



**Ain Shams University**  
Egypt



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# **Rethinking Unbuilt Space within Neighborhoods in Muscat**

## **Mapping community planning across rapid urbanization**

**A Thesis submitted in the Partial Fulfillment for the Requirement of the Degree  
of Master of Science in Integrated Urbanism and Sustainable Design**

**by**

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07/21/2017

Rowa Mohamed Elamin Elzain



Signature



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# Abstract

Urban neighborhood as a term of planning and designing a city has been described by main urban planners, architects, and even socialist. The unit consist of an agglomeration of various residential forms along with the basic servers that is required for the daily aspects. In Muscat, neighborhoods in the form of leapfrog sprawl has consumed a large section of the spatial dimension of the city due to various factors. This form of rapid urbanization raise a question on planning strategies for Muscat and the country as a whole as demand for land and demographic growth increases.

The thesis investigates the definition of neighborhood as a step for further understanding the relation between communities and urban spaces within them. A set of guidelines from literatures is extracted to evaluate a couple of selected neighborhoods which were determined using a set of criteria on local neighborhoods that were designed and constructed within the period of current rapid expansion, along with availability of data to investigate the extent of complaint with neighborhoods definition. The selection is focused on a neighborhood that portrays the current norm for neighborhood design, along with a contrary approach within the private-public sector. Following a series of morphological mapping, a benchmark is set for the evaluation of the two neighborhoods within the arena of community and unbuilt spaces. Along with the deciding factors of policies and decision makers who shape these neighborhoods, a spatial and behavioral mapping through a comparative analysis of the two different neighborhoods outline potentials within policies and designing approach for current neighborhood development with emphases on communities and urban spaces.

The comparative analysis covers three main aspects of neighborhoods design in regards to community and unbuilt space: the thoughts, the movements, and the traces that the residents leave as modes of accommodating their requests requirements within their surrounding. The triangulation between the three perspective provides a list of aspects in planning from the observed study along with the described local requirements. Building on these principles, attempts of enhancing urban neighborhoods are outlined.

Keywords: Livability | Walkability | Community | Neighborhood | Policies



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# 1. Introduction

## 1.1 Topic

Following the discovery of oil and the assigning of a new country leader in the 1970's, the Sultanate of Oman has witnessed a rapid expansion of housing, infrastructure, and population growth within Muscat and neighboring cities. Along with the centralization of governmental institutions, rural-urban migration, and immigration which added tension on governance in Muscat (Al Barwani, 2015). Nowadays Muscat, as a fast growing city, consist of dispersed neighborhoods and communities which have been formed and shaped through urban sprawl, globalization, and cultural shifts.

With the current demographic growth and horizontal urban expansion of the Muscat, the capital of Sultanate of Oman, regional and national planning strategies are being discussed for the management and developments required to accommodate the future inhabitant of the city in a more sustainable and socio-economically responsive strategies. Additionally, economic diversity and regulation of policies add on the importance of having such regional and national strategies.

The concentration of population in Muscat (1/3 the population of Oman) in relation to the overall spatial area is 1.1% of the total area of the Sultanate. This raises questions on the management of density within Muscat for future development as it currently stands at 421 person/km.sq (ncsi, 2017), in addition to finding alternatives for the development of a more sustainable neighborhood. The accommodation of these residents are distributed in residential or resi-

dential/commercial neighborhoods which are fragmented in single function land-use area around the city. The provision of these houses are based on plots that are either purchase in the real estate market or awarded as part of the land entitlement scheme from the royal decree in 1982 and 2008.

As new neighborhoods consume the land within Muscat, the thesis tries to understand the current living qualities foreseen with the area for facilities, urban spaces, and sense of community, from the perspective of a neighborhood planned by a local ministry in contrast with a neighborhood developed by an investor. Hence, one can draw out through a comparison of such context along with global and regional standards, a suitable future in dealing with the issue of housing and communities in Muscat as a precedent for the rest of the country.

## **1.2 Rationale**

### *Understanding the phenomena of urbanization*

As the urban density increase world wide, discussion on housing and defining the role of the inhabitants, civil society, private investors, and many other sectors are currently debated. The traditional method of top down planning is shifting towards a ground-up from the designing and maintenance process as state reach their limits in the provisional role with the growing populations. With the the gain in momentum in community-led development mentioned in Habitat III and many of the UN habitat publications, development within a scale of neighborhood could be beneficial for the management of urban sprawl in Muscat. These organizations offer a base on which criteria could be drawn for the evaluation of the current neighborhood planning and framework for the development of human-centered planning within Muscat. "It took 200,000 years for our population to reach one billion, then 200 years to reach 7 billion" (American Museum of Natural History, 2016) As the world population grows, demands for economic sustainability, safety, adequate infrastructure, and suitable housing are a few of the aspects which becomes the challenge of planners and decision makers as time becomes extremely vital. Cities like Curitiba has realized the path ahead and took steps towards development an urban management scheme that would sustain the city in the coming years (Banerjee, 2016). This thesis reflects on urbanization as urban expansion along with economic prosperity and demographic growth and shifts.



### *Urbanization patterns in Oman*

Current research on understanding urban expansion and shifts in housing districts was initiated and outlined in the book 'Urban Oman' which is a collection of a 6-year research by Sonja Nebel as a principle investigator. The book examines various aspects that has resulted to the current urban expansion taking into consideration social, economic, cultural, and institutional/ political, along with case study one which we could learn from. However, the current legislative structure is leading towards large scale planning and zoning of Oman which does not consider the existing neighborhoods structures. The increasing demand for land alongside the plot entitlement scheme which was part of a royal decree in 1982, alongside the royal decree in 2008, does not coincide with the housing demand, in fact, current trends shows reduction in properties rent prices where the new neighborhoods are formed (Times of Oman 2017). This current plot entitlement scheme has hindered the comprehensiveness of the urban planning by the ministry of housing as the high pressure for plots entitlement shaped the urban planning of within Omani cities (Al Na'abi, 2017). Hence, new neighborhoods scattered around more mature districts are currently consuming the buildable spaces within Muscat. These neighborhoods covering vast areas of land are developed by the entitled individuals within their capacities and construction period, thus creating voids within the urban structure that are considered unbuilt. Hence, these neighborhoods remain incomplete for long period -even decades, till the planned density is reached and the suitable infrastructure and facilities/services required are provided.

### *Focusing on neighborhood undergoing rapid urbanization*

To further investigate these neighborhoods, the research focus on the prevailing spatial development scheme in relation to the physical structure that shape them, taking into consideration the planned uses verse the actual practice within the neighborhoods in terms of policies, guidelines, and mapping. These identified areas are further analyzed in parallel to the social impact it carries within the communities inhabiting the areas, hence, understanding the effectiveness of spatial planning with community planning provides a another tier for defining how a suitable sustainable neighborhood in Muscat could be developed. In addition, understanding the economic and ecologic costs add on the overall contextualization and evaluation of the current formation of neighborhoods.

### *Vitality of planning within neighborhood scale in Muscat*

As the city reach its limits of plot distribution within the undefined city limits, optimization of current gaps with neighborhood levels are being sought out (Al Na'abi, 2017). Current practice by ministry of housing involves evaluation of neighborhoods every 10-15 years to rethink the growth scheme which correlate with current land demand. Accordingly, plots, dried-out water bodies, roads and parks, along with many elements are reconsidered in neighborhoods which are more mature than newer ones. As this is a step towards densifying certain districts, the question of mobility to and fro these areas are overlooked due to lack of services and facilities within neighborhoods that are considered sufficient within the current planning arena, hence these new-patchy developments seek to fulfill their basic daily needs from a more matured neighborhood, leaving out the opportunities for some communities that focuses on walkability. Therefore, understanding the aspects required for achieving a neighborhood that takes into consideration the needs and requirements of communities within a local level in relation ideal global understanding of neighborhoods are examined in this thesis.

### **1.3 Research Objectives**

The main objective of the thesis is to address the qualities of urban spaces within neighborhoods presented by the local planning in Oman, alongside the qualitative and quantitative principles and guidelines withdrawn from international and local design applications in the planning of new communities and neighborhoods. Hence, to further comprehend the arenas on which the topic will tackle, four subtitles are outlined:

- Understanding the planning and procedural bodies responsible of shaping neighborhoods from policies, decision making, and design.
- Review the presented cases with global and local standards of neighborhood design from the social/cultural, spatial and political aspects.
- Map the appropriation of unbuilt spaces within neighborhoods in relation to the proposed design and its surrounding community.
- Evoke the potential of unbuilt spaces within neighborhoods through the overlap the gathered sustainable neighborhood indicators.

Comprehension of current planning and procedural bodies is essential for communities which take upon themselves the development of their neighborhood, therefore, understanding the basis of planning and policies along with the entities responsible could alleviate the time constraints attached with the bureaucracy. Along with the mapping of the urban spaces within a neighborhood, planners and decision makers could draw planning strategies for the phasing and allocation of services and facilities that would be seen in new neighborhoods causing urban sprawl. The overlap of dimensions in the evaluation of neighborhoods undergoing rapid urbanization is relevant for the documentation of the current paradigm along with the shifts that the country is currently moving towards.

#### **1.4 Research Questions**

The discourse on which the thesis investigate is rapid urbanization in Muscat. The focus is based on the capital of Oman as it represents one-third of the population and carries historic and political dimensions for city planning. The thesis explores the rapid urbanization within communities and urban spaces that it directly influences, hence arena on which the investigation is carried is within neighborhoods scale beyond the physical built-up structure. The broader questions on which the thesis tackle are:

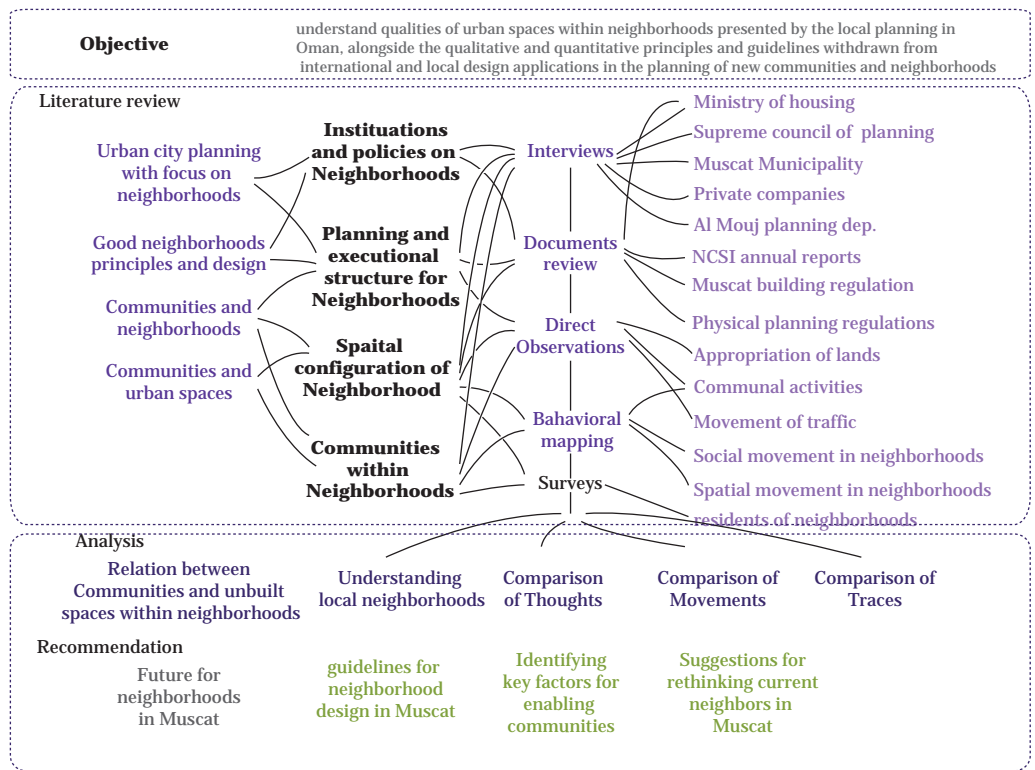
- How are the planning and procedural process carried for the shaping of a neighborhood? And who are the stakeholders involved?
- What are the global and regional practices towards the development of urban spaces?
- What are the social relevance of unbuilt spaces in neighborhoods undergoing rapid urbanization in Muscat?
- What are the current retrofitting strategies for unbuilt spaces in neighborhoods undergoing rapid urbanization?

Coherency between socio-spatial dimensions within neighborhoods is the primary area of investigation within the thesis. As new neighborhoods face shortage of facilities and services spanning to many year, even decades, understanding how the community address these issues within the daily lives could accommodate for policies or planning strategies where communities are enabled for the shaping of their neighborhood alongside a prioritization strategy for planning. Exploring the current planning policies in regards to housing and neighborhoods is essential for the evaluation and comprehensive understanding

of the development of neighborhoods.

### 1.5 Research methodology

The research methodology used is a mixed research approach. Quantitative data collected through secondary data for statistic report by the ‘National Centre for Statistic and Information’ in addition to categorized social and spatial information from the research documentation book ‘Urban Oman’. Further primary data through mapping and categorizing of spatial configurations in selected neighborhoods are required to complement the qualitative data on livability of spaces within these neighborhoods through semi-structured interviews.



### *Semi-structured interviews*

Understanding the procedural process of planning in Oman is an aspect that is not publicly available for the majority unless requested, hence, semi-structured interviews with representatives working in authorities and ministry are crucial for understanding the current process along with gathering of secondary data in terms of policies and regulations. Semi-structured interview is key when trying to understand a community, therefore, meetings with active individuals within the neighborhoods.

### *Survey*

As a tool for collecting quantitative and qualitative data, surveys were used in both case studies to understand the community living in the neighborhoods and their interactions with each other and with their surrounding urban spaces. The tool is used to identify positive and negative urban spaces from the perspective of the user. In addition to conceptualizing ideal neighborhoods.

### *Behavioral mapping*

In reference to many studies conducted in understanding people and space, behavioral mapping was used to understand how the community utilized their surrounding from prioritization to land appropriation in urban spaces. Movement of pedestrians, cyclist, and vehicle drivers are considered to understand the hierarchy of spaces and periods of high usage.

### *Direct observation*

As the transformation of spaces throughout the development of the neighborhood could be traced the satellite images, documentation of other ethnographic traces in urban spaces is relevant for the understanding of the community within their neighborhood from an objective perspective considering what is physically visible or intangible.

Prior research on case studies and planning approach to people-centered neighborhood development approach through literature review on which data formulation of criteria for the evaluation of livability of selected neighborhoods. Similarly, research on alternative uses of space for the optimization of spaces within a neighborhood would be carried.









