diaphragm and framing.*'[38]

The succession of shots constitutes the sequences. The gradual transition from one shot to another can be distinguished, with an *overlapping of two shots* for a stretch of the path and disruptions that cause a complete change in the visual field in next to no time. 'We can readily see that what we are used to regarding as picturesque is a result of the accumulation of different shots with rather powerful breaks over a relatively short distance, whereas monumental effects proceed from fairly gradual sequences.'[39]

Picturesque vision in motion inside Prague castle

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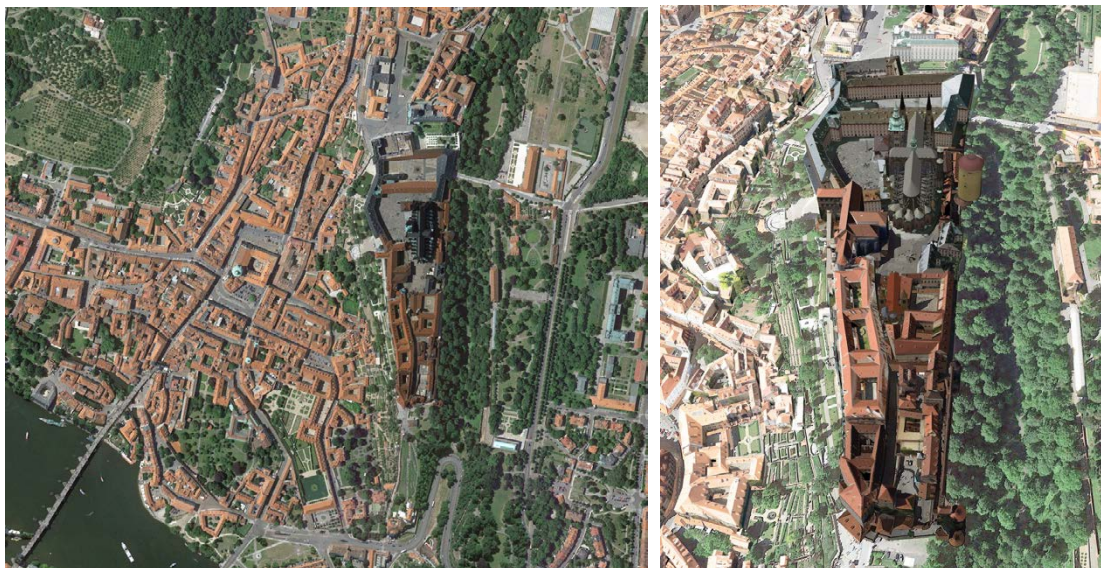
[38] Panerai et al. 1999.

[39] Panerai et al. 1999.

Sequential vision inside Prague castle. Photos: © Françoise Labbé.

Panerai describes the grouping of shots into sequences: shots related to the same object (approach or entry sequence), shots associated by kinship or separated by breaks. Finally, 'the transition from one sequence to the next can occur gradually through several shots belonging to both sequences and offering an area of superposition. It can also occur brutally in a single brief shared shot that plays the role of a *circuit breaker*. At times, the succession of views 'speeds up' and contributes to foregrounding spaces or elements situated at the end of the sequence. When these incidents of the visual field are accompanied by slopes and changes on the ground that modify the pace, a real sense of 'suspense' is created, a staging that solicits several senses. Such is the approach to numerous pilgrimage churches (Conques, Vézelay) where everything is designed to strike the imagination (and we should include here the sequences inside the building, and appreciate the role of light and modifications in lighting, note the sensations of coolness and the sonorities, etc.). Conversely, the progression can occur without the 'picturesque', the end of the sequence being known from a distance and staged in a gradual movement where the modifications in the visual field amplify the monumental effects (Versailles, Saint Peter's in Rome).'[40]

Finally, as Panerai notes, the division into shots and sequences is not always reversible. The return path differs from the approach and the comparison between the two brings out the subtlety of certain configurations.

Vision in Motion along Senlis Streets, France

Senlis medieval street pattern comprises a linear density of streets of 18.7 km/km^2 and 230 intersections/km^2.

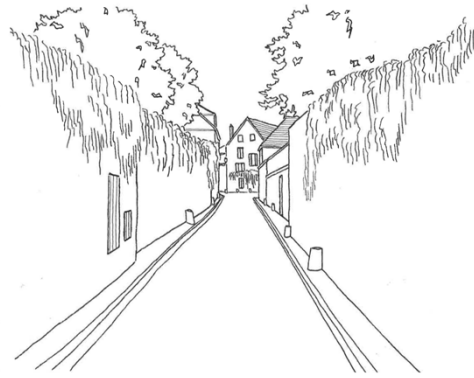---

[40] Panerai et al. 1999.
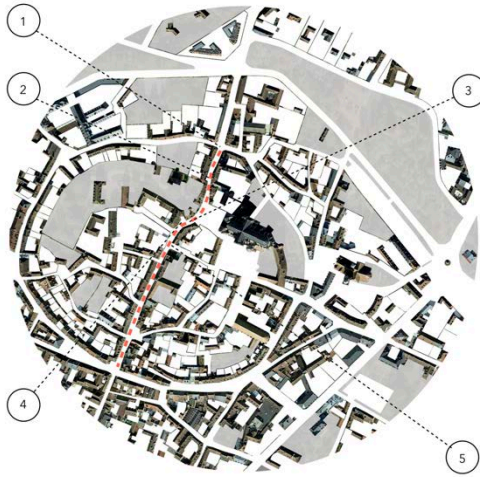
1

2

3

4

5

Senlis historical core within a 300 m radius circle. Drawings by Ulysse Bérard. École Spéciale d'Architecture, Paris.

