RECLAIMING PUBLIC SPACE IN KUWAIT'S RESIDENTIAL NEIGHBOURHOODS

AN APPLIED POLICY-ORIENTED APPROACH

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Reclaiming Public Space in Kuwait's Residential Neighbourhoods: An Applied Policy-Oriented Approach

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Abstract

Kuwait's population is expanding rapidly and accommodating this growth through sustainable urban development will be a challenge for the small emirate. This calls for a shift in current urbanisation patterns that are contributing to high levels of motorisation, public space neglect, physical inactivity and health and environmental problems.[1] These negative externalities are coupled with unsustainable and profit-driven regeneration schemes that neglect the relationship between everyday behaviour and public space. Consequently, re-evaluating the relationship between urban growth and public space standards becomes vital.

This applied policy-oriented research expands on the limited qualitative studies on public space in Kuwait and challenges state top-down design standards used in planning its residential neighbourhoods. It explores the impact that planning, design, and behavioural factors have on public space use. Building on the existing literature, it also adds a socio-spatial dimension to public space studies and contributes a qualitative policy-oriented approach that is environmentally sustainable and one that leads to healthier social and individual behaviour. A comparative case study method guided the investigation on two local streets in residential neighbourhoods in Kuwait with divergent urban characteristics: 4th Street, Qortuba and AlDimna Street, Salmiya. A qualitative user-centred anal ysis based on Gehl's public survey tools[2] was then used 'to measure public space and public life'.[3]

The findings highlight that an overlap in responsibilities at state planning authorities and limited user-centred policies have hindered the successful use of public space in Kuwait. However, and as this investigation illustrates, public space improvement cannot be achieved with isolated measures. Design improvements to public space must also take into account the cultural and climatic impact of users' social negotiations that take place in the public space of residential neighbourhoods in Kuwait. This investigation uses the selected case studies to address these different factors. The aim is to explore the impact of qualitative methods of analysis in understanding public space and to use the collected data to generate evidence-based policies that could then be applied on a much larger scale to the sustainable urban development of Kuwait. Effective urban policies and management will promote the necessary change that will help create more vibrant communities.

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[1] Philipp Rode et al., 'Resource Urbanisms: Asia's Divergent City Models of Kuwait, Abu Dhabi, Singapore and Hong Kong', LSE Cities (London, 2017). Available at https://www.lse.ac.uk/cities/publications/research-reports/Resource-Urbanisms (accessed 24 March 2020).

[2] Jan Gehl, 'Gehl Public Life Tools', *Gehl*. Available at https://gehlpeople.com/tools/ (accessed 27 March 2020).

[3] Martin Pedersen, 'A Close Look at the Gehl Institute's Free Toolkit for City Planning', *ArchDaily*, 19 December 2017. Available at https://www.archdaily.com/885615/a-close-look-at-the-gehl-institutes-free-toolkit-for-city-planning (accessed 16 May 2020).

1 Introduction

The city-state of Kuwait is a constitutional emirate with a land area of 17,399 km2 and a population of 4.46 million inhabitants,[4] of which around two thirds are non-Kuwaitis. Since the discovery of oil in 1938, and the establishment of a welfare state that paralleled the first Master Plan in 1952, the demolition of Old Kuwait Town[5] gave way to a modern city that translated new welfare provisions into a physical reality. Rational planning and land use zoning led to rapid urban growth and sprawl. During the period from the early 1950s to the mid-1980s, Kuwait experienced uninterrupted growth in both population size and urban expansion with the urban area growing to more than 50 times its size at an extremely high growth rate. This growth was supported through a hierarchical system of roads that encircle suburban residential neighbourhoods and other mono-functional zoned districts. This car-centric, single land use urban development, together with climatically unfit design guidelines, culturally driven housing preferences (i.e. single-family housing),[6] inefficient public transport, and oil and energy subsidies created car-dependent sprawl and poor pedestrian infrastructure. Mostly, non-Kuwaitis live in high-density clusters, and depend on public transport (buses), while most Kuwaitis live in large single-family homes and depend on private vehicles for movement.[7]

These historical roots of Kuwait's rapid urban expansion set an unsustainable standard for present and future urban and population growth. According to a 2019 United Nations study, Kuwait's national population is growing rapidly and expected to increase by 50 percent in 2100.[8] Accommodating this growth through sustainable urban development has been and will be a challenge for the small emirate. Unlike some other cities across the world that are exploring sustainable methods of development (e.g. Paris with its 15-minute city plan, or London with a goal of a 400 percent increase in cycling by 2026),[9] Kuwait's urbanisation patterns are still leading to higher levels of motorisation that neg-

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[4] CSB Population Estimates at the beginning of 2020. Available at https://www.csb.gov.kw/Default_EN (accessed 11 February 2021).

[5] The Master Plan, oil and land availability saw the dense old town entirely redeveloped. A new road design connected the modern city centre to newly constructed suburbs. 'Streets were narrow in such a way that the sun did not fall on the full street, and that made the streets cool and shaded,' in Saleh Abdulghani Al-Mutawa, *The History of Architecture in Old Kuwait City* (Kuwait: AlKhat, 1994). Available at https://intlxpatr.wordpress.com/2008/02/26/history-of-architecture-in-old-kuwait-city/ (accessed 17 July 2020).

[6] Asseel Al-Ragam, 'Break Kuwait Housing Cycle', *Arab Times*, 29 June 2016. Available at https://www.arabtimesonline.com/news/break-kuwait-housing-cycle/ (accessed 28 May 2020).

[7] Rode et al., 'Resource Urbanisms'.

[8] 'World Population Prospects 2019: Data Booklet, Population Dynamics', *United Nations Department of Economic and Social Affairs*. Available at https://population.un.org/wpp/Publications/Files/WPP2019_DataBooklet.pdf (accessed 28 May 2020).

[9] Kim Willsher, 'Paris Mayor Unveils "15-Minute City" Plan in Re-Election Campaign', *The Guardian*, 7 February 2020, available at https://www.theguardian.com/world/2020/feb/07/paris-mayor-unveils-15-minute-city-plan-in-re-election-campaign (accessed 15 July 2020); 'How Has Cycling Grown in London and How Will It Grow in Future?', *Transport for London* (London: TfL, July 2013). Available at https://tfl.gov.uk/corporate/publications-and-reports/rtf-supporting-documents (accessed 15 July 2020).

atively impact individual health and the environment.[10] Some scholars have argued that these trends generally deprive inhabitants of realising their social and creative energies.[11]

Kuwait, not unlike other Gulf cities that follow similar urban growth patterns, is planned to accommodate vehicular traffic. Wide car lanes, inaccessible pavements and inhospitable public space dominate, making walking and cycling difficult and, at times, dangerous. These urban planning standards shape social behaviour where those who can drive will not walk. With high levels of physical inactivity, obesity[12] and pollution,[13] studies predict that physical activity will develop only with improvements in the built environment.[14] Consequently, research and debate on the built environment and design of public space need to be revisited in today's politically, economically, and environmentally volatile climate.[15] Indeed, re-evaluating Kuwait's urban planning guidelines, policies and practice are vital for individual health and the environment. This research contributes to this re-evaluation and explores the current relationship between urban practice and policy and investigates the impact that urban planning, design, and behavioural factors have on public space use in Kuwait.

This focus on public space, and streets in particular, emerges from the idea of exploring 'a basic element…found in any residential area', while highlighting their potential as an open, public and 'shared space'.[16] Unfortunately, in Kuwait this potential is unfulfilled with street networks and urban design standards planned for car-centric neighbourhoods. These guidelines discourage walkability, and many have to overcome obstacles to reach their destination. Mono-functional zoning and a disconnected transport infrastructure are additional obstacles to achieving a vibrant public realm. Parking cars on sidewalks and annexing public space for private use (e.g. for gardening, allotments) are the most destructive user behaviours that blur the distinction between public and private space and negatively impact the quality of life in these districts (Figure 1-1). While these behaviours are illegal, according to Kuwait Municipality laws, these private claims on public space go unpunished. Without accountability and enforcement from governing bodies, homeowners contribute to eliminating a basic right: to move comfortably and safely around on foot in these neighbourhoods.[17] This landgrab erases the functional and social value of the sidewalk and eliminates what Jane Jacobs argues is its assigned role as 'the main public place of the city … and [the city's] most vital organ'.[18]

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[10] Rode et al., 'Resource Urbanisms'.

[11] Richard Sennett, *The Fall of Public Man* (London: Penguin, 2003).

[12] 'Kuwait Diabetes Profile', *World Health Organization Diabetes Country Profiles 2016* (2016). Available at http://www.who.int/diabetes/country-profiles/en/ (accessed 14 May 2020).

[13] Souzana Achilleos et al., 'Acute Effects of Air Pollution on Mortality: A 17-Year Analysis in Kuwait', *Environment International* 126 (2019), pp. 476–83.

[14] James F. Sallis, Myron F. Floyd, Daniel A. Rodriguez and Brian E. Saelens, 'Role of Built Environments in Physical Activity, Obesity, and Cardiovascular Disease', *Circulation* 125/5 (2012), pp. 729–37.

[15] This research began prior to the COVID-19 pandemic and we reflect on its impact in footnote 93.

[16] Jan Gehl, "'Soft Edges' in Residential Streets', *Scandinavian Housing and Planning Research* 3/2 (1986), pp. 89–102.

[17] Setha M. Low and Neil Smith (eds), *The Politics of Public Space* (New York: Routledge, 2006).

[18] Anastasia Loukaitou-Sideris and Renia Ehrenfeucht, *Sidewalks: Conflict and Negotiation over Public*

As public space is critical for urban life and is a fundamental component of cities, urban planners worldwide are turning their attention towards planning methods that strike a balance between private and public space, where the latter acts as a social centre. Consequently, spaces such as streets and parks play a fundamental role in nurturing a sense of neighbourhood belonging, encouraging emotional bonds to place[19] with responsiveness,[20] comfort[21] and accessibility[22] acting as qualitative indicators of their success. At the same time, these areas must be allowed the freedom to perform outside the rigid confines of the city planner, so that 'convivial spaces'[23] emerge for locals to 'linger' in rather than simply move through.[24] According to Henry Shaftoe, without these spaces, 'we are likely to drift into an increasingly privatised and polarised society, with all its problems'.[25]

This research expands on this literature by exploring the urban factors that positively or negatively impact everyday public space use in two residential neighbourhoods in Kuwait. It examines the impact of urban planning and design on social and communal life, highlighting some of the current problems and suggesting solutions that address the challenges facing the successful integration of streets, parks and spaces between buildings in the design of Kuwait's residential neighbourhoods. The aim is to present policy-oriented recommendations that address the current challenges in planning, design, and user behaviour. Pedestrian-centred and form-based policies as well as better upkeep and management of public space will influence healthier behaviour and encourage more social and environmentally friendly mobility patterns. This investigation relied heavily on qualitative methods of analysis, including those inspired by Gehl's 'Public Life Tools'[26] and other observation methods such as photography and videography. These research methods and practices contribute to a user-centred approach to public space analysis, allowing a better understanding of the Kuwaiti context from the perspective of those who use public space, their patterns of use and needs.

Space (Cambridge, MA: The MIT Press, 2009), p.3.

[19] Nissa Finney and Stephen Jivraj, 'Ethnic Group Population Change and Neighbourhood Belonging', *Urban Studies* 50/16 (2013), pp. 3323–41.

[20] Ian Bentley, *Responsive Environments: A Manual for Designers* (London : Architectural Press, 1985).

[21] Matthew Carmona, Tim Heath, Taner Oc and Steve Tiesdell, *Public Places-Urban Spaces: The Dimensions of Urban Design* (Oxford: Architectural Press, 2003).

[22] Stephen Carr, Mark Francis, Leanne G. Rivlin and Andrew M. Stone, *Public Space* (New York: Cambridge University Press, 1993); Jan Gehl, 'Winning Back Public Space', *Urban Design Quarterly* 83 (2002), pp. 26–7; Margaret Kohn, *Brave New Neighborhoods: The Privatization of Public Space* (New York: Routledge, 2004).

[23] Convivial spaces are defined as 'open, public locations …where [people] can gather or wonder [leisurely]'. See Henry Shaftoe, *Convivial Urban Spaces: Creating Effective Public Places* (London: Earthscan, 2012).

[24] Ibid., p.4.

[25] Ibid., p.5.

[26] Gehl, 'Gehl Public Life Tools'. Available at https://gehlpeople.com/tools/how-to-use-the-public-life-tools/ (accessed 28 May 2020).