Harat al-Bilad, Manah, 2017



## **2. Literature review: Neighborhood, Community, and Unbuilt Space**

### **2.1 Neighborhood**

#### **2.1.1 Overview on Neighborhoods**

##### *Introduction*

Understanding neighborhood as a unit of planning gained popularity with the movement of New Urbanism. A comprehensive plan on a defined area with great social and land mix is relevant for the design and implementation process of these units. Although Ebenezer Howard described the vitality of such unit in planning, with the rapid urbanization, central planning with focus on regional planning was of great dominance till recent years where the effectiveness of such planning methods were being reconsidered. Lewis Mumford described neighborhood as a natural fact, where areas within cities can be distinguished their physical or social characteristic that arise from the agglomeration of communities, economies, and the evident reason is for practicality. Many authors look at the role of a unit such as a neighborhood as it reflects the bundle of policies and planning relating to the daily life of the inhabitants of those areas from economies, education, services, and public spaces.

##### *Definition*

A general definition that best describe a neighborhood is mentiond by Andres Duany and Elizabeth Plater-Zyberk in the book 'The New Urbanism: Towards an Architecture of Community' (1993):

“The nomenclature may vary, but there is general agreement regarding the physical composition of the neighborhood... They all propose a model of urbanism that is limited in area and structured around a defined center. While the population density may vary, depending on its context, each model offers a balanced mix of dwellings, workplaces, shops, civic buildings and parks.” (Katz & Scully, Duany and Plater-Zyberk, pg xvii)

They further describe five principles for clarifying the formation of ideal neighborhoods focused on center/edge, size, mixed activities, and public spaces. These principles however must be understood from sources on which they were extracted. Hence, planners and socialist such as Howard, Perry, Jacobs, Lynch have contributed to overall understanding of neighborhoods. The discourse of planning within neighborhood scale for developing cities has been outlined since 1898 by Ebenezer Howard in the book ‘To-Morrow: A Peaceful Path to Real Reform’. The concept of the ‘Garden City’ proposes and suggest new paradigm where the role of central governments in shaping communities is not ideal. The role of local authorities and community shall lead the planning of their context. Many planners had further developed this idea under several conditions according to the current issues of the time.

In ‘Life and Death of Great American Cities’ (1961) Jane Jacobs studies the current city life and how it works from the perspective of principles, planning, and practices in building that promotes social and economic vitalities in cities. Common misconception of solving urban related problems through traffic is not the solution within cities, however, the social and economic aspects are the roots for some of these issues (Jacobs, 1961, pp.4-7). When looking at what makes a city successful, Jacobs outlines the importance of living in a city where a public responsibility is practiced within the inhabitants even if they do know each other, hence, sidewalks and streets where children play are safer (Jacobs, 1961, p.82).

In contrary to Jacobs understanding of a successful neighborhood, Clarence Perry in 1929 describes in the ‘Neighborhood Unit’ his principles for neighborhood development and communities that best suit families with children. Therefore, education and school are a tool for managing the achievable densities. Quality of this service was the decisive baseline on which families would move to neighborhoods (Perry, 1929, p.486). His ideas of a pedestrian friendly

city with slower traffic were described back in the late 20's before the current movement of pedestrianisation by pioneers such as Jan Gehl in his early publications 'Life between Buildings' (1971). The developed set of principles were planned for new development, redevelopment, or for the improvement of built up areas in regards to school, traffic, and open spaces. His principles, unlike Jane Jacobs, focus on selected segments of the society mostly middle and higher income for the development of a safe, functional, and attractive neighborhood.

'A theory of good city form' by Kevin Lynch, 1981, investigates what makes settlements good. The conditions on which he follows are related to the human values along many variables such as actions, spatial and physical cities. In part III of the publication, Lynch describe ideal neighborhoods by stating:

"The neighborhood may not be essential to their social relations, but... an essential piece of their mental equipment... It is no longer a space within which people know each other...but a space which is commonly defined and given a name, and within which people and it relatively easy to band together when things get dangerous."

(Lynch, 1981, p.247)

Prior to this definition, Lynch defines three types of city forms theories on which the neighborhood would be present: the planning theory, function theory, and Normative theory. The planning theory refers to the policies, economies and decision involved in the development and shaping of cities, hence it is also known as the 'decision theory' also top-down approach. The function theory investigates the form and causes of a city functions and finally, normative looks at the human values and settlement forms (Lynch, 1981, p.37). The discussion on settlement form is based on the physical environment such as the buildings, street, utilities, hills, rivers, or trees. Hence we look at the type of uses they provide along with qualities and ownership. This kind of studies are documented through two-dimensional maps such as land-use, topography, streets and utilities, housing. And sometimes in the form of spatio-temporal maps combining social and spatial mapping (Lynch, 1981, p.47)

### *Principles*

Regardless of the various definitions described by many authors, the principles on which they outline for the planning of neighborhood have many overlaps

within their criteria. In the ‘Neighborhood Unit’ Perry defines a set of six principles covering topics on size, boundary, open space, services and institutions, land-use, and street network. These definitions are further clarified via numerical data or cartographic maps for the provision of quantitative data for the measurements. Similarly, UN Habitat in 2015 published a set of guidelines with quantitative measures for achieving a sustainable neighborhood in current cities.

Unlike Perry, Jacobs (1961) offers arguments for attaining city vitalities with a set of six qualitative guidelines focusing on social mix and economies. Likewise, Lynch (1981) covers similar guideline with the addition of emphases on locally controlled settlements for the establishment of ideal neighborhoods. Finally, Duany and Plater-Zyberk describe mixed measures for the definition of ‘neighborhood’, covering topics mentioned by Perry primarily and many of the authors who describe neighborhoods. As a conclusion to the several principals, Box1 summarize the description of the five selected definitions of neighborhoods.

#### Box 1. Neighborhood Principles

- High density defined by (elementary school, quarter mile center to edge, 15000 individual /sq.km)
- Defined centers and edge through arterial streets
- Availability of open spaces system
- Decentralized of services and institutions (single functions less than 10%)
- Adequate mixed land-use (40% of floor space)
- Internal street network
- Locally administered settlements
- Diverse social mix (20-50% low-cost housing)

(See Appendix A)

#### *Contribution*

An aspect of understanding neighborhood planning is looking at the conditions where such type of planning is nonexistent. The scale of neighborhood as an incremental phase of planning came in recognition in recent years when the dealing with high demands on housing was no longer achievable by the central

authorities. Hence, Howards proposal of 'Garden City' regained its popularity in the United Kingdom following 1970's, along with rapid urbanization as the central authorities did not have the capacity for the provision of comprehensive regional planning (TCPA, 2011, p. 7). As Lynch describes in his book 'A Theory of Good City Form' (Lynch, 1981, p.249) The activation of the role of local authorities in the shaping of the neighborhoods and district is essential for achieving a comprehensive plan that ensures the community's best interest.

Following recent years, publications on comprehensive planning for communities has gained recognition as a method to manage sprawl and sustainability. In this regard, Eric Damian Kelly in both editions of his publication 'Community Planning' (2012) provides an insight to the contemporary issues of planning along with the role of comprehensive planning, methods of measurements and applications. As complex approach to planning, neighborhood scale brings elements such as land-use, transportation, sprawl, sustainability, and finally human health in perspective to an urban planning scale, hence, rigorous analysis and effective use of the data are crucial for achieving a sustainable neighborhood plan (Kelly, 2012, p.16)

### 2.1.2 Key elements

Understanding the current urban phenomenon of sprawl in terms of an unavoidable movement of spatial development is a step towards the management of such a phenomenon. Andres Duany, Jeff Speck, and Mike Lydon explain the idea of 'Smart Growth' (2004) as an integrative tool for looking at regions, neighborhoods and streets. Within the definition of regional planning as the initial step for dissecting an area, they mention the "Inevitable Growth Replace No Growth with Good Growth." (Dauny, Speck and Lydon, 2004, Kindle pp.285-287). Here, high consideration towards good forms of planning is activated as a tool that corresponds to the development patterns in any given location within the regional planning scale. Further, descriptions of neighborhoods, communities, housing, services, food sources and economies are relevant for the follow up of acceptance of 'Inevitable growth'. Finally, the outline of the political aspects that are required to activate such a planning tool, from enabling authorities that could legalize and bring localized planning scale to action for the effective managements of neighborhoods and communities. (Duany, Speck and Lydon, 2004, Kindle pp.285-429).

### *Component of Neighborhoods*

The structure on which Duany, Speck, Lydon follows relate to natural, spatial and designing aspects for approaching neighborhoods under the paradigm of 'Smart Growth'. Nature as a given feature of any site should be considered in initial steps of planning. Here natural features such as water bodies, topography, green elements (trees, fields, parks, etc.) should be preserved, managed, and adequately maintained to achieve greater sense of movement and authenticity to any given location. Spatial distribution of facilities/amenities, housing, and open spaces as a strategy towards realizing mixed land-use is key for the overall configuration of a neighborhood.

Different typologies of housing offer a variation for social mix along with adequate densities for the provision and effectiveness of facilities and services. Similar to Perry's primary requirement of schools within walking distance in neighborhoods, here schools within close proximity to the residents can increase walkability along with the availability of an even distribution of workplaces. Open spaces for gatherings as the famously quoted Charles Moore say: "When the revolution starts, there should be no question of where to go." (Charles Moore cited by Dauny, Speck and Lydon, Kindle pp.961-962) carries a high political and social weight for the overall neighborhood, similar to what has been described by Jane Jacobs and Kevin Lynch. The technical aspect of gathering these ideals of nature along with spatial distribution in design means the sizes, orientations, and typologies should go along a coherent designing process in the realization of a neighborhood within the paradigm of 'Smart Growth' (Duany, Speck and Lydon, 2004, Kindle pp.737-1104).

An earlier approach to deconstruct cities and neighborhoods by Kevin Lynch, from the perspective of the user offer different levels of criteria that could lead to a comprehensive plan if combined with regional and spatial planning practices. In his early publication 'The Image of the City' (1960), chapter 4; City Form (Lynch, 1960, pp.92-105), he listed 5 categories that were listed by pedestrians walking in the streets of Boston could be essential for having a holistic understanding on movement in relation to inhabitant perception of the city surrounding context. The primary element that reflects user's movement with a city is the path. Orientation and identity were highly mentioned when paths were described. Other elements including edge, landmark, nodes, and finally districts. Edges refer to physical discontinuation of elements either built-up



or topographic, hence, this could refer to endpoint of business district which serves as entry points to the area (Lynch, 1960, p.60). Landmarks is understood as either small elements or larger ones that were mainly combined with the associations within the city. Not to be confused with nodes which 'anchor points of the city' (Lynch, 1960, pp.101-102), here boundaries that are of similar surfaces or features in continuous pattern add on the clarification of the definition. Districts, reflect the areas where elements are repetitive and is unique of its greater context. Overall uses of these tool as a defining factor for the elements within a neighborhood could add on the social unperceived aspect that will not be possible through spatial mappings.

Brenda Case Scheer traces sprawl through mapping of morphologies in his article 'The Anatomy of Sprawl' (2001). His method of approach looked at cities and neighborhoods from the elements that physically constrains them to the least. Here, the predominant element is the geographic form of the 'site' as it is accepted base in any neighborhood. Heading towards the softer changeable elements, the 'superstructure' referring to path and land boundaries that is closely related to the human-spatial outlining. Infill is followed with the divisions of plots and paths. The buildings are what is commonly used and displayed through a figure-ground map, highlighting the built-up structure. The remaining elements referred to as 'Objects' consist of all the vegetation, man-made objects, and infrastructure, hence referring to trees, fences, sidewalks, parking lots, etc. These objects are considered the most lenient in terms of physical change, therefore it could be reshaped and reformed (Scheer, 2001, p.28-31).

Although these publications offer different levels of dissecting neighborhood in order to achieve a comprehensive neighborhood or city planning, some similarities can be linked to the areas on which both discussion outlines. These aspects are:

**Box 2. Element of neighborhoods:**

- Site, referring to natural topography and natural edges
- Path, main traffic the divides the sites into subsection
- Plots, similar to districts, includes organization of neighborhoods.
- Buildings, physical structures having various uses
- Objects, vegetation, infrastructure, man-made elements

## Analysis methods

In reference to 'Community Planning' (2012) by Kelly, he puts into perspective the importance of gathering useful data as availability of resources are plenty. In addition, the aspect on which one would analyze and make sense of the collected data is vital for the comparison and evaluation of a community of a neighborhood. Although Kelly looks into comprehensive community planning, the set of guidelines for analysis and evaluation are applicable to the neighborhood scale as they follow the overall principles mentioned in literature on neighborhood planning. The methodology for data collection for a case study consist of first having a clear subject of research, followed by secondary data gathering to initiate collection of primary data. The process of primary data collection should be mapped in order to identify gaps or loops, and finally, the transformation of these data to useful information via visual aids such as charts and tables for statistical data. Kelly further explains the type of data that might be of high relevance when looking at community planning, referring to 'Minnesota 2008 Comprehensive Plan Update 2030' (Kelly, 2012, p.62) which outlines basic data on demography, economy, land-use, transportation in terms of circulation, open space such as green infrastructure, facilities, and finally, natural and cultural resources referring to community center or similar structures.

### 2.1.3 Overview of addressing neighborhoods

Following the discussion on neighborhoods an overview for evaluation on neighborhoods undergoing rapid urbanization could be drawn out in order to further explore the relation between urban spaces and communities residing within these neighborhoods.

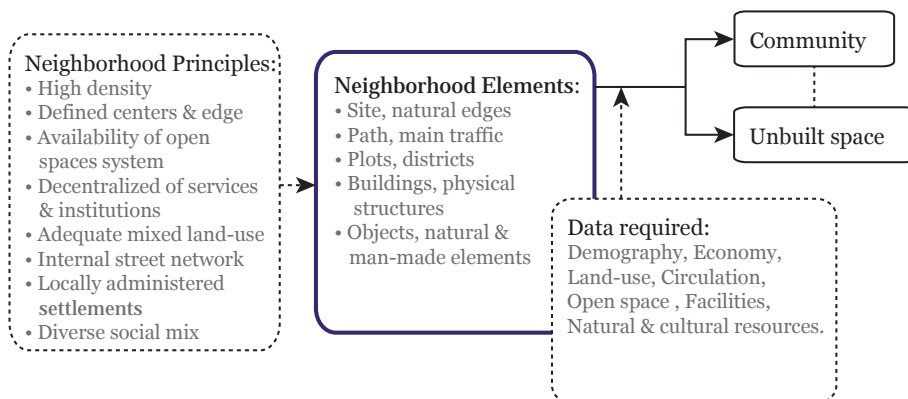


Figure 1. Overview of Neighborhoods

## **2.2 Community**

### **2.2.1 Overview of communities**

Whether the discussion is on medicine, urban planning, sociology, or even in economics, communities in respect to larger group of individuals sharing a similar element of some sort is described. The definition of the term is altered with the focus on which it is described.

