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URBAN DEVELOPMENT AND HERITAGE CONSERVATION: THE REALITY AND CHALLENGES OF ACHIEVING A BALANCE – THE CASE OF THE OLD CITY OF CONSTANTINE -

التنمية الحضرية والحفاظ على التراث العمراني:

واقع وتحديات تحقيق التوازن حالة المدينة القديمة بقسنطينة

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ملخّص:

تواجه المدن التاريخية تحدياً يتمثل في الاستجابة لمتطلبات السكن والحركة والبنية التحتية والخدمات والأنشطة الاقتصادية المعاصرة، مع الحفاظ في الوقت نفسه على القيم الثقافية والمكانية للبيئة العمرانية الموروثة. تتناول هذه الدراسة العلاقة بين التنمية الحضرية والحفاظ على التراث العمراني في المدينة القديمة بقسنطينة، من خلال التركيز على التطور التاريخي للمدينة، وحالة النسيج المبني، وتطور برامج التخطيط والحماية وإعادة التأهيل، والضغوط المرتبطة بالتوسع الحضري بعد الاستقلال. اعتمدت الدراسة منهج دراسة الحالة الوصفي، بالاستناد إلى المصادر التاريخية والوثائقية ووثائق التخطيط والحماية والمواد الخرائطية ونتائج التحقيق الميداني المنجز سنة 2009 والذي شمل 1065 بناية. وتم عرض بيانات حالة المباني بالأعداد والنسب المئوية، في حين استُخدم التسلسل الزمني للبرامج لتوضيح أهم التوجهات التخطيطية منذ سنة 1960.

أظهر مسح سنة 2009 وجود 575 بناية متدهورة بنسبة 54.0%، و312 بناية في حالة متوسطة بنسبة 29.3%، و133 بناية في حالة جيدة بنسبة 12.5%، و29 بناية بها أشغال بنسبة 2.7%، و16 بناية فوضوية بنسبة 1.5%. كما تبين الوثائق أن إعادة التأهيل والحماية والتوسع المبرمج وتحسين البيئة الحضرية شكلت عناصر متكررة في التخطيط بمدينة قسنطينة. وتخلص الدراسة إلى أن الحفاظ على المدينة القديمة يتطلب تحديث التوثيق العمراني، واستمرار الصيانة، والتنسيق بين التخطيط الحضري وحماية التراث، واعتماد عمليات إعادة تأهيل ملائمة، وإدماج النواة التاريخية ضمن سياسات التنمية الحضرية على مستوى المدينة.

الكلمات المفتاحيّة:

الجزائر؛ الحفاظ على التراث؛ التخطيط الحضري؛ التنمية الحضرية؛ المدينة القديمة بقسنطينة.

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Abstract:

Historic cities must respond to contemporary needs for housing, mobility, infrastructure, services and economic activities while preserving the cultural and spatial values of their inherited urban environments. This study examines the relationship between urban development and heritage conservation in the Old City of Constantine, Algeria. It focuses on the historical development of the city, the condition of the historic building stock, the evolution of planning and conservation programmes, and the pressures associated with post-independence urban expansion. The study uses a descriptive case-study approach based on historical and documentary sources, planning and heritage documents, cartographic material, and the results of a 2009 field investigation covering 1,065 buildings.

The building-condition data are presented using absolute numbers and percentages, while the planning chronology is used to describe the main orientations adopted since 1960. The 2009 survey recorded 575 deteriorating buildings (54.0%), 312 buildings in medium condition (29.3%), 133 buildings in good condition (12.5%), 29 buildings with works (2.7%), and 16 chaotic buildings (1.5%). The documentary record shows that rehabilitation, protection, planned expansion and urban upgrading have been recurring components of planning in Constantine. The study concludes that the conservation of the Old City requires continuous documentation, maintenance, coordination between urban and heritage planning, appropriate rehabilitation, and integration of the historic core within wider urban development policies.

Keywords:

Algeria; heritage conservation; historic urban landscape; Old City of Constantine; planning; urban development; urban heritage.

1. INTRODUCTION

Historic cities are living urban environments in which buildings, streets, public spaces, infrastructure and social functions have evolved over long periods. Their conservation must therefore be addressed within an urban context that continues to change in response to housing demand, mobility needs, public services and economic activities. Rather than treating heritage protection and urban development as separate or competing objectives, a comprehensive approach should consider how historic areas can be preserved while remaining functional and integrated into contemporary urban life.