Figure 1-1: Public Space Frontage Claims by Qortuba Homeowners
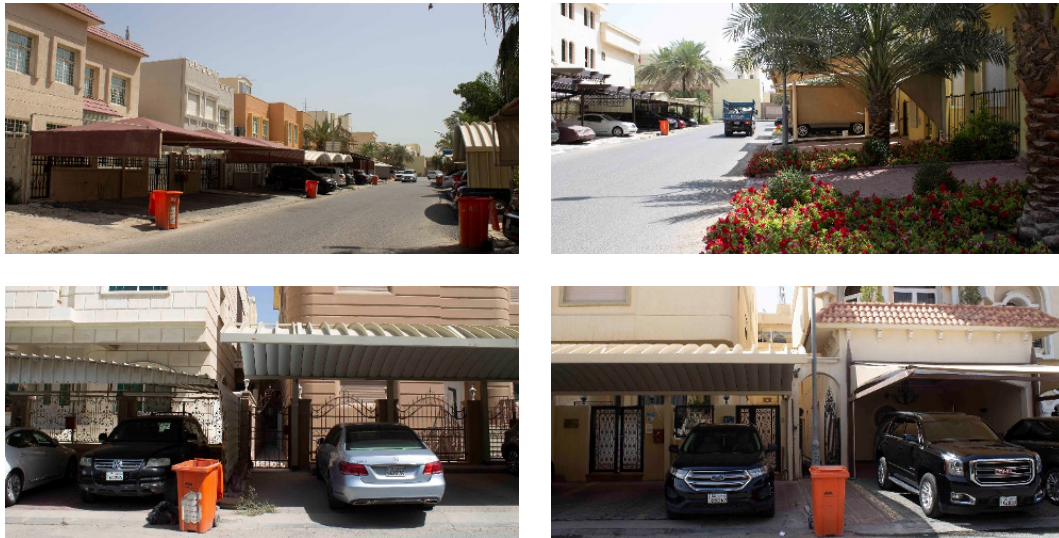
Photos by Alexandra Gomes

This policy-oriented paper is structured into five main parts. Beyond the introduction, Section 2 sets the research question and objectives in their geographical context. It outlines the geographical, urban design and user behaviour challenges that hinder the use of public space in Kuwait; it also explores how these conditions influenced the selection of the study's analytical methods. Section 3 introduces and explores the key characteristics of the case studies. It presents the design and planning similarities and socio-demographic and density differences that were key factors in their selection for this study. Section 4 presents the main findings of the research, exploring issues related to urban planning, design and user behaviour while disproving the effects of climate as a factor for public use inactivity. The final section, Section 5, of the paper explores the policy implications and conclusions of the research. These public space recommendations target stakeholders in Kuwait's planning institutions. A mixed method, user-centred and qualitative approach provided a more in-depth understanding of the main factors that should be considered when shaping public space policies and evaluating its everyday use. The aim is to provide a better understanding of the context of public space use that would result in a re-assessment of public policies and guidelines.

2 Research Framework and Methodology

2.1 Objectives and Research Question

This study brings into focus the unfulfilled potential of streets in Kuwait by asking the question: What are the planning, urban design and behavioural factors that contribute to public space use in Kuwait? The qualitative methods used to answer this question also help in generating user-centred planning standards and design guidelines. An underlying assumption that higher density levels, mixed use development and pedestrian centred urban design will increase the use of public space underpins this analysis. This supposition determined the selection of the case studies and two contrasting neighbourhoods in Kuwait were selected as study areas (see Section 3). The spatial analysis of 4th Street and AlDimna Street, in Qortuba and Salmiya respectively, might 'predict contrasting results but for predictable reasons'.[27]

2.2 Literature Review and Knowledge Gaps

Generally, public space studies are extensive, although in the case of Kuwait, they are very limited.[28] This limited research can be divided into two broad categories: investigations on top-down planning policies[29] and quantitative spatial studies on park use and walkability.[30] Still, factors that determine the success of public space from a qualitative

[27] Robert R. Yin, *Case Study Research and Applications: Design and Methods* (Thousand Oaks, CA: SAGE Publications, Inc, 2018).

[28] See Asseel Al-Ragam, 'Towards a Critique of an Architectural Nahdha: A Kuwaiti Example', Doctoral thesis (University of Pennsylvania, 2008), available at https://repository.upenn.edu/dissertations/ AAI3309387 (accessed 15 February 2020); Farah Al-Nakib, 'Public Space and Public Protest in Kuwait, 1938–2012', *City* 18/6 (2014), pp. 723–34; Muhannad A. Albaqshi, 'The Social Production of Space: Kuwait's Spatial History', Doctoral thesis (Illinois Institute of Technology, 2010), available at https://pqdtopen. proquest.com/doc/867271557.html?FMT=AI (accessed 15 February 2020); Muneerah Alrabe, 'Spatial Practice: The Politics of "Activating" Public Space in the State of Kuwait', Doctoral thesis (Massachusetts Institute of Technology, 2016), available at https://dspace.mit.edu/handle/1721.1/106411, (accessed 14 May 2020).

[29] Reem Alissa, 'Modernizing Kuwait: Nation-Building and Unplanned Spatial Practices', *Berkeley Planning Journal* 22/1 (2009), available at https://escholarship.org/uc/item/1rs0x68j (accessed 25 February 2020); Sharifa AlShalfan, 'The Right to Housing in Kuwait: An Urban Injustice in a Socially Just System', *LSE Middle East Centre Kuwait Programme* (London, 2013), available at http://eprints.lse.ac.uk/55012/ (accessed 5 May 2020); Claire Beaugrand, 'Urban Margins in Kuwait and Bahrain: Decay, Dispossession and Politicization', *City* 18/6 (2014), pp. 735–45, available at https://www.tandfonline.com/doi/full/10.108 0/13604813.2014.962887 (accessed 25 February 2020).

[30] Asseel Al-Ragam and Sandra Al-Saleh, 'Dis-Located Expressions of Nature: Kuwait and Its Public Parks', Space, Society, Culture, presented at the Gulf Studies Symposium, American University of Kuwait, 2013, available at https://www.academia.edu/11422620/_Dis-Located_Expressions_of_Nature_Kuwait_and_ its_Public_Parks_ (accessed 28 May 2020); Hawra M. Almousawi, 'A Study of Walkability in Kuwait: A Comparison of Three Different Neighborhood Types in Jabriya', Master's dissertation (Kuwait University: College of Graduate Studies, 2018), available at https://thesis-ku.4science.it/handle/123456789/713 (accessed 15 May 2020). Kuwait University and the MIT programme produced extensive research on walkability and other urban design themes that were published as part of a 2013 research grant.

and user-centred perspective receive little research attention. The absence of user-centred policy-oriented research directly impacts the advancement of planning and design practice in Kuwait. For the most part, the Public Authority for Housing Welfare (PAHW) is the state planning institution responsible for planning Kuwait's residential neighbourhoods. Its 'Urban Design Manual for Cities and Housing Projects', updated in 2012,[31] sets the design and planning standards for streets and public space. This manual adopts an educational-based planning system that allocates housing and services to optimise school operation, with the Kindergarten Centre Unit described as the most important component for planning residential units. Quantitative data collected from the Public Authority for Civil Information (PACI) and the Ministry of Education (MoE) determines the amount of space required and allocation of public space for each residential unit. While three typologies of parks are included in neighbourhood planning, these are often the first to be discarded to make room for more housing units.

Moreover, in the last decade, the success of residential districts was measured by the number of houses integrated in a neighbourhood rather than the quality of users' everyday life. Over the years, this quantitative approach to city planning underwent minor changes. In 2019, the PAHW developed major changes to the 2012 manual. A new urban design manual was produced and a 'form-based' approach, defined as user-centred and focused on placemaking and users' experience, was selected to guide pedestrian friendly urban policies.[32] Yet this manual, part of a much larger 4th Master Plan proposal, has not yet received approval from the Municipal Council as this study is ongoing and has taken a significant amount of time to complete. Consequently, the PAHW still maintains the 2012 standards for residential neighbourhoods. Still, Kuwait Master Plans operate on the macro scale, suggesting solutions and policies that do not confront challenges on the micro level. These limitations, along with the great value placed on private car use in local policies that consequently lead to neglect in public space planning and maintenance, contributed to our decision to undertake this research project.

Specifically, three categories of knowledge gaps are addressed within this investigation. The first is the limited information on 'street-level' urban design characteristics, including user-centred surveys and site-specific socio-demographic datasets for residential neighbourhoods in Kuwait. This knowledge blind spot must be addressed as it directly impacts the quality of life and use of public space in these neighbourhoods. The second relates to the dominance of top-down and mostly quantitative methods for public space analysis. While an urban design manual exists, as mentioned above (i.e. 2012 Manual as the 2019 is not yet adopted), it does not focus on users' experience in public space planning. Additionally, all residential neighbourhoods follow similar guidelines and this lack of variety establishes monotony. The third focus fills the gap in public space policy and management. While the PAHW 2019 Urban Design Manual does present public space design

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[31] 'Urban Design Manual for Cities and Housing Projects', *Public Authority for Housing Welfare Manual* (PAHW, 2012). This is an unpublished PAHW reference unavailable digitally.
[32] 'Kuwait Urban Design Manual', *Public Authority for Housing Manual* (PAHW, 2019). Available at https://issuu.com/aclaa/docs/urban_design_manual (accessed 28 May 2020).

recommendations, it has not explored how these recommendations can be implemented. These three broad knowledge vacuums are examined in this study. They are addressed by mapping public space descriptors and their urban morphology, including accessibility, physical features, and markers in the context of the selected case studies. We also explored users' behaviours, path dependencies and the impact of physical structures on user activities in cooler and warmer seasons. Finally, we established links between these spatial practices to generate urban policies. This focus on user experience and place-making considers the social and the physical dimensions at different urban scales. At the micro scale, formal and informal public space appropriations act as modes of resistance, submission or compliance, while at the macro scale structural factors might trigger more complex modes of urban negotiations.

2.3 Research Approach

If the Resource Urbanisms project explored the role of land and oil availability on mixed use development, urban form and motorisation,[33] this research explored the everyday patterns of the residential street and the impact their physical form, design and management have on public space use. The relationship between urban factors and public space use has been long explored in academia. However, the complexity of the urban realm makes any attempt to attribute causation to certain variables very difficult. Nevertheless, the list below (see Table 2-1) explores some of the main factors identified in the academic literature as contributors or with an effect on public space use. [34] Most of these factors, although presented independently in the table below, are often explored together in a relational approach.

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[33] Rode et al., 'Resource Urbanisms'.
[34] Due to limitations of space, only a few selected works from these authors are presented here.

Table 2-1: Main Urban Factors Contributing to Public Space Use

Urban Factors	Authors and Works
Sociocultural characteristics[35]	Menezes et al. (2009); Benjamin (2015); Kyriazis (2019)[36]
Density and mixed use	Jacobs (1961); Montgomery (1998); Kitamura et al. (1997); Wheeler (2001); Cervero (2003); Leslie et al. (2005); Condon (2010); Lotfi and Koohsari (2011); Newman et al. (2016); Moura et al. (2017)[37]
Car use	Appleyard (1981); Cervero (2003); Haughey (2005); Condon (2010); Moura (2017)[38]

[35] In particular, differences between citizens and non-citizens in public space use.

[36] Marluci Menezes, Judith Allen, and Lia Vasconcelos, 'Immigrants in the Public Space: Understanding Urban Cultural Landscapes', City Futures in a Globalising World Proceedings (European Urban Research Association and Urban Affairs Association, Madrid, June 2009); Carrie Benjamin, 'At Home on the Street: How Working Class Migrants Use Public Space in Paris', E5 Immigrants and the Domestication of Public Spaces in Europe, presented at RC21 international conference on The Ideal City: Between Myth and Reality. Representations, Policies, Contradictions and Challenges for Tomorrow's Urban Life, Urbino, Italy, 2015, available at https://www.rc21.org/en/wp-content/uploads/2014/12/E5-BENJAMIN.pdf (accessed 16 May 2020); Apostolos Kyriazis et al., 'Behavioral Mapping of Abu Dhabi's Public Spaces: Urban Research Photography and Cultural Clashes', *Sophia Journal* 4/1 (2019), available at https://pdfs.semanticscholar.org/15bb/c4009459ebde5da1353ed6ca4b94f636c122.pdf (accessed 16 May 2020), pp.1–16.

