MEDINA ACCESSIBILITY

A Guide for Policy Makers

CODATU

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Cover page: A street in a Medina in Morocco © Denise Cottin

Executive summary

The appearance of motorised transport modes has led cities to develop well beyond their historic limits and urban growth has extended well beyond Medinas and their mazes of narrow streets.

Medinas are now facing a variety of challenges: predominantly impoverished inhabitants, excessive demographic density, strong degradation of building infrastructure, the decline of commercial activity, etc. The emerging processes of redynamisation, and even gentrification, which have been observed in some Medinas on the tourist track are still the exception and are limited to certain sections of historic city centres.

Analysis has shown that **accessibility is at the heart of the challenges facing Medinas**: basic services cannot always be accessed, transport of goods and materials represents a major challenge for Medina users, Medinas are often located in public transport "blind spots" and also suffer from poor communications with the rest of the city.

Based on these observations, the central proposal of this guide is to **preserve the pedestrian nature of Medinas** through the implementation of pedestrian zones.

This direction is strategic on several levels as it will:

- confirm the place of the Medina as an integral component of the urban system while seeking to enhance its central role and its strong image,
- allow us to view the intrinsic geometric characteristics of the Medina as an asset rather than a defect (therefore breaking down the predominant perceptions of "car users"),
- allow us to provide adequate "road" access for goods, materials, basic public services, etc. while simultaneously preserving the historical pedestrian nature of the Medina,
- position the Medina at the heart of a future sustainable urban mobility policy based around reduced car usage and the development of alternative modes of transport (public transport, walking, cycling).

This guide subsequently makes the following **practical recommendations**:

- priority permanent access to basic services must be ensured: as with all urban areas, Medinas must have access to basic services (security, emergency services, cleaning),
- the Medina must be fully integrated into the mobility development strategy of the surrounding city,
- pedestrian areas must be prioritised in Medinas and transport interchanges organised at the gateways,
- public areas in the interior and at the periphery of Medinas must be developed, regulated, managed and maintained.

Policy-makers of Mediterranean cities are invited to adopt the guidelines included in this guide and to plan their implementation on the ground while considering the specific needs of each Medina.

Aït Ben Haddou, Morocco

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Fez, Morocco

FOREWORD

The “Centre de Marseille pour l’Intégration en Méditerranée” (Marseille Centre for Mediterranean Integration - CMI) was founded in 2009 with the aim of increasing political convergence on sustainable development in the Mediterranean by providing a forum for exchanging knowledge and learning from one another. It has a variety of sponsors including the World Bank, the Agence Française de Développement (AFD) and the European Investment Bank (EIB).

Mediterranean cities are facing growing sustainable mobility challenges as traffic congestion increases, public transport has not yet reached its prime and private car use is growing with few control systems being implemented. It is for these reasons that the CMI has launched a three-year programme to look at urban mobility around the Mediterranean with the support of CODATU.

The programme was launched at a conference in Damascus in April 2010 at which the main strategic issues concerning urban mobility were noted. The programme includes a series of workshops in a variety of Mediterranean cities which will be in place by the end of 2012. The goal is to advance the culture of sustainable urban mobility throughout the Mediterranean region. Results will be based on the capitalisation of experiences presented in workshops and the definition of methodological tools adapted to the realities of Mediterranean cities.

The centres of cities and Medinas play an important role in urban mobility policies as they are steeped in history and comprise an irreplaceable historic and symbolic heritage. It is for this reason that the European Investment Bank (EIB) has been strategically analysing the future of Medinas for several years (Medina 2030 Programme) with the aim of developing rehabilitation plans designed especially for them.

These two actions were judiciously examined at the Marseille Workshop on City Centre Mobility in December 2010, where experiences from the north, south and east of the Mediterranean region were shared. Given the individual nature of Medinas, the EIB and the AFD wanted to present the information discussed at this workshop in the form of a guide for policy-makers and developers; this in order to raise awareness of the challenges associated with Medina accessibility and possible solutions for improvement and to include these in an overall strategy for cities.

The design and drafting of this guide was entrusted to Transitec Ingénieurs-Conseils through CODATU.

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Chefchaouen, Morocco

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The citadel of Aleppo, Syria

1 Introduction

Medinas are ancient historic Arab cities located in the south and east areas of the Mediterranean region. Medinas can be differentiated by their size, their position within the city and the region, the state of their streets and their architectural heritage, common aspects include high urban density and the pedestrian nature of their layouts.

A common set of problems has also emerged: with increasing urban development, the traditional role of the Medina as a centre of artisanal production and trade is once again threatened, and building infrastructure has also been deteriorating for decades which has led some authorities to instigate regeneration and rehabilitation programmes.

With the growth of car usage, a crisis in public transport and the congestion which comes with “modern” urban development, Medinas are also facing increasing accessibility problems which strongly contribute to the deterioration of their image.

Finding the resources required to **improve travel around Medinas and to make it user-friendly has become a major challenge. The primary goal of this guide is to raise awareness of these issues among policy-makers**. In order to identify accessibility issues we need to ask questions about the strategies which need to be implemented in the development of Medinas and their surrounding cities: improving Medina accessibility must be coherent with these goals. We also need to determine the practical needs of the various users frequenting Medinas so as not to prioritise one group over another: Medina residents, tradesmen and artisans coming to work there, people coming to shop there, as well as national and international visitors.

We therefore need to identify which policy instruments and levers are required, both inside and outside the Medina. Medina accessibility depends not only on the quality of internal transport systems, but also on integration and connection with the transport network infrastructure of the surrounding city.

This document attempts to **outline possible solutions which policy-makers are invited to adopt: this is the second goal of this guide** and is addressed to the policy-makers and developers of historic Mediterranean city centres, although these goals must be adapted to each individual situation. In order to achieve this the ideas and recommendations proposed in this guide are based on analyses of the conditions of access in specific Medinas, such as Damascus, Fez, Marrakech, Rabat, Sfax, Sousse, Tripoli and Tunis, as well as specific historic centres of cities in the region, such as Alexandria in the south and Montpellier in the north.

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Medina in Tunis, Tunisia

TUNIS Tunisia

A Medina and a European-type city exist side by side in the centre of Tunis. The Medina itself is made up of narrow streets and small squares and extends over an area measuring around 750 metres from east to west and 1,500 metres from north to south. It is entirely pedestrianised (with animal-drawn transport), although cars are permitted on some streets (see photo bottom left). The European city centre is “modern” compared to the Medina and has grown around the edges of the latter; it has a regular layout which is suitable for cars.

The public transport network serves various gateways of the “extended” Medina. The Metro system also reaches several of these gateways.

The tendency towards road travel manifested itself in the past through the construction of a mini tunnel in the northern part of the old city in an attempt to improve traffic circulation from east to west.

© Xavier Godard

Rue Dar el-Jeld: a pedestrian street in the Medina

© Xavier Godard

Cars are tolerated in some streets of the Tunis Medina

© Xavier Godard

Rue de Marseille: a pedestrian street in the “modern” city

© Yann Arthus Bertrand, web

Place des Martyrs, Algiers, Algeria

2 The Medina: founding cities turned into disadvantaged areas

Founding cities – In Arabic, Medina simply means city, whatever its age or structure. In this context we are using the word as per the French meaning which is restricted to an old Arab city and designates a highly characteristic urban enclave: narrow winding streets, often ending in cul-de-sacs or "derbs", which are often occupied by single-family homes and closed behind doors at night. Medinas are often surrounded by walls although there are some notable exceptions.

Constructed in an age and in countries in which goods were transported by portage, their streets were not designed to accommodate rolling traffic. Nobles rode around on horses, others on the backs of mules and donkeys, or on foot, even the main streets are often interrupted by gradients and steps. Houses are terraced and one often supports the next. They are always constructed around interior courtyards. Even buildings designed for trade and the storage of goods (fondouks) are accessed through relatively narrow doors which open on to patios where business is conducted.

All of these urban activities take place within the walls. This type of multi-functionality can still be found in Medinas: the palaces of the most powerful, close to the walls, stand side by side with the houses of the bourgeoisie, workmen and servers. The merchants, artisans and Jewish financiers lived in a special fortified enclosure.

These walled-in cities have become increasingly densely populated over the centuries. Their dimensions remain modest: they have a radius of a few hundred metres, or one or two kilometres at most. These limited areas of between 100 and 300 hectares can easily accommodate between 50,000 and 200,000 people, although these numbers were rarely surpassed before the 20th century. Travel on foot or by animal was largely sufficient on this scale, meaning that there was no reason to adapt them to other transport methods over the centuries. Lastly, one must remember that inland transport used the same methods both inside and outside cities (same speed, same cost). Goods did not need to be offloaded at the entrance to the Medina.

The growth of the "modern" city – It was at the end of the 19th century and, above all, at the start of the 20th century and throughout, that "Medinas" were seen to be outdated and new types of neighbourhoods started to grow up outside of the walls suitable for new types of external and internal transport. Rolling vehicles began to replace portage, then motorised transport replaced and eventually eliminated animal-drawn transport around the neighbourhoods of the "old cities".

Narrow street in the Kairouan Medina

As cities were extended outwards, Medinas began to lose their competitive advantage (safety, proximity, multi-functionality) and were progressively abandoned by large-scale traders, large producers and wealthy residents.