The UNESCO Recommendation on the Historic Urban Landscape emphasizes the integration of heritage conservation into broader urban planning processes, taking into account environmental conditions, socio-economic dynamics and governance arrangements (UNESCO, 2011, 2023). This approach is particularly relevant to Constantine, where the historic core retains residential, commercial, cultural and symbolic significance while forming an integral part of the wider urban system.

Constantine has experienced successive phases of urban development, shaped by Numidian, Roman, Byzantine, Islamic, Ottoman and French colonial influences. Each period contributed to the formation of its urban structure and architectural heritage. Following Algeria's independence, demographic growth, increasing housing demand and infrastructure development accelerated the city's spatial expansion, leading to the emergence of new neighbourhoods and a gradual redistribution of urban functions beyond the historic centre.

These transformations have altered the relationship between the Old City and the surrounding urban area. Although the development of new residential districts, public facilities and transport networks has reduced the historic centre's former concentration of urban activities, it continues to accommodate housing, commerce, religious practices and other everyday functions. Its significance therefore extends beyond its monuments and architectural features to include the social practices and urban activities that sustain its identity.

Against this background, the present study examines the relationship between urban development and heritage conservation in the Old City of Constantine. It focuses on four interrelated dimensions: the historical evolution of the city; the documented physical condition of its historic building stock; the principal planning and conservation initiatives; and the effects of post-independence urban expansion on the relationship between the historic core and the wider city. Particular attention is given to the 2009 building survey, which provides a quantitative reference for assessing the condition of the built heritage.

For the purposes of this study, heritage conservation encompasses the protection, maintenance, rehabilitation and appropriate use of historic buildings, public spaces, infrastructure and other cultural elements that contribute to the identity of the city. Urban development, by contrast, refers to changes associated with housing provision, public services, mobility, infrastructure and economic activities. These concepts are considered interrelated dimensions of urban transformation rather than inherently conflicting processes.

By adopting a descriptive approach based on documented historical developments, building conditions and planning initiatives, the study seeks to provide a coherent account of the current challenges facing the Old City of Constantine. It also identifies practical considerations for reconciling heritage protection with contemporary urban needs, while maintaining the historic centre as a living, accessible and functional part of the city.

2. Study Area and Methods

2.1. Study area:

The Old City of Constantine occupies a prominent rocky site associated with the Rhumel River gorge. Its location, topography, access routes and bridges have strongly influenced the spatial organization of the historic core and its connections with surrounding districts. The city is located in north-eastern Algeria and constitutes an important regional centre. The historic core contains residential, commercial, religious, institutional and cultural functions and remains integrated into the contemporary urban system.



Figure 1. Location of Constantine in Algeria. Source: original manuscript.

The available sources indicate a substantial expansion of Constantine's urbanized area, from approximately 30 ha in 1837 to 4,547 ha in 1993 and around 23,160 ha under the current Plan directeur d'aménagement et d'urbanisme (PDAU). These figures are reported as documented in the source material; however, because they relate to different periods and planning frameworks, they are used for descriptive purposes rather than as a directly comparable, continuous time series.

2.2. Data and research procedure

The study adopts a descriptive case-study approach to examine the relationship between urban development and heritage conservation in the Old City of Constantine. The study area comprises the historic urban core, whose physical setting is characterized by the Rhumel River gorge, steep slopes and a rocky plateau.

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These natural features have influenced the layout of streets, access routes, bridges, public spaces and buildings, contributing to the compact structure and distinctive landscape of the historic settlement. The Old City is therefore examined as a living urban environment in which built heritage and the surrounding landscape are closely interconnected.

The research draws on documentary and visual sources, including historical publications, accounts of the city's development, urban planning documents, heritage-protection instruments, cartographic records, photographs and the results of the 2009 building-condition survey. The documentary review covers major planning documents and programmes identified in the available source material from 1960 onward. These sources are used to trace the evolution of planning priorities and the successive approaches adopted to address rehabilitation, heritage protection, urban expansion and the management of the historic core.