Concave

Convex

Discovery

Closure

Folding   Funnel

Senlis historical core within a 300 m radius circle. Street visual effects. Drawings by Ulysse Bérard. École Spéciale d'Architecture, Paris.

Left: Aerial view of *Strøget* Street looking West. Amagertorv from Nikolaj Kirken. Photo by Mik Hartwell.
Right: Strøget Amagertorv. Photo by Olga Itenberg.

Piazza Di Porta Ravegnana, Bologna
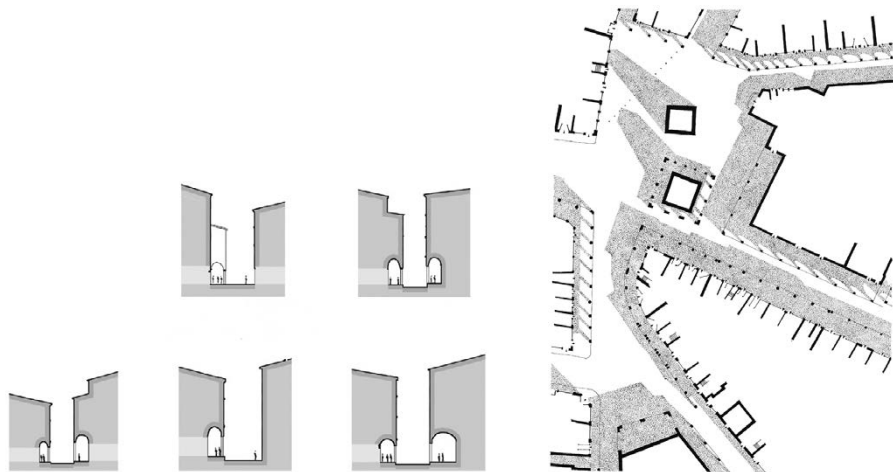
Bologna, medieval district, Piazza di Porta Ravegnana.

*Bologna. Piazza di Porta Ravegnana. Right: Photo: © Françoise Labbé.*

The arcades of Bologna streets are justifiably renowned. The streets are narrow (5 m to 7 m) and lined with columns that delimit three- to five-m-wide covered sidewalks. Pedestrians strolling through these colonnades find themselves in a closed yet open space, akin to a cloister. Information is rich and because the street closes up over a short distance, it gives an impression of intimacy and proximity with other passersby.