Being inaccessible to mass transport (of both goods and people), embedded in much larger modern cities and uncomfortable by modern standards, Medinas progressively lost their wealthier inhabitants and many middle-class residents. This impoverishment also led to a degradation of the habitat. Family homes became run down as they were progressively occupied by families of tenants and sub-tenants, to the extent that Medinas became the cheapest areas of cities where rural migrants began to settle.

This process has slowly begun to reverse in some Medinas which have become tourist attractions and in more advantaged areas (in terms of accessibility and housing quality) through a process of "gentrification", one example being the transformation of Riads in Marrakech.

Medinas in difficulty – Medinas, while they are embedded in the modern urban fabric, suffer from poor accessibility on several levels. The facts are as follows:

- They are **very high density zones in which the population is mostly impoverished**. Increasingly fewer people are working in the Medina itself and now work in the surrounding city. Some also work in peripheral regions where there is industrial work and demand for unqualified labour.

- **The activities which traditionally took place in Medinas have diminished due to lack of space** and their unsuitability for modern production methods, high internal transport costs and poor accessibility for customers from around the city. Public policies often tend to accelerate this loss of business due to the elevated risk levels present in Medinas (accidents, fire and pollution in an extremely vulnerable environment).

- With the exception of busy tourist areas, **commercial activities are mostly in decline** due to difficult access for customers and the added transport costs associated with all goods which are not produced on-site and which must be brought in from outside.

- The **difficulties associated with transporting construction materials** (removal of waste and the supply of new materials) often seriously hamper building regeneration schemes. The price of land in "new cities" is often lower than the cost of removing rubble from ruined buildings and supplying the materials required for reconstruction or renovation. The number of abandoned buildings and houses close to ruin is increasing rapidly. This contributes to the degeneration of neighbourhoods and reduces the propensity of neighbouring owners to undertake maintenance and renovation work.

- Lastly, poor accessibility and impoverishment has led to the **appearance of "dark zones"** where illegal activities and trafficking take place. These in turn become obstacles to intervention by the public authorities.

Urban landscape in Casablanca

Faced with a set of factors which tends to increase deterioration, the forces acting to change the situation are relatively modest: tourism has undoubtedly become more evident in some Medinas which are known internationally. Furthermore, the historic and symbolic "heritage" value of Medinas should lead to their regeneration, but financing is usually hard to come by.

Regeneration efforts usually combine three types of actions: dedensification, the improvement of buildings and public spaces (consolidation of buildings "facing ruin" in particular) and the development of commercial activities and higher-level tertiary activities.

Bringing the city and Medina closer together: a challenge for the future – In order to reverse the current trend and redevelop Medinas, improving accessibility is increasingly seen as a primary concern which is absolutely essential.

While some Medinas occupy central geographic locations, most are located in the "blind spots" of urban mobility networks. In other words, their "internal" mobility problems are more pronounced than they should be, Medinas are often penalised by their situation as they are often marginalised from "external" areas.

However, Medinas are no longer autonomous multi-functional zones within a city, they have now become specialised districts (often with very low-cost housing) and dormitory cities for the underprivileged, who are often obliged to leave them to find work and earn a living.

These changes have imposed special demands on transport systems. We can no longer merely limit ourselves to the difficult and costly task of improving transport inside old cities, we also need to **drastically reduce the social and economic "costs" of travel throughout cities in general**.

Lastly, when the "gateways" of Medinas are adequately integrated into the surrounding city's transport system (for both people and goods), it would seem reasonable to believe that property values would rise around the best served interchanges and so spontaneously encourage a reversal of these regressive trends.

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Narrow street in the Medina of Algiers

© web

The Medina in Damascus, Syria

DAMASCUS Syria

Damascus is believed to be the oldest city in the world and the original urban model. The historic city is large: 130 hectares, 1,500 m in length and 900 m wide. It is bounded by a stone wall dotted with a few entry points. Its architectural heritage is incomparable and includes the Great Mosque of Damascus.

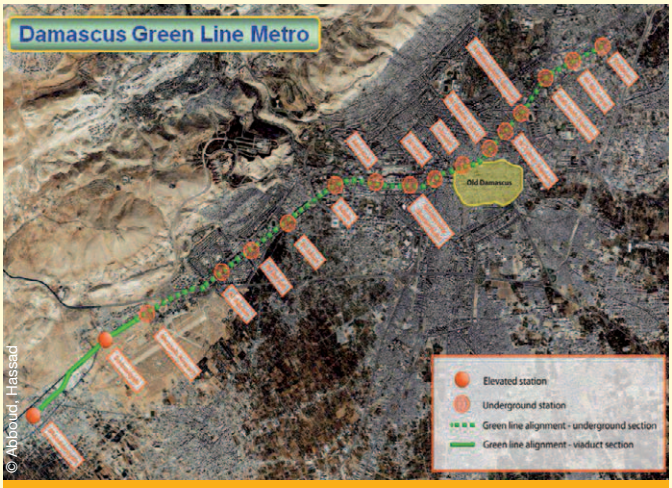
The central section is fed by a long shop-lined road (Rue Hamidiyeh) and the southern section includes a road which is accessible to cars, the Rue Droite, which crosses the whole Medina from east to west.

© Xavier Godard

Rue Hamidiyeh, Damascus Medina

On the outskirts of the Medina the city centre is now mainly served by taxis and private cars. There are frequent traffic conflicts between pedestrians and vehicles which are sometimes generated by the presence of vehicles passing through, as well as randomly parked cars.

The transport plan being designed provides for four lines servicing the old city as well as a circular boulevard linking these lines. A tangential Metro line will also provide two stations from which the Medina can be accessed.



Plan for the projected Metro line

The new transport plan for the Medina is based on the following guidelines:

- cars should be prevented from entering the Medina,
- six large car parks are to be built close to the entrances to the Medinas. On-street parking will also be provided,
- provisional parking permits will be given to the residents of the Medina as the new car parks are completed,
- a transport system will be implemented for travel associated with tourism, business and religious activities,
- electric vehicles will be used inside the Medina,
- a circular bus service (or tram) will connect the various points of entry to the Medina.

A street in the Damascus Medina

Rue Al Malek travels the length of the Medina to the north: minibus congestion


© Pierre Bourquin, web

Rabat, Morocco

3 Accessibility: users, services and rights which must be upheld

Accessibility is the right, the ability, of someone to have access to something. – Larousse

This broad definition of accessibility invites us to define the access rights and requirements which will (best) satisfy the needs of a Medina before we identify the pertinent and feasible routes and methods required to achieve them.

Accessibility primarily means access to essential public services – Before we look at mobility for people and goods it is essential to remember that the rights and requirements of access which need to be guaranteed in Medinas concern all public urban services, both inside and outside the walls: access to water, sanitation, security (police, fire services), care, energy, telecommunications, cleanliness, lighting, etc.

The availability of all urban services and utilities, in fact, contributes to Medina accessibility and to reducing discrimination compared with other urbanised zones. It must however be noted that these requirements are only partially available in Medinas, making this one of the first areas of improvement to be tackled.

The primary importance of transport for goods and materials – Considering the transport of goods and accessibility needs particularly concerning the delivery and removal of:

- construction materials,
- materials and products required for production in Medinas and artisanal production in particular,
- finished products and materials sold in Medinas.

Although quantitatively significant and absolutely essential to economic activities within Medinas, these requirements are still difficult to satisfy today; at issue is the unsuitability of the transport modes used for essential travel (lorries, vans, etc.) for the geometric characteristics of the streets which feed Medinas.

Personal mobility: a multitude of requirements – S'agissant de la mobilité The requirements associated with personal mobility are significant and varied, both quantitatively and socially. The table below attempts to outline these needs by grouping Medina users into six mobility profiles:

- the original user who lives and resides in the Medinas and essentially moves around on foot,
- underprivileged residents who are active outside the Medina, who live in the Medina but who must leave it each day to earn their living, they do not have a private vehicle and rely on any public transport services they may have access to (collective taxis and buses in particular),
- the upper-middle class resident who lives in the Medina works outside the walls and has a private vehicle to get around,
- traders, stall-holders and hotel owners who reside in the modern city but who travel into the Medina to conduct business, often having a private vehicle,
- local customers and visitors,
- international tourists.

These categories of user can be doubled as it is necessary to consider reduced mobility persons (RMP) as well as "healthy" people, these include children (and babies in pushchairs), seniors, disabled people in wheelchairs, the blind and the deaf, etc.