#### *Definition*

In social sciences, the definition of community is frequently discussed, the German socialist Fredinand Tönnies describe the definition of *Gemeinschaft* referring to community and *Gesellschaft* as the society. As the text dates back to 1887, his definition is closed bound to a community within a rural setting, he says:

“Wherever human beings are bound together in an organic fashion by their inclination and common consent, Community of one kind or another exists.” (Tönnies and Harris, 2001, p.28)

Robert MacIver and Charles H. Page (1949) in their book ‘Society: An Introductory Analysis’ define community in respect to sociology as,

“Wherever the members of any group small or large, live together in such a way that they share, not this or that particular interest, but the basic conditions of a common life, we call that group a community.” (MacIver and Page, 1949, pp.8-9)

They further relate this definition to communities in localities stating,

“...the community possesses a distinctively territorial character. It implies a common soil as well as a shared way of life.” (MacIver and Page, 1949, p.283)

The relation to localities is the base definition used for further definition in this thesis as it binds the community to a location; the neighborhood.

In his article ‘Designed Communities’ (Bressi, 1998, p.80-83), Todd W. Bressi looks at Celebration, Florida where he looks at the urban context in relation to planned infrastructure and built-up areas in aim to established a community

within the paradigm of 'New Urbanism'. Hence, he outlines the layers of 'Public realm' on which contributes to the sense public spaces, followed by the allocation of civic space and building in main paths within cities and neighborhoods. He further regards the establishment of civic infrastructure that corresponds the community needs; such as schools, along with their expansion within cities and developing a connection between these fabrics as they sometimes appear disconnected. He argues that for Celebration, the creation of 'sense of places' is a challenge as it is a relatively new area where the designer along with the the investor of the area has imposed their views along their favored agendas. His arguments bring forward challenges of urban neighborhoods in terms measuring the effectiveness of community focused elements, however, other than giving a discussion of community in relation to neighborhoods as a reference to urban communities, he disregards listing the definition along with criteria he used for the analysis on the community.

However, this does not only apply to Bressi, but similarly authors provide vague or unclear definitions of community due to its complexity (Brown, 2004). On the other hand, MacQueen et al, looks at the definition of community for through an evidence-based research in regards to health. Her findings include clusters of elements that were extracted from a selected community; Project LinCS, the first and second cluster referred to core and group-based elements of community, the core elements defined for community included: "locus, sharing, joint actions, social ties, and diversity" (MacQueen et al, 2001, p.1930). The group-based elements outlined "divisiveness, leverage, pluralism, and responsibility" (MacQueen, 2001, p.1932). These elements that have been outlined are commonly referred to in social sciences with greater focus on social interaction, geographic area, and common ties as mentioned by Hillery (1955, pp. 20, 111-124).

**Box 3. Attributes of community:**

- An agglomeration of inhabitants within close proximity to each other
- Permanent communities are formed over periods of time
- Refers to an area with a given name or where people identify with it

### 2.2.2 Neighborhoods and Communities

Neighborhoods as a definition or in terms of urban development are often described in regards to the individuals living within it along with the added value

gained by them, hence, the this territorial relation is usually combined with communities. The relation is referred to in a social, administrative, and spatial aspect when we look into urban neighborhoods. Clarence Perry prior to his introduction to 'The neighborhood unit', he describes three levels of community. First the 'Regional community' consisting of an agglomeration of various smaller community, second, the 'Village/city community' relating to a smaller section of the region, and finally, 'the neighborhood community' which is the smallest fragment of studying a community. In this paper, the neighborhood community is the focus in studying the relation between communities and urban spaces in a defined neighborhood.

The formation of communities in an urban context is not often described in regards to the mutual knowledge between the residents of the area, but more of the common grounds in terms of physical and political stands. Jacobs and Lynch agree on such definition as it reflects the large number of mixed inhabitant living in a defined space. Jacobs mention "Great cities... differ from towns and suburbs in the basic ways, and one of these is that cities are, by definition, full of strangers." (Jacobs 1961, 41-42, cited by Rofé 1995, p.111). This is also reflected by Berge, Neuhaus, and Novak in their book 'To Empower People' (1996) where they state that in cities, everyone is a stranger as there are no prior social ties that bring these people together. Hence, 'sense of social cohesion' is not one of the main aspects that makes the neighborhood, as inhabitants seek individualism and freedom of choice, however, the inhabitant might gather to face a certain conflict or issue as a neighborhood or community regardless of the social ties. Here, the transferability of neighborhood dichotomy is highly unlikely due to the complexity on which the formation of neighborhood is based on.

Another aspect of that is considered when talking about communities in neighborhoods is the local administrative structure, similar to lynch criteria on neighborhood formation, Berger, Neuhaus, and Novak outline the benefits of have localized administrations. Here taxation returns and government funds is though of as an aspect on which the local authorities should manage as it responds to the demands and need at a prominent pace. In addition, such action brings greater focus to the people as they can foresee change and are enable to actively participate. Another dimension to the localization of administration is bringing forth the role and responsibility of the community in terms of law enforcement of what is expected. This refers to the informal law enforcement agents, sim-

ilar to Jacobs description of 'eyes on the street'. These sets of understanding of community in terms of neighborhoods is a key when designing elements of neighborhoods such as open spaces, housing, schools, and even facilities (Berger, Neuhaus, Novak 1996, p.175)

### 2.2.3 Analysis of community in neighborhoods

Peterson, Speer and Hughey (2006, p.456-457) outline the current methods of analyzing communities and summarize it into four aspects: sense of community, citizen participation, physiological empowerment, health-related quality of life. As this paper looks at the relation between spaces and communities, the analytical description of sense of community will be further investigated. As there are no standardized definitions of sense of community, McMillan and Chavis (1986) theory and definition of 'Sense of Community' follows a similar approach to Peterson, Speer, and Hughey, hence further criteria of analyzing communities were derived from their documentation. The elements which they outline are: membership, influence, integration and fulfillment of needs, shared emotional connection. These elements were defined on the bases that they are clear, tangible/measurable, reflect the level of warmth in 'community', and finally dynamic.

Membership is associated with the right to belong within a specified boundary. The definition of this boundary is critical for understanding communities within neighborhoods. Here boundaries measure in four subgroups: emotional safety as security, sense of identification, personal investment, and finally common symbol system. They subgroups are successive starting boundaries defining emotional safety, safety assists personal investment, which results in sense of belonging, finally attribute to a common symbol. Influence is explained through the members' relation between being influenced and ability to influence within the community, in addition, the communities' norms and their influence on the members of community. Integration and fulfillment of needs reflect the members acquisition of needs within a community. Finally, the shared emotional connection describes the contact along with the quality of interactions, and events and amount of honor for the residences within.

### 2.2.4 Local community formation, *Harat al-Bilad*

To understand how Omani communities form, an overview of historic districts

and their morphological structure is essential for extracting principles of planning. Highlighting these features does not however relate to the applicability of such planning strategy in modern day requirement as management of time and demand are key issues of the current era.

The historic village of Manah 'Harat al-Bilad' located in the ad-Dakhiliyah region reflects many of the dwelling settlement within the Arabian Peninsula (Bandyopadhyay, 2011, p.172). Soumyen Bandyopadhyay looks at the social vitality in the morphological and architectural forms of the settlement in his book 'Manah: An Omani Oasis, an Arabian Legacy, 2011'. Here, ideas concerning the physical aspects of neighborhood development as taken into consideration with close ties to nature. In addition, socio-spatial translation of spaces reflects social requirements. The description of this neighborhood does not provide the base for evaluation in current Omani neighborhoods, however, localizing the understanding of communities in the Sultanate of Oman is a step towards reviewing social, environment, and economic ties that are highlighted in an era where pressure on demand was nonexistent.

The neighborhood can be traced back to the to early 531AD with the construction of the forts following Persian architecture (Bandyopadhyay, 2011, p.161). Residents inhabiting the neighborhood resided within Harat al-Bilad till the 1970's when everyone was evacuated, however, it is significant to note the social-cultural ties that bring back these residents to the neighborhood during seasonal festivals (Bandyopadhyay, 2011, p.130). Earliest documentation of tribes can be found in the gazetter by Lorimer (1908-1915). The tribal agglomeration and distribution within the neighborhood reflects the context on which the neighborhood is situated, as many have occupied settlements within a relatively close proximity to the neighborhood. Harat al-Bilad underlines how a mixed society could live within a neighborhood, taking into consideration the factor of 'lifelong communities' mentioned by Duany and Speck on 'Smart Growth' (Dauny, Speck and Lydon, Kindle pp.900-901). The neighborhood like many current communities have witnessed expansion of the dwelling, as growth is inevitable in cities and neighborhoods, it is critical to understand the allocation of new formed residential dwellings. In Harat al-Bilad, most of these expansion took place along arterial routes towards the southern side (Bandyopadhyay, 2011, pp.167).



The tribes that resided in the neighborhood were mainly dominated by Al Gh-  
 abrah tribe, however, it was once dominated by Al Bu Sa'id which is the current  
 ruling family of the Sultanate of Oman (Bandyopadhyay, 2011, pp.132). The  
 overall distribution was relatively mixed with concentrations in small sections  
 of the neighborhood as shown in figure 2. Transition of spaces between public  
 and private through threshold is suggested by the configuration of open spac-  
 es, passages, and courtyards. The transition of relatively large open spaces to a  
 communal passage heading towards private dwelling followed by a courtyard  
 is common for of spatial transformation within the neighborhood (Bandyopad-  
 hyay, 2011, pg 167). Allocation of communal, administrative, or even buildings  
 of high relevance along the main traffic path was a way for managing movement  
 and social rights and coherence. Having a current paradigm of planning 'Smart  
 growth' that goes along the lines of movement of traffic and it social impor-  
 tance is key when addressing influence of traffic to a community. Similarly, the  
 allocation of the settlement within close proximity to a natural water source,  
 two main springs, following the agricultural farmlands in the surrounding are  
 aspects on dealing with the management of natural resources in the neighbor-  
 hood.

### 2.2.5 Communities in neighborhoods overview

Following the discussion on community an overview for evaluation on commu-  
 nities in urban neighborhoods a methodological approach for analysis could be  
 drawn out in order to further explore the relation between urban spaces and  
 communities residing within these neighborhoods.

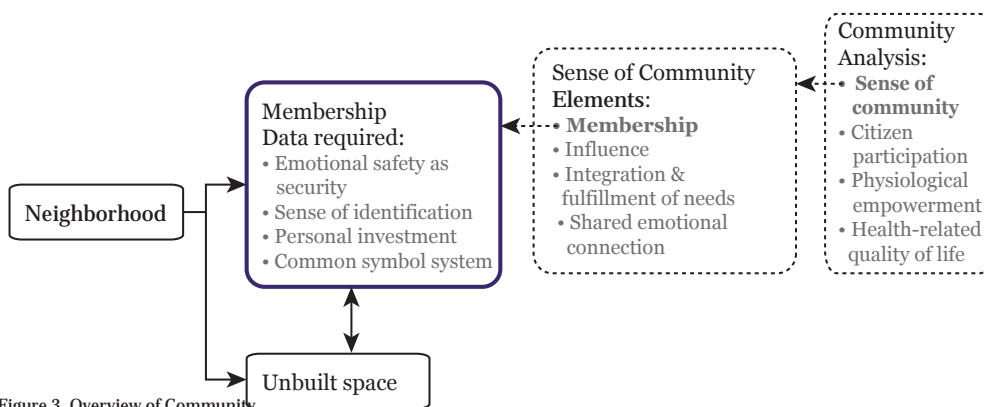


Figure 3. Overview of Community



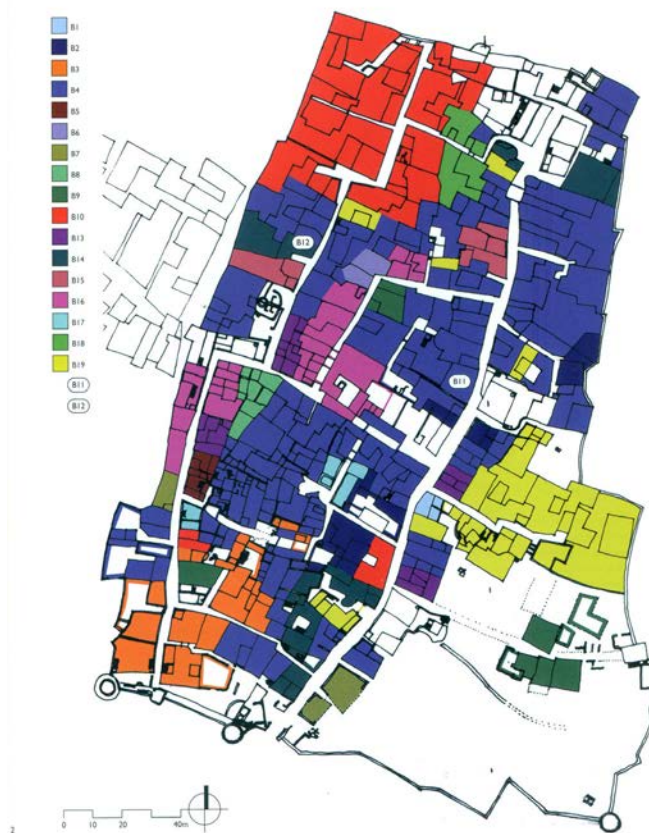


Figure 2. Tribal distribution within Harat al-Bilad

(Source Bandyopadhyay, 2011, pp.133)

## 2.3 Unbuilt space

The discussion on urban spaces may reflect on the physically built-up and designed spaces, but occasionally, it is used to describe the remaining spaces that were a result of physical structures and designed spaces. In this regard, spaces which remain un-designed for a short or long term could be referred to as an empty space, a void, open, or even un-built space. Each of these definitions carry criteria that distinguish them from each other under the definition of urban space.

### 2.3.1 Definition

Unbuilt spaces in neighborhoods multiple understanding of the definition, Heather Baker (2009) uses the general understood notion of unbuilt space in terms of “Parcels of land lacking any built structures” (Baker, 2009, p.89) as a base on which she classifies these parcels of land into:

- Unbuilt urban plots in private ownership
- Green areas within city
- Public spaces, such as streets

It is highly relevant to outline that these definitions are based from her analysis on the old city of Babylonian, scales of public spaces in terms of street is incomparable to the urban neighborhood, however, these set of understanding can be contextualized for the understanding of neighborhoods in Muscat.

In ‘Unbuilt Environment’ by Jonathan Peyton (2017), explore the failures of development leading to Unbuilt area with the city of Stikine, Canada. He looks at the different aspects in economy, social relations, and environments that are high prejudiced by the formation of unbuilt spaces within the region. The scale on which he examines unbuilt spaces is a regional perspective on various factors that are responsible for the production of unbuilt environments. He describes the concept of unbuilt environment as the

“co-production of resources and extractive space within which resource development has been made to seem possible, logical, and correct.”