The research procedure comprises four stages. First, the historical and institutional documents were collected, classified and organized chronologically. Second, the principal phases of Constantine's urban development and the main planning and conservation initiatives were identified and summarized. Third, the results of the 2009 building-condition survey were tabulated and examined descriptively. Finally, the historical, physical and planning evidence was considered collectively to identify key challenges and practical considerations for reconciling heritage conservation with urban development.

The analysis focuses on five interrelated aspects: historical urban development, the physical condition of the building stock, bridges and access routes, planning and conservation interventions, and the expansion of the surrounding urban area. Cartographic and photographic materials support the spatial interpretation of these aspects by locating the study area, illustrating historic structures and bridges, and showing the relationship between the Old City and the wider urban environment.

Quantitative analysis is restricted to descriptive statistics, with the building-condition data presented as counts and percentages for the categories documented in the 2009 survey. No statistical modelling is undertaken, and the survey results are not extrapolated to the present period. Similarly, the historical and planning evidence is used to describe documented changes and identify relevant issues rather than to establish causal relationships or measure the effectiveness of individual interventions. The findings are therefore interpreted within the temporal and documentary limitations of the available sources.

3. Historical Development and Urban Identity

The historical development of Constantine reflects the successive influence of several civilizations and political periods, including the Numidian, Roman, Byzantine, Islamic, Ottoman and French colonial eras. Each contributed to the formation of the city's urban structure and cultural identity, as reflected in its architectural heritage, religious buildings, public spaces, circulation networks and archaeological remains.

During the Ottoman period, the Old City retained a compact urban structure shaped by the rocky plateau and the surrounding natural landscape. Residential neighbourhoods, commercial activities and religious institutions formed an interconnected urban fabric characterized by narrow streets and a close relationship between buildings and public spaces. The city's position overlooking the Rhumel River gorge also made bridges and access routes essential to its connectivity with neighbouring areas. These geographical and historical characteristics contributed to the distinctive identity of Constantine and continue to shape the challenges associated with conserving its historic urban environment.

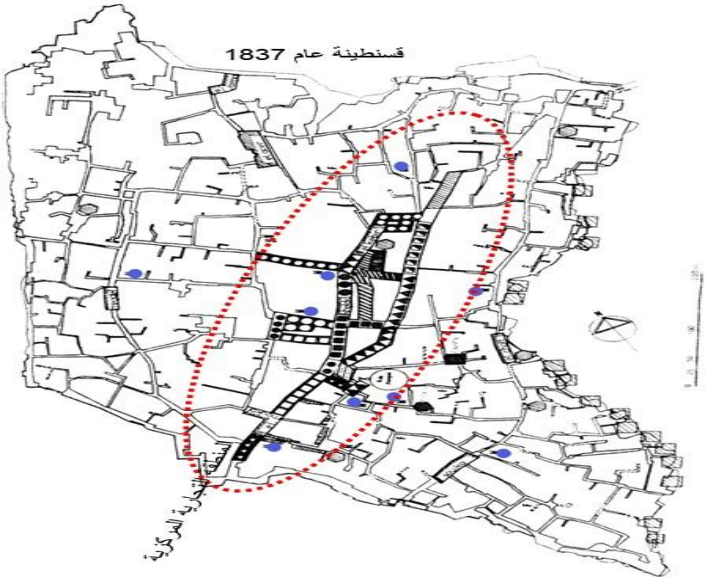


Figure 2. Historic urban structure of Constantine in 1837.
Source: original manuscript.

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The French colonial period introduced significant changes to Constantine's urban fabric through road construction, the development of public buildings, modifications to circulation patterns and the incorporation of new architectural forms. These interventions altered parts of the historic environment, particularly in the western section of the Old City, including the Kasbah area, which the available sources identify as an important zone of urban transformation. The resulting changes became an integral part of Constantine's historical urban landscape, reflecting the successive layers of development that have shaped the city.



Figure 3. Constantine during the nineteenth century.
Source: original manuscript.

The bridges spanning the Rhumel River gorge have played a fundamental role in connecting Constantine's historic core with the surrounding urban areas. Four major bridges are highlighted in the study: Sidi Rached Bridge, Mellah Slimane Bridge, Bab El-Kantara Bridge and Sidi M'Cid Bridge. Beyond their transportation function, these structures represent important components of the city's architectural heritage and reflect the relationship between its distinctive topography, urban development and circulation networks.