Category	Residence	Place of business	Principal modes used (except walking)	Main risks/difficulties associated with access (except access for emergency services)
Original user (exemple : artisan)	Medina	Medina	2-wheeled vehicle cart public transport (PT)	◢ problems associated with the transport of materials and merchandise (goods) ◢ dependence on PT available outside of the Medina (occasional travel)
Poor resident, active outside the Medina (example: household employee)	Medina	Outside Medina	2-wheeled vehicle cart public transport (PT)	◢ dependence on PT available outside of the Medina (daily travel) ◢ transport of goods
Upper middle-class resident (example: civil servant)	Medina	Outside Medina	2-wheeled vehicle car	◢ attractiveness of PT outside of the Medina (daily travel) ◢ transport of goods ◢ parking problems (above all evenings, nights and weekends)
Trader, stall-holder hotel, restaurant owner	Outside Medina	Medina (place of work)	car	◢ attractiveness of PT outside of the Medina (daily travel) ◢ transport of goods ◢ parking (during business hours, mostly daytime)
Local Medina **customers and visitors**	Outside Medina	Medina (shopping, visit)	public transport (PT) voitures	◢ dependence on/attractiveness of PT outside the Medina ◢ transport of goods ◢ parking (during business hours, mostly daytime)
International tourists	Varies	Medina (visit)	coach buggy taxi	◢ transport of goods ◢ problems associated with parking/offloading ◢ problems associated with finding one's way in the Medina

Figure 1: Profile of the main users of Medinas

Merchant street in the Marrakech Medina

Guaranteeing Medina accessibility: a challenge on the city scale – Guaranteeing Medina accessibility requires us to satisfy the many access requirements mentioned above. While this is a difficult challenge, it is one which **must be tackled by the public authorities** as Medinas form an integral part of the urban landscape.

The task becomes particularly difficult in Medinas due to the following two characteristics they possess:

- high urban density generates concentrated flows of goods and people,
- the cramped and irregular streets of Medinas restrict or prohibit the use of certain modes of transport within them. This leads to the use of offloading operations which require time and a certain amount of space.

Having said this, Medina accessibility does not only depend on the efficiency of travel on internal roads; Medina accessibility depends largely on **the level of connectivity with the rest of the urban area** and therefore the performance of the transport system in the city as a whole.

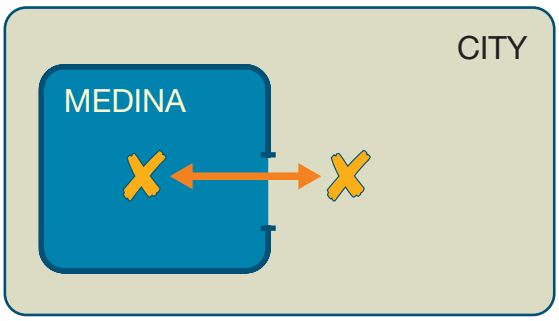
The solutions which need to be implemented to improve Medina accessibility therefore need to go beyond the walls and encompass the whole city.

The diagrams opposite identify three areas with specific challenges:

- the “deep” Medina which is not accessible to vehicles and which is entirely pedestrian,
- the “modern” city which is primarily served by motorised vehicles,
- the “City/Medina” interchange area where we find both pedestrian and vehicle areas and where offloading operations must be organised.

“Multimodal interface” in the Medina of Fez

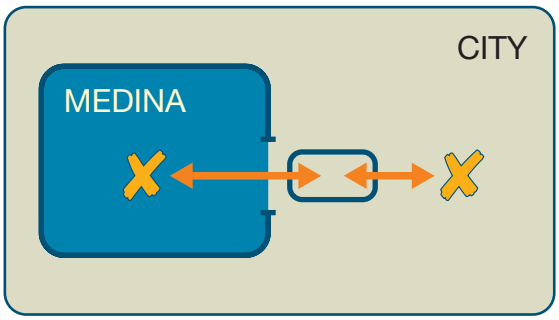
Trip without offloading



Modes :
- walking on foot
- cart
- 2-wheeled vehicle

Conditions :
- continuous comfortable route
- max distance 1 km (walking) around 3 km (2-wheeled vehicle/cart)
- parking at destination (off-street in Medina)

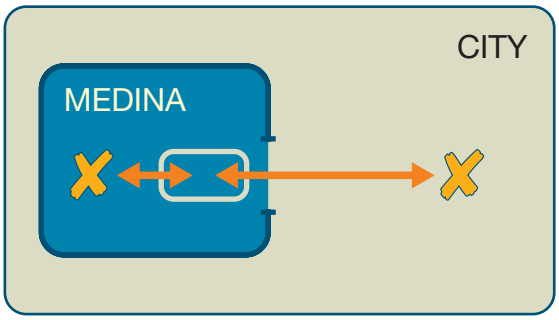
Trip with offloading outside the Medina



Types of interchanges (examples):
- PT stops/truck stops (PT ↔ walking)
- car parks (PV ↔ walking)
- goods offloading point (trucks ↔ carts)

Conditions :
- zones suitable for manoeuvring vehicles and reversing
- secure intermodal co-existence
- parking at destination (off-street in Medina)

Trip with offloading inside the Medina

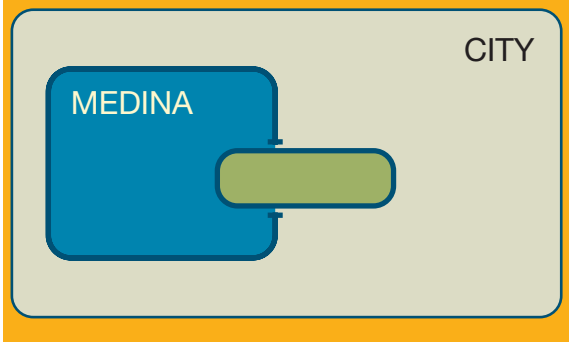


Types of interchanges (examples):
- parking spaces (PV ↔ walking)
- PT stops (taxis ↔ walking)
- goods depts (vans ↔ carts)

Conditions :
- zones suitable for manoeuvring vehicles and reversing
- secure intermodal co-existence
- parking at destination (off-street in Medina)

Abbreviations: PT = public transport / PV = private vehicle

Three areas of challenge



- the “deep” Medina which is not accessible to vehicles and which is entirely pedestrian
- the “modern” city which is primarily served by motorised vehicles
- intermediate areas where pedestrian and vehicle areas meet

Figure 2: Medina accessibility: an urban problem

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Marrakech Medina, Morocco

MARRAKECH Morocco

Particular attention was paid to the Medina in the recent Marrakech Urban Mobility Plan*. Although the Medina is well-known internationally it has significant mobility challenges, not least because it is home to some 20% of the urban population, or around 200,000 inhabitants, as well as a larger proportion of the city's jobs.

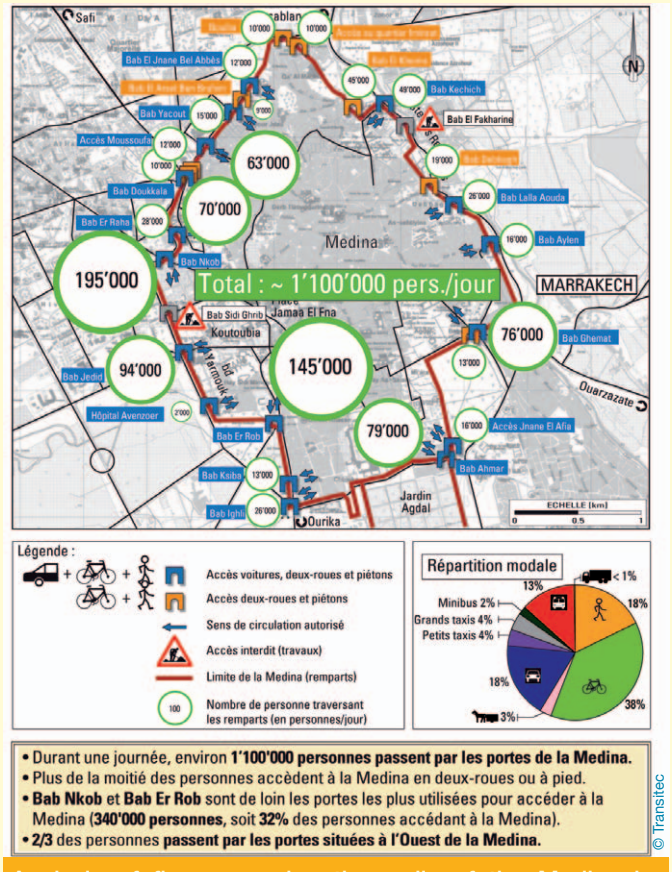
A survey of all trips crossing the "boundary" of the Medina (mainly defined by its walls) through its 25 gateways was undertaken in 2008 on an average working day.

The traffic crossing the boundary included some 250,000 vehicles per day, including 220,000 u-vehicles/day generated by the Medina (which, compared to the perimeter population, corresponds to a ratio of around 1.2 vehicle trips/day per inhabitant) and 15,000 u-vehicles/day in transit, as certain routes allow the Marrakech Medina to be crossed.

The number of people crossing the boundary of the Medina comes in at around 1,100,000 per day (a ratio in the order of 6 personal trips generated per inhabitant). Interestingly enough, the distribution of personal modes of transport shows that more than half of the trips are made on foot (18%) or on 2-wheeled vehicles (38% including motorised vehicles), public transport accounted for 13% to which we can add 10% by taxi; cars only account for 18% of the trips surveyed.

Far from being "universal", these figures give us an idea of the huge number of trips generated by a large Medina.