(Peyton, 2017, p.9)

He further describes the role and use of the concept of unbuilt environments,

“The idea of the unbuilt environment is thus not a predictive theory or a

literal description but, rather, one that offers a different angle of vision on economic development and its social and environmental effects – a heuristic device for thinking about what happens in the aftermath of development.” (Peyton, 2017, p.9)

In her investigation on empty spaces in archeological site, Monica Smith (2008) defines empty spaces with urban contexts as “Empty spaces may be created as permanent zones in which construction is prohibited, or they may be the temporary and unintended result of destruction, clearance and abandonment.” (Smith, 2008, p.217) and relates them to the level of flexibility they offer whether it is in a smaller household scale of and larger residential districts. In addition, the formation of such spaces on temporary bases can accommodate for play areas for children, meeting locations, but also squatters. She further highlights cause of ‘empty space’ in regards to central authorities within a civic scale, also this tackles the issues on maintenance and supervisions from authorities that are not always proponent is carrying such task. Hence resulting to residents within its surrounding using such areas in unofficial ways. Nevertheless, empty spaces are ideal when movement of people and services is regarded and offers a space for creativity and innovations (Smith, 2008, p.228)

### 2.3.2 Communities and urban spaces

Yodan Rofé (1995) provide a comprehensive evaluation on ‘Space and Community’ within neighborhoods following an intensive review of literature focusing on these topics. Understanding the role of neighborhoods when evaluating the quality of life is highly relevant even when social life of individuals are not based within the neighborhoods. The thoughts are described in New Urbanism as a planning tool within local community, in addition to Kelly’s ‘Community Planning’ emphasizes on the role of neighborhoods in development. He further elaborates of three theoretical approach to spatial and morphologic studies: imaging the environment, non-correspondence theory, and morphological theory.

Imaging the environment reference the work of Kevin Lynch concepts of city elements where the study focus on the arrangement of the community within a defined space, hence, here neighborhoods are defined through the movement path that generate interaction rather than common or mutual identification. Similarly, to the imaging of the environment, non-correspondence theory which is based on Jane Jacobs describing the agglomeration of space as key

for binding fragmented communities. He further quotes Hason and Hillier (1987, p.265) “Spaces may not be structured to correspond to social groups and by implication to separate them, but on the contrary to create encounter among those whom the structures of social categories divide from each other. In other words... Space can resemble what society divides” (Hason and Hillier 1987, p.265, cited by Rofé, 1996). The final segment of theories mentioned is the morphological theory where in contrast to both previous theories, space is defined through social aspect arrangement.

An interesting aspect regarding urban space and interaction of pedestrians is the ‘Triangulation’ described by William H. Whyte (2004) in his documentary and book ‘The Social Life of Small Urban Spaces’. Here he considers the verbal but non-personal interaction that happens when you people share a comment, smile, gesture, or any form of verbal and non verbal communication between strangers in urban spaces. This kind of interaction is often induced by street entertainers such as musicians, magicians, performers etc. but also sculptures or on street intersections where crowds exist. Whyte argues that “Most of the elements that have the triangulation effect are worthwhile in their own rights” (2004, p.97). He also adds that the tools for achieving such space are available in terms of spatial allocation and planning strategies, steps towards achieving these space could assist with creating a friendly city with more interaction between its inhabitants.

### 2.3.3 Analysis of Unbuilt space

In a case of unbuilt areas in southern part of Palermo, Italy, Viviana Spano uses tools from the description of Kevin Lynch element of the city (path, edge, node, landmark, and districts) in order to understand large land divisions and movements, and built-up areas on which she further categorizes and maps unbuilt spaces with the overlap of those two components. Through this method, she was able to drive to variations of optimization of unbuilt areas with their morphological importance. Although this approach is not primarily focused on the social and community aspect of the city due to the large area of the selected region, it provides a clear indication of spatial analysis in urban settings. An approach towards having a socio-spatial analysis is conducted by N. Cosco, R. Moore, M. Islam (2010) in their research on behavioral mapping on preschool activities and out-door design. The tools they used was the observational mapping of behavior, which is commonly used in built-up environment whether it is

indoor or outdoor. The behavioral mapping looks at the movement of a selected subject within a defined space, documented on a site plan or through computation programs. Such a tool is ideal for the mapping of the communities within neighborhoods in Muscat.

#### Regional studies of society and unbuilt spaces

A study by Cruz-Megchun and Roldán-Martin in (2014) on the cricket playgrounds in the city of Sharjah, United Arab of Emirates, focusing on the discourse of consolidating memory, looks at the definition of urban spaces within cities in relation to the social value and perception. The article outlines the three momentums that the area witnessed throughout history as a step of understanding the creation of such urban spaces within the city. Further definition and understanding of the activity of cricket; as the primary activity of investigation, within the communities that practice these rituals. The tools for data collection used in this research were based on a visual discourse, first was the 'visual ethnography' of documenting visuals of spaces and activities for the understanding of human practices in urban spaces. Second, a series of interviews with seniors of the communities was conducted, and finally 'ethnographic dairies' of the participation within these spaces. The set of those three tools assisted with the triangulation of data gather to clarify and identify the patterns of 'relationships and meanings'.

The output of the analysis brought forward the different types of urban spaces in the cities where such activity occurs along a defined selected street. The first clearly defined space is the 'Indelible city' where the formal spaces are allocated for the activity that is being carried within it, in addition to the participants who utilize these space have the full access and permission of taking part in the activity. Second, is the 'Pinned city' where the semiformal spaces that are where the activity that occurs within it is permitted for a few of the participants while the remain have formalized their activity without having proper permission to the space, if the participants acquire the required permission to be part of the activity, they would gain the official permission. The final type of space is the 'Post-it city' where the informal spaces is not designated for the activity that is currently being carried within it, however the area is still gaining high participation of community members within that space. Hence a level of appropriation and cooperation is applicable. Theses set of method and analysis tools provide

a systematic approach to analyzing unbuilt spaces within Muscat as Al Sharjah offers similar demographic, social, and economic backgrounds.

### *Local best practices*

Identifying unbuilt spaces as potential for development, the local private company ASAAS took a step towards optimization of an empty plot in Muscat through an economic strategy combining a park with an international hotel with a relatively old neighborhood in Muscat. The company was established in 2014 with the support of 10 government entities (ASAAS, 2017). They aim on achieving sustainable measures on the fields on economy and social values, through 'an integrated development' scheme (ASAAS, 2017). With a budget (target valuation) of one billion Omani Rial, ASAAS seeks to contribute in the tourism, logistics, transportation, healthcare, and education sector.

What makes ASAAS a primary focus for a precedent study on local development of unbuilt areas in Muscat is their proposed project, Hilton Gardens Inn and Urban Park Al Khwair (ASAAS, 2017). Presented in 2016, the project is situated in an empty plot in the heart of Al Khwair neighborhood as shown in figure 4. The area surrounding the plot has been active in the retail and business sector



Figure 6. Hilton Garden Inn Muscat proposal (Source Muscat, March 14th 2016, [www.asaas.om](http://www.asaas.om))



as the neighborhood dates back to the 1980's where foreign embassies were located within near proximity (Ward, 1987). Al Khwair is located in Wilayat Bawshar with a total population of 395,725 inhabitants in the Wilayat, with over 300,000 of which are expatriates (NCSE, Statistic Year Book, 2016, p.67). This population relates to the density and physical typologies found in the Wilayat. The exact population of the neighborhood is undefined. Al Khwair, having a dense morphology, is known for the high-rise buildings; consisting of five to 10 stories, is situated along the arterial roads. Such buildings are commonly used as residential commercial, providing apartment dwellings for both Omanis and expatriates. A few parks are located in the surrounding, however, pedestrian paths are cut with high speed automobile traffic, in addition to the service radius from the parks cover a marginable section of the total district as shown in figure 5. The location of the selected empty plot is surrounded with residential single villas and apartment buildings from three sides and the last section is open to an arterial road. The plot is owned by Muscat Municipality and was planned to be developed as a park, however, the plot has been neglected for



Figure 4. Location of Hilton Garden Inn Muscat

over 30 years, which was the starting point of ASAAS to optimize vibrant areas with socio-economic projects

The proposed project is an integration of a four-star hotel with a park facing 'Dohat Al Adab street. The company describes the project as an economic and social boost to its surrounding community:

“... the seven-story Hilton Garden Inn Muscat will be an architectural landmark. Respecting the surrounding area, the hotel design utilizes elevation and section techniques to minimize close views into neighboring buildings and will feature meeting spaces and a 24-hour business center. Food and beverage options at the hotel will include the signature 24-hour pavilion pantry for sweet treats and savory snacks.” (ASAAS, 2017)

During a meeting with a Mohammed Al Zadjali, he outlined a few of the changes that were further developed in the proposal of the project. Elements such as reducing the shading structure in the park, leveling of ground, and most strikingly is the fencing of park boundary. He further added that the park will be open for the public during certain hours, raising the question of how public is the

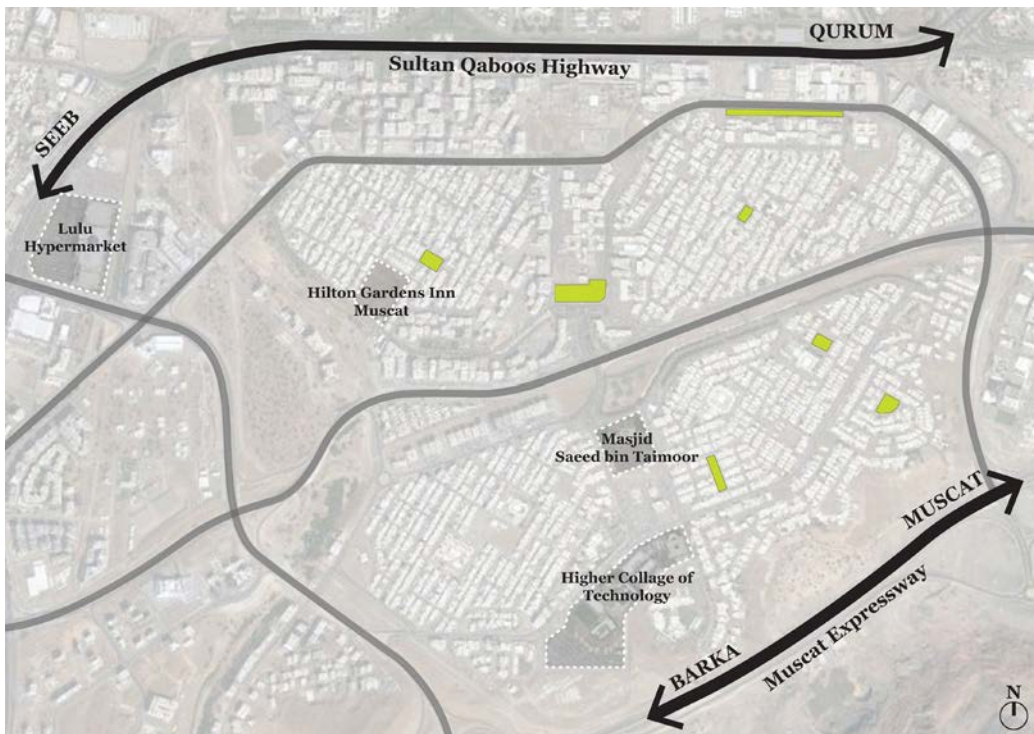


Figure 5. Parks in Al Khwair



whole project. When asked in regards to the community integration or studied, he stated that there weren't any studies on this focus, however, they are aware of the lack of public parks in the context. Further issues that were not studied is the integration of tourism within a local level and the influence they would have on the community and greater district. Regardless of the changes that are currently present in the project, the initiation of a revitalizing unbuilt spaces that are self-sustained economically and serves its context through the provision of services and parks is a precedent for neighborhoods and planners in rethinking spaces within their surroundings.

### 2.3.4 Unbuilt spaces in neighborhoods overview

Following the discussion on unbuilt spaces an overview for evaluation on unbuilt spaces in urban neighborhoods in methodological approach for analysis could be drawn out in order to further explore the relation between communities and urban spaces residing within these neighborhoods.

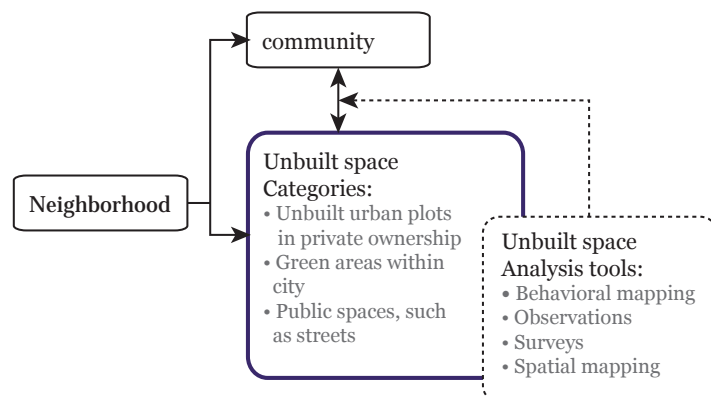
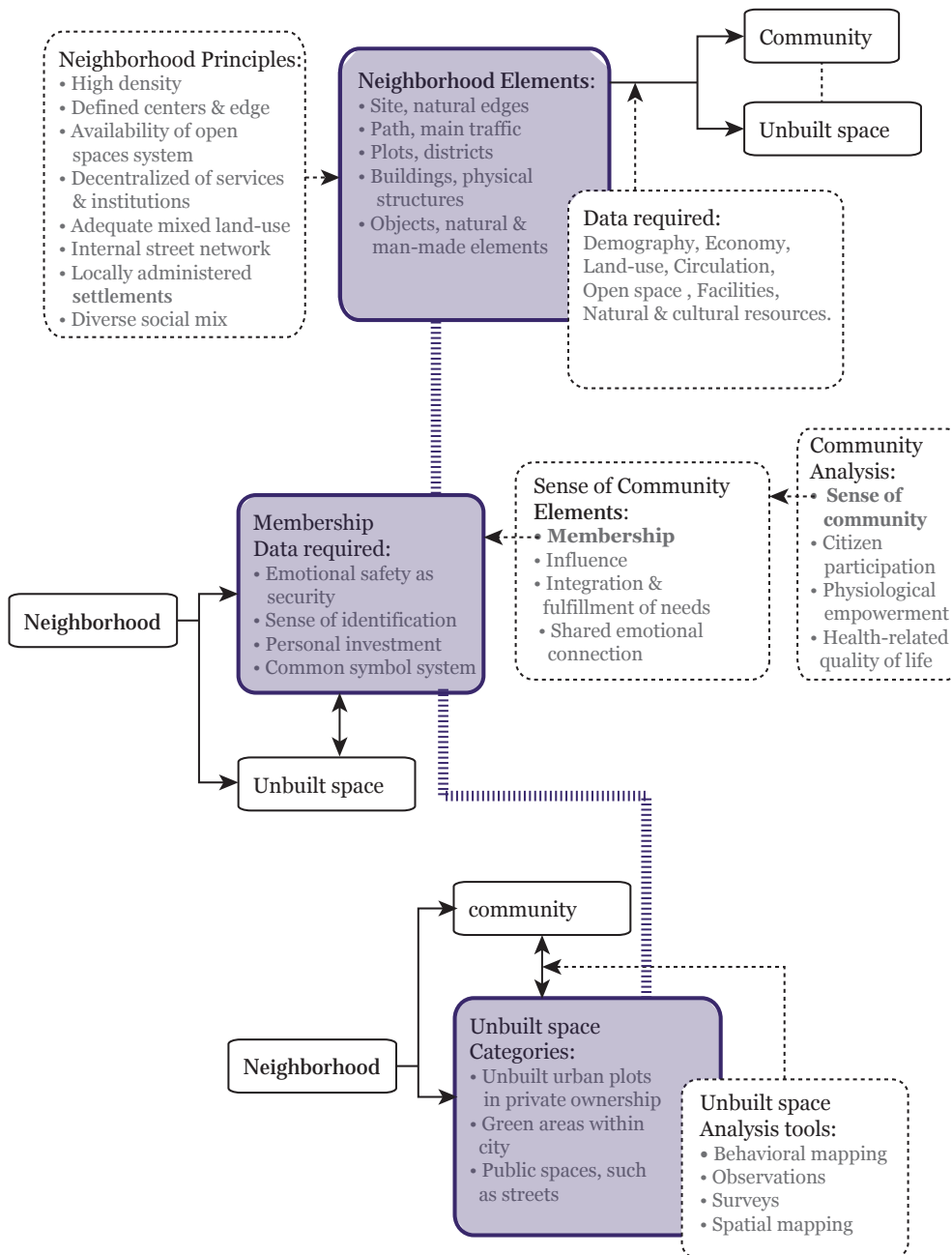