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Figure 4. Principal historic bridges connecting the Old City of Constantine with surrounding urban areas. Source: Authors' cartographic elaboration.

3.1. Historical and Cultural Significance of the Old City

The historical and cultural significance of the Old City of Constantine derives from the successive historical periods that have shaped its urban fabric. The French colonial period introduced new streets, public buildings, circulation routes and architectural forms, while modifying some existing structures and public spaces. As a result, the historic centre preserves traces of different periods within a relatively compact urban area. This historical layering contributes to the city's distinctive character and provides an important basis for identifying conservation priorities.

Religious and commercial buildings constitute essential components of this heritage. Mosques, traditional markets, shops and public spaces have historically supported religious life, economic exchange and social interaction. Their significance therefore extends beyond their architectural features to include the functions and practices associated with them. Maintaining appropriate uses and activities can help preserve the vitality of the historic centre and sustain its role as a living urban environment.

The city's gates, access routes and bridges also contribute to its historical identity. Traditional entrances and circulation routes reflect the organization of the historic settlement and its connections with surrounding districts, while the bridges spanning the Rhumel gorge maintain essential physical links across the city's challenging topography. Together, these elements illustrate how movement, accessibility and urban development have been shaped by the relationship between the built environment and the natural landscape.

The rocky plateau and surrounding ravines have strongly influenced the spatial organization of Constantine. The concentration of buildings within the historic core, combined with the dramatic relief of the Rhumel gorge, has produced a distinctive visual relationship between architecture and landscape. This setting should therefore be considered an integral part of the heritage resource, alongside individual monuments, traditional houses, streets and public spaces.

Beyond its physical attributes, the Old City's cultural value also lies in its intangible heritage, including historical memory, traditional practices, commercial activities, religious life and the symbolic meanings associated with the city by its inhabitants and visitors. Tangible and intangible dimensions are closely interconnected: historic buildings and public spaces acquire much of their significance through the activities, experiences and collective memories associated with them. Effective conservation should consequently address both the protection of historic structures and the continuity of the social and cultural practices that sustain the identity of the historic centre.

3.2. Historic Bridges, Access and Urban Continuity

The bridges of Constantine constitute prominent elements of the historic urban landscape, connecting the historic core with surrounding districts across the Rhumel River gorge. Four major bridges are considered in this study: Sidi Rached Bridge, Mellah Slimane Bridge, Bab El-Kantara Bridge and Sidi M'Cid Bridge. Their architectural character and strategic locations reflect the influence of the city's

distinctive topography on the development of its circulation networks and urban structure.

Beyond their transportation function, these bridges contribute to the visual identity of Constantine and shape how residents and visitors experience its historic landscape. Approaches, crossings and viewpoints form an integral part of the transition between the surrounding urban areas and the dense historic centre. The bridges therefore have both functional and cultural significance, supporting accessibility while contributing to the city's distinctive image and tourism appeal.

Their continued use illustrates the relationship between historic infrastructure and contemporary urban needs. Accordingly, their conservation requires an integrated approach that considers structural safety, regular maintenance, traffic management, pedestrian accessibility and the visual quality of their surroundings. Documenting their physical condition and immediate urban context can complement the inventory of historic buildings and support a more comprehensive approach to heritage management. In this respect, the bridges should be understood not as isolated structures but as integral components of the urban network connecting Constantine's historic core with the wider city.

4. Condition of the Historic Building Stock

The 2009 investigation provides the principal quantitative information used in this study to describe the condition of the historic building stock. The survey covered 1,065 buildings and classified them into five categories. The results are summarized in Table 1.

Indicator	Number	Percentage
Buildings included in the investigation	1,065	100.0%
Buildings with works	29	2.7%
Chaotic buildings	16	1.5%
Buildings in deteriorating condition	575	54.0%
Buildings in medium condition	312	29.3%
Buildings in good condition	133	12.5%

Table 1. Condition of buildings in the Old City of Constantine, 2009. Source: original survey data.