** Transitec Consulting Engineers, in association with Team Maroc, on behalf of the Wilaya de Marrakech, 2008-2009*



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Analysis of flows crossing the walls of the Medina by access route (in number of persons), figures


© web

Moulay Idriss, Morocco

4 Central proposal: preserving the pedestrian nature of the Medina

The original Medina: a pedestrian ideal – Medinas have historically been either completely or partially surrounded by walls, with fortified gateways controlling access to the city. Inside the walls the Medina constituted the city and all life; outside the walls was farmland, and beyond that, the unknown.

The choice of travel mode was simple, both inside and outside of the Medina: walking on foot for essential travel, the occasional use of horses, mules and donkeys and, rarely, the use of an animal-drawn cart. This modest range of transport modes has strongly influenced lifestyles and, subsequently, guided the model and shape of urban development.

These original modes of transport, life and spatial representation have given us Medinas which are characterised by a very compact structure and narrow connecting road networks comprising narrow irregular streets which could be classified as being organic. **The Medina therefore constitutes the ideal urban form**; an urban ideal corresponding to a lifestyle based on short journeys essentially made on foot.

A break with tradition caused by the arrival of new transport modes – This balanced situation has been turned on its head by the arrival of other modes of transport such as road and rail during the industrial revolution. These new modes (train, tram, bus, car, motorcycle...) allow for faster and longer journeys and have led to the need for new types of infrastructure which are not compatible with the nature of a Medina.

Cities have progressively turned their backs on Medinas and **these new modes of transport have engendered new lifestyles and new urban layouts**.

This evolution has indeed brought benefits. However it has also brought with it the problems faced by cities today. Among the principal complexities associated with urban mobility, the following problems affect most of the cities around the Mediterranean: controlling urban sprawl, the high cost and deterioration of public services, transport congestion, growing energy needs, deterioration of the urban environment (pollution, noise), road safety...

Over the span of a few decades urban centres have taken on such dimensions that Medinas have become marginalised from a functional, social, demographic and political point of view: attention is increasingly being paid to new urban landscapes.

The need for mobility systems in both Medinas and cities – Mobility conditions inside Medinas have evolved very little over the course of the years. Conversely, accessibility needs have skyrocketed due to the arrival of motorised vehicles (train, tram, bus, car, motorcycle...), which has led to the multiplication of journeys made outside the boundaries of the Medina.

Journeys taken using motorised transport modes are incompatible with the restricted configuration and dimensions of road networks within Medinas. The intrusion of such vehicles into Medinas has rapidly led to bottlenecks within the street network and drastic reductions in levels of conviviality, comfort and road safety for both pedestrians and residents.

The option to adapt Medinas to motorised modes of transport, with all the extra space that would be required, appears to be unrealistic. It would result in the dismemberment of historical cities which are testaments to Arabic and Mediterranean culture.

The challenge is rather to preserve and enhance this urban heritage by integrating Medinas within the transport system of the surrounding city by creating mobility networks both inside and outside the Medina which combine the assets inherent to each of these networks.

This choice implies the co-existence of two mobility systems:

- the transport system on the city scale, which is generally structured around the road network and other infrastructure including rail lines and major public transport interchanges, as well as networks served by the main mechanised modes: this is the accessibility system outside the Medina,

- accessibility systems inside historic city centres, based on the framework of public spaces so characteristic of Medinas, the nature of which are primarily pedestrian.

When designing mobility networks inside and outside Medinas we need to define the scope of the relevance of each mode of transport (transport of people and goods) and to organise interchanges to be used for offloading operations outside and sometimes inside the Medina, in order to promote the use of the most suitable modes of transport in each context.

Promoting the most suitable mode of transport in each context: preserving the pedestrian nature of Medinas – Rather than considering the pedestrian nature of Medinas as a defect or a disadvantage, leading us to turn away from it, we suggest the paradigm be reversed by considering this historic characteristic as a major asset and opportunity and to incite policy-makers to reconsider the place of the Medina in their urban strategy.

Specifically, the central proposal of this document is that Medinas be considered to be pedestrian priority zones, or an agglomeration of pedestrian zones which will involve the implementation of specific management methods.

Pedestrian zone or area, example of a legal definition (excerpt from Decree 2008-745 of the Highway Code of 30 July 2008, France)

"Pedestrian zone: a section or sections of road in a city, away from busy highways, constituting a zone designed for pedestrian traffic, on a temporary or permanent basis. In this zone [...], only vehicles required to serve the zone are authorised to circulate at walking pace and pedestrians have priority over them. Entrances and exits for the zone are marked using signs.", article R 110-2.

In addition to this, article R 417-10 generally provides for parking restrictions inside a pedestrian zone. However, vehicles with an access permit are allowed to stop at certain special places which may be officially designated delivery zones.

As this definition suggests, the management of a pedestrian zone does not only mean that cars are prohibited from entering a given perimeter. On the contrary.

The creation and management of pedestrian priority zones within Medinas requires us to design and implement management, control and communications schemes which are able to:

- provide permanent priority access to basic services, particularly security, emergency and cleaning services,
- fully integrate the Medina into the mobility development strategy of the surrounding city,
- define the pedestrian priority zone or zones in Medinas and to organise transport interchanges at the gateways,
- manage the rules governing public pedestrian spaces inside Medinas.

These four requirements to be satisfied by the public authorities are looked at in the next four chapters, although first we will look at two significant factors which arise from the strategy of preserving the pedestrian nature of Medinas.

© Xavier Godard

Pedestrian road in the ancient centre of Alexandria

The Medina as a pedestrian zone: similarities with the changes taking place in northern Mediterranean city centres – The pedestrianisation of Medinas can be compared to recent improvement processes taking place in the centres of European cities.

In fact, most northern cities, having undergone the costly adaptation of their centres to car use (road widening, traffic enhancement measures, construction of underground car parks), are now in the equally costly process of reversing this process in order to prioritise use for pedestrians, cyclists and public transport, as well as to enhance public spaces, to improve air quality and to control car access to city centres.

This process has accelerated as the residents and policy-makers of northern cities have become aware of the fact that cities are not primarily places of travel, but are primarily places of habitation. This transition can be summarised as follows: **cities should not be adapted to the car, rather, car use should be adapted to the quality of life desired in cities**.

The Medina as a pedestrian zone: going down the road of sustainable urban mobility – The years and decades to come will be affected by the increasing scarcity and rising cost of hydrocarbon resources, which will necessarily constrain the use of cars and mobility behaviour, so prioritising proximity, active modes and collective solutions.

From this perspective it would appear that Medinas, in that they are mostly unspoilt by cars, have undeniable advantages: high population density, less dependence on cars, proximity to the city centre...

In comparison to modern districts and districts under development, particularly around cities, the pedestrian nature of Medinas gives them a head start in sustainable urban development.

In the following chapters we will examine the essential conditions required for success in managing Medinas as pedestrian zones.

© Bob Fisher, web

Place de la Comédie, Montpellier, France

MONTPELLIER France

Montpellier is a dynamic city which was home to 490,000 inhabitants in 2007 and had agrowth rate of between 1.2% and 1.5% per year.

City centre accessibility posed problems in the eighties and a continuous improvement policy was implemented which included the development of a tram network throughout the city (4 lines with a fifth underway) and pedestrianisation of the centre itself, known as the “Ecusson” (the shield) due to its shape.

© Effeelle, web

Montpellier City Centre

The goal was to maintain businesses (mostly shops) in the very centre while reducing pressure from cars and improving accessibility by public transport.

This is how the Ecusson pedestrian zone came into being, it currently covers 60 hectares, including 24 km of pedestrian streets in an area with 12,000 inhabitants and one thousand shops. It is served by two tangential tram lines and a circular line making it very well-connected. The centre was pedestrianised in stages:

- 1970 : Creation of the first pedestrian street,
- 1977 : Partial pedestrianisation of the centre,
- 2004 : Complete pedestrianisation of the Ecusson.

These measures have redynamised the city centre with a 21% increase in visitors between 1997 and 2004.

The pedestrianisation scheme restricts vehicle access to between 4 am and 9 am. Video cameras and collapsible bollards are used to filter access during the daytime. Access is only allowed to vehicles having a permit:

- full permit: residents, shop owners, administrators, public services, handicapped drivers, taxis (the permits given out have time limitations depending on the category of the user),
- exceptional permits: artisans, removers…

Deliveries are also subject to these requirements, and after a period of consultation with the stakeholders the system was implemented in 2004, meaning that logistics operators had to adapt their operations:

- traditional deliveries by van had to take place in the early hours of the morning,
- small electric vehicles are allowed access throughout the day (their narrow width allows them to pass between the collapsible bollards),
- many types of delivery vehicle are used depending on the type of merchandise, ranging from mini-vans to tricycles.

© Vincent Meyer

Tricycle in the central pedestrian zone of Montpellier

Logistics distribution centres allow goods to be unloaded at the edge of the pedestrian zone. Delivery areas are specially designed to prevent confusion.

The authorities intend to extend the pedestrian zone to the south of the Ecusson to coincide with a new tram line and the commercial development of the area. This will make the pedestrian area closer to City Hall and the railway station.

However, the pedestrianisation process also encountered some difficulties. These included:


© Vincent Meyer

Montpellier city centre

- the management of access to six hotels located inside the pedestrian zone,
- the control of illegal entry, especially by residents outside of their allotted times.