Figure 7. Overview of unbuilt spaces

## 2.4 Evaluation matrix

The relation between communities and un-built spaces in neighborhoods undergoing rapid urbanization could be further investigated out of the extracted methods of analysis within each aspect in regards to the context of Muscat. The neighborhood understanding provides a base on which a 'Benchmark' for neighborhoods in order to further examine community and unbuilt spaces (Kelly, 2012, pp.61). As neighborhoods are distinctive of each other, outlining this common ground to study a case. An additional step for the analysis within a socio-spatial study is the comparison of two or multiple cases with each other in aim to identify the status quo communities and urban spaces and provide recommendations on policy and neighborhood design.









Harat al-Bilad, Manah, 2017



# **3. Case study:**

## **Neighborhoods in Muscat**

### **3.1 Oman**

#### **3.1.1 Ecology & region**

Located in the south eastern part of the Middle east, Sultanate of Oman is home to a population of over 4.6million (NCSI, 2017). Surrounded by the Gulf of Oman sea on the northern side, Arabian Sea on the eastern side, Yemen on the southern parts, and Kingdom of Saudi Arabia along with United Arab of Emirates on the western side. The country is part of the Middle East and North Africa (MENA) region and the Arab leagues, the Gulf Cooperation Council (GCC).

#### **3.1.2 History and politics**

Prior to oil discovery in Oman, agriculture, fishery and trade were the foremost economic significant sectors in the country. With a population of less than a million (Scholz, 1990) living near fertile lands and coastal cities bordering half of the country, urban development formed within these landscape that offered income opportunities for its residence. Families or even tribes would claim a land on which they settle-in and cultivate the land. Similar to this, the coastal cities were homes for main families and tribes. The two main cities where trade would take place during that time were Nizwa and Muscat. Nizwa was the previous capital of the country, with a central souq and many oases surrounding it. Dates, pottery, and spices were a few of the trading specialties among with livestock auction. Similar to Nizwa, Muscat being a coastal city flourished with global trade due to its port located in Muttrah. Goods from Asia and Africa were sold in the bordering souq while goods from Nizwa and other cities exported their goods to the world. Urban expansion within this period was supported with this economy of trade. Out of the annual surplus in trade income and port

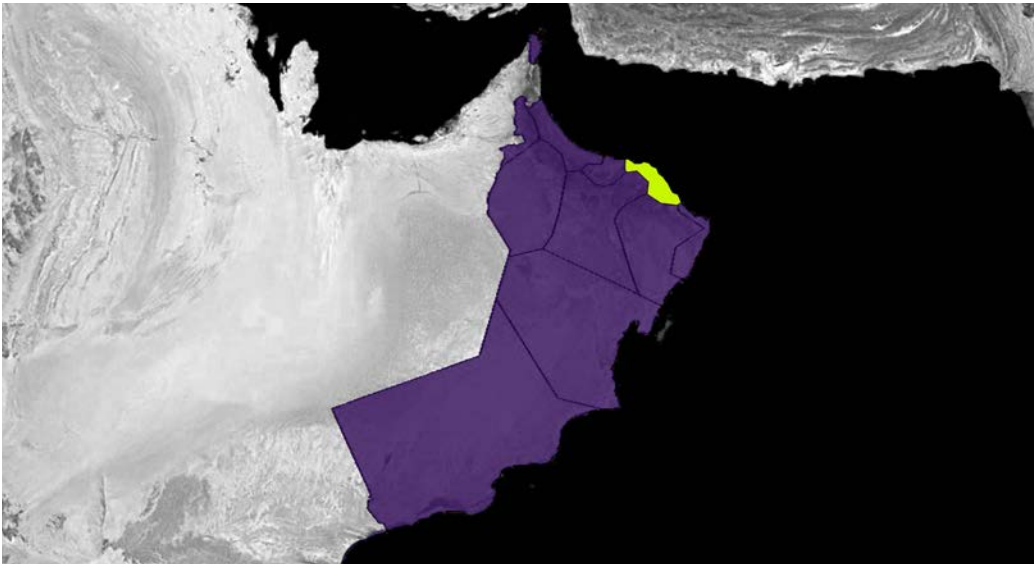


Figure 8. Oman region context and it's 11 internal division with Muscat Highlighted

taxation, families would invest in expanding their settlements, water systems and agricultural lands (Al Habsi, 2015). Allocation of residential settlements was based on knowledge passed through generations within families, which clearly outlined that a house must not be built in a land that can be cultivated. Thus families lived in clusters of small settlements built out of surrounding natural material where infrastructure such as a Falaj or a well were within a reachable walking distance.

With over 2,000 kilometers of shoreline, Oman history thrives along its costal cities and hinterlands that presented home for agriculture with the abundance in fresh water resources. Although having cities that data back to 600AC and even earlier, one of the remarked periods of Oman's history with the election of an new Imam from the Ya'aribah tribe in 1649 (Bidwell and Maurizi, 1984, p.vii) where the expansion of Oman position grew within the Gulf and east Africa. Ruling policies were derived for the Ibadhi sect and religious understandings to ensure harmony within tribe and country. International affairs grew with Sultan Bin Ahmed dating to the 1800 when the first treaty between Oman and the British was signed regarding the alliance and protection of its coast from ships hostile to the English stating their relation as "unshook until the end of time, and till the sun and moon have finished their revolving career" (Bidwell and Maurizi, 1984, p.viii). However, Vincenzo Maurizi and Philp Ward outline a history of Oman with focus on Muscat in a narrative form which entails stories

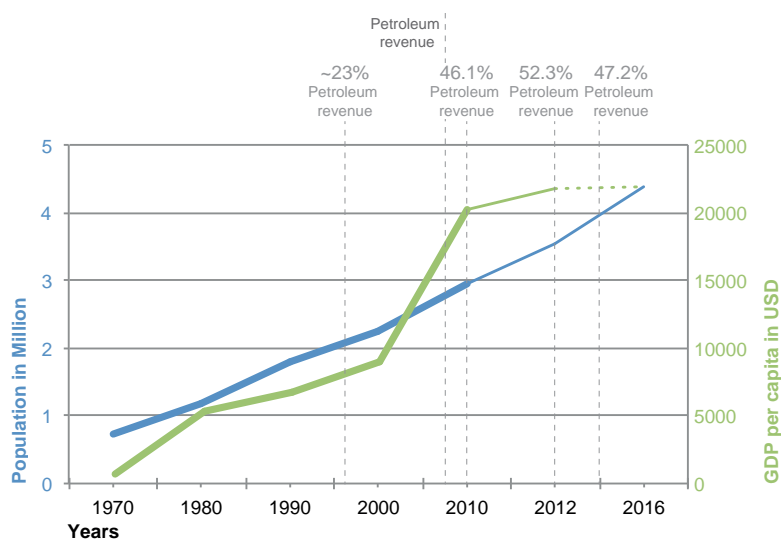


embedded in neighborhoods and cities throughout the history of Oman. Vincenzo Maurizi documented his trip around the gulf states in 1800's after finally settling in Muscat to work for Seyd Said Sultan Oman. Philp Ward, describes stories of Muttrah the port city with its diverse inhabitants from merchants coming from all over the world and the formation of clustered communities in the city. He describes the journey of travelers such as Engelbert Kaempfer who visited various cities around the coast of Oman along with his encounter with the people and the surrounding environments.

The Current ruling family dates back to Sultan Faisal from 1888-1913, followed by his son Sultan Taimur who ruled for a short period 1913-1932. Succeeding him was his son Sultan Sa'id who ruled over a period of 38 years. In 1970, Sultan Qaboos took over the ruling and set Muscat as the new administrative center for the country.

### 3.1.3 Economy

Now for its deep port and fertile hinterlands, Oman thrived in trading and agriculture for a long period that can be traced to 1600's and earlier (Ward, 1987). However, with regional oil discovery and the shift within the authorities, focus on optimization of oil revenues in the development of infrastructure and services sector on the capital marked a new era of renaissance. Sulaiman Al Farsi outlines that although the development of the country is commonly referred to as a results of the tremendous oil revenues, yet this as a single factor fails as many other countries fail to reach similar levels of national development with similar oil abundance. Al Farsi emphasis on the importance of policies and good governance that are key for steering development with the available resources it encompasses. Nevertheless, relying on oil revenue for 40 years formed an oil-based dependent nation that struggles in integrating sustainable ideologies in urban expansion. Figure 8 describes the population growth along with the economic growth of the national GDP per capita. Petroleum dependency is the dominant sector peaking in 2008 with 63% of the overall GDP, followed by the service and activities sector. What must be comprehended out of the graph is the continuity of the population growth within the coming year; however, accommodating the new generation of residence with the required economic and spatial necessities needs further expansion. The current economic revenue is foreseeing an inflation margin due to the fall of global oil price and the depleting crude oil resources within the reachable geographic structure. Coherency of



Year	population	GDP per capita	GNI per capita
unit	Million	USD	USD
1970	0.73	350.3	N.A
1980	1.18	5063.55	N.A
1990	1.81	6448.13	6638.49
2000	2.24	8710.99	12837.97
2010	2.94	19920.65	11858.27
2012	3.54	21533.81	6829.61
2016	4.37	N.A	N.A

Figure 9. Local oil production with population increase (Source, Author)

demographic growth and economic development was never an issue to tackle in the previous years. Abundances of resources alongside short-term planning throughout decades of the countries developing year's fostered a 'problem fixing management' (Al Habsi, 2016) ideology that would leave the country in debt if progression within the current means continued.

### 3.1.4 Demography

The current population of the Sultanate stands at 4.5 million (NCSI, 2017) out of which 55% are Omani citizens and the remaining 45% are expatriates. As the population is relatively small sized in comparison to the other countries in the Middle East, yet it is important to understand the demographic shifts dating for the period of the renaissance till present date.

The demographic increase is described by Marike Bontenbal in her study on 'Population, migration, and urbanization in Oman, 2016, pp.29-48) related to the urbanized environment within the region, as urbanization level excels within these regions to higher percentages than developed countries. These

shifts have been influenced directly and indirectly by factors such as natural growth, rural-urban migration and international immigration, however, many other factors such as policies, shifts in religious norms and many other has contributed to the overall demographic development of the country. The natural growth takes into consideration the fertility rates, life expectancy and literacy. The population before 1970's was at 700,000 inhabitants as the country lived in tribal formation, welfare strategies and many had left the country in search for better economic opportunities in Asia and east Africa. The average fertility rate was 7.2 children per woman (Bontenbal, 2016, p.36). With the empowerment of women and development in educational and health sectors following the assigning of the new sultan of Oman, fertility rates peaked in the 1990's with the thriving of women integration, however, the rate has dropped since reaching 2.8 children per woman in 2015.

### **3.1.5 Legislation & Governance**

The Sultanate follows a constitutional monarchy as the Sultan represents the ruler and of the highest power followed by Council of State and Consultative Assembly, followed by finally the Municipal council that does not have much authority. When outlining the current governance structure in regards to neighborhoods, the highest power remains as the Sultan followed by the Supreme Council of Planning and Ministry of Defense as land owners of large portions of the country. Following this level is the Ministry of Housing, governmental companies, and other consultants that work for the government. Muscat Municipality and the utilities companies play the role of provision and regulation and the highest level of interaction within the neighborhoods. Muscat Municipality is further divided into Local Administrations where the actual maintenance of neighborhood and provision of parks, sidewalks, and internal street are executed.

## **3.2 Muscat**

### **3.2.1 geography/ political structure**

Muscat with its geographic limitations facing the Gulf of Oman on the north and the Al Hajir Mountain on the south has a linear morphology spreading over 180 kilometers (Al Habsi 2015), has a total area of 3500 sq.km. Within this area, the capital is divided into 6 Wilayat: Muscat, Muttrah, Amerat, Bawshar, Seeb, and Qurayat. These Administrative divisions act as a political distribution

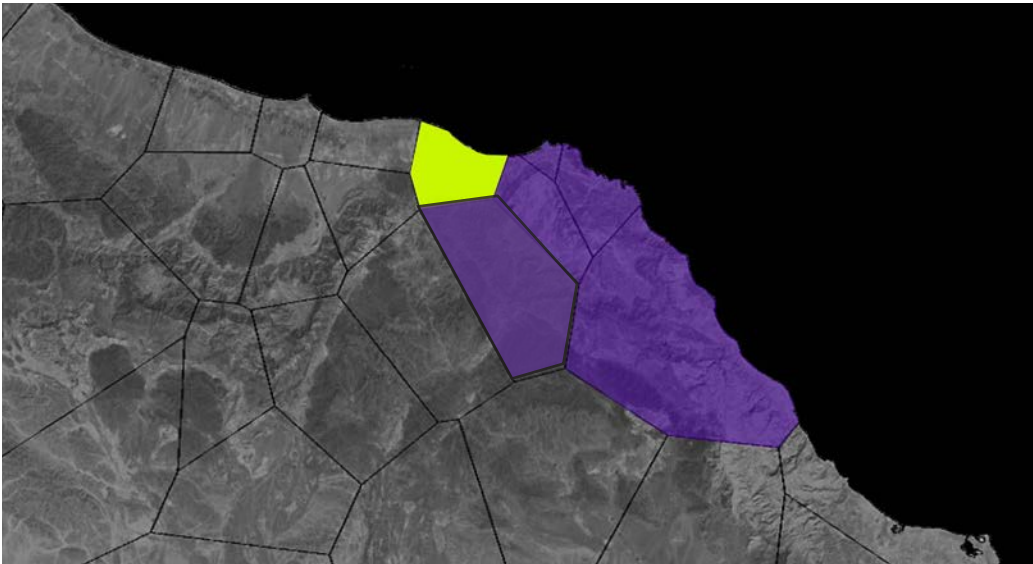


Figure 10. Muscat with its 6 Wilayat along with Wilayat Seeb highlighted

of members of the Municipal Council elections, varying on the number of the inhabitants within the Wilayah, the number of elected members range between 2-6 individuals from each Wilayah (Ministry of Interior, 2016). This council assist the lower house in the prioritizing of projects for the five-year development plan. However, the final decision of the suggested prioritizing is discussed with a national and not a local level.