[37] Jane Jacobs, *The Death and Life of Great American Cities* (New York: Random House, 1961); John Montgomery, 'Making a City: Urbanity, Vitality and Urban Design', *Journal of Urban Design* 3/1 (1998), pp. 93–116; Ryuichi Kitamura, Patricia Mokhtarian and Laura Daidet, 'A Micro-Analysis of Land Use and Travel in Five Neighborhoods in the San Francisco Bay Area', *Transportation* 24/2 (1997); Stephen Wheeler, 'Livable Communities: Creating Safe and Livable Neighborhoods, Towns, and Regions in California', *University of California at Berkeley Working Paper* (UC Berkeley: Institute of Urban and Regional Development, 2001), available at https://escholarship.org/uc/item/8xf2d6jg (accessed 16 May 2020); Robert Cervero, 'The Built Environment and Travel: Evidence from the United States', *European Journal of Transport and Infrastructure Research* 3/2 (2003), pp. 119–37, available at https://trid.trb.org/view/747109 (accessed 16 May 2020); Eva Leslie et al., 'Residents' Perceptions of Walkability Attributes in Objectively Different Neighbourhoods: A Pilot Study', *Health & Place* 11/3 (2005), pp. 227–36; Patrick Condon, *Seven Rules for Sustainable Communities: Design Strategies for the Post Carbon World* (London: Island Press, 2010); Sedigheh Lotfi and Mohammad Javad Koohsari, 'Neighborhood Walkability in a City within a Developing Country', *Journal of Urban Planning and Development* 137/4 (2011), pp. 402–8; Peter Newman, Leo Kosonen and Jeffrey Kenworthy, 'Theory of Urban Fabrics: Planning the Walking, Transit/Public Transport and Automobile/Motor Car Cities for Reduced Car Dependency', *Town Planning Review* 87/4 (2016), pp. 429–58; Filipe Moura, Paulo Cambra and Alexandre B. Gonçalves, 'Measuring Walkability for Distinct Pedestrian Groups with a Participatory Assessment Method: A Case Study in Lisbon', *Landscape and Urban Planning* 157 (2017), pp. 282–96, available at https://isiarticles.com/bundles/Article/pre/pdf/81722.pdf (accessed 15 February 2020).

[38] Donald Appleyard, *Livable Streets* (Berkeley, CA: University of California Press, 1981); Cervero, 'The Built Environment and Travel: Evidence from the United States'; Richard M. Haughey, *Higher-Density Development: Myth and Fact* (Washington, D.C.: Urban Land Institute, 2005); Condon, *Seven Rules for Sustainable Communities*; Moura, Cambra, and Gonçalves, 'Measuring Walkability for Distinct Pedestrian Groups with a Participatory Assessment Method'.

Urban Factors	Authors and Works
Urban design	Jacobs (1961); Whyte (1980); Lynch (1984); Gehl (1971 and 2013); Madanipour (1996 and 2014); Carmona (2003 and 2012); Shaftoe (2008)[39]
Accessibility and walkability[40]	Lund (2003); Bosselmann (2009); Newman et al. (2016); Moura (2017); Almousawi (2018)[41]
Climate	Almousawi (2018); Ruth Mabry (2018)[42]

This project assumes that these elements are relevant factors in the Kuwaiti context and adopts them as a framework to better understand public space use in the case study areas. Other factors such as topography, political will, history, economy, health, recreation, and religion, though not explored here, can also help explain differences in the use of urban public space. The relationship to politics, although not directly explored, emerges to some degree in the investigation with brief reflections on governance and state planning institutional organisation.

3 Methodology

Qualitative studies on public space rely on time-consuming methods of analysis requiring human resources and adequate funding but, most importantly, on the researcher's understanding of local sociocultural nuances. To overcome these challenges, we addressed our research question based on a user-centred qualitative mixed method approach, which allowed a 'measurement' of public space and public life, through the analysis of users' behavioural patterns and opinions. A comparative case study approach[43]

[39] Jacobs, *The Death and Life of Great American Cities*; William H. Whyte, *The Social Life of Small Urban Spaces* (New York: Project for Public Spaces Inc, 1980); Kevin Lynch, *Good City Form* (Cambridge, Mass: MIT Press, 1984); Jan Gehl, *Life Between Buildings: Using Public Space* (Washington D.C.: Island Press, 1971); Jan Gehl and Birgitte Svarre, *How to Study Public Life* (Washington D.C.: Island Press, 2013); Ali Madanipour, *Design of Urban Space: An Inquiry into a Socio-Spatial Process* (Chichester, England: Wiley, 1996); Ali Madanipour, *Urban Design, Space and Society* (Basingstoke, Hampshire: Red Globe Press, 2014); Carmona et al., *Public Places-Urban Spaces*; Matthew Carmona and Filipa Wunderlich, *Capital Spaces: The Multiple Complex Public Spaces of a Global City* (Abingdon: Routledge, 2012); Shaftoe, Convivial Urban Spaces.

[40] Though separate here, accessibility and walkability are often included within the urban design category as these are regularly used as a proxy for better design due to their correlation to public space conditions.

[41] Hollie Lund, 'Testing the Claims of New Urbanism: Local Access, Pedestrian Travel, and Neighboring Behaviors', *Journal of the American Planning Association* 69/4 (2003), pp. 414–29; Peter Bosselmann, *Urban Transformation: Understanding City Design and Form* (Washington, DC: Island Press, 2009); Newman, Kosonen and Kenworthy, 'Theory of Urban Fabrics'; Moura, Cambra and Gonçalves, 'Measuring Walkability for Distinct Pedestrian Groups with a Participatory Assessment Method'; Almousawi, 'A Study of Walkability in Kuwait'.

[42] Almousawi, 'A Study of Walkability in Kuwait'; Ruth Mabry, 'Urbanisation and Physical Activity in the GCC: A Case Study of Oman', *LSE Middle East Centre Kuwait Programme* (London, 2018), available at http://www.lse.ac.uk/middle-east-centre (accessed 23 March 2020).

[43] Shelagh Campbell, 'Comparative Case Study' in Albert J. Mills, Gabrielle Durepos and Elden Wiebe

was applied in this research. Socio-spatial characteristics of both case study areas were first mapped, which helped in understanding the urban characteristics of these neighbourhoods.[44] This site-specific information established the foundations for the second phase of research, where this study takes advantage of the surveys and worksheets developed by researchers at the Gehl Institute[45] (see Table 3-1) and the Pedestrian Environment Data Scan or (PEDS) by Kelly J. Clifton[46] (see Appendix for more information on the fieldwork and supporting elements). Even though all these toolkits were used during fieldwork, this paper only reflects on the key elements and results that can help respond to the research question.

Observation, surveying, notetaking photography and videography allowed for a more in-depth exploration of the everyday life of the two neighbourhoods and in situ user behaviour. All the collected data was then analysed for patterns and outliers using socio-spatial analysis and mapping and survey analysis.

Table 3-1: Gehl's Public Life Diversity Toolkit Summary[47,48]

Method	Scale	Questions	Worksheets and Tallies
Survey	Individual	Understand social mixing in public space. Why do people use public space? How did they arrive there? Who did they talk to there and why? Do they feel comfortable?	Participant Survey
Observation	Groups	Understand the patterns of how people move and use a space	Age & Gender Tally; People Moving Count
Furnishing, landscape and programme analysis	Streetscape	Understand the relationship between the built environment and the ability of a place to foster social activities	Stationary Activity Mapping; Place Inventory; Social Space Survey

(eds), *Encyclopedia of Case Study Research* (Thousand Oaks: SAGE Publications, Inc., 2012), pp. 175–6. Available at https://methods.sagepub.com/base/download/ReferenceEntry/encyc-of-case-study-research/n64.xml (accessed 12 March 2020).

[44] James R. McDonell and Tracy J. Waters, 'Construction and Validation of an Observational Scale of Neighborhood Characteristics', *Social Indicators Research* 104/3 (2011), pp. 439–57.

[45] Gehl, 'Gehl Public Life Tools'.

[46] Pedestrian Environment Data Scan or (PEDS) was also used for site analysis. PEDS is a survey developed by and funded by the National Science Foundation and the Robert Wood Johnson Foundation, Active Living Research Program. Kelly J. Clifton and Andrea Smith, 'PEDS - Pedestrian Environment Data Scan'. Available at http://kellyjclifton.com/peds/ (accessed 28 May 2020).

[47] For Worksheets and Tallies, see fieldwork summary table in the Appendix.

[48] For Paricipant Survey, see 'Participant Survey' tool at Gehl, 'Gehl Public Life Tools'.

Method	Scale	Questions	Worksheets and Tallies
Quality criteria	Blocks	Understand and compare quality in the built environment and its ability to contribute or hinder public life	Twelve Quality Criteria

Using Gehl's methods and toolkits that are easily replicated created a baseline and generated data that can be compared to other streets in neighbourhoods, and cities in the world. The use of these tools also highlights the importance of qualitative methods in knowledge production, aiming at influencing future research to include user experience in urban planning and space design.

3.1 Case Study Areas: Qortuba and Salmiya Characteristics

Qortuba and Salmiya were selected due to their divergent urban traits that would aid in assessing the factors that influence the use of public space in Kuwait's residential neighbourhoods (see Figure 3-1). They are both typical examples that comprise the two main residential typologies in Kuwait: villa and apartment building. Qortuba predominantly houses Kuwaiti families and their live-in expat domestic workers in villa-type homes. With its suburban characteristics, served by cooperatives,[49] Qortuba is mainly residential with clusters of amenities that serve the local population such as groceries, clinics, police stations and schools. These amenities serve the local population yet are separated from the housing units in specific zones within the district. Compared to Qortuba, Salmiya has a higher residential density, more variety in uses, including a commercial strip, a university, offices and is adjacent to the waterfront. It has a mix of villa-type and apartment-type residential units housing both the Kuwaiti and non-Kuwaiti populations and is also served by similar local amenities and the cooperative (as is the case in Qortuba). It is important to note that the diverse land uses and socio-economic compositions contribute to their different dynamisms (see Figure 3-2). This diversity consolidates Jane Jacobs' argument[50] that diversity is an important value in the planning of public space. Despite these differences, these neighbourhoods follow the same limited public space planning regulations[51] that include street widths, public setbacks and road hierarchies and categorisations.

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[49] Cooperative societies, typical of residential districts in Kuwait, are an important locally elected body that supports the local neighbourhood residents' needs and social community development. One of their main responsibilities is managing the local supermarket and other supporting facilities that is allocated a distinct zone within each residential district. For more information ,see Maha Al-Shimmery, 'Towards an Ethnographic Critique of Public Space in Kuwait's Residential Neighborhoods: Cooperatives and Public Parks in Hateen and Faiha', Master's dissertation (Kuwait University, 2015).

[50] Jacobs, *The Death and Life of Great American Cities*.

[51] Codified by the Kuwait Municipality, Public Authority for Housing Welfare, the Ministry of Public Works and the local planning authorities. See PAHW Urban Design Manual for site area allocation (not available online).

Figure 3-1: Case Study Locations

Salmiya neighbourhood
AlDimna Street and Salmiya Park

— AlDimna Street
and Salmiya Park

KW centre
Salmiya

0   500m

Qortuba neighbourhood
4th Street and vacant plot

— 4th Street
and vacant plot

KW centre
Qortuba

0   250m

Based on data from PACI 2018; EMISK 2016; OSM 2019

Figure 3-2: Video Screenshots of the Case Study Streets in Salmiya (above) and Qortuba (below)[52]
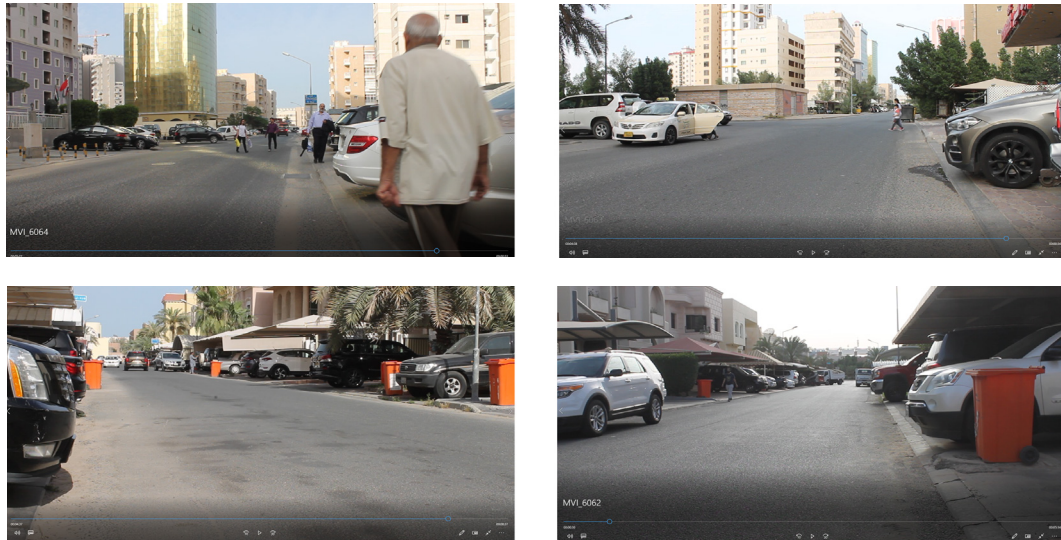
Photos by Alexandra Gomes

While the choice of neighbourhoods was based on their contrasts,[53] the selection of 4th Street and AlDimna Street was based on their similarities; both are collector roads with low to moderate capacity and serve to move traffic from local streets to arterial roads. Importantly, they provide vehicular and pedestrian access to open public space: a vacant lot in the case of Qortuba used by residents as a makeshift football field and a children's playground, and in Salmiya, a landscaped park. These spaces serve as destination points or paths to other places due to their centrality within the blocks.

Figure 3-3 provides an illustration of the building volumetric and demographic differences. The following comparative maps show accessibility and land use patterns, two of the key characteristics in the investigation of public space use (see Figure 3-4 and Figure 3-5).