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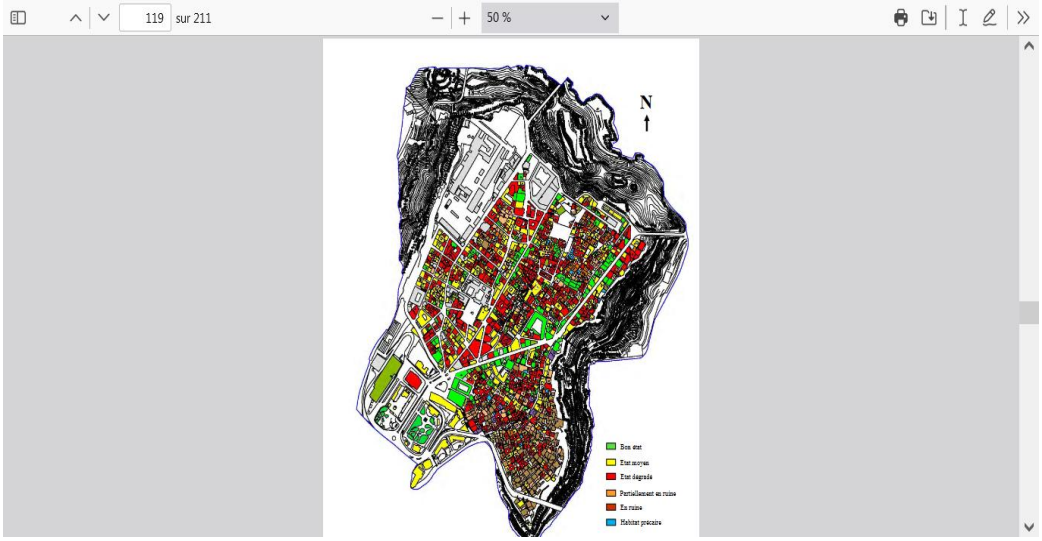


Figure 5. Spatial distribution of building-condition categories in the Old City. Source: original manuscript.

The 2009 building survey identified deteriorating buildings as the largest category, comprising 575 buildings (54.0% of the surveyed stock). Buildings in medium condition accounted for 312 buildings (29.3%), while 133 buildings (12.5%) were classified as being in good condition. The remaining buildings included 29 undergoing works (2.7%) and 16 classified as chaotic (1.5%).

According to the source material, the deterioration of the historic building stock is associated with several factors, including inadequate maintenance, the use of inappropriate modern materials in certain interventions, seismic risk, high population density and the demolition of buildings considered at risk. The sources also highlight the potential effects of demolished structures on neighbouring buildings. These factors provide a descriptive context for interpreting the conditions documented in the 2009 survey, although the available data do not establish the relative contribution of each factor to the observed deterioration.

4.1. Interpretation of the Building-Condition Survey

The 2009 building-condition survey provides a quantitative reference for assessing the physical state of the historic building stock in the Old City of Constantine at the time of investigation. Of the 1,065 buildings surveyed, 575 (54.0%) were classified as deteriorating, 312 (29.3%) as being in medium condition, and 133 (12.5%) as being in good condition. The survey also recorded 29 buildings undergoing works (2.7%) and 16 classified as chaotic (1.5%). These results indicate

considerable variation in building conditions across the historic core, with deteriorating buildings constituting the largest category.

The predominance of buildings classified as deteriorating highlights the importance of maintenance, technical assessment and rehabilitation in heritage management. The available source material associates deterioration with factors such as inadequate maintenance, inappropriate modern materials used in certain interventions, seismic risk, high population density and the demolition of threatened buildings. However, the survey figures alone do not establish the relative contribution of these factors to the recorded conditions.

The condition categories can inform preliminary intervention priorities, although they should not be treated as substitutes for detailed technical diagnosis. Buildings in good condition may require routine maintenance and periodic monitoring, while those in medium condition may benefit from preventive repairs to limit further deterioration. Buildings classified as deteriorating require a more detailed assessment to determine the appropriate rehabilitation measures, taking into account structural safety, heritage value and current use. Where serious physical problems are identified, specific safety assessments should precede decisions about intervention. The category described as chaotic in the source material also requires clarification before a specific technical response can be assigned to it.

Effective conservation planning requires information extending beyond the general condition of buildings. Data on occupancy, current use, ownership, structural performance, utility provision and previous rehabilitation works would help distinguish physical deterioration from problems associated with vacancy, inappropriate alterations or inadequate maintenance. Since the available source material does not provide a complete longitudinal database covering these variables, they are identified as priorities for future documentation rather than as established findings of the present study.