### 3.2.2 Urban history of Muscat: Before 1970's-2000

#### *Before the renaissance 1970's*

Prior to oil discovery in Oman, agriculture, fishery and trade were the foremost economic significant sectors in the country. With a population of less than a million (NCSI, 2016) living near fertile lands and coastal cities bordering half of the country, urban development formed within these landscape that offered income opportunities for its residence. Families or even tribes would claim a land on which they settle-in and cultivate the land. Similar to this, the coastal cities were homes for main families and tribes. The two main cities where trade would take place during that time were Nizwa and Muscat. Nizwa was the previous capital of the country, with a central souq and many oases surrounding it. Dates, pottery, and spices were a few of the trading specialty among with live-stock auction.

Similar to Nizwa, Muscat being a coastal city flourished with global trade due to

its port located in Muttrah. Goods from Asia and Africa were sold in the bordering souq while goods from Nizwa and other cities exported their goods to the world. Urban expansion within this period was supported with this economy of trade. Out of the annual surplus in trade income and port taxation, families would invest in expanding their settlements, water systems and agricultural lands (Al Habsi, 2015). Allocation of residential settlements was based on knowledge passed through generations within families, which clearly outlined that a house must not be built in a land that can be cultivated. Thus families lived in clusters of small settlements built out of surrounding natural material where infrastructure such as a Falaj or a wells were within a reachable walking distance.

### *1970's*

Following the discovery of oil and assigning the new country leader, the Sultanate witnessed a rapid expansion of infrastructure, facilities, and amenities within Muscat and neighboring cities. Along with the high focus on development by the government, rural-urban migration from the interior to the booming capital increased the density of Muscat (Al Barwani, 2015). Similar to the situation of the People's Republic of China in the 1980's where the institutional authority focused its economic agendas on urban cities in terms of working opportunities, the rural villages soon sought of migration and abandoning of agricultural lands for better job prospects in the cities (Fang & Dewen, 2009). During this time the value of oil in the country's *Gross Domestic Product (GDP)* lowered the value of agricultural products alongside the mechanization of farming. Furthermore, the increase of population left the hot & arid country questioning the importance of agriculture due to its high consumption of the limited freshwater resources. Thus, the new generation from the rural villages pursued higher education in the capital bringing an end to local farmers with traditional local skills.

### *1980's*

In his journal 'Travels in Oman' (1987) Philp Ward describe the city of Muscat upon his arrival from Muscat international airport in the 1980's. Beginning with the main highway (Sultan Qaboos High) being widened from a dual to a triple lane in 1985, in addition to district along this path towards the east that are considered prime of that time, starting with Ghubrah, Al Khwair, Madinat Qaboos, Qurum, Al Watayah, Ruwi, and finally Muttrah and Muscat. On the Western

side on this street is Seeb fishing village. (Ward, 1987, pp.63). Ward affiliate significance of these location with primary buildings that carry administrative, political, economic, and even social importance. Hence, Al Khwair is paired with the foreign embassies and ministries located in that district, Qurum is linked to the petroleum production as the base resides there, Ruwi as the economic hub, and Madinat Qaboos as the residential quarter with close proximity to the new Sultan Qaboos sport complex. (Ward, 1987, pp.63)

### *Urban growth in 1990's*

As a strategy of managing the urban expansion within Muscat, the Weidleplan laid out a 20-year expansion pattern for relieving the urban tension on old Muscat and Muttrah. The second largest inhabited area was Al Seeb located on the western side of the city. The plan described the role of the Sultan Qaboos Highway extension from Muttrah till Seeb as an opportunity to introduce new neighborhoods and diversify the land use and concentration within Muttrah. The strategic plan was supposed to be reviewed by the end of the 20 years period, however, the planning followed the Weidleplan even after 2010 which resulted in an uncontrolled urban expansion exceeding the boundaries of Muttrah and Seeb.

### *Rapid urbanization 2000's*

Following up with the guidelines of the 'five-year plan', the government took on urban development within the larger scale of the country; connecting villages to cities, and cities to the capital. Through subsidized infrastructure (electricity and water) and decentralized amenities catering to smaller villages all financed by the government from oil revenue, the population, quality of life, life expectancy escalated. Meanwhile, the short-term plan lacked longer-term guidance on development, which meant that obstacles were to be solved through direct funding from the government's oil revenue, thus, a "problem fixing management" (Al Habsi, 2015) was practiced. As a result, urban expansion consumed the capital area of Muscat reaching neighboring cities. Housing, road networks, and natural geographic boundaries left the capital saturated. Therefore, new purposed public projects carried by the government required high compensation relative to the civil work required.

### 3.2.3 population and neighborhoods

Looking at the two spatio-temporal mapping for the year 1970-1982 by Scholz (1982) and 1990-2014 by Richthofen and Langer (2015) provides a visual for understanding urbanization in Muscat Figure 11 and figure 12. When compared to each other, Scholz map outlines the existing buildings through the 12 years' period, he outlines the predicted direction of urban expansion for the future year. Richthofen and Langer map further confirms these predictions within the 24 years' period marked for the study. The year between 1982 and 1990 have

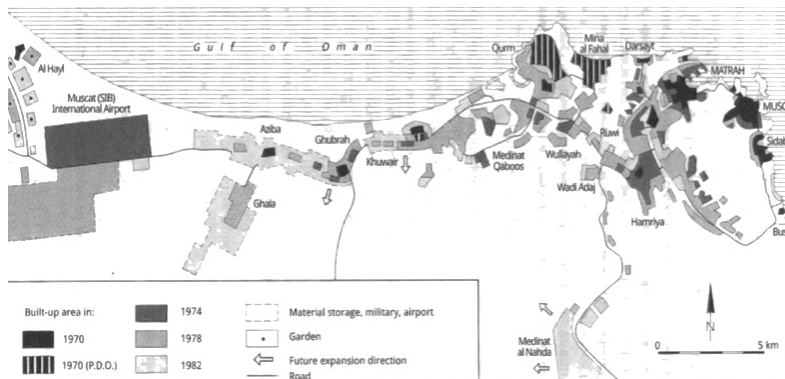


Figure 11. Urban Expansion from 1970 till 1982 (Source Fred Scholz, Muscat now and then, 2010)

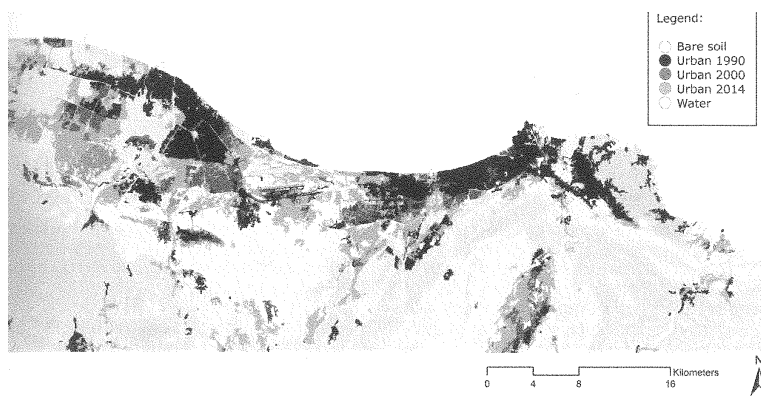


Figure 12. Urban Expansion from 1990 till 2014 (Source Richthofen A., Langer S., 2015)

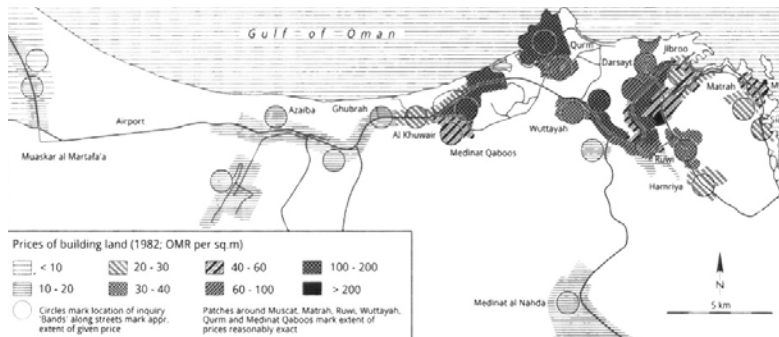


Figure 13. Building price per sq.m in 1982 (Source Fred Scholz, Muscat now and then, 2010)



not been mapped, however, Scholz map of building prices within neighborhoods in Muscat during the 1980's provides ideas on the direction on which the market would expand due to the low costs as show in figure 13.

Looking at the current situation of urban expansion within Muscat, the western direction is still growing. A reasoning for such a movement could be related to the topographic surfaces the city has. Towards the east, the mountains and the Gulf of Oman sea provides a very limited area for settlement to grow and expand, hence, development moved away for Muscat old city as building limitation were reached. The western side nowadays is ideal as the gap between the mountain and the sea can house a large portion of the residents without simpler methods of laying out the infrastructure. The current population of the within the six Wilayat for the year 2015 is, Muscat (167,440), Muttrah (233,515), Amerat (70,183), Bawshar (395,725), Seeb (392,102), and finally Qurayat (52,267).

#### 3.2.4 Urban issues

With the increase for land within the capital, plot allocation has been a constant issue for many authorities for catching up with demand in terms of land provision in addition to infrastructure provision. However, as recent as this issue manifest itself within cities and neighborhoods in the country, Thomas J. Abercrombie describes in an article in National Geographic magazine the in early 1980's Muscat as:

'Before 1970 there were only a few dozen private cars and trucks in the country; today, some 80,000. I was struck as much by the nature of the traffic as by the density. A wealthy sheikh darted by in a black Mercedes Benz, and a cabinet minister was flanked by a pair of wailing motorcycles. But most of it was workday traffic: 20-ton dumpers, flatbeds loaded with cement and steel, rumbling graders, Land Rovers and pickups, busloads of Pakistani workers, a giant crane. Oman is, above all, a nation on the build' (Thomas J. Abercrombie, 1981 cited by Ward, 1987, pp.62)

What seems to be remarkable is, driving through the street of Muscat nowadays as an observer still resemble the description of Abercrombie description from 36 years ago. Cars are increasing per household, road expansions try to accommodate to traffic, and hours are spent waiting on the road as one moves slowly along with trucks heading to constructions sites. What is evident is that mobility



is a definite key for individuals living in Muscat. As the site expands towards the western side, offices and administrative buildings still remain set on their eastern locations. Hence, the further one lived the more traffic one would encounter. Hence, this paper looks at these residential quarters that are expanding even beyond Muscat borders in order to understand the qualities and activities presented in relation to physical built-up spaces and the communities that reside within it.

### 3.3 Case study: Al khoud & Al Mouj

#### 3.3.1 Neighborhoods in Muscat

As the capital of over 3500 sq.km, the city with its history offers a variety of towns and neighborhoods that expanded from the eastern previous capital Muscat (Musqat) till the latest extension of Halban bordering Al Batina South region. The selection of neighborhoods for the purpose of thesis were taken from 12 representative neighborhoods that provide a similar timeline or morphological structure to other neighborhoods within Muscat. These neighborhoods are: Muttrah, Qurum area, Madinat Qaboos, Ruwi, Wadi Kabir, Wadi Adai, Madinat Al Nahda, Ghubra, Athiba, Al Mouj, Hail, Seeb, Al Khoud 6, and Ma-bilah. It is important to highlight that the Qurayat Wilayat was not included in the research on urban neighborhoods as it the population living within the area is relatively low hence it is considered as the rural district of the city.

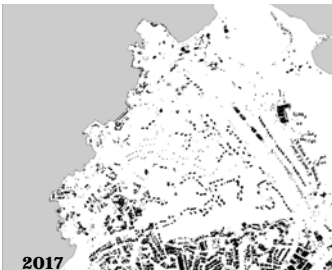
#### *Muttrah*

Due to its strategic location and geographic formation, Muttrah was an attraction for trade throughout history. In the 1500's it was the base for the Portuguese during the colonization and again for





the ruling Al Said family in the 1900's. The current morphology consists of a dense urban layout with an oriental typology reflecting the businessmen who came from Asia. Today, Muttrah is shifting towards a touristic city while still home for over 1/5 of Muscat population. (REFERENCE). Spatially, the visible typologies reflect the courtyard houses from the interiors along with the coastal city density and spatial configuration. Houses range from the size of 1-2 floors with an area of 400-600 sq.m. Outdoor spaces are limited to circulation routes and indoor courtyards. The concepts of shared spaces are visible through gathering spaces in the outside front yards of the houses for women while men gathered near their working areas in the beach.



#### *Qurum area*

in 1974, minister of development hired Gibb Petermüller and Partners to plan Qurum Area to serve for "high class housing, recreational hubs, and tourism" (Scholz, 1990, p.151). The neighborhood has been further taken by Muscat Municipality as their project to achieve the planning of an ideal neighborhood, this is unusual to other neighborhoods as Ministry of Housing or previous ministry of development and land would be authorized for the urban planning and the municipalities roles comes as a provisional actor of infrastructure and regulations (Al Busaidi, 2017). Hosting over 5 hotels and many gated communities around the coast, houses along the secondary streets are currently being transformed to shops, clinics or other facilities. Hence a shift is seen as Omani residents seek to leave the highly commercialized neighborhood that does not represent their required lifestyle anymore. Although, the area offers great amount of facilities, schools, civic buildings, in addition, it is commonly used over the weekends,

yet the internal neighborhood playground on late afternoons are relatively empty. One can relate to this by looking at the age structure of population inhabiting the area as most were Omani who lived within Qurum since early 1980's.