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[52] All videos available here: http://www.lse.ac.uk/cities/research/cities-environment-and-climate-change/ Public-Space-in-Kuwait.

[53] These contrasts allowed a more in-depth analysis of the factor-behaviour relationship in each neighbourhood. The selection of the neighbourhoods also considered data availability at the start of the project and proximity to the city centre (for ease of travelling/fieldwork at different periods of the day).

Figure 3-3: Case Study Overview and Residential Density.

Salmiya
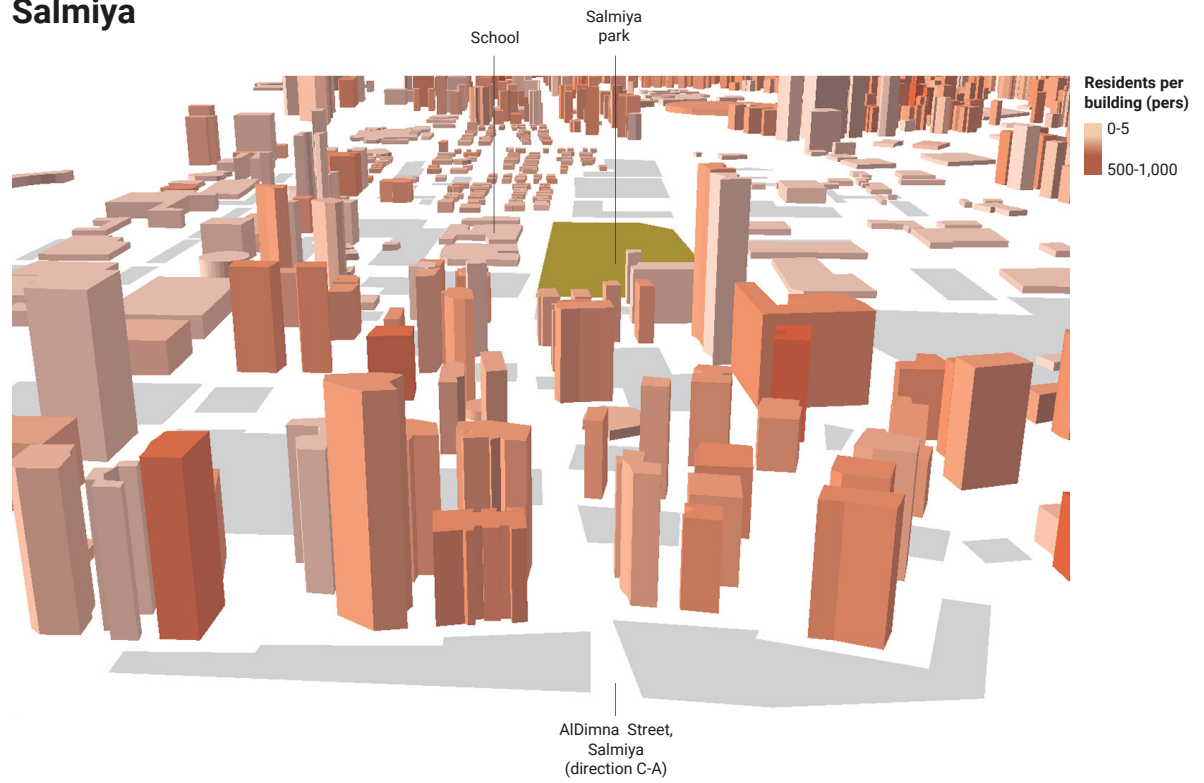
Qortuba
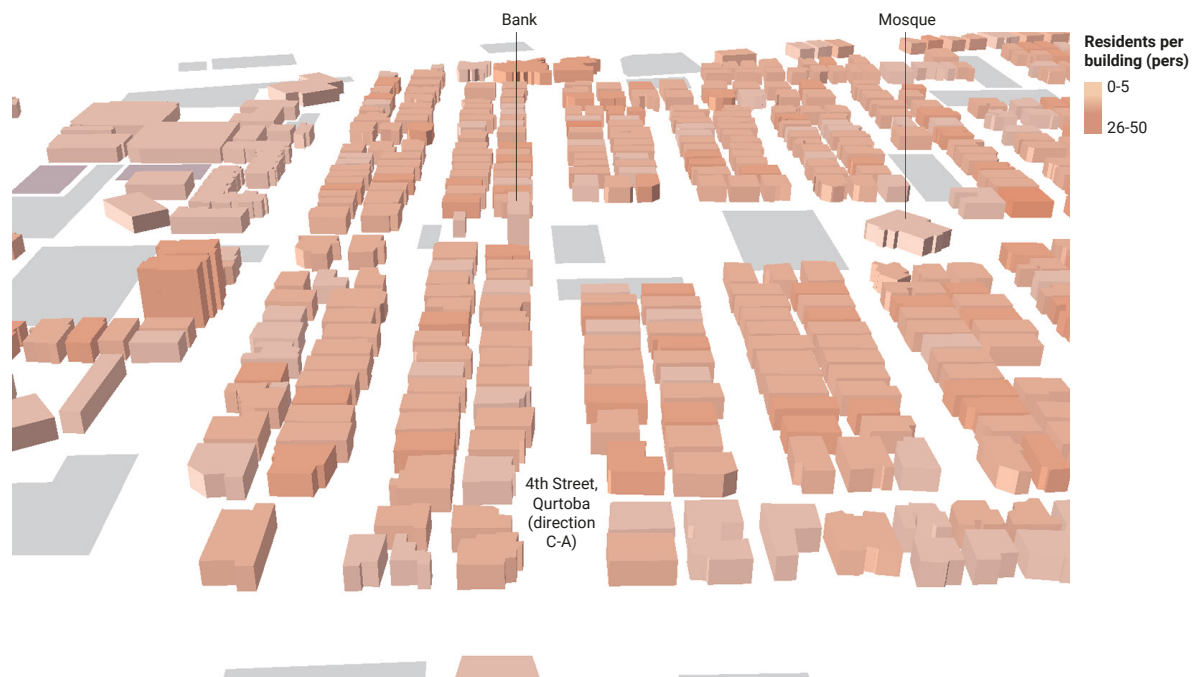
Based on data from PACI 2018; OSM 2019

Salmiya has an area that is four times that of Qortuba, a population that is nine times as large and a higher non-Kuwaiti population than that of Qortuba (97% and 42% respectively). In terms of the total workforce and gender ratio, both neighbourhoods are fairly similar: a 70% workforce in both neighbourhoods and an almost equal gender distribution.[54] The sectors that absorb this workforce, however, are considerably different with most of Salmiya's workforce employed in the private sector in comparison to only 11% in Qortuba (where most of the non-Kuwaiti population work as domestic staff). See Table 3-2 for key statistics at the neighbourhood and block levels.

Table 3-2: Demographic Differences Between Areas

Scale	Indicator	Salmiya	Qortuba
Neighbourhood	Total area (km^2)	14.2	3.3
	Total population (pers)	297,938	33,318
	Population density (pers/km^2)	20,982	10,096
	% male population	58%	47%
	% non-KW population	97%	42%
Block	Total area (km^2)	1.2	1.0
	Total population (pers)	9,845	11,525
	Population density (pers/km^2)	8,204	11,525
	% male population	56%	48%
	% non-KW population	88%	41%

Based on data from PACI 2018

These differences in population densities and make-up are a reflection of state residential planning.[55] The housing programmes of the Kuwaiti welfare state set untenable standards where single land use and lower density housing units in residential neighbourhoods serve Kuwaitis, while mixed use medium to high density apartments in higher density neighbourhoods are made available for the non-Kuwaiti population (see Figure 3-3). Qortuba's smaller population density differences at the block level when compared to the whole neighbourhood can be explained by the lack of open space areas, the higher density housing footprint in this block, and the fact that villa-type buildings dominate, housing not only Kuwaiti families but also their domestic staff.

There are also marked differences in accessibility and land use in each neighbourhood. Road connectivity is similar and relatively good although access to public transport and to non-residential uses is quite different between these areas (see Figure 3-4 and Figure 3-5). These figures show that while in Salmiya there are 16 bus stops within a 5-minute walk,

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[54] This number is at odds with the survey results. This probably relates to many Kuwaiti women driving and not represented in the survey, while non-Kuwaiti women work mostly as domestic staff with tasks that do not involve leaving the house as much as men. This is confirmed by the fact that our dominant sample is non-Kuwaiti men.

[55] For more information, see Sharifa AlShalfan, 'The Right to Housing in Kuwait: An Urban Injustice in a Socially Just System'.

there are zero in Qortuba.[56] At the same time, 34 percent of the buildings have non-residential uses in Salmiya which compares with only 3 percent in Qortuba.

Figure 3-4: Case Study Accessibility[57]


Salmiya

Qortuba

Based on data from PACI 2018; OSM 2019; Google Maps 2019

[56] This helps to explain why almost 90 percent of the survey participants used cars/taxis to arrive in Qortuba (see Appendix).
[57] Using a buffer of 400m from the case study area (approximately 5 minutes' walk).

Figure 3-5: Non-Residential Uses Distribution[58]

Salmiya
314 buildings

% of total buildings

34%	66%
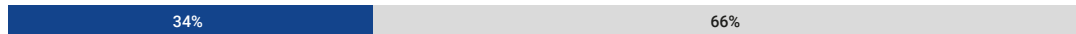
■ Buildings with non-residential uses
▢ Residential Buildings
◯ 400m buffer (5mins walk)
— Case study street
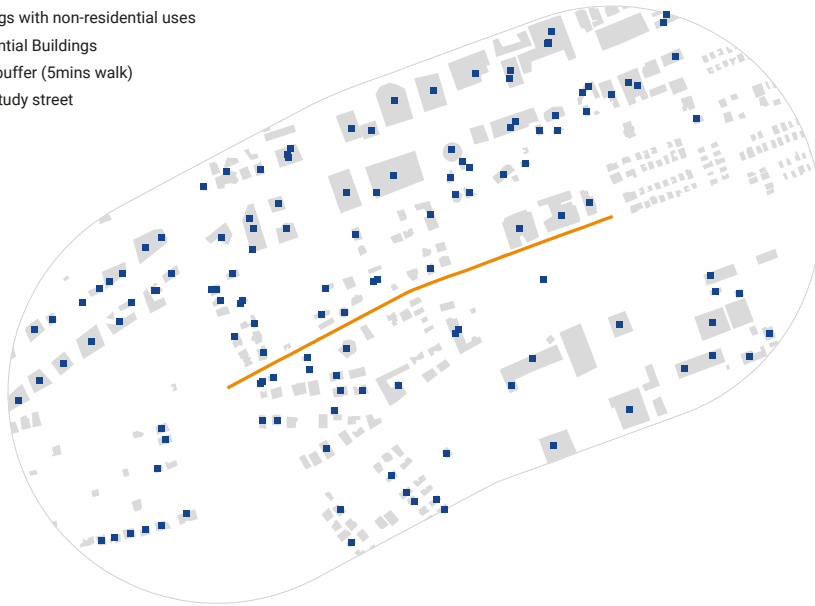
Qortuba
698 buildings

% of total buildings

2.9%	97.1%
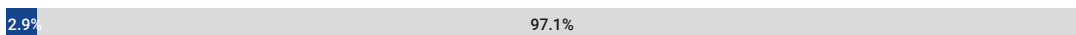
0   0.2 km

Based on data from PACI 2018; OSM 2019; Google Maps 2019

[58] Within 5 minutes' walk.

On a more granular scale and on the street level, where all methodical observations took place, the case studies bear greater similarities than differences. These similarities and differences, along with the adopted user-centred methodology, helped in understanding individual and social behaviours as they relate to the physical characteristics of the built environment. While these residential neighbourhoods had the characteristics that serve to answer our research question, availability of data was also a factor for the selection of these two case studies.

3.2 Street Location Selection

Following Gehl's methods and for more site-specific qualitative analysis, three locations on each street were selected; they are centres of a 100-metre in diameter buffer zone that was observed and analysed. This length is a comfortable line of vision for researchers to observe. In the case of AlDimna Street, Salmiya, the locations were selected based on their proximity to the park (location A); at a road intersection that feeds Salem Al-Mubarak Street, a high traffic main street with commercial shops, (location B); and an area consisting of a mix of residential, commercial and religious buildings (location C). In 4th Street, Qortuba, the selections were based on the proximity of commercial and residential buildings to a vacant public space (location B), and locations that serve as bookends on 4th Street (location A and C) (see Figure 3-4). Two researchers collected data on weekdays and weekends in March and again in late April and early May. The temperature in the cooler season ranged from 21–29 degrees Celsius, while in the warmer season temperatures ranged from 27–40 degrees Celsius. The research team was keen on avoiding extreme weather conditions, particularly in the summer, where temperatures would rise above 50 degrees Celsius, triggering heat advisory warnings.[59]

3.3 Surveys

The in situ surveys provided feedback from users who were spending time in or passing through the selected locations. This helped record users' socio-demographic information and their opinions on quality and characteristics of the space. In Salmiya's AlDimna Street, a total of 101 public space users were surveyed (65 male and 35 females[60]), and 32 in 4th Street, Qortuba (22 males and 10 females). See the Appendix for the fieldwork summary table that includes more information underpinning the demographic sample collected during the survey phase of the research.[61]

Results from the in situ surveys revealed that a majority of AlDimna Street users (94 percent) are non-Kuwaitis, mostly from Egypt, India and the Philippines, while in 4th Street non-Kuwaitis represented 47 percent of the sample. Most of the respondents in both areas were daily users (residents and workers in the area), while in Salmiya

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[59] This decision was made due to health and safety precautions as the team would had to have spent long periods of time under the sun collecting data. It is also believed that results from extreme periods would not add much to the analysis and results were already obtained in the two periods mentioned.
[60] One person had no attributed gender.
[61] Ethical considerations such as confidentiality and consent were respected during the survey fieldwork.

a significant number are occasional visitors, mostly park goers (see the table in the Appendix for more information).