Although the context is distinct, the lessons learned in Montpellier show the importance of urban planning and the consistency of public actions over time. Pedestrianisation is possible over a wide area and the technical resources exist to filter access to authorised vehicles. Above all it is essential to understand that the pedestrianisation of the city centre took place within the context of the transport and urbanisation strategy for the city as a whole.

© Javier1949, web

Chefchaouen, Morocco

5 Ensuring permanent priority access for essential services

As is the case with most districts, **it is essential that Medinas be covered by basic local services**, such as the police, fire services, ambulance services for the sick and injured, rubbish collection, cleaning of public spaces, street lighting, etc., all of which require **adequate organisation and transport resources**.

Given the vital importance of the emergency, security and health services, it is crucial that the authorities make sure the urban area is covered, including the most densely populated areas which are hardest to access.

A detailed analysis of the geometric constraints associated with the street layouts in each Medina should be able to identify appropriate measures and techniques for intervention, as well as those which need to be "tailor-made".

In particular, the width and/or the gradient of most streets in Medinas, as well as the presence of steps and/or other physical obstacles, which could limit access on a local basis (sharp corners, height restrictions, etc.), will necessitate the use and management of unconventional modes of transport, which will need to be defined and implemented.

Fulfilling this "minimum" set of requirements must be prioritised and access to vehicles providing basic services (particularly emergency services) must be ensured at all times, whatever the time of year, day of the week or time of day. Sectors of Medinas which are pedestrianised are no exception: **basic services must be able to be provided as in all pedestrian areas**, and this will involve authorisation and the provision of physical access to vehicles delivering these types of public services.

Below are some specific ideas and examples to be considered:

- in the hardest to access sectors, primary evacuation of injured people can be done using stretchers, which must be readily available in the sectors in question, patients are then carried to certain locations where faster modes of transport can be made available,

- fire fighting systems can be improved through the implementation of networks of hydrants and hose equipment which can be rapidly deployed and which cover all buildings in the Medina not accessible to vehicles,

- in terms of police patrols, rubbish collection and cleaning of public spaces, the entire Medina should be covered by personnel on foot or using suitable means of transport: two-wheeled vehicles, animal portage, carts, narrow vehicles, etc. By way of illustration some examples of unconventional vehicles are shown below (see also the inserts about Fez and Montpellier).

Three-wheel man-powered utility vehicle

© Cycloprop, web

Narrow wheel-base utility vehicle, motorised

© FAAM, web

Three-wheel man-powered postal vehicle

© Bruce Turner, web

Narrow wheel-base postal vehicle, motorised

© La Poste, web

Three-wheel man-powered delivery vehicle

© Mikael Colville-Anderson, web

Narrow wheel-base delivery vehicle, motorised

© Multitruck, web

Figure 3: Illustration of small unconventional vehicles driven by muscle power or motors (electric)


© TMRE.deviantart.com, web

Fez, Morocco

FEZ Morocco

The city of Fez sprang up from one of the largest Medinas in the Mediterranean basin. While the modern city centre has been established on a plateau a fair distance from the old city, the latter still retains a significant population (over 100,000 inhabitants), plenty of artisanal trade and a strong tourist industry.

The Medina is therefore faced with significant demands for transport to (and from) other areas of the city, as well as significant traffic linked to the transport of the goods and materials required for production and retail activities, and there is also a considerable influx of visitors and tourists, all set in an environment of high architectural and historic value.

The accessibility policy which has been implemented specifies:
1) passable roads penetrating into the Medina ending in cul-de-sacs,
2) car parks around the edge of the Medina (in areas with little historical value),
3) bus services at the main gateways and
4) a network of streets which are passable for emergency vehicles when circumstances require them, and only minor modifications have been made to streets in order to preserve historic buildings.


© Seghini, ADER-Fès

Example of an access route which leads to a car park (Oued Zhoun)

As illustrated on the next page, these involve the removal of steps, minor work to smooth the geometry of crossings and corners, the regulation of the transport of materials by mule or donkey and the implementation of rubbish collection using donkeys. These small improvements involved modest costs but provided tangible improvements for internal transport, above all for construction materials and equipment, they also provide improved access for emergency services (medical evacuation, repair of underground networks, fire prevention, etc.) by allowing occasional access for narrow wheel-base vehicles, the specifications of which were taken into account to make these streets “passable” when required.

Removing obstacles

Construction of passable ramps

Special vehicle tests

Facilitating passage without degrading the surroundings

Figure 4: Examples of improvements to make roads passable for emergency vehicles

Tannerie de la médina de Fès, Maroc

6 Fully integrating the Medina into the mobility development strategy of the surrounding city

It is down to the policy-makers of each city to define and implement journey planning and development strategies for transport networks. This mobility policy must allow the development of transport networks in coherence with current and future needs generated by urban activities.

Now starting to emerge in Mediterranean regions, the process of planning and managing urban mobility described on the next page must be undertaken by and for each of the cities.

While the urban characteristics of some cities make them special cases, some preoccupations are common to most of them: the development of effective public transport, controlling invasive vehicles (both driving and parking) and the promotion of soft mobility modes.

Such a project will be structured around the following factors:

- the prioritisation of the various central areas of cities (old, new and emerging), integration of the principal inter-urban transport interchanges (railway stations, road depots, etc.),
- the principles of organisation and the complementarity of the various travel modes must be applied for the whole city: prioritisation in terms of the function and roles of public transport, individual motorised modes and soft/active modes,
- the structuring and integration of the public transport system (connections serving the various centres of the city),
- the functional prioritisation of street networks and traffic flow regulation strategies,
- the implementation of parking policies and guidelines,
- actions designed to promote soft mobility including coordination, education and awareness, etc.

In any event, it will be crucial to integrate the entire Medina into the urban planning process. Policy-makers must therefore prioritise the satisfaction of current mobility requirements (including future needs, even with rapid urban development). Among all types of districts the Medina generally constitutes one of the main generators of travel within cities.

The **urban mobility planning process** should be iterative and cyclical as it must integrate the following successive steps:

1. **diagnostics** covering accessibility and travel conditions,

2. definition of the **strategic goals** as per the **corresponding constraints** in terms of regional development, social equity, energy efficiency, environmental protection, financial feasibility, etc.,

3. **projected needs** for mobility and transport, which will depend on the various strategic goals set out,

4. having identified the **effective room for manoeuvre** and analysed the various foreseeable scenarios we must define the urban **mobility development strategy** (transport infrastructure and services): in order to be effective this strategy must be multimodal (in other words, the strategy must integrate and coordinate all modes of travel under a single vision for the city and its development),

5. subsequent to establishment of the strategy, the implementation of **investment programmes and operational programmes** for the various components of urban mobility systems,

6. **tracking and controlling** implementation will involve regular observation of the supply and demand of mobility, which can then be used in new diagnostic procedures (see point 1).

Figure 5: Urban mobility planning and management process

However, rather than considering the Medina to be a source of problems and difficulties, which may discourage us, it would seem advisable to consider Medinas as sources of tangible opportunities for urban strategies:

- **medinas can be considered to be providers/ instigators of soft/active mobility**: extending and integrating "natural" pedestrian routes in Medinas to neighbouring districts so increasing the attractiveness of pedestrian travel and promoting soft mobility outside the Medina,

- **medinas should be considered to be significant generators of public transport customers**: public transport networks must be organised in such a way that they integrate the largest group of users travelling to and from the Medina (structuring of lines, layout of stops, etc.),

- **the Medinas should be considered as significant centres of economic activity within the city, often positioned very close to the centre of the modern sector**: improve awareness of the advantages of having concentrated areas of commerce which create jobs, services and trade. The evidence shows that if all economic activities in Medinas were relocated and distributed around the periphery of the city, the problem of accessibility would persist in other forms, which would undoubtedly be more complex. This type of reasoning may still be highly relevant in a more limited and subtle form.

© William Casey, web

Narrow street in the Fez Medina, Morocco

It is important to remember here that not all activities taking place in Medinas engender the same needs in terms of accessibility (commuting, customers, materials, manufactured products, etc.). A sustainable strategy may therefore include:

- on the one hand, preserving and even prioritising the development of activities which do not depend on heavy transport (e.g. activities associated with tourism, restaurants, small retail stores and tertiary activities or services, including call centres, etc.),

- and on the other, to assist with and encourage the relocation of activities requiring "heavy access" and large capacity transport modes (semi-industrial production, wholesale, home appliances, etc.), or which present a hazard (fire, pollution, etc.) to the fragile environment of the Medina (production using toxic or flammable chemical products). For comparison, the implementation of pedestrian zones in northern Mediterranean cities is generally accompanied by the economic segmentation of commercial activities.

Essaouira, Morocco

© web

Narrow street in the Marrakech Medina


© web

Kasbah des Oudayas, Rabat, Morocco

RABAT-SALÉ Morocco

The city of Rabat-Salé, the capital of Morocco, has around 1,900,000 inhabitants. It grew up from two large Medinas. Salé is the oldest and covers the ancient Phoenician and Roman cities; it was founded in the 9th century at the northern end of the Bougreg river. In the 11th century it was extended to the southern bank where the Medina developed and was followed by the city of Rabat.

Surrounded by walls, these two large Medinas are still occupied and are important areas of trade and artisanal production, the modern cities having largely extended beyond the walls. The modern business centres are now fairly distant from the ancient cities and have extended even further from the original sites.