#### *Madinat Qaboos east*

(Scholz, 1990, pp.199-205)

The development plan for the capital in 1974 indicated that the area on which Madinat Qaboos falls to be a mixed- use residential quarter of 6,000 residents being of high to medium income. British architectural firms were assigned for the design of the buildings under architecture codes that reflect Omani architectural details. The funding of the construction was to be followed by private sector where sales of completed houses funded the rest of construction. Taken into consideration was the social mix as the typologies consisted of 5 different building types arranged in disorganized way to achieve this mix, keeping in mind that the houses are targeted for the high and low income. Purchase of the houses following construction was not as promising as the planners had expected, mostly bought by private companies or ministries for the accommodation of expatriates. Omani citizens found the area over-priced in the case of buying or renting, in addition to being limited with the options are the British community which cover 80% of the residential properties (Scholz, 1990, p.201).

Scholz question the role of highly paid expatriates living in such neighborhood "It will be interesting to observe how this district of the Capital Area, which in 1985 is still predominately lived by foreigners, will develop if the number of highly paid experts should ever decline." (Scholz, 1990, p.202). This reflects



on the current situation of Madinat Qaboos today, till previous years' expatriates choose to live within Qurum area that includes Madinat Qaboos, however, due to the recent economic crisis of 2015, many expatriates have left the country leaving a gap within the housing market that now consist of low rent prices, empty houses, deconstruction and left empty houses due to excess of housing to a lower demand or shift to other neighborhoods.



### *Wadi Kabir*

(Scholz, 1990, 205-208)

Having close proximity to Ruwi; the business district, Wadi Kabir in 1977 had gained 1800 residents living in poor housing conditions occupied the area. As part of the activation of planning in the city, Ministry of Land reinforced their plan from 1979 and by the year 1982, the most of the planned area was re-inhabited. A large portion of the residents were Omani who either emigrated from Muttrah/Muscat or from the hinterlands. 40% of the inhabitants were immigrants or foreign workers. Today, Wadi Kabir offers a wide range of facilities and amenities to its residents however, it is mainly occupied by expatriates.



### *Wadi Adai*

As development of services and infrastructure expanded in the city in 1976, resettlement of families living in huts on the site of the new Ruwi hospital were moved to the Wadi Adai area. Previously an aggregate plant serving the Mina Qaboos port, was now a home for 46 families given an area of (40x40 feet) and 5000 Omani rails for the construction of their house. Along with engorgements from 'Ministry of Land' in providing long-term lease for low fees, by the following year, Wadi Adai was fully



developed housing the low income inhabitants. The dense urban layout of the neighborhood had basic infrastructure and amenities to support the area. Nowadays, Wadi Adai still houses some of the low income groups of the city, however, efforts by ministries on increasing the amenities is visible as shops, schools and mosques are situated within the neighborhood. (Scholz, 1990, 208-212)

### *Medinat Al Nahda*

Further towards the hinterland, low-income housing scheme was being constructed to home 15,000 inhabitants, in 1982 a large portion of these houses were already occupied as families seek housing away from the high price of the newly developed Capital Area. Along with the efforts on housing, routes to the new neighborhood via the Qurayat road assisted in the expansion of the new neighborhood. The scheme has great resemblances to current expansion of cities through residential quarters, having basic modes of transportation along with high density of housing, located in the hinterlands of the capital. (Scholz, 1990, 212-213)

### *Hail*

Similar to Muttrah, Hail with it's close proximity to Seeb was inhabited during the late 1970's as part of the rural-urban migrations. The 'Al Amri' tribe chose Hail as their new home within the improvement of living conditions and thriving of Muscat. As this was done over a course of squatting and land purchase, the morphology of the area has developed in an organic form till the 1980's when policies and national orders enforced the legal registration of lands. During this time, the royal decree of land entitlement mentions that all Omani citizens above the age of 23 could apply for a plot as every other





land officially belongs to the ministry and royal court. Spatially, the typologies visible reflect the courtyard houses from the interiors along with the coastal city density and spatial configuration. Houses range from the size of 1-2 floors with an area of 400-600 sq.m. Outdoor spaces are limited to circulation routes and indoor courtyards. The concepts of shared spaces are visible through gathering spaces in the outside front yards of the houses for women while men gathered near their working areas in the beach.



### *Athiba*

Part of the Weidleplan was the extension of residential quarters towards Ghubra and Athiba two coastal areas located between the Muscat International Airport and Madinat Al Sultan Qaboos. Developed within early 1990's, and part of the Weidleplan guidelines, the area consists of individual villas of 600 sq.m on average with commercial centers within proximity to residential areas (+700 meters). Reflecting on culture, the plots are owned by individuals with various backgrounds as most of these plots are part of the land entitlement scheme. This has also influenced the type of outdoor spaces as all of the houses have internal yards that are used as play space and car parking. Common or shared spaces such as parks are not a main focus within the large neighborhood. Social interaction takes place either within the front yards outside the boundary wall or inside the house. Nowadays, these houses are inhabited by Omani owners or rented out to expatriates. Hence, these areas have a certain social class as the villas are not affordable for most individuals. These housing typologies have been expanding and shaping Muscat for the past 27 years along the lines of the Weidleplan. Unfortunately, the original plan was

set for a 20-year period, but has been in practice till today.

### *Al Khoud*

Similar to the formation of Athiba, Al khould 6th was planned for the distribution of plots to Omani citizens, however, during this period in 2008, a new royal order entitled women for land ownership as part of the land entitlement scheme. This created a pressure on the ministry of housing as the demand has doubled within a year. Thus, new neighborhoods such as Al Khoud 6th are currently being planned to accommodate the demand. Having similar morphology of Al Athiba, individual villas consume the land with circulation networks surrounding them and municipal offsets of 5-10 meters on each side of the street. Unlike Athiba, Al Khoud 6th has larger and denser commercial/residential areas to accommodate the growing population and provide alternative affordable housing. Alongside the commercial/residential area are the new typology of individual's villas. With over 1,600 plots built up covering around 60% of the planned neighborhood, the new concept of optimizing the 600 sq.m, meant that individuals would build a twin villa or a combination of villas and apartment in one building. This is seen as adaption methods for accommodation and also for investment. The 'Land market' is a drawback that was not foreseen by the government with the land entitlement scheme, hence, the construction industry is currently one of the thriving sectors for economic investment.



### *Al Mouj*

Part of new 'Integrated Tourism Complex' (ITC) Al Mouj houses 4000 residents living within the costal side near Al Hail North and the Airport zone along



an arterial route '18th November' Street. The overall area of Al Mouj is around three sq.km in total as it takes a large portion of the public beach as the 18 hole golf course extends towards the eastern stretch of the shoreline. Housing over 4000 residents in 1600 homes and 10,000 visitors per day, Al Mouj offers various leisure and commercial activities for its residents and visitors. The signing of the ITC agreement dates back to 2006 followed by the construction of the first phase.

### 3.3.2 Selection on neighborhoods

For the purpose of evaluation of neighborhoods undergoing rapid urbanization, a set of criteria was outlined along the defined objects of the thesis. The primary criteria for selections was: the neighborhood had to be recent yet mature neighborhoods are ideal for the comparison, located within the western districts of Muscat as it has the highest number of population of Omanis within the six Wilayat. Finally, the neighborhood should have a sufficient level of secondary data or available document to assist with the evaluation of the thesis. Following these are criteria as seen in table (see appendix B) on neighborhood as defined through literature as a base for initial analysis of neighborhood that provide ideal and least ideal understanding of basic requirements of neighborhoods. This is relevant for providing a comprehensive reflection on communities residing within them in terms of best and worst neighborhood designed within local Omani districts. The selection of the neighborhood is then chosen by the combination of the neighborhoods with the highest score and lowest score in addition to the neighborhoods that fulfill all the basic criteria for the thesis objects. As a result, Al Khoud; as the least score, and Al Mouj as the highest were selected to be further



investigated.

### 3.3.3 Al Khoud background

Al Khoud previously part of Wadi Al Khoud route and used as building aggregate production land, however, since construction of housing began followed by the provision of primary road networks in 2007, rapid urbanization of land spread through detached villas and six story apartment buildings. Currently, over 60% of the plot are constructed, however, it is relevant to outline the addition of 800 residential plot on the urban layout since recent years as show in figure 12, bring the total number of plots to above 2660. As a standard neighborhood, the provision of infrastructure is a cost which the government covers in terms of water, electricity, and even waste collection. The total area of Al Khoud 6 urban neighborhood is around 3.3 sq.km.

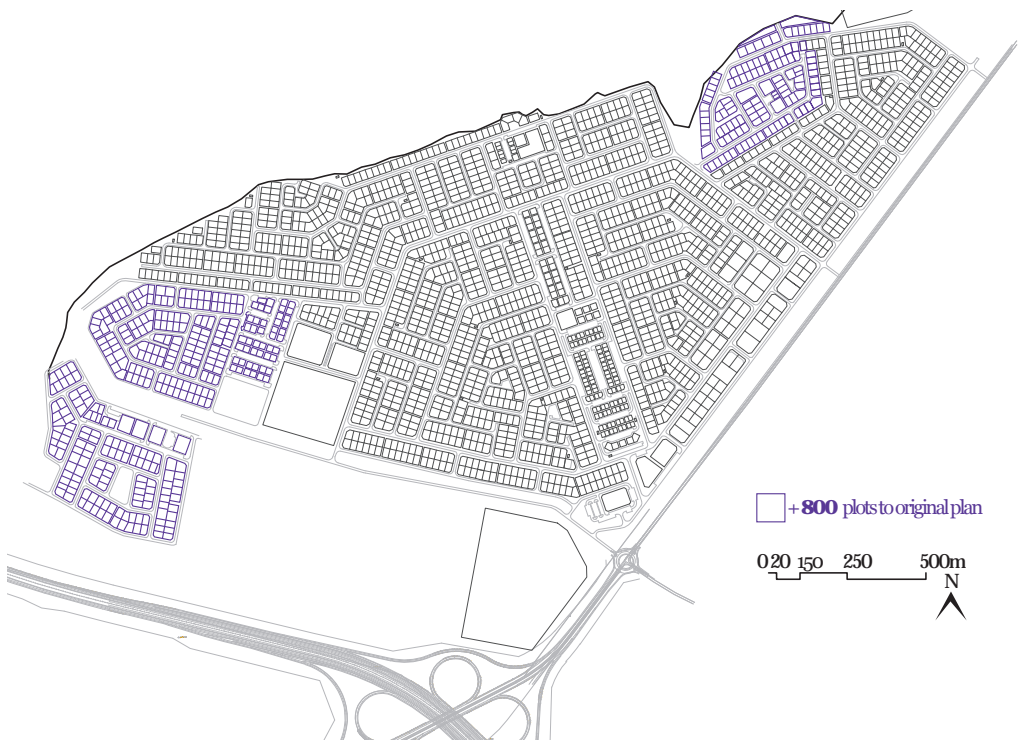


Figure 14. additional 800 plots added to original plan



### 3.3.4 Al Mouj background

Home for over 4000 inhabitants, Al Mouj is considered a benchmark for the development of neighborhood urban design in Muscat. With a total area around 3 sq.km, the area provides activities for both the residents and visitors. As an ITC, Al Mouj is supervised and built by Al Futaim Group where decision of designs are taken in accordance to local laws. Muscat Municipality as the owner of the land has given the task to improve on facilities for the greater surrounding through recreational and services as the previous location was a public park Figure 13. The construction within the neighborhood consist of low-rise apartment buildings, townhouse, and detached villas. The current total construction covers 40% of the planned area with a timeframe till 2020. However, it is important to outline that the area was previously used a public water park owned and managed by Muscat Municipality, hence the shift to a privatization of land through investors was of an unusual case as Muscat Municipality's role is of provision and regulation and not planning or land allocation. Here the naming of the as an ITC emphasis on the factor that it aims to achieve a greater cause for the public, hence, in such situation, such negotiations are possible.



Figure 15. Full master plan of Al Mouj (Source, Al Mouj, 2017)

### 3.4 Neighborhoods morphologies: setting benchmarks

#### 3.4.1 Neighborhoods elements on Al Khoud and Al Mouj

In order to further evaluate the relation between communities and unbuilt spaces within neighborhoods, a study on the neighborhood level for both selected area is required to establish the similarities and difference they offer prior to studying the communities and spaces on the following step. Here, we use the set of elements and criteria outlined in literature which are: site, path, plot, buildings, and objects. These definitions analyze the neighborhoods within spatial aspect through morphological mapping. Along with spatial mapping, a review on neighborhood design within the local context is required to understand the relation between the site and how it was developed.

#### 3.4.2 Neighborhoods analysis

Taking the five elements along with the extraction of required data, an area of 3 sq.km was selected from both of the neighborhood as a starting point of analysis. The selection of 3 sq.km was based on the total area of the neighborhoods along with the provision of the holistic provision of services and infrastructure within the area. In further detailed analysis, the radial definition of quarter a mile by Perry will be used to investigate the communities and unbuilt space.

#### Site

Both neighborhoods when observed from the geographic aspect have a relatively flat surface and bounded by a water body. At Al Khoud 6, the highest point on the south western side and lowest on the north eastern ranging between +60 to +50 meters above sea level respectively, in addition to Wadi Al Khoud crossing on the northern side drawing a natural border between Al Khoud and Mabilah. Al Mouj having a similar topographic change ranging between +6 to +1 meters from south to north as it gets closer to the sea level. Figure 15 outlines the topographic levels in both neighborhoods, although there is a +50 meter height difference between the two neighborhoods, it nonetheless, has a relatively flat overall topography when considering the rest of Muscat.