Regular inspection and preventive maintenance are particularly important in historic buildings, where untreated defects can progressively affect individual structures and neighbouring properties. Water infiltration, damaged roofs, deteriorating façades and inappropriate alterations may contribute to further physical damage if left unaddressed. The 2009 survey could therefore serve as a baseline for a repeated monitoring programme, provided that consistent assessment criteria and identifiable building references are used. Such a programme would enable future researchers and conservation authorities to document changes over time and update intervention priorities on the basis of current evidence.

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5. Planning and Heritage Conservation Initiatives

Heritage conservation has featured in Constantine's urban planning documents and development programmes for several decades. As summarized chronologically in Table 2, the initiatives identified in the available source material address a range of urban management priorities, including urban expansion, rehabilitation of the historic fabric, heritage protection, sector-based planning and urban upgrading. Taken together, these documents provide a basis for tracing the evolution of planning approaches to the Old City and examining how heritage conservation has been incorporated into the broader development of Constantine.

Year	Planning / programme	Main orientation
1960	BERU urban study	Proposed moving part of the modern/economic centre outside the historic core to reduce pressure.
1975	PUD	Directed planned urban expansion outside the historic core to accommodate future growth.
1982	CNERU plan	Emphasized rehabilitation and preservation of the historical and architectural heritage.
1984	URBACO rehabilitation programme	Proposed restructuring and rehabilitation based on surveys and technical assessment.
1988	Sectorization commission	Divided the Old City into eight sectors for heritage protection and management.
2003	Protection / master-plan framework	Developed a comprehensive conservation strategy; the source material reports limited implementation.
2015	Constantine, Capital of Arab Culture	Provided a major context for restoration, rehabilitation and urban upgrading.

Table 2. Main planning and conservation initiatives identified in the source material.

The evolution of planning initiatives in Constantine reflects changing approaches to urban management and heritage conservation. The 1960 study addressed pressures arising from the concentration of modern and economic activities within the historic core, while the 1975 *Plan d'Urbanisme Directeur* (PUD) supported the planned expansion of the city beyond the Old City. During the 1980s, programmes developed by CNERU and URBACO placed greater emphasis

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on rehabilitation and heritage preservation. The 1988 sectorization process further structured the management of the historic centre by dividing it into eight sectors.

The 2003 planning and heritage-protection framework sought to establish a more comprehensive approach to conservation, although the available source material indicates that its implementation remained limited. In 2015, Constantine's designation as the Capital of Arab Culture provided an additional context for restoration, rehabilitation and urban improvement initiatives. Taken together, these successive measures demonstrate the continued presence of heritage conservation in the city's planning agenda, while also highlighting the need to distinguish between the adoption of planning instruments and their actual implementation.

5.1. Continuity of Planning and Conservation Programmes

The planning history of the Old City of Constantine reflects successive efforts to address urban growth, rehabilitate the historic fabric and strengthen heritage protection. The 1960 BERU study focused on the concentration of modern and economic activities within the historic centre, while the 1975 *Plan d'Urbanisme Directeur* (PUD) supported planned urban expansion beyond the old core. Subsequent initiatives placed greater emphasis on rehabilitation and conservation, notably the 1982 CNERU plan and the 1984 URBACO rehabilitation programme. In 1988, the sectorization approach divided the Old City into eight sectors, providing a territorial framework for organizing interventions.

Later initiatives continued to address heritage protection within broader urban planning strategies. The 2003 protection and master-plan framework sought to establish a more comprehensive approach to conservation, although the available source material indicates that its implementation remained limited. In 2015, Constantine's designation as the Capital of Arab Culture provided a context for restoration, rehabilitation and urban improvement projects. Together, these initiatives illustrate the continued inclusion of the historic centre in successive planning and conservation programmes, although their objectives, approaches and implementation contexts differed.

Beyond the adoption of individual plans and programmes, the continuity of conservation efforts depends on the systematic documentation of previous interventions and the transfer of technical knowledge between successive projects. Building surveys, maps, photographs, rehabilitation records and maintenance information should therefore be preserved within a consolidated archive. Such a resource would facilitate the comparison of successive assessments, help identify

changes in building conditions and reduce the risk of losing information when institutional responsibilities or programme priorities change.