These Medinas have preserved their traditional character and their narrow crowded streets are still places of business. They are impenetrable to vehicles with the exception of a few roads used for emergency access.

© Société du tramway de Rabat Salé

Rabat Salé tramway network 2011

To the internal travel problems which are common to all Medinas we need to add the serious problems associated with external travel, above all for the Salé Medina which is the furthest from modern development areas and suffers from problems associated with crossing the Bougreg valley over a bridge, which becomes extremely congested during rush-hour periods.

The recent construction of the Rabat Salé tram network is seen as a sustainable solution to these problems. The routes of the lines run tangentially to the two Medinas with stops located right outside the main gateways. Construction of the network began in 2007 and now includes 20 km of lines and 33 stations providing access to the main sources of traffic within the city: tertiary centres, the main shopping centres, universities and railway stations. The implementation of the tram system was also used as an opportunity to restructure other public transport lines (buses and taxis) and to improve the urban environment by reducing pressure from cars.

Pedestrian rush-hour in the Rabat Medina, Morocco

Tram station at the gateway of the Rabat Medina

N.B.: The photo and map of the tram system were graciously provided by the Rabat-Salé Tramway Company


© web

Historic city of Shibam, Yemen

7 Defining pedestrian priority zones in Medinas and organising transport interchanges at the gateways

Within the framework of an integrated development and operational plan for urban mobility throughout the city, the Medina must be effectively connected to other districts within the city (external accessibility) and must also have comfortable unobstructed links within the Medina itself (internal accessibility).

The central proposal of this guide is to manage Medinas as pedestrian zones, which will particularly require that we define the perimeters subject to these special regulations (see chapter 4).

Today, the fact that most Medinas are “pedestrian zones by default”, as shown on the following page, only results from the inability of conventional vehicles to penetrate its narrow streets. In the absence of regulations and specific facilities and controls, the growing pressure of motorised vehicles attempting to penetrate as far into the Medina as possible has led to suffocation.

This situation is in no way similar to a true pedestrian zone which is the result of political desire and ad hoc management.

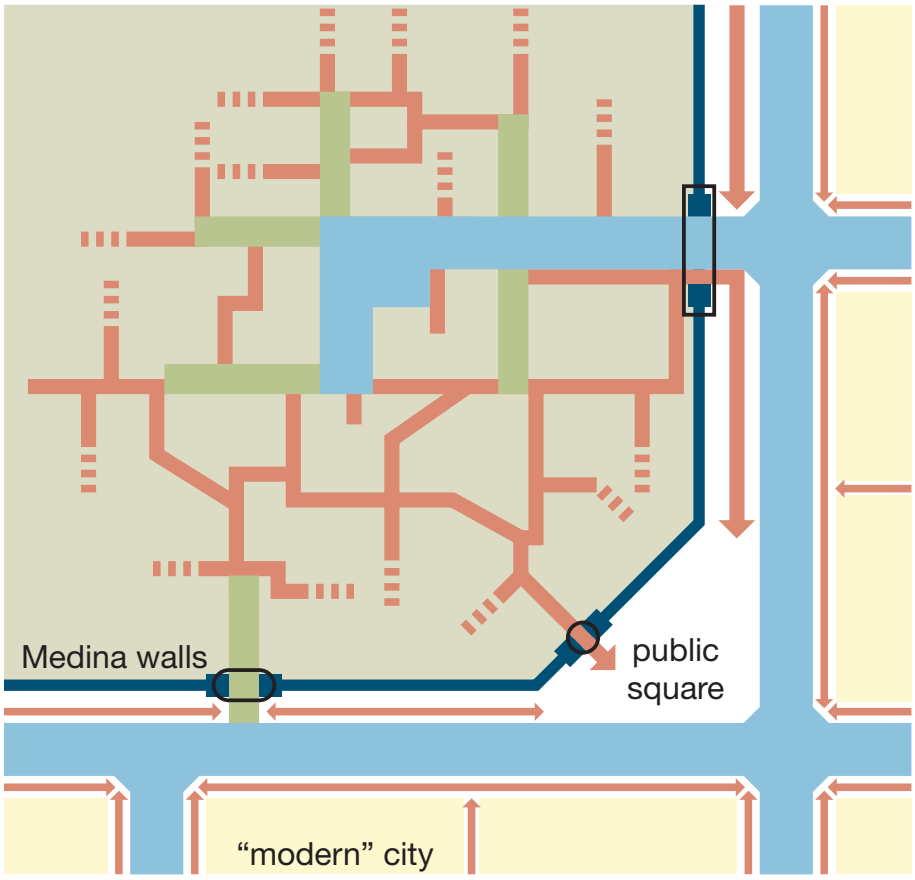
When we delimit pedestrian zones we are creating spaces which are entirely owned by pedestrians. Ad hoc regulations are used to strictly limit access to pedestrian zones for authorised vehicles (emergency services, deliveries, maintenance, removals...) and parking is, in principle, prohibited, formalised and controlled, unlike with “utility” stops.

The positioning of access points for pedestrian zones is also a delicate but essential task as it involves the organisation of the required transport interchanges at the gateways of the Medina (public transport stops, goods interchanges and car parks).

Good decision-making requires us to consider all usages and the access needs required. However we also need to look at larger urban objectives, such as recovery of public spaces, the development of heritage sites and the preservation of environmental quality, etc.


© Elisabeth Gilet, web

A gateway in the Marrakech Medina



Three categories of road width

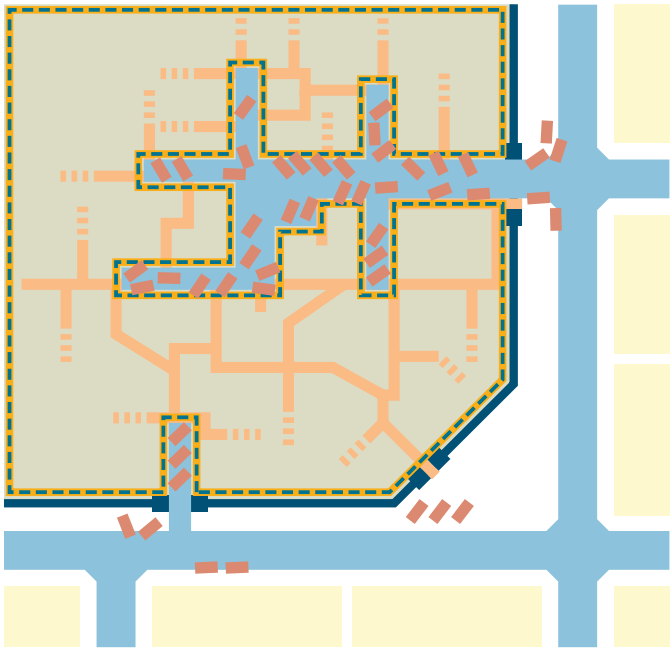
- pedestrian width (<2 or 3 m) (a pavement in a "modern" city)
- intermediate width (2 to 5 m)
- passable width (>5 to 6 m)

Three categories of Medina access gateway

- pedestrian access
- narrow gateway (narrow vehicles)
- passable gateway (conventional vehicles)

The geometric characteristics of the streets and access gateways of Medinas have a direct influence on the potential types of vehicle which can be used to serve or access the Medina.

Figure 6: The importance of street widths in Medinas



"randomly" parked vehicles

The medina today: a "pedestrian zone" by default

- no special traffic or parking measures have been implemented (the Medina is therefore not a pedestrian zone in the legal sense),
- there are geometric constraints which "block" vehicles,
- vehicles which are circulating, stopped or parked congest public spaces and cause "bottlenecks" at Medina access points,
- suffocation of the Medina,
- a situation which must be prevented!

Figure 7: The Medina today: a "pedestrian zone" by default

We specifically need to:

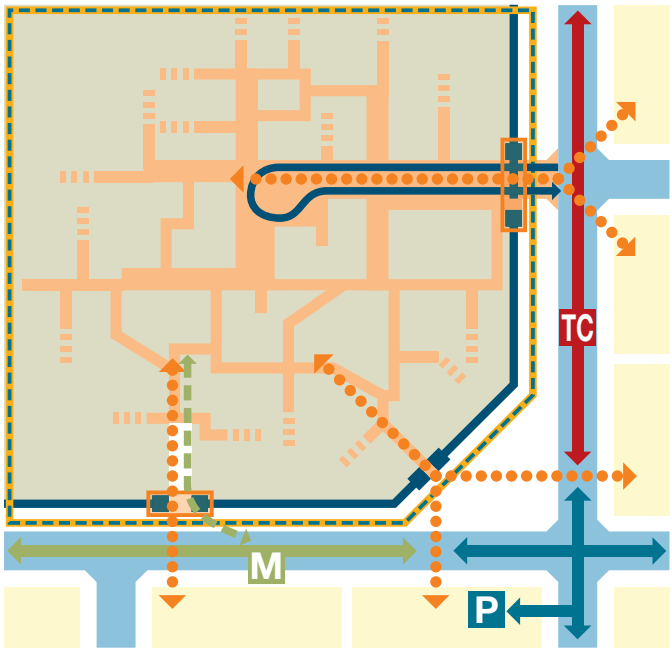
- quantify and characterise the flows of people entering and leaving the Medina: spatial distribution, variability over time, reasons for travel, etc.,
- quantify and characterise the flows of goods and materials entering and leaving the Medina,
- analyse the urban spaces on both sides of the "natural" boundary of the Medina in order to identify areas which are obviously pedestrian, and also to analyse the suitability of spaces for the use of different types of vehicles as well as the space available for transport interchanges,
- design various possible boundaries of the pedestrian zone with the aim of achieving the stated goals and overcoming previously identified constraints; especially the comfort and effectiveness of connections between the pedestrian streets of the Medina and the public transport system for people and goods,
- once the optimum boundaries have been identified we need to set up and indicate the access points to the pedestrian zone ("entry point" to be marked), the various transport interchanges must be set up and the pedestrian zone and its borders must be regulated and controlled.