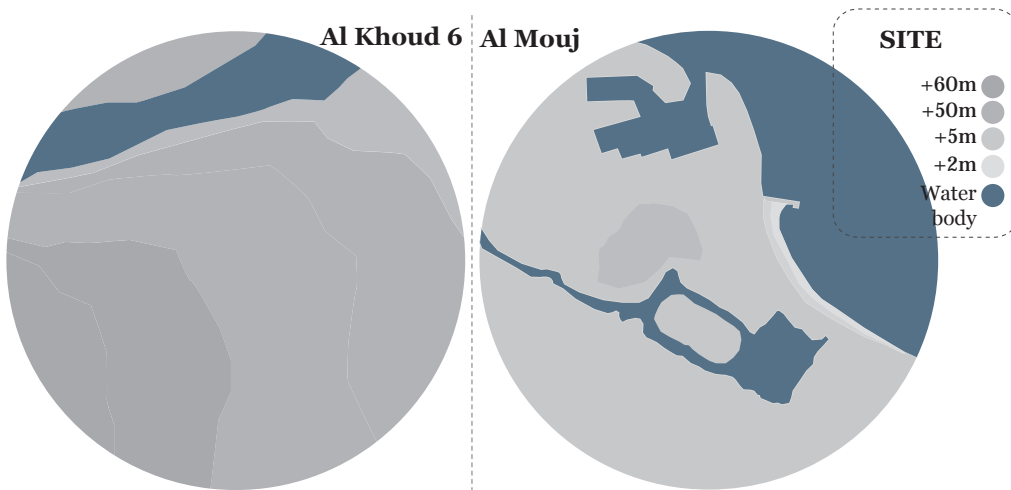


Figure 15. Site location of Al Khoud 6 and Al Mouj

## Path

Referring to larger divisions that are currently used for mobility to understand the overall area divisions within a neighborhood is highly relevant as these divisions are regarded as permanent unless a massive mean of deconstruction is considered. These large routes are the circulation of means from-to the neighborhoods to other part of the city. In addition, consideration on the natural boundaries that divide the area is marked, however, similar to path, these boundary lines can be altered and changed through man-made efforts. Figure 16 exhibits these boundaries that shape the neighborhoods in both Al Khoud 6

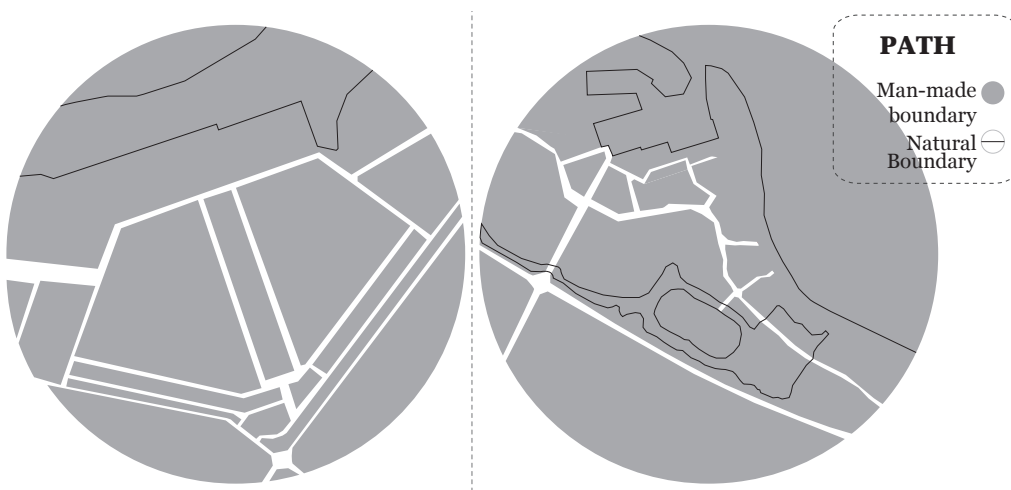


Figure 16. Path division of Al Khoud 6 and Al Mouj

and Al Mouj.

### Plots

Looking further into built up volumes within space, the internal plot division is used to the spaces and internal circulation within it. These plots outline the allocation and framework on which structure will be built. In Al Khoud 6, figure 17 shows the plots highlights the grid urban layout of the area whilst Al Mouj provides a more natural and fluid path between the plots.

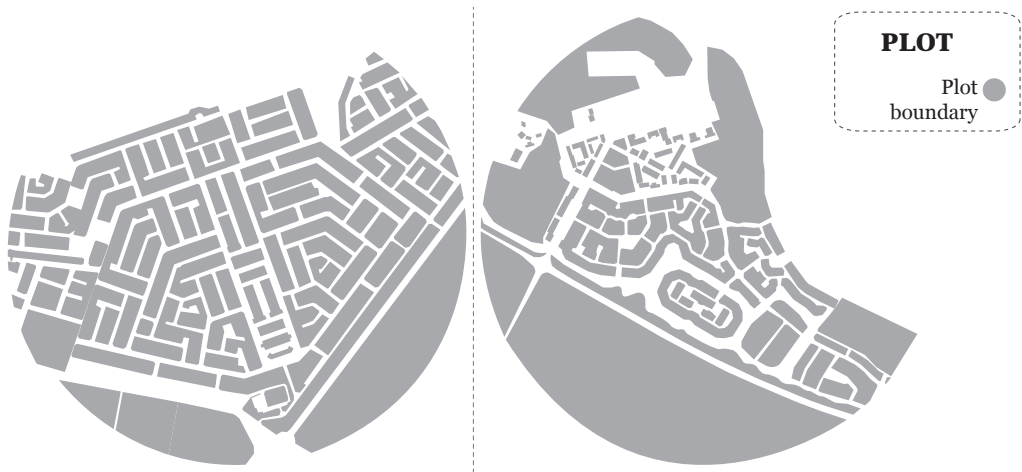


Figure 17. Plots division of Al Khoud 6 and Al Mouj

### Buildings

Focusing on the built-up structures we can further investigate the density, land-uses, and real estate values. In Al khoud 6, figure 18 around 60% of the plot were built, from a timeline since 2008 till present, however the full completion date is unknown as it is built by individuals on their own resources and will to construct. Al Mouj has a slightly less built-up ratio of 40% when considering the whole master plan in terms of built-up structures, however, as it is developed by an investor along with a timeline from the land owner; Muscat Municipality, the project is set to be completed by the year 2020.

Figure 18 at the distribution of plot uses within existing built-up structures. Here Al khoud 6 having over 60% of it's total built-up area complete, it exhibits a level of variation in facilities that are required within residential neighborhoods in a decentralized manner as mentioned by Perry (1929). Al Mouj on the other hand has a relatively less amount of variations of facilities with a centra-



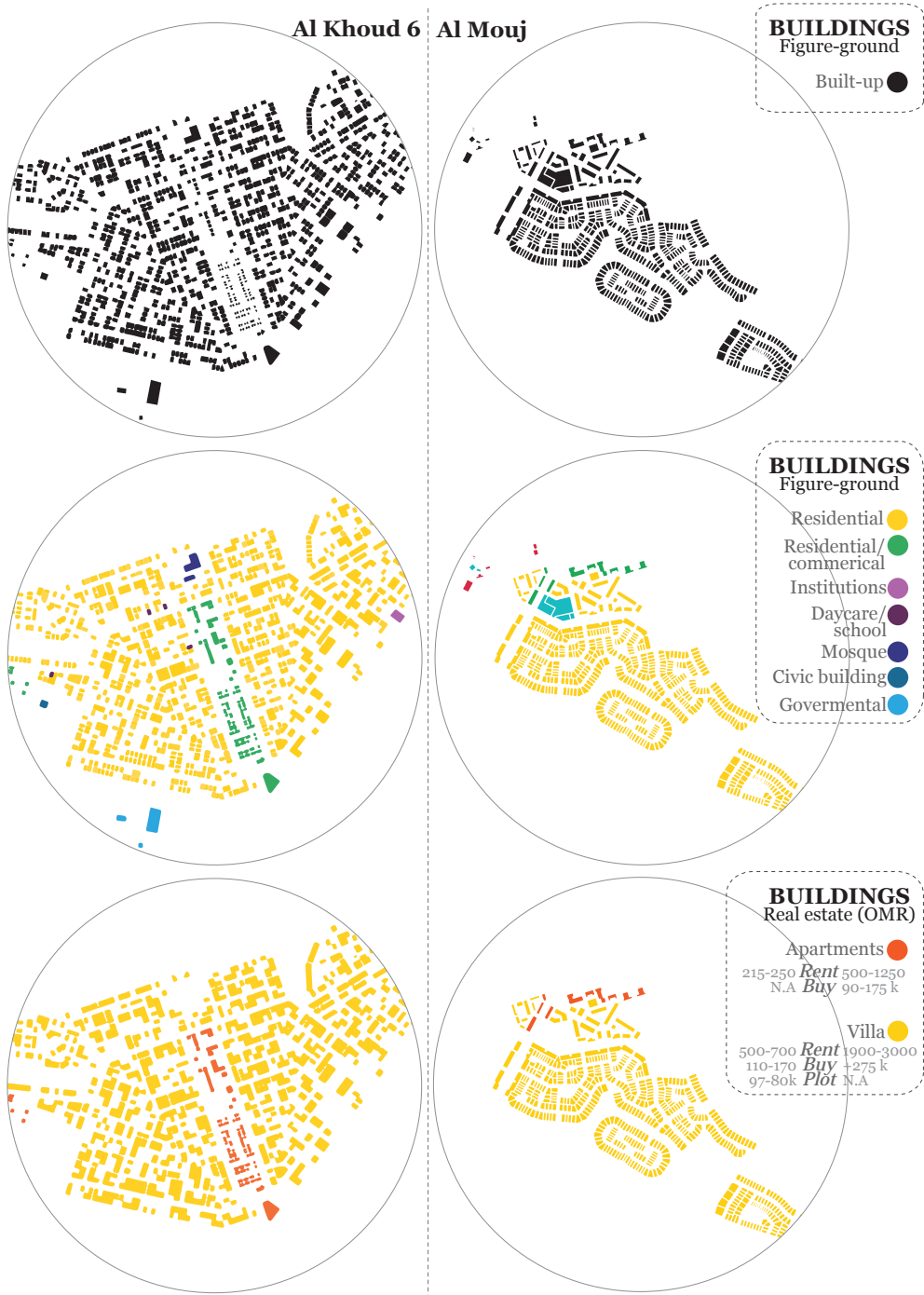


Figure 18. Building distribution in Al Khoud 6 and Al Mouj

lized allocation near the marina. The real estate values as shown in figure 18 concludes on the lower cost of rent and purchase of villas and plots in Al Khoud 6 in comparison to Al Mouj, however, this is only applicable to Omani citizens as expatriates can not purchase land of properties out of an ITC.

## Objects

The last layer of analysis with the highest possibility to change within short periods of time are the objects which are man-made or naturally found, such as street, towers, pavements, but also parks and farmlands. As outlined in the New Urbanism movement and Sustainable Neighborhood design by UN Habitat, the adequate length of streets within neighborhoods is 18 kilometers per 1 sq.km, along this definition, Al khoud 6 is successful in covering the required length unlike Al Mouj which cover around 13 kilometers per 1 sq.km. However, when marking out the parks and sidewalks available in the neighborhoods, Al Khoud 6 provides unsufficient amount of parks taking into consideration the built-up area unlike Al Mouj which offers a great deal of decentralized open parks surrounding the built-up areas.

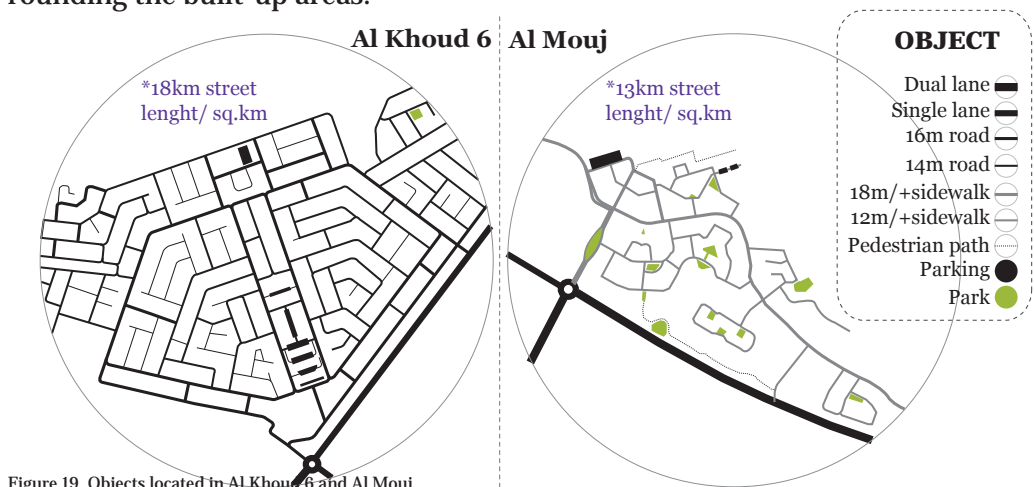


Figure 19. Objects located in Al Khoud 6 and Al Mouj

### 3.4.3 Policies and guidelines shaping Al Khoud 6 & Al Mouj

To further understand the morphological form of Al Khoud 6 and Al Mouj, an understanding on the national, regional, and built-up regulations that binds these areas is required. Hence, the Oman National Spatial Strategy by the Supreme Council of Planning along with the Urban Physical Regulations by the previous department of Supreme Council of Town Planning is vital to comprehend land zoning and division guidelines that over institute further use.

## National and regional strategies

Oman National Spatial Strategy (ONSS) is a 20 years plan for evaluating and guiding development within the country. The on-going strategy is carried by the Supreme Council of Planning along with national and international expertise on various backgrounds working on a set of goals aiming towards a sustainable development in the country (Al Harthy, 2016). The strategy witnessed a few institutional structure changes of internal management at the early stages of setting up, thus, it was shutdown and reopened with a new stirring committee insuring planning and development with the greater benefit for the country in mind.

ONSS was further described by a group of international expertise with national supervision defining overall targets. The strategy would be evaluated mid-way in 2020 with a final evaluation in 2030 (Schrenk, Neuschmid, Rathschüler & Kollarits, 2012). In 2016, a number of companies were allocated regions and governorates under the supervision of the Supreme Council of Planning (SCP) for the development of regional spatial strategies that will correspond to local and national requirements for the development of guiding principles for Oman and its regions. The time frame for the development of the project is 2 years.

## Urban Physical Regulations

Published in 2000 by the 'Supreme council of Town Planning', the urban physical regulation book outline how regions, cities, neighborhoods, and towns are design within the Sultanate. As the thesis focus on neighborhoods, the information in regards to this topic is outlined in the order of definitions, criteria, and elements along within their detail. These definitions are applicable in the case of Al Khoud 6, however, in Al Mouj the urban planners have used the definition of 'New Urbanism' along with the set of regulations described by the Muscat Municipality. Hence, to understand the extent of their accuracy within the planning table 1 and figure 20, the definitions of neighborhoods is described as an area where the number of population is between 5-10 thousand inhabitants. Elements planning and provision within neighborhoods is based on this number, hence, internal basic elements are mosque, elementary school, commercial area, and a small post office. In contrast, elements that are planned beyond the neighborhood are: health center, playgrounds/parks, football fields, and cemetery.

Understanding the relation between planning regulation and what is visible through morphological mapping is vital to further investigate the fundamental requirements for neighborhood planning and the criteria it should provide to



Definition	Criteria			Elements				
An Urban neighborhood consist of 5-10 thousand inhabitant within a district	The provision of elements within specific size along with the required parking space in relation to size of population in the neighborhood			Within neighborhood: Mosque, elementary school, commercial area, small post office  Out of neighborhood: Health center, playgrounds, football field, cemetery				
Criteria	Elements within district				Elements out of district			
Elements	Mosque	elementary school	Commercial area	Post office	Health center	playgrounds	football field	cemetery
location	NbH center	NbH center	district center	NbH center	district center	NbH center	neighborhood	Region/district
Size (hector)	0.08	2	p.33 sq.m/person	0.06	4	0.25	1.5	1

Table 1. Definition and regulations Urban Physical Regulation book