Via Dei Giubbonari, Rome

Rome, via dei Giubbonari. The very ancient via dei Giubbonari in Rome draws passersby into its two funnel-shaped extremities and narrows toward the centre, where its aspect ratio (height/ width) is about four. As a result, it is impossible to perceive its whole length at once, although it measures only 300 metres. The perspective and narrowness make the sky look like a curved arrow aimed at an invisible endpoint, and this creates a sense of mystery and anticipation. The verticality of the street is reinforced by the rapid pace of changing buildings (every 19 m) and doors (every 4.8 m on average).
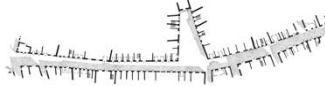
Via del Corso, Rome
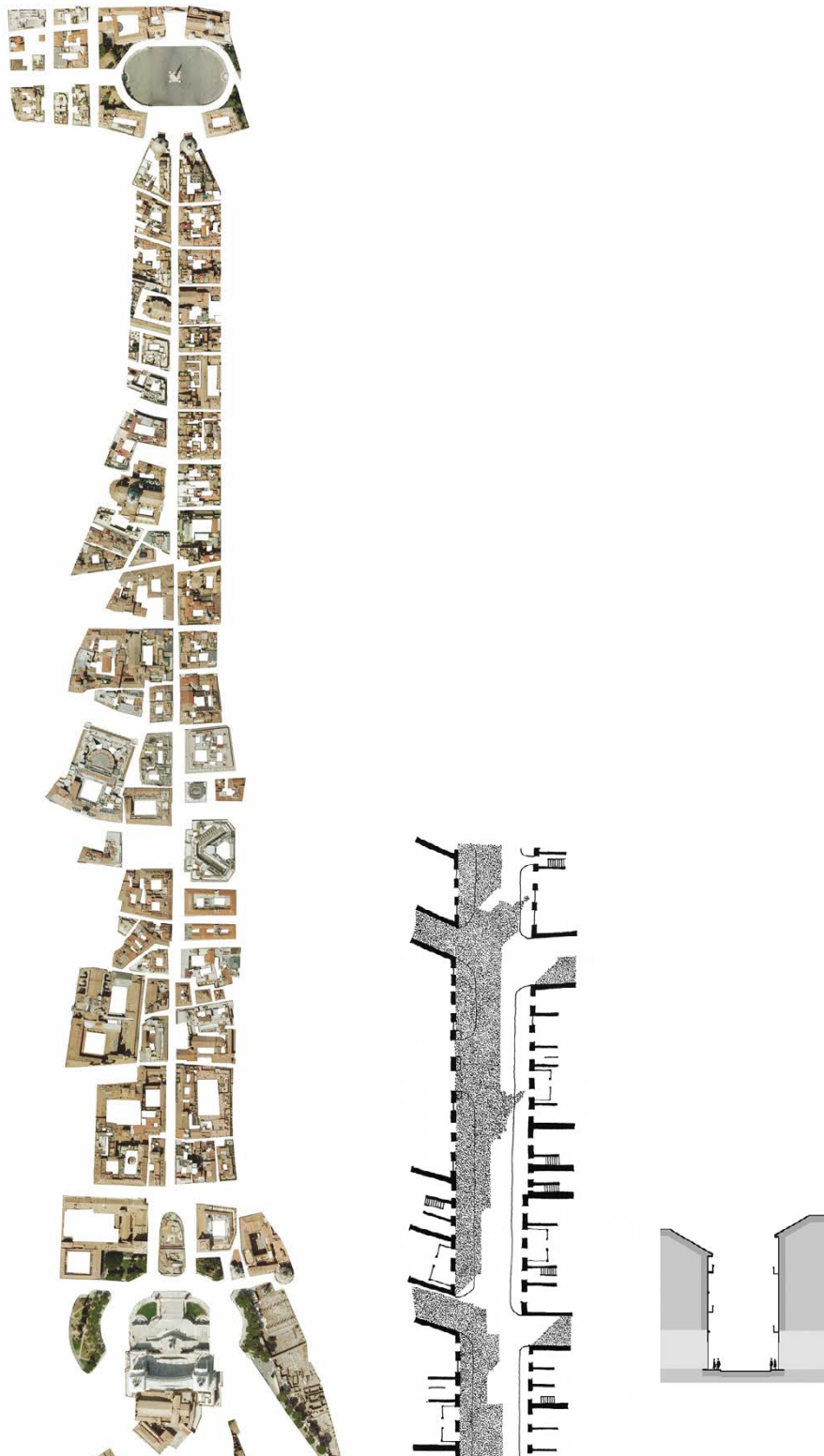
The Via del Corso, 1,625 m long, counts among the long, regular straight streets that structure the city on a large scale.
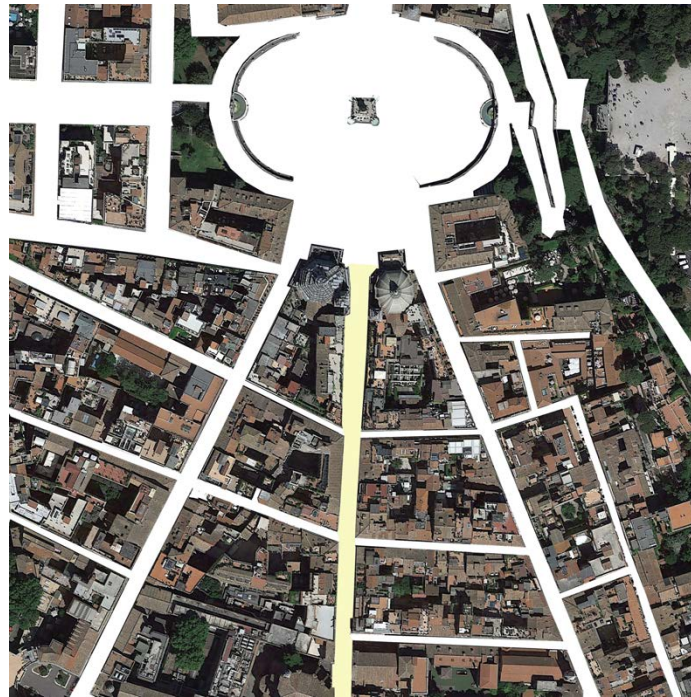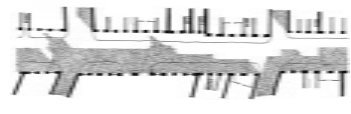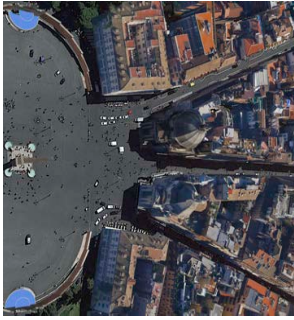
Rue des Pierres, Bruges

Brugge, Belgium. View of Steenstraat with the Belfry of Brugge in the background. © CEphoto, Uwe Aranas[41]

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[41] https://commons.wikimedia.org/wiki/File:Bruges_Belgium_Steenstraat-and-Belfry-01.jpg

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