A coordinated documentation and monitoring system would help strengthen the link between long-term planning objectives and individual rehabilitation projects. By integrating historical surveys, planning documents and project records, the relevant authorities could establish a more consistent basis for setting priorities, coordinating interventions and assessing changes over time. In this context, continuity should be understood not merely as the succession of planning initiatives, but as the ability to build on existing knowledge and maintain a coherent, long-term approach to the conservation and management of the Old City.

6. Urban Expansion and the Historic Core

Following independence, Constantine experienced substantial demographic growth and spatial expansion. The development of new residential areas, collective housing districts, roads, public facilities and services responded to increasing population and housing needs, contributing to the expansion of the city beyond its historic core. These transformations reshaped the spatial organization of Constantine and altered the relationship between the Old City and the wider metropolitan area.

Despite this expansion, the historic core has continued to accommodate important residential, commercial, cultural and service functions. Its relationship with the surrounding urban area remains significant, as metropolitan growth influences the distribution of population, economic activities and public services. Coordinated urban planning is therefore necessary to maintain functional connections between the historic centre and newer districts while ensuring that development beyond the Old City complements, rather than undermines, its conservation.

The available sources document substantial changes in Constantine's urbanized area over time, reflecting the transition from a compact historic settlement to a much larger urban system. These figures are used descriptively, as they derive from different historical periods and planning frameworks and should not be interpreted as a directly comparable continuous series. Nevertheless, they illustrate the scale of spatial transformation and underline the importance of considering the Old City within the broader context of metropolitan development.

6.1. Post-independence Growth and Pressure on the Historic Centre

Post-independence urban expansion influenced the relationship between the historic centre and the surrounding residential districts. The development of new housing areas and infrastructure contributed to the redistribution of population and urban functions, while the Old City retained an important role in the city's commercial, cultural and administrative life. This changing relationship highlights the need to coordinate metropolitan development with the conservation and continued use of the historic core.

The long-term vitality of the Old City also depends on the condition of its residential buildings and the availability of adequate services. Where housing conditions deteriorate and rehabilitation remains insufficient, residents may leave and buildings may become vacant or underused. Conversely, appropriate rehabilitation and improvements to essential services can help sustain residential occupation and support the continuity of social and economic activities. Maintaining a living population is therefore an important consideration in long-term heritage conservation.

Urban expansion can complement the conservation of the historic centre when new residential areas, services and transport infrastructure are planned in a coordinated manner. However, inadequate connections between peripheral districts and the historic core, as well as traffic congestion and infrastructure pressures, may create additional challenges for the management of sensitive historic spaces. Metropolitan-scale planning can consequently support conservation by organizing housing, mobility and public services across suitable locations while preserving the historic centre's architectural character, functional vitality and cultural significance.

7. Conservation and Urban Development Considerations

The findings of this study indicate that heritage conservation and urban development should be addressed at complementary spatial scales. At the building level, regular maintenance, appropriate rehabilitation and structural safety are essential. At the level of the historic core, the functionality of public spaces, streets, access routes, infrastructure and residential areas must be maintained. At the wider urban scale, housing development, mobility and service provision should be planned in relation to the historic centre and its existing functions.

The 2009 building-condition survey provides a useful historical baseline for future monitoring. Updating the survey through new fieldwork would make it possible to document changes in building conditions over time. In addition, a georeferenced heritage inventory could integrate information on building condition, heritage significance, land use, infrastructure, accessibility and previous interventions. Such documentation would provide a stronger evidence base for the preparation, implementation and monitoring of rehabilitation programmes.

Long-term conservation also depends on coordination among the institutions responsible for urban planning, heritage protection, infrastructure, housing and municipal services. Rehabilitation programmes should therefore establish clear priorities, institutional responsibilities, financing arrangements, implementation schedules and maintenance requirements. The involvement of residents and local economic actors is equally important in sustaining the everyday use, social vitality and maintenance of the historic area.

The conservation of the Old City should consequently be integrated into broader urban development policies rather than treated as an isolated activity. As a living component of Constantine, the historic core is closely connected to housing, mobility, public services, economic activity and the quality of the surrounding urban environment.