The figure on the following page shows the main "transport" challenges associated with the pedestrianisation of Medinas.

At this stage, policy-makers must pay special attention to the following two fundamental aspects:

- **the management and control of parking on the outskirts of the Medina**: it is crucial for public authorities to retain control over vehicle parking (private cars, motorcycles, cycles, as well as lorries, taxis, etc.) in public spaces, especially on the outskirts of the Medina. Parking factors will have a big influence on accessibility conditions. Parking pressures are already severe at the edges of Medinas and this will increase as Medinas become more attractive through the creation of modern pedestrian zones. In terms of mitigating the problems associated with disorganised parking, only the public authorities have the competency and ability to regulate parking spaces. Said regulation must provide for a sufficient number of parking spaces (both on-street and underground) and correctly define parking times and prices. Parking requirements must also be quantified in terms of the **needs of residents and visitors to the Medina**, as well as the **needs of neighbouring districts**. The various parameters of parking facilities must be defined based on the requirements which need to be satisfied, parking areas must be designed and the use of public spaces controlled,
- **the controlled organisation and operation of roads running tangentially to the Medina and around it**. In general, the streets surrounding Medinas are highly congested, especially near modern city centres. It is, however, essential that these roads be able to handle significant flows of pedestrians around the Medina and provide public transport services for people and goods (via interchanges), all the while maintaining road traffic tangential to the Medina. In order to simultaneously satisfy all these needs, we need to filter out "parasite" traffic as much as possible in order to prioritise useful traffic serving the local area. There are several courses of action available to achieve this: the prioritisation of public transport (trams, buses, etc.) over less-efficient individual modes of transport (including taxis), the prioritisation of diametrical transport routes over radial ones (in order to reduce the space required for termini) and, above all, transit traffic must be diverted away from the Medina and the city centre.

Given the above, it is obvious that the principles of the design and operation of parking spaces and streets implemented at the edges of Medinas will require the application of an overall strategic mobility system for the entire city (see chapter 6).



Medinas can be improved through the recovery of accessibility via access control and management as a “true” pedestrian zone

Pedestrian zone (PZ)

(ad hoc regulation of traffic limited to "permit holders", speed limited to 5 km/h, priority is given to pedestrians)

PZ access gateways (to be marked, signed and controlled)

prioritised pedestrian links

Access to conventional vehicles which are “authorised”

Basic public services (emergencies, cleaning, maintenance...)

Note: regulated stops, parking prohibited

Goods access (M)

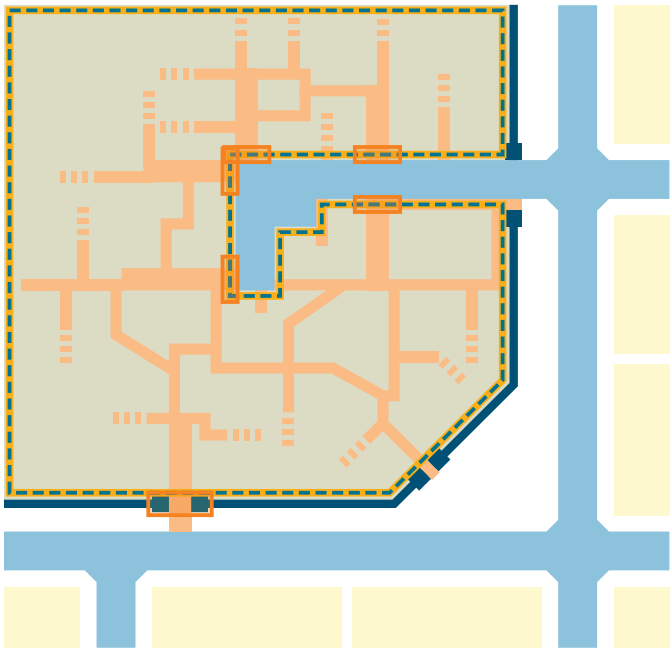
M interchange, offloading point

Public transport access (PT)

TC PT interchange, good pedestrian access

Car access

P Car parks close by, good pedestrian access, prices adapted to priority users (resident’s permits? progressive charges for visitors?)



Acceptable or desirable alternatives in certain cases:

- very large Medina,
- wide penetration road,
- good turnaround points,
- controlled traffic and parking.

Figure 8: Enhancing Medinas by restoring accessibility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The Medina in Tripoli, Libya

TRIPOLI Libya

The Medina in Tripoli is at the northern edge of the city and borders the old port to the east. Its size makes it suitable for travel by foot: it is 1 km long and has a maximum width of 700 m.


© web

The Medina in Tripoli

The functional approach adopted during the eighties and nineties saw the construction of an embanked bypass to the east in order to save seafront space and to provide a route for cars to cross the Medina.

Faced with obvious degradation and the desire for restoration, new guidelines were established in the first decade of this century which led to the creation of an action plan in 2010, just before the events which came to be known as the “Arab Spring”.


© Victor Korniyenko, web

A street in the Tripoli Medina

Coastal road

The project was developed using the following guidelines:

- the pedestrian nature of the Medina, which is protected by walls, has reduced the presence of cars in the immediate surroundings: a significant portion of the coastal road travels underground providing space for green areas,
- underground car parks have been constructed close to some of the gateways,
- inside the Medina, electric vehicles provide public transport (especially for persons with reduced mobility), goods transport services and rubbish collection. Logistics depots have been constructed at the gateways to the Medina which have become centres for economic development.

Coastal road regeneration project

View over the Medinas and the modern districts of Tunis, Tunisia

8 The design, regulation, control and maintenance of public spaces within Medinas and at their borders

Public spaces must be designed, regulated, controlled and maintained through the local application of the city's strategic guidelines. This obviously includes Medinas and their borders.

Once the pre-defined public space has been allocated and organised (see chapter 7), it must be implemented and its operation overseen. Several complimentary tasks must be undertaken when implementing pedestrian zones in Medinas:

- **streets must be laid out and equipped**: adaptation of the street system will involve "physical" measures, such as the design and marking of pedestrian zones, access points and any local geometric correction works which may be required (e.g. the modification of road surfaces and widths in order to facilitate travel for people with reduced mobility and/or the passage of emergency services: see examples constructed in Fez), various measures to direct traffic both at the entrances to Medinas and inside them (including pedestrian markings), the adaptation of certain surfaces, marking out of car parking spaces (main delivery stops inside the Medina and public car parks around the Medina), improvements to street lighting and shaded areas, etc.,

- **regulatory provisions**: the rights and obligations associated with the use of public spaces must be duly formalised in local policing and urbanisation regulations and, in particular, in the laws and rules of the Highway Code. In particular we need to regulate the following aspects for each zone: the permanent or temporary nature of pedestrianisation (weekly or seasonal? delivery access times?); speed limits (as a general rule: speeds should not exceed 5 or 6 km/h); the types of vehicles permitted and prohibited in pedestrian zones; conditions for obtaining access permits (permanent or temporary); the specific parking regulations (location of parking spaces, parking duration and times, prices, etc.); signage methods, etc.,

- **management and control instruments** for the correct use of public spaces: as a necessary corollary to any system of regulation, control is a major challenge which will involve assigning permits to "rights holders" (with any applicable time constraints), the implementation of permanent regular control systems at passable access points, control of compliance with parking regulations in and around the Medina (contravention requiring permission), regularised police controls (public order), the systematic control of public and private works (including interventions and operations by public services, such as electricity, water, etc.).

- **maintenance management**: maintenance of public spaces inside and around Medinas is particularly important due to the stress they are subject to and the considerable number of users who would suffer from shortcomings in terms of the practicality and attractiveness of the various spaces. The challenges are simultaneously associated with safety, comfort and urban aesthetics.

Maintenance operations will include the removal of rubbish, cleaning of public spaces, watering gardened areas, maintenance of urban facilities and street lighting, and maintenance of standing street signs, etc.

Two-wheeled traffic which must be controlled on some routes through the Marrakech Medina

More than any other district of a city, and in addition to the requirements associated with very heavy traffic, historic centres require significant maintenance work which must fulfil the goals associated with the preservation of their heritage, at the same time as encouraging tourism and economic development.