The surveys also queried users about their daily transportation habits. In 4th Street, Qortuba only 12.5% walked (87.5% arrived by car or taxi) while in AlDimna Street, Salmiya 42% walked and 8% used public transport (50% used a car or taxi). When exploring Kuwaiti users' behaviour, 100% of the Kuwaitis interviewed in AlDimna and 88% of Kuwaitis on 4th Street used motorised vehicles to travel. In terms of permanence, in AlDimna, just over 54% of the interviewees planned on staying for more than an hour, while the rest stayed for far less, ten minutes at the most. All Kuwaitis were passing through, while the remaining interviewees mentioned a variety of reasons for their visit: meeting family and friends, shopping, sports and cultural activities. In 4th Street, most interviewees were going home, to work or to the bank. Making deliveries and going to their cars were answers for those staying for less time. These statistics represent the dominance of the car in reaching destination points for Kuwaitis, including parks or commercial spaces such as the bank on 4th Street, location B. It also gives us a snapshot of the amount of time spent in these outdoor spaces, most often just over an hour for non-Kuwaitis and far less for Kuwaitis.

This information illustrates the disparity between Kuwaiti and non-Kuwaiti use of public space. It also suggests a link between public space use and citizenship as well as income. Kuwaitis with higher income have access to larger homes and private vehicles and are therefore less likely to use public space. This finding is demonstrated by the fact that in AlDimna Street our sample survey only comprised of 6 percent Kuwaitis despite them making up 12 percent of its population. This also suggests that there are multiple factors at play, and that mixed use urban planning is not enough to encourage more Kuwaitis to use public space.

4 Key Factors of Public Space Use in Kuwait

The section above highlighted the importance of local sociocultural characteristics in the analysis of public space in Kuwait. The sections below will frame the analysis on the remaining physical and behavioural factors highlighted in the Research Approach (Section 2.3) through the analysis of patterns and densities of public space use.

4.1 Density and Mixed Use

Increasing mixed use is one factor that enables the successful use of public space. However, for people to use public space, walkable and attractive streets that accommodate different activities must also be provided. This potential is already evident as we observed a marked difference between the ways in which people interacted and used the streets and park in AlDimna Street and 4th Street, the former being more dynamic than the latter.
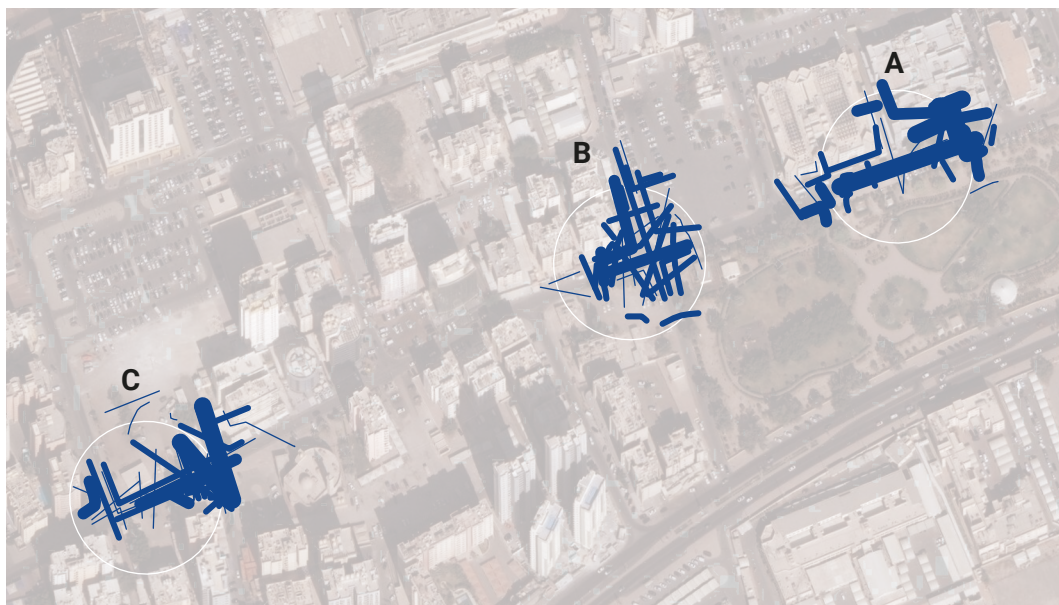
The concept of the 3C cities[62] emerges as an important approach for sustainable urban development,[63] particularly for growing cities such as Kuwait. In that respect, the two case studies present contrasting images. Qortuba is a lower density single family housing residential neighbourhood that lacks diversity, landscaped open spaces and connectivity to public transport. On the other hand, Salmiya is a higher density, mixed use neighbourhood with wider open areas and greater connectivity to public transport. From Gehl's People Moving Count analysis[64] illustrated in Figure 4-1 we can see the impact of mixed use development quite clearly. 4th Street, location B is where most movement takes place, particularly to and from the bank. Other locations along the street present less intensity of movement. AlDimna Street has a higher complexity of movements and intensities of use. The school and the park are the dominant destination points in location A while the stores, mosque and restaurants dominate in location C (see Figure 4-1).

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[62] The Cs in 3C are translated as Compact, Connected and Coordinated environments.

[63] Philipp Rode, Catarina Heeckt and Nuno da Cruz, 'NCE Coalition for Urban Transitions: National Policy Workstream', *Coalition for Urban Transitions Working Paper* (London and Washington, D.C., 2019). Available at https://lsecities.net/wp-content/uploads/2019/05/CUT2019_transport_050819.pdf (accessed 28 May 2020).

[64] See Appendix for the summary fieldwork table.

Figure 4-1: Pedestrian Movement

Salmiya

Type of movement

32%	68%

Movement with origin-destination related to car/house
Movement along the street

Pedestrian flows (total pers)
Orange = warmer (period)
Blue = cooler (period)

0 - 2
3 - 10
11 - 25
26 - 56

◯ Locations

0   50m

Type of movement

26%	74%

Movement with origin-destination related to car/house
Movement along the street

Based on data from fieldwork, Google Maps

Qortuba

Type of movement

45%	55%

Movement with origin-destination related to car/house
Movement along the street

0   50m

Type of movement

47%	53%

Movement with origin-destination related to car/house
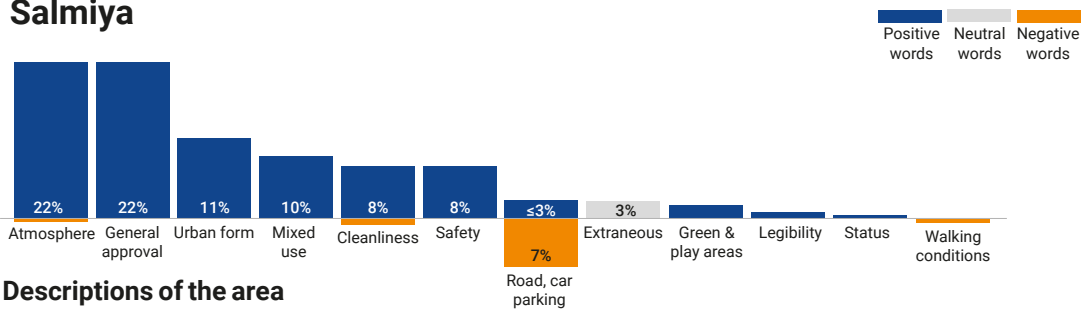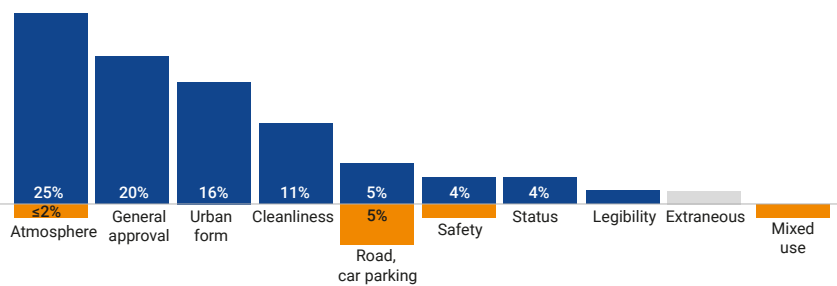Movement along the street

Based on data from fieldwork, Google Maps

Questions of density and mixed use development often emerge closely related to space liveliness and atmosphere. From the local surveys, these were clearly dominant as a positive factor in Salmiya, suggesting that a diversity of activities gathers larger crowds and ensures around-the-clock activities. 4th Street, Qortuba was mostly described as a calm and quiet place. Diversifying amenities emerged as a key factor to improve the street (30 percent of responses). Those surveyed in 4th Street suggested the need for more and closer restaurants, shops and services.[65] In AlDimna Street, where levels of mixed use are already higher, the suggestions focused on the improvement of targeted specific activities such as cultural and art facilities, or food and drink venues in the park. In terms of outdoor amenities, in 4th Street, green areas, playgrounds and sports facilities represented 20 percent of the suggestions that would improve the area (only surpassed by mixed use suggestions). In AlDimna Street, where Salmiya Park is located, most suggestions focused on improving the existing green facilities[66] (15 percent), along with requests for sports and cycling infrastructure (sum of 14 percent) (Figure 4-2).

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[65] The only commercial activity in Qortuba is at the cooperative branch and its surrounding shops, areas with problematic parking and which are difficult to access during busy times.

[66] Most suggestions relate to playgrounds and spaces for children to play in (including those with disabilities), better garden maintenance and areas to socialise in.

Figure 4-2: Descriptions of the Area and Suggestions from Users

Salmiya

Positive words · Neutral words · Negative words

22%	22%	11%	10%	8%	8%	≤3%	3%				
Atmosphere	General approval	Urban form	Mixed use	Cleanliness	Safety		Extraneous	Green & play areas	Legibility	Status	Walking conditions
						7% Road, car parking					

Descriptions of the area

| 15% | 14% | 13% | 13% | 12% | 8% | 7% | 6% | 6% | ≤3% | | | |
| Green & play areas | Walking conditions | Sports conditions | Road, car parking | Mixed use | Cleanliness | Atmosphere | Urban furniture | Nothing | Extraneous | Safety | Legibility | Cycling conditions |

Suggestions about improving public space

Qortuba

25%	20%	16%	11%	5%	4%	4%			
≤2%									
Atmosphere	General approval	Urban form	Cleanliness	5% Road, car parking	Safety	Status	Legibility	Extraneous	Mixed use

Descriptions of the area

| 30% | 20% | 13% | 13% | 7% | 7% | 7% | 3% |
| Mixed use | Walking conditions | green & play areas | Road, car parking | Safety | Extraneous | Sports conditions | Nothing |

Suggestions about improving public space

*Extraneous = when response did not answer the question

Based on fieldwork survey data

Monotony has a physical and psychological impact on space use. Streets that lack diversity increase the pace of movement and feelings of unsafety, while the opposite creates 'stickiness'[67] and a slower stride.[68] In terms of safety, while AlDimna Street is described as mostly safe, in 4th Street conflicting and polarised responses emerged (see Figure 4-2).

4.2 Private Car Use

When exploring the relationship between public space and user behaviour, the use of public space appears to be negatively correlated to the use of private motorised vehicles. In situ observations in the two streets marked a divide between Kuwaiti and non-Kuwaiti behaviour. Kuwaitis depend on private motorised vehicles[69] to move from one destination to another notwithstanding the distance between destinations. Non-Kuwaitis, mostly those in the lower socio-economic bracket, depend on public and active modes of transport. In 4th Street, we observed much higher levels of movement from the car to the house and vice versa (see Figure 4-1). Nevertheless, both neighbourhoods are dominated by vehicular movement. From in situ counts, based on the video footage, differences reached values of 28 cars per person in 4th Street, and 6 cars per person in AlDimna Street.[70]

We also observed repeated behaviours in both locations. The bank and commercial shops located on 4th Street location B broke the monotony of the private villa (Figure 4-3). Employees in these establishments park their cars in designated on-street parking, right across from the bank, and then cross the street. There are no pedestrian crossings in this location. Similarly, we observed people who parked their cars in that same car park and then crossed the street to use an ATM machine just outside the bank. No users were seen walking to the ATM machine; instead, people drove to and from these locations. Others parked illegally in front of the bank. Parked cars also impacted movement, prompting pedestrians to walk on the road. Along with this 'informal' parking in front of the buildings, empty plots are also used as parking spaces transforming neighbourhoods into a landscape of buildings and cars with strong mobility and visual impacts (see Figure 4-4).