7.1. Practical Priorities for Integrated Conservation

The evidence presented in this study suggests several practical priorities for the future management of the Old City. These priorities are intended to support decision-making and improve coordination between building conservation, public-space management and wider urban development. They are operational recommendations based on the documented situation and do not constitute an evaluation of the effectiveness of existing conservation policies.

First, an updated building inventory should be established. Each building should be assigned a unique reference number and documented through photographs, geographical location, current use, number of floors, physical condition, heritage characteristics, previous interventions and identified conservation needs. Updating the 2009 inventory would help determine which buildings have improved, remained stable or deteriorated since the original survey.

Second, conservation information should be integrated into a georeferenced database. A geographic information system (GIS)-based heritage information system could bring together building records, public spaces, bridges, historic gates, religious buildings, roads, infrastructure, land use and intervention histories. This system would provide a shared information base for municipal services, heritage authorities, urban planners, researchers and other stakeholders involved in managing the historic area.

Third, rehabilitation should be accompanied by preventive maintenance. Historic buildings require periodic inspection of roofs, façades, drainage systems, structural elements and utilities. Maintenance activities and rehabilitation interventions should be systematically recorded to preserve information about previous work, facilitate follow-up and support the planning of future interventions. This approach would help identify emerging problems before they require more extensive repairs.

Fourth, public spaces and access routes should be managed alongside individual buildings. Streets, squares, gates, bridges and viewpoints contribute to the spatial character, accessibility and everyday use of the historic city. Their maintenance should therefore address accessibility, lighting, signage, surface conditions and the compatibility of traffic arrangements with the needs of a sensitive historic environment. An integrated approach would help preserve the relationships between architectural heritage, public space and urban circulation.

Fifth, conservation should remain connected to housing and local economic activity. The continued occupation and appropriate use of historic buildings can contribute to the social and functional vitality of the Old City. Where changes of use are necessary, adaptive reuse may provide a viable option, provided that proposed interventions respect the buildings' heritage characteristics, structural requirements and architectural integrity. Maintaining residential functions and supporting appropriate local economic activities should therefore form part of an integrated conservation strategy.

Finally, monitoring should be continuous. Future surveys could retain the categories used in 2009 while incorporating additional information on structural safety, occupancy, building use, public-space conditions and completed rehabilitation works. Repeated observations would gradually transform the existing historical baseline into a longitudinal dataset, enabling the documentation of changes in the historic urban environment and providing a more reliable basis for future planning decisions.

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8. *Conclusion*

The Old City of Constantine constitutes a historic urban environment shaped by successive historical periods and continues to function within an expanding contemporary city. The relationship between urban development and heritage conservation therefore represents a long-term planning challenge that extends beyond the preservation of individual buildings to include infrastructure, circulation, public spaces, housing, public services and local economic activities. Its conservation requires an integrated approach that recognizes the historic core as both a repository of cultural heritage and a living component of the wider urban system.

The 2009 survey of 1,065 buildings provides an important quantitative baseline for understanding the physical condition of the historic building stock at that time. The survey recorded 575 buildings in deteriorating condition (54.0%), 312 in medium condition (29.3%), 133 in good condition (12.5%), 29 undergoing works (2.7%) and 16 classified as chaotic (1.5%). These findings highlight the importance of systematic building assessment and sustained maintenance. However, because the data date from 2009, they should be interpreted as a historical reference rather than a description of current conditions. The original classification, particularly the category "chaotic," should also be clarified when the inventory is updated.

The planning chronology from 1960 onward demonstrates that urban expansion, rehabilitation, heritage protection, sectorization and urban upgrading have featured in successive planning initiatives for Constantine. Nevertheless, the long-term conservation of the Old City requires more than planning provisions alone. It depends on the regular updating of building and spatial information, appropriate rehabilitation, preventive maintenance, effective coordination among planning and heritage institutions, and the integration of conservation objectives into broader urban development strategies.

Future research and planning should therefore prioritize an updated building inventory, systematic documentation of historic structures and public spaces, and the establishment of a continuous monitoring system capable of recording changes over time. Combining these measures with coordinated institutional action and attention to residential and economic functions would provide a stronger basis for informed conservation decisions. Ultimately, the objective is to maintain the Old City as a functioning residential, cultural and economic component of Constantine while safeguarding its architectural character, historical significance and contribution to the city's urban identity.

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