Particular attention should be paid to the following issue: **which types of vehicles will be tolerated in a Medina's pedestrian zone?**

As with most European regulations covering pedestrian zones which allow, and even encourage, access for cyclists, it is important to specify which types of vehicles should not be subject to general prohibitions prevailing in Medina pedestrian zones. This issue needs to be looked at on a case-by-case basis and solutions may vary.

From a practical viewpoint we need to look at the opportunities presented by tolerating the following types of vehicles in pedestrian zones independently of whether special permits are included within the framework of the zone's regulations:

- **cycles**: these vehicles are accessible to most people, they are compact, non-polluting and travel slowly, and their use should be promoted throughout the city. With a few exceptions, cycles should clearly be authorised for use in Medinas (although the speed limit should be set at walking pace),

- **motorised two-wheel vehicles (scooters, mopeds, motorbikes):** these vehicles are accessible to many people and they are moderately compact, motorcycles are different from cycles in that they travel at higher speeds and can be a nuisance (pollution, noise), they also hinder pedestrians (a problem which is currently present in Marrakech). The use of two-wheeled vehicles can be difficult to control and tends to increase as constraints are placed on car use (a problem which can be found today in Barcelona) and when there are public transport shortcomings. While an overall prohibition can be implemented, as in Damascus, the most common solution is to authorise access to smaller-engined two-wheeled vehicles, which must of course travel at walking speed. In some instances motorised two-wheeled vehicles should be prohibited in streets with heavy pedestrian traffic, and/or diverted onto streets with less traffic (a provision implemented by the PDU in Marrakech),

- **pulling and carrying animals (donkeys, mules, horses**): the traditional "vehicles" of the Medina, they cause little pollution, are slow-moving and able to transport heavy loads, they can also travel on almost any gradient or road surface. They are an indispensable working tool in many sectors and should therefore be permitted to access Medinas. Their relatively low numbers and the routes they use generally keep problems to a minimum. They also act as a tourist attraction,

- **other types of narrow vehicles** (see examples on page 25): these include small vehicles with three or four wheels, which can have electric or combustion engines or be driven by leg power, are designed for transporting people and goods. There is a wide range of unconventional narrow-wheelbase vehicles available and we need to decide which types will be subject to general prohibition within a Medina's pedestrian zone. This decision is not so easy. Some of these vehicles may be useful in fulfilling certain needs, generally by replacing draught animals.

In terms of private uses, such as supplying shops or the collection of goods purchased in the Medina, it is up to the authorities to decide on the conditions under which vehicles are allowed to access the pedestrian zone. These conditions must at least cover the maximum size and power of these vehicles, as well as noise and pollution emissions; ideally they must specify that electric vehicles be used, or at least encourage their use. Vehicle owners who do not respect these access conditions will be subject to the regulations of the pedestrian zone.

Some narrow-wheelbase unconventional vehicles are capable of providing public services. These include emergency vehicles (e.g.: vehicles designed for the evacuation of injured persons, for fire fighting and for police intervention), which are not subject to the rules of the pedestrian zone whatever their specifications: as in most cases, emergency vehicles are covered by a different set of traffic regulations. These also include vehicles which provide regular public services (e.g.: removal of household rubbish, maintenance of public roads, etc.), whose access to pedestrian zones must be authorised and managed in the public interest. To conclude, the use of unconventional vehicles to cover some or all public services within Medinas will, above all, depend on the value they add compared to alternative modes and procedures. Authorities which do decide to use such vehicles should opt for electrically-driven vehicles (setting an example, ripple effect).

A "utility vehicle" at a stop

Seafront in Alexandria, Egypt

ALEXANDRIA Egypt

The historic centre of Alexandria extends for several kilometres along the seafront and a cliff and is currently served by a dilapidated tram system (City line network), the future of which is in question. Cars are allowed on the narrow streets, although some streets have been pedestrianised. This zone is also served by minibuses along the coastal road, but these to not enter the Medina itself.

Many of the streets in the old town of Alexandria are subject to pressure from cars

Mass transport modernisation projects within the city include reconstruction of urban train lines and regional express services (RER) along routes which, according to the 2010 “Transport Master Plan”, will run alongside the historic city, as well as a Metro project which was proposed in 1985 and subject to a study in 1998. However, this would be costly and difficult to construct (archaeological sites would need to be preserved) but would service part of the historic centre.

The historic city would lend itself to a development plan prioritising the renewal of the tram system and pedestrian travel, however, the authorities are currently prioritising accessibility to new urban areas and new emerging centres within a multi-polar scheme.

Casablanca Medina, Morocco

9 Additional institutional and financial provisions

As with all Medina restoration programmes, the planning and management of urban mobility is a large, complex undertaking which requires intensive long-term commitment.

The improvement of Medina accessibility falls at the confluence of two essential urban goals. It is not surprising that the factors associated with the governance of such a project are challenging in themselves.

In terms of the economic, financial and social challenges associated with such a project, they should obviously be managed on a public basis and be instigated by local administrations (with State support) and in collaboration with the various stakeholders (including private investors, citizens, etc.).

In general terms, there should be two levels of governance acting in concert involving two complementary bodies handling coordination and execution (in brackets, the main areas of responsibility).

- **a strategic policy body acting at the level of the entire city** (planning, strategy, coordination, regulation, pricing, financing, subsidies, communications, strategic control, etc.): typically, the president of the local executive body should implement this structure, the purpose of which will be to define and implement an urban mobility policy which should, in particular, encourage the development of external access to the Medina,

Limiting the increase of motorised traffic in Medinas to improve pedestrian access

- an operational body or bodies acting at the level of the Medina or the city (design, programming, implementation, operation, comprehensive regulation, maintenance, operational control, etc.): this organisation will work under the policy and

strategy body, which will be hierarchically superior. This could take the form of either a local department or service, or a specific agency, such as the "Directorate of the Old City" within the Government of Damascus, or the "Agence de Dédensification et de Réhabilitation" in the Medina of Fez. The implementation of certain tasks and services may eventually be assigned to private companies through public/private partnerships, for example (particularly for the construction of certain car parks and the operation of parking systems at the edges of Medinas (including street parking), as could the management of new mobility services, such as rental bikes, etc.).

In terms of finance, three types of sources could be mobilised to cover specific improvements to Medina accessibility:

- finance for the transport and traffic systems covering the whole city. Where an urban travel organising body exists (an initiative recently implemented in Casablanca), it should be provided with sustained financing measures and should contribute to the financing of investment and operations placed under its responsibility, both inside and outside the Medina. Road improvements are often financed from communal funds and subsidies and occasionally by State credit,

- financing dedicated specifically to improving and redeveloping Medinas. This will depend on the nature of the governance system in charge of the Medina, which may be financed by a variety of means: contributions from the State budget, the city budget, development banks (like the AFD, EIB and WB), specific contributions from residents, businesses and visitors, companies, the property market, etc.,

- the mobilisation of private financing is becoming increasingly relevant through Public/Private Partnership schemes (PPP), which can be considered in areas that are likely to generate added value for private companies, such as projects which directly and indirectly promote the implementation of tertiary services in Medinas. Other cases may include the construction of covered car parks around the edges of Medinas which can be integrated into the public parking system using a global public pricing policy (covered car parks should be promoted over street parking), and where other types of mobility services such as cycle rental can also be integrated.

In any event it will be up to city administrations to design and implement the best organisational structures required to initiate actions designed to promote the development of Medinas by improving their accessibility.

A cyclist in the Marrakech Medina

Place Jemaa el-Fnaa, Marrakech, Morocco

10 Conclusions

We have inherited Medinas from our ancestors and they constitute special cases within Mediterranean cities due, on the one hand, to the richness of their historic and patrimonial value and, on the other, to the poor quality of their preservation and the poverty of the majority of their residents.

During the last century, their organic structure and their narrow steep streets were largely perceived as being irredeemable liabilities: modern cities have turned their backs on Medinas and have sought to satisfy the increasing needs for space associated with new modes of motorised transport.

One of the major causes of the decline of Medinas is accessibility, which has been judged to be irredeemably lacking by the policy-makers of preceding decades.

In modern times, in which social equity and environmental quality are major concerns, when access to sustainable energy is a worrisome issue, and when car use and urban sprawl have become major worries, it would seem prudent and even important to remember that Medinas are also areas of opportunity.

Medinas are densely-populated districts and often centrally located. Their economic activities often drive the economy of the city as a whole, whether they have been formalised or not.

A Medina is often at the heart of the historic identity of a city and can be a significant attraction, especially for tourism. A Medina is a district which “naturally” generates and encourages soft/active mobility. A Medina is a generator of customers for public transport systems. In all, Medinas present all of the characteristics one could look for in a modern ecological district...

It is from this perspective that this guide intends to demonstrate the opportunities and resources by which Mediterranean cities as a whole can place Medinas at the centre of their urban policies and, more particularly, at the centre of their development policies for sustainable urban mobility.

To conclude, **accessibility is one of the basic factors in the regeneration of Medinas** and policy-makers are invited to rethink their strategies to preserve their pedestrian nature under a modern integrated plan for the development of urban mobility within the city as a whole.

Any project associated with the regeneration of a Medina must include a major section dedicated to the improvement of conditions of accessibility. It is up to the policy-makers of Mediterranean cities to take the initiative in sustainable urban development for the good of residents and visitors alike.

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Marrakech, Morocco

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