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[67] Gehl's definition of space's 'stickiness' accounts for the number of those that stop to spend time in a place as opposed to those who simply move through.

[68] Jacoba Urist, 'The Psychological Cost of Boring Buildings', *The Cut*, 12 April 2016. Available at https://www.thecut.com/2016/04/the-psychological-cost-of-boring-buildings.html (accessed 23 March 2020).
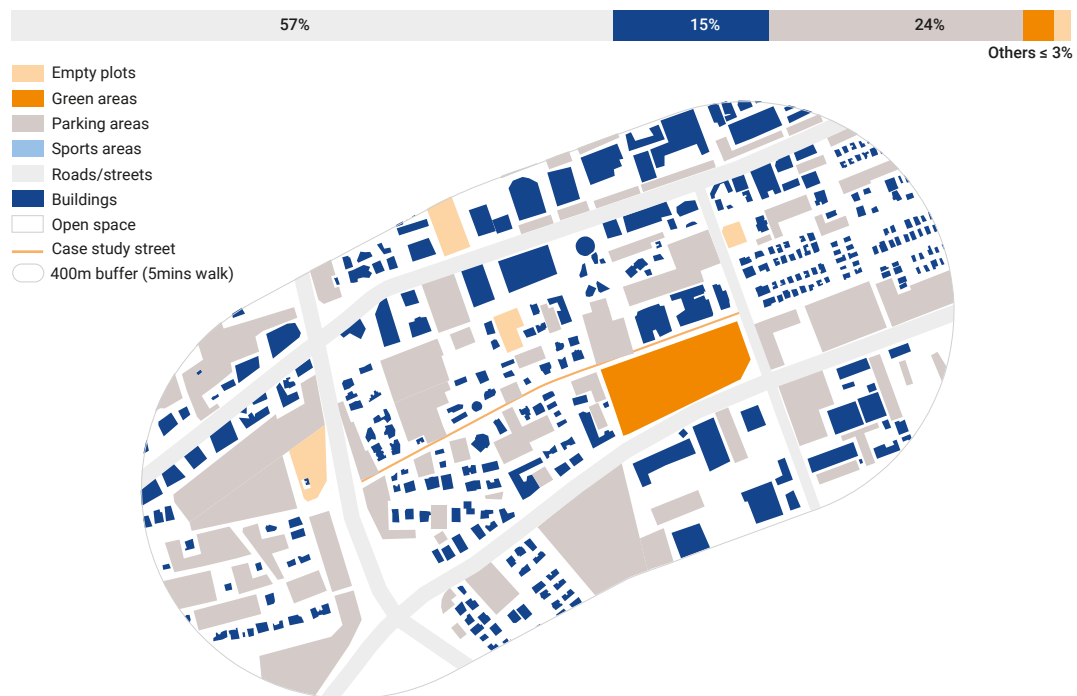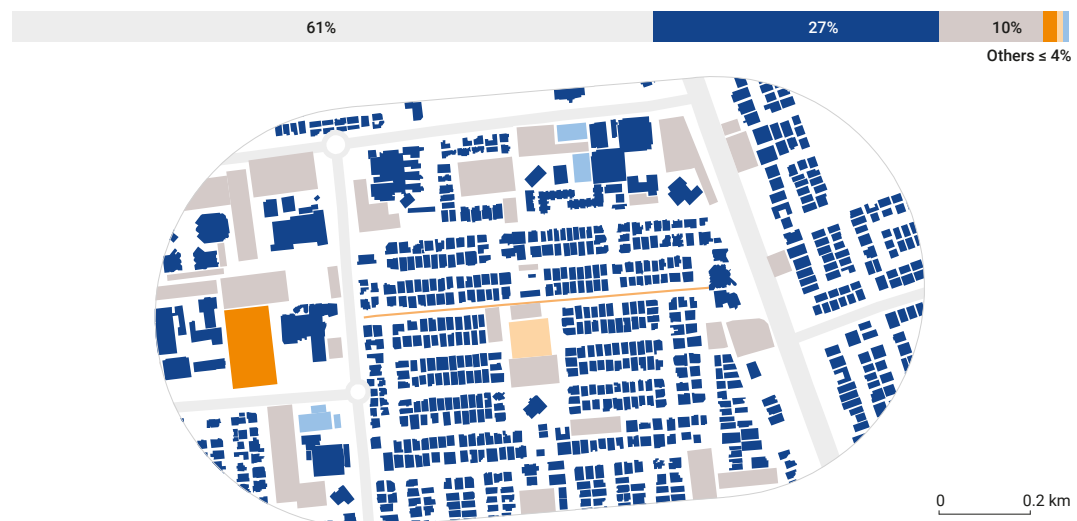
[69] Rode et al., *Resource Urbanisms*.

[70] Counts of persons and cars based on 5-minute video recordings, on the afternoon of 16 April 2019. Videos can be accessed here: http://www.lse.ac.uk/cities/research/cities-environment-and-climate-change/Public-Space-in-Kuwait.

Figure 4-3: A Gulf Bank Branch, Qortuba

Photo by Asseel Al-Ragam

Figure 4-4: Land Use Ratios

Salmiya
Total area 1,163,676m²

% of total area

| 57% | 15% | 24% | Others ≤ 3% |

Empty plots
Green areas
Parking areas
Sports areas
Roads/streets
Buildings
Open space
Case study street
400m buffer (5mins walk)

Qortuba
Total area 1,041,099m²

% of total area

| 61% | 27% | 10% | Others ≤ 4% |

0   0.2 km

Based on data from PACI 2018; OSM 2019; Google Maps 2019

Within a 400m buffer zone in the two case studies, equivalent to a 5-minute walk, the more 'formal' and larger parking areas correspond to one fifth of the area in 4th Street and a quarter of the area in AlDimna Street. In the latter, the proportion of parking areas surpasses the total housing footprint by 160 percent. When exploring the 'informal' parking,[71] the estimated number of parking spaces and cars increase significantly in 4th Street. This increase is due to the number of buildings and socio-demographic make-up. In AlDimna Street, due to the urban layout and building footprint densities, tenant parking spaces are not always guaranteed thus residents have to park their cars far from their homes and walk to their cars. This is in contrast to 4th Street where even though garages are not incorporated in villa design, cars are still parked outside homeowners' property line on the public setback. As such, Kuwaitis do not walk far to reach their cars.

Car use is an individual behaviour often associated with status and comfort and this behaviour will not change without strong interventions at different levels. Without accessible, reliable and safe alternatives and better walking conditions, this situation will persist. In the past two decades, the number of cars has been increasing[72] and in 2015, Kuwait already had a ratio of one vehicle per 2 persons (including the non-Kuwaiti population).[73]

4.3 Urban Design, Micro-Accessibility, and Walkability

Another key factor in the limited public space use is inadequate planning policies that do not consider users' experience and place greater value on car infrastructure rather than activating public space. For example, in both case studies, insufficient seating and shaded areas greatly hindered positive social interaction, even more so in 4th Street where planned areas for children and adult social activities are missing, leading families to compensate for this absence by creating their own playground (Figure 4-5).

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[71] We define informal parking as the space where homeowners park their cars between homeowners' property line and the public setback.

[72] 'Statistics of Transportation', *Central Statistical Bureau of Kuwait Statistics & Bulletins* (2013 & 2018). Available at https://www.csb.gov.kw/Pages/Statistics_en?ID=41&ParentCatID=%2070 (accessed 28 May 2020).

[73] Important to note that in Kuwait 99 percent of Kuwaitis use private cars for commuting purposes which compares to 44 percent for non-Kuwaitis. See Rode et al., *Resource Urbanisms*.

Figure 4-5: Qortuba Playground

Photo by Asseel Al-Ragam

While Salmiya Park does have designated play areas, insufficient lighting and a greater number of male users made it less welcoming for female users, particularly in the evenings. The Stationary Activity Mapping, performed by researchers, revealed that the design of both case studies was not accessible nor welcoming in terms of gender with women users falling behind men by almost half.

There is another challenge. The concept of an unobstructed pedestrian pavement is missing. In fact, the PAHW 2012 Urban Design Manual makes no reference to pavements and instead the space just outside homeowners' property line is indicated as a public setback and allocated a width based on the hierarchy of the road. The absence of scheduled street maintenance, ill-maintained seating and overflowing rubbish bins create interruptions that discourage public space use (Figure 4-6).

Figure 4-6: Challenges Discouraging the Use of Public Space in Qortuba

Photo by Alaa Fouda

The absence of the concept of the pavement challenges any attempt at pedestrian-friendly public space. This is made clear when mapping obstacles (see Figure 4-7) along the two case studies that prioritise motorised vehicles. For example, there are no pedestrian walkways or traffic signals, forcing users to divert onto the street at random locations. The absence of speed limits results in cars travelling at higher speeds than normally acceptable on collector roads. Speed bumps act as a panacea to slow down cars in Kuwait and they pepper the streets at random intervals. At the same time, parked cars create a continuous block to drivers' visibility, generating unsafe crossing points along the streets. These factors hinder accessibility and walkability and increase the conflict between people and cars.[74] The two case studies serve as examples of the car-centred design and occupation of residential neighbourhoods in Kuwait. In both case studies, cars, private landscapes, and rubbish bins occupy poorly maintained pavements, while dimly lit street lamps add to a sense of insecurity.[75]

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[74] References to accessibility include people with disabilities.

[75] Safety is not dominant in terms of the survey assessment but is still mentioned in both areas, and intimately related to factors such as mixed use, and walking conditions that emerged as very important in both cases.

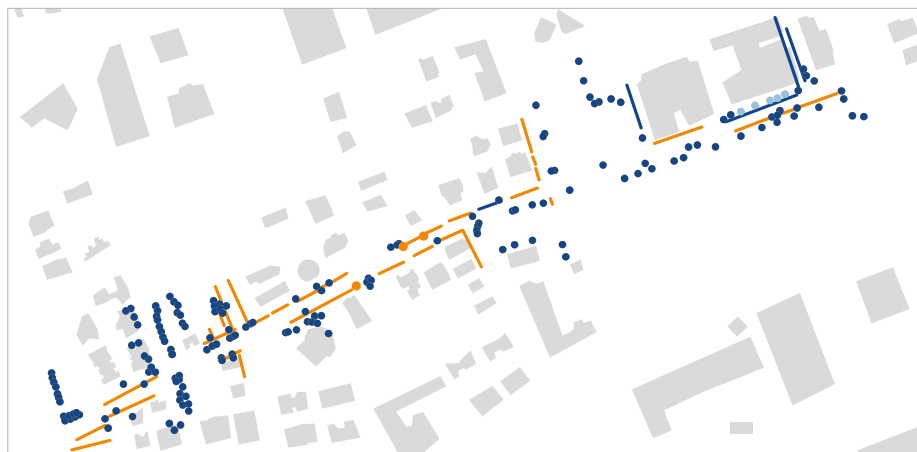Figure 4-7: Obstructions and Barriers within the Case Study Streets

Salmiya
Street extension (both sides) of 1,654m

% of longitudinal occupation of the street

39%	61%

■ % of the street obstructed by the longitudinal barriers
■ % of the street un-obstructed

Number of elements creating barriers
● 3
● 48
— 25

Types of barriers

● Complete barrier
(e.g. planting areas, bushes, walls)

● Partial barrier
(e.g. rubbish bins, lamp posts, etc)

● Opportunity elements
(e.g. moveable chairs, trees, drinking water fountains)

— Complete barrier (longitudinal and continuous)
(e.g. parking covered and not covered)

— Partial barrier (longitudinal and continuous)
(e.g. parking encroaches onto the pavement without completely blocking it)

■ Buildings

Qortuba
Street extension (both sides) of 1,654m

% of longitudinal occupation of the street

51%	49%

■ % of the street obstructed by the longitudinal barriers
■ % of the street un-obstructed

Number of elements creating barriers
● 23
● 64
— 52

Based on data from fieldwork; PACI 2018; OSM 2019

In 4th Street, the great value placed on privacy by homeowners as well as building codes that require perimeter walls prevent 'eyes on the street' and community surveillance.[76] There, the street is considered part of the private realm and domestic helpers were seen using the street just to talk on their phones. Public space is mostly appropriated by private individuals. Still, there are some opportunities for a more successful collective use of public space based on our findings. For example, drinking water fountains are ubiquitous in Kuwait's urban landscape, peppering the streets with their kitschy designs (Figure 4-8). Often, they are magnets for socialisation where users linger and socialise.

Figure 4-8: Drinking Water Fountain, Salmiya

Photo by Alaa Fouda

Alongside their functional use, in situ surveys revealed the popularity of water fountains. Several survey respondents requested additional drinking fountains as they can provide options for users to stay longer while getting a refreshing drink of water. People were also spotted scaling the Salmiya Park fence, particularly in locations A and B. There is an ongoing debate to eliminate park fences by the public and state planning authorities and some neighbourhood park fences have been removed. This behaviour encourages their removal. These informal patterns of user behaviour can certainly provide evidence to either reconsider the use of fencing or increase park entrances. In AlDimna Street, the variety of spaces and elements allow for more creativity, 'informality' and a variety of activities for street users (Figure 4-9)

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[76] Jacobs, *The Death and Life of Great American Cities*.

Figure 4-9: Activities in Public Space, Salmiya

Photo by Alaa Fouda

The potential for walkability exists in these residential neighbourhoods. The urban scale of Qortuba with its wide street layout and pavements can certainly support higher densities of use that would promote 'stickiness'. The bank on 4th Street in location B and the school and commercial establishments along AlDimna Street support this argument. They are already showing levels of attractiveness. The removal of parked cars, rubbish bins, and clutter, together with the addition of street furniture, shading elements and design codes would encourage people to stay, linger and socialise in a safe public space (these elements represented 6 percent of the survey suggestions in Salmiya). Traffic control measures were also part of the suggestions (see Figure 4-2). Designing streets for walkability was one of the top priorities of respondents in both case studies. However, street management and maintenance that mitigate violations must parallel these suggestions.

When observing the levels of street cleanliness, we noticed that these were related to ownership rights. This hypothesis is supported by the acceptable level of cleanliness in 4th Street in relation to AlDimna Street (see Figure 4-2), where a higher level of cleanliness is linked to the appropriation of the pavement. Domestic helpers were seen in 4th Street washing public setbacks just outside their employers' homes. This behaviour was missing in AlDimna Street and respondents criticised its lack of cleanliness, assigning responsibility to others. The lack of public toilets was also highlighted in AlDimna Street, and in particular in Salmiya Park. Still, as mentioned before, pavement annexing and ownership claims is still a contributing factor to hazardous and unsafe walking conditions. These issues need to be addressed in Kuwait's urban policies and design codes to improve the quality of public space.

Another factor to consider is connectivity. While connectivity levels of both case studies are acceptable, with a 15-minute walking distance to amenities at the neighbourhood co-op, the lack of crossing points and unfavourable street conditions prevent most car

owners from walking. Pavement cluttering, and the lack of active street facades also inhibits what could be a more engaging and stimulating street experience. Only space planning and more sustainable policies can change this behaviour.

From the in situ respondent surveys in AlDimna Street (see Figure 4-2), roads, cars and traffic were reviewed negatively with complaints of disorganised parking and congested traffic. This compares to 4th Street where road conditions and traffic were marked positively, with the exception of a female Kuwaiti that raised questions on street safety for children and one Kuwaiti worker who complained about the traffic congestion in the area. When analysing the improvement suggestions, road, car and parking upgrades represented 13 percent of the responses,[77] all of which came from Kuwaitis. In AlDimna Street, these suggestions were balanced with requests for stronger traffic and speed control measures.

4.4 Climate and Outdoor Activities

In Kuwait, climate is a fundamental factor in public space use. However, urban form and urban design have been long identified as factors that can mitigate this limitation.[78] The traditional urban form, as seen, for example, in the organic structure of the demolished old Kuwait town, with compact and narrow streets, is a classic example of how the physical environment can adapt to hot climates[79] and shelter users. Our research complements this idea and suggests that urban inactivity in Kuwait is mostly due to the physical environment, individual behaviour and cultural factors rather than climatic conditions (at least outside extreme periods). In fact, throughout the cooler and warmer seasons, social activities were always dominant in Salmiya and much lower in Qortuba (Figure 4-13) with the total number of users in Qortuba even increasing slightly in the warmer period (see Figure 4-10). This supports the idea that changes of temperature (outside the extreme weather period) do not seem to have a clear effect on the intensity and type of space use (activities).

At the same time, weather and shading elements were mostly absent from the survey responses in both case studies (see Figure 4-2). When asked about how to improve public space, only one Salmiya worker asked for more shaded areas. If references to the weather are not evident in the analysis, they are nevertheless present in a more indirect way. For example, better walking conditions, food and drink venues and water drinking fountains were requested; the latter suggesting a link between thermal comfort and space use.

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[77] For instance, widening the road for cars, fixing the roads/asphalt and increasing parking space at the co-op.
[78] Mabry, 'Urbanisation and Physical Activity in the GCC'.
[79] Suhail Zakhour, 'The Impact of Urban Geometry on Outdoor Thermal Comfort Conditions in Hot-Arid Region', *Journal of Civil Engineering and Architecture Research* 2/8 (2015), pp. 862–75.
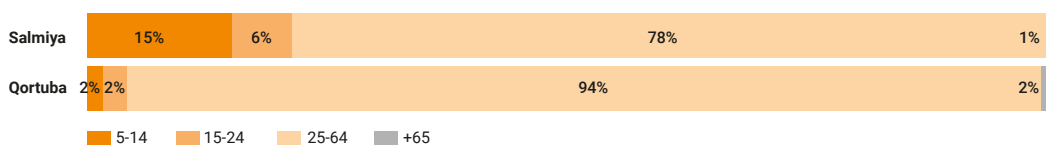
Figure 4-10: Percentage Distribution of Users per Period

Salmiya	53%	47%
Qortuba	46%	54%

■ Cooler ■ Warmer

Figure 4-11: Percentage Distribution of Users per Gender

Salmiya	30%	65%	5%
Qortuba	17%	83%	

■ Female ■ Male ■ Other (children)

Figure 4-12: Percentage Distribution of Users per Age Group

Salmiya	15%	6%	78%	1%
Qortuba	2%	2%	94%	2%

■ 5-14 ■ 15-24 ■ 25-64 ■ +65

The People Moving Count survey[80] illustrated that public space was used in both periods mostly by lower income non-Kuwaiti male workers, (see Figure 4-11) between the ages of 25 and 64 (see Figure 4-12), but with relatively low levels of permanence, or 'stickiness', recorded. This lack of 'stickiness' and social interaction seems to demonstrate that these spaces are only the stage for necessary activities (e.g. going to the bank, cleaning, deliveries or construction work). They act as destination points reached predominantly by car, particularly in 4th Street, Qortuba. In AlDimna Street, optional activities (smoking or talking on the phone) and social activities (playing and meeting others) dominate, mostly due to the intensity of use of the park and a few commercial locations. As Figure 4-13 shows, the intensity of social activities decreases, but only slightly, from the cooler to the warmer period, in particular in Salmiya.

[80] See Appendix for more information on the fieldwork and supporting elements.

Figure 4-13: Types of Activity per Period[81]

Salmiya

% of total activities

18%	13%	69%

7%	22%	71%

Activities

Cooler
- Necessary
- Optional
- Social

Warmer
- Necessary
- Optional
- Social

- Buildings
- Roads

0   100 m

School

Park

Hotel

Mosque
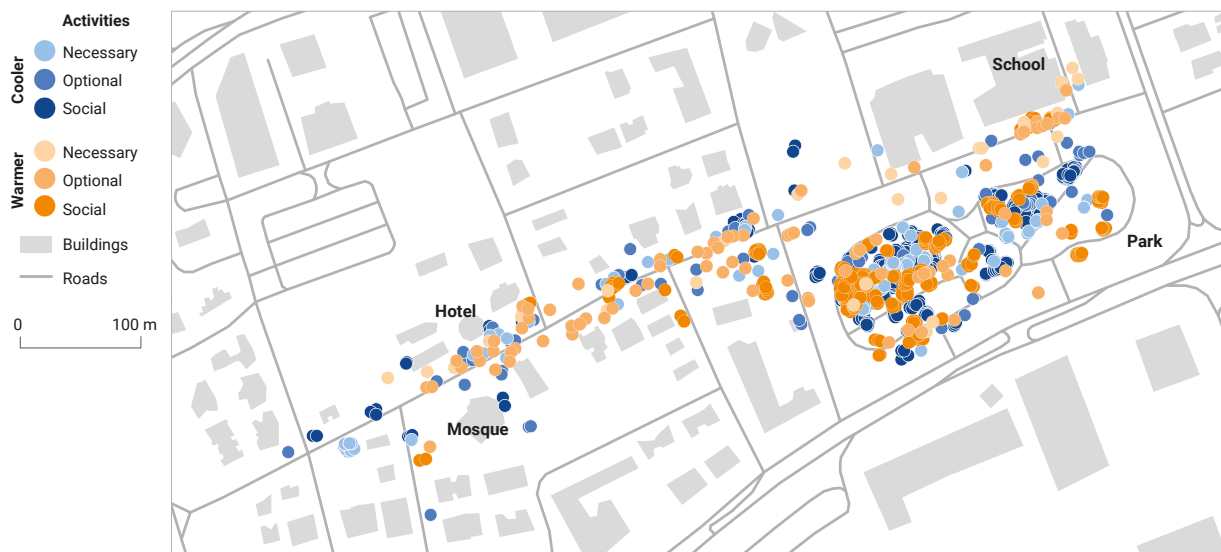
Qortuba

% of total activities

63%	20%	17%

50%	20%	31%

Bank

Construction works

Mosque
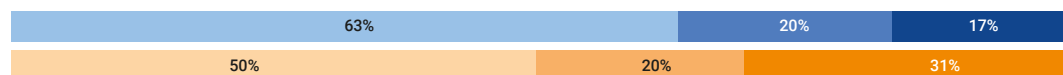
Based on data from fieldwork; PACI 2018; OSM 2019

[81] Gehl, Life Between Buildings.

We argue that the use of public space, based on these case studies, is tied to getting from one destination to another by private car rather than a process that begins and ends by engaging the liminal spaces of the built environment, whether that be the street or the park. In Qortuba, we found activities centring around the home, walking to and from grocery stores and washing cars, mostly performed by domestic workers. Again, an important feature in 4th Street is the water fountains that pepper the street, that seem to act as a magnet for street users.

Common across both case studies is the need for urban furniture that protects you from the weather, such as shading elements and shaded seating. Currently, many use the trees or planters to sit and gather. One tree in particular, in Salmiya's location B, was a magnet that attracted municipal workers (Figure 4-14). There they gathered, had their meals and breaks in the relative comfort of the shade cast by the tree's wide and twisted trunk, using it as a seating element.

Figure 4-14: Tree that Shades Street Workers, Salmiya

Photo by Alaa Fouda

Even though weather doesn't seem to be the key factor in public space use, it is still a challenge that must be addressed.[82] However, climate appropriate urban form and design can mitigate extreme conditions and physically promote more intense social use of urban space.[83] These include guidelines that consider street orientation, adapt building heights and street widths to minimise solar exposure and factor prevailing wind to cool down users. As such, urban planning and design are determinant factors in this analysis.

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[82] Mabry, *Urbanisation and Physical Activity in the GCC*.
[83] Zakhour, 'The Impact of Urban Geometry on Outdoor Thermal Comfort Conditions in Hot-Arid Region'.

5 Policy Implications

5.1 Recommendations

While an overview of Kuwait's planning institutions is outside the scope of this investigation, it is important to emphasise that overlapping responsibilities[84] and limited public space policies have hindered the successful use of public space. Additionally, standards for the design of residential neighbourhoods are based on limited numbers, measurements and percentages rather than a place focused approach that places the emphasis on the user experience. For example, street design guidelines are limited to minimum widths for local, minor and major collector roads,[85] standards that conform to a 2012 Urban Design Manual. At the same time, the new 2019 form-based Urban Design Manual has yet to be approved and adopted for the planning and design of public space. Untangling institutional overlap and focusing on a more human approach in public space policy is by far the first step.[86] Yet, our findings also helped us understand how the urban environment frames the use of public space in Kuwait as the analysis reveals there are three key elements to consider when exploring public space in Kuwait: the impact of Kuwaiti-non-Kuwaiti socio-demographics in the planning of residential communities, road network connectivity and user behaviour, and street-level or microscale accessibility and urban design.

Mono-functional zoning is a hindrance to the successful use of public space, creating an incentive to motorisation. Increasing urban densities while updating infrastructure to accommodate for this increase is also important. Lighting, shading elements, water fountains and more seating should be included in the design of public space. As reflected by respondent answers, they will increase street safety and 'stickiness'. Disciplinary measures must be applied to those who annex public setbacks for car parking and other private use.

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[84] For example, the Kuwait Municipality, the Ministry of Public Works, the Public Authority of Agriculture Affairs and Fish Resources and the Ministry of Electricity and Water take part in different aspects of public space construction. Over the years, planning, maintenance and design of public space were decentralised from the Kuwait Municipality and handed over to other ministries. For example, the Kuwait Municipality was responsible for maintaining and greening public space, as new state institutions developed, the former was handed over to the Ministry of Public Works and the latter to the Public Authority of Agriculture Affairs and Fish Resources. In addition, the Ministry of Electricity and Water is responsible for the underground infrastructure that passes through public space. For more on overlapping responsibilities for one housing project, see Asseel Al-Ragam, 'Negotiating the Politics of Exclusion: Georges Candilis, Housing and the Kuwaiti Welfare State', *International Journal of Urban and Regional Research* 41/2 (2017), pp.235–50.

[85] These standards are taken from the 2012 Urban Design Manual. For example, the public setback, the distance from the property line to the street, for local roads is 6 metres. The distance of this public setback increases as the road traffic increases. While the 2012 Urban Design Manual is still the adopted standard, an updated 2019 version that is form based has yet to be approved.

[86] Public space maintenance and design in Kuwait is centralised at the state level. Existing institutions at the local level, for example the district mayor (appointed) and the co-operatives, have no power and authority in planning matters and public space design and use. There have been individual initiatives from some of these local figures, but these were not part of a wider planning and design strategy.

These parking and street contraventions underscore the need for proper law enforcement. Despite existing regulations, the state turns a blind eye to public space abuse and has not offered practical solutions to the number of cars parked on neighbourhood pavements. This habit breaks street connectivity, discourages people from walking and produces unsafe environments for those who have to step into the street to avoid barriers. Discouraging car traffic while improving pedestrian infrastructure with zebra crossings, pedestrian traffic lights, wayfinding and street limit signs are also important and currently lacking in both case studies and their surroundings. These simple 'fixes' would organise pedestrian traffic flow and create safer streets. Further still, frequent, reliable and clean public transport accessible to all, along with segregated bike infrastructure could help encourage more sustainable modes of transport and a more social use of public space.

However, and as this investigation tried to illustrate, successful public space improvement cannot be achieved with isolated measures. Efficient policies will have to consider the strong interdependent relationship between urban planning, urban design, and social behaviour (see Figure 5-1). Successful public space policies will not be successful unless planning institutions acknowledge the key factors identified above.[87]

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[87] Public space in Kuwait would benefit from decentralisation and empowerment of local institutions and more coordination between government bodies in Kuwait. These include the Kuwait Municipality and its legislative arm, the Municipal Council, the Ministry of Public Works, the Public Authority of Agriculture Affairs and Fish Resources and the Ministry of Electricity and Water that are each responsible for different components of public space. Legislation is the responsibility of the Municipality while execution and maintenance are performed by the Ministry of Public Works. The Public Authority of Agriculture Affairs and Fish Resources is responsible for public parks, landscaping and greening of public streets and roads. The Ministry of Electricity and Water is responsible for connecting water and electric systems that run along these streets. This complex system demonstrates that better coordination between these institutional bodies is required.

Figure 5-1: The Interrelationship of Urban Design, Planning and Individual Behaviour


Urban planning	Urban design	Individual and cultural behaviour
Plot size	Streets	Comfort
Building type	Walkways	Safety
Population densities	Cross roads	Income / Citizenship
Sustainable transport provision	Signalling	Sociability
Acessibility and connectivity	Lighting	Interest / aesthetics
Mixed-use	Shading	
Spaces for sports & recreation	Facades / Building interface	
	Urban furniture	
	Vegetation and water provision	
	Wayfinding	

The World Health Organization[88] recommends policies and interventions at the national level that promote the use of public space. However, it is commonly agreed that in Kuwait extreme temperatures prohibit the use of public space. Kuwait's temperatures have indeed increased in the last few decades, and it was even considered the hottest place on earth.[89] Still, for eight months of the year, temperatures are moderate and range from 15 to 40 degrees Celsius. If the argument that extreme heat has a fundamental role in limiting the use of public space, Kuwait has eight months of moderate temperatures where public space can still be used (see Figure 5-2).

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[88] 'Global Recommendations on Physical Activity for Health', *World Health Organization* (2010). Available at https://www.who.int/dietphysicalactivity/factsheet_recommendations/en/ (accessed 20 March 2020).

[89] Ruth Michaelson, 'Kuwait's Inferno: How Will the World's Hottest City Survive Climate Change?', *The Guardian*, 18 August 2017. Available at https://www.theguardian.com/cities/2017/aug/18/kuwait-city-hottest-place-earth-climate-change-gulf-oil-temperatures (accessed 20 March 2020).

Figure 5-2: Theoretical Variations of Temperature and Use of Public Space in Kuwait[90]

Theoretical variations on densities of public space use (pers/area)
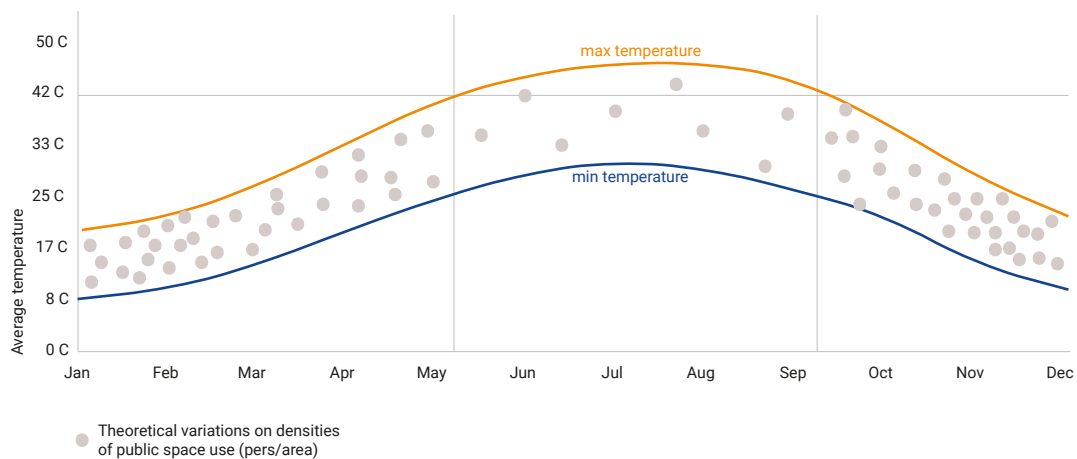
Finally, this project highlights the importance of a user-centred approach in the study of public space use. By using Gehl's methods and toolkits that can easily be replicated, we have created a baseline that can be used to compare to other streets in Kuwait or other neighbourhoods and cities around the world.[91]

5.2 Conclusion

Our study makes it clear that public space should become more than just a desti-nation point. We recommend that it becomes incorporated into everyday life, and the process of walking to and from a residence to work or leisure areas on pave-ments becomes a valued norm. We strongly recommend adopting more qualitative and human approaches in urban design (the new and yet unadopted 2019 user-cen-tred Urban Design Manual and the Kuwait Zoning Code are already advancing in that direction). They have replaced traditional design standards for ones that build com-munities and create healthier urban environments.

On this basis, this research will hopefully open up far-reaching opportunities for public space studies in Kuwait that encourage sustainable living in everyday life and counter popular myths of public space inactivity linked to the climate. In fact, we found that in residential areas, public space use is relatively low year-round with higher levels of use in

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[90] Based on 'Climate and Average Monthly Weather in Kuwait', *World Weather & Climate Information*. Available at https://weather-and-climate.com/average-monthly-Rainfall-Temperature-Sunshine,Ku-wait,Kuwait (accessed 31 March 2020).

[91] This could include for example, the analysis of other areas with high levels of mixed use in Kuwait's neighbourhoods such as, for example, Jabriya, Mishref or Mangef; or with other residential neighbour-hoods that had planning or urban design interventions that could impact public space use.

local landscaped parks and commercial areas.[92] For the Kuwaiti population, the concept of public space use is also unique in that it is inextricably tied to transportation from one destination to another, often by private cars. The middle process that includes walking through the built environment through streets and parks is almost erased in the case studies observed, thus eliminating a stronger sense of engagement or socialisation that could take place. Car occupation of public space and the elimination of the pavement also contribute to the erasure of public space use.

Encouraging evidence-based policies as a result of this study is a step towards this goal. This is a necessary approach. Kuwait can no longer support its current unsustainable method of urban planning which prioritises motorised infrastructure and neglects public space. This destructive pattern will have adverse effects on individual health and the environment, particularly in today's rapidly changing climate.[93]

Appendix

Table 6-1: Fieldwork Summary Table

	Salmiya	Qortuba
Video and Photography		
Weather conditions[94]	28C	28C
Periods of analysis	16 April 2-19 (Evening)	16 April 2019 (Evening)
Observation		
Gehl Public Life Tool Used: People Moving Count[95] ; Age & Gender Tally[96]		
Weather conditions (max temperature/day)	Cooler 21–29 C Warmer. 28–37 C	Cooler 26–29 C Warmer. 27–40 C

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[92] Some improvements to larger scale public parks (Al Shaheed and Boulevard for example) have been introduced over the last few years demonstrating some political will from the government and the Amiri Diwan.

[93] We are finishing this policy-oriented paper in times of COVID-19. Some of the opportunities highlighted in this investigation presented themselves as we are coming to terms with a 'new normal'. The confinement of mandatory lockdown seems to be encouraging public space use outside of curfew hours. Limited car use and grounded planes are improving Kuwait's air quality. These opportunities should be recognised and strengthened once we emerge on the other side of this crisis. Kuwait must rethink its car reliance, reassess its housing types and sizes, explore mixed use planning and build diverse and equitable socio-economic residential communities. COVID-19 is showing us that we must design more resilient urban environments. This pandemic clearly demonstrates the relevance of new research, design practices and policies. For more reflections on COVID in Kuwait, see Alexandra Gomes, Asseel Al-Ragam and Sharifa Alshalfan, 'Reflections on COVID-19 and Public Space Use in Kuwait: The Potential of a New 'Normal', *LSE Middle East Centre blog*, 6 May 2020. Available at https://blogs.lse.ac.uk/mec/2020/05/06/reflections-on-covid-19-and-public-space-use-in-kuwait-the-potential-of-a-new-normal/ (accessed 15 May 2020).

[94] Temperatures based on https://www.accuweather.com/ measurements.

[95] Available at https://gehlpeople.com/wp-content/uploads/2020/03/PEOPLE-MOVING-COUNT.pdf

[96] Available at https://gehlpeople.com/wp-content/uploads/2020/03/AGE-AND-GENDER-TALLY.pdf

	Salmiya	Qortuba
Periods of observation[97] (from–to)	Cooler: 7–28 March 2019 Morning and Evening 2 researchers Warmer: 19–30 April 2019 Morning and Evening 2 researchers	Cooler: 26–29 March 2019 Morning and Evening 2 researchers Warmer: 24 April – 3 May 2019 Morning and Evening 2 researchers
Site Survey		
Gehl Public Life Tool Used: Twelve Quality Criteria[98] Stationary Activity Mapping[99]		
Weather conditions (max temperature/day)	42C	42-46C
Site survey periods	22 May 2019	23 May 2019 and 26 May 2019
Survey Questionnaires		
Gehl Public Life Tool Used: Participant Survey Worksheet[100]		
Weather conditions (max temperature/day)	Cooler 21–29 C Warmer. 28–37 C	Cooler 26–29 C Warmer 27–40 C
Periods of analysis	Cooler: 7–28 March 2019 Morning and Evening 2 researchers Warmer: 19 April – 30 April 2019 Morning and Evening 2 researchers	Cooler: 26–29 March 2019 Morning and Evening 2 researchers Warmer: 24 April – 3 May 2019 Morning and Evening 2 researchers
Survey Questionnaires: Participants' Basic Description		
Number of participants	101	32
Gender (%)[101]	64% males 35% females	69% males 31% females
Percentage of non-Kuwaiti	94%	47%
Dominant type of users	72% Area residents and workers 28% others	87.5% Area residents and workers 12.5% others
Mode of transportation	50% car or taxi 42% walked 8% public transport	87.5% car or taxi 12.5% walked

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[97] The specific dates and times depended on the researcher's availability and consistency between case study areas and periods of analysis.

[98] Available at https://gehlpeople.com/wp-content/uploads/2020/03/TWELVE-QUALITY-CRITERIA.pdf

[99] Available at https://gehlpeople.com/wp-content/uploads/2020/03/STATIONARY-ACTIVITY-MAP-PING-PDF.pdf

[100] Available at https://gehlpeople.com/wp-content/uploads/2020/03/PARTICIPANT-SURVEY.pdf

[101] One person had no attributed gender.

	Salmiya	Qortuba
Survey Questionnaires: Participants' Answers		
Top 5 descriptors to define the area[102]	Atmosphere General approval Urban form Mixed use Cleanliness	Atmosphere General approval Urban form Cleanliness Road and car parking
Top 5 suggestions to improve public space[103]	Green and play areas Walking conditions Sports conditions Road, car parking Mixed use	Mixed use Walking conditions Green and play areas Road and car parking Safety
Bottom 5 suggestions to improve public space	Cycling conditions Legibility Safety Nothing Urban furniture	Nothing Sports conditions (others as above)

Research and Production Team

Acknowledgements

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[102] Descriptors resulting from the analysis of the open question: 'What three words would you use to describe this public space?'

[103] Descriptors resulting from the analysis of the open question: 'What two things would you like to do in the public spaces of this area that you can't do now?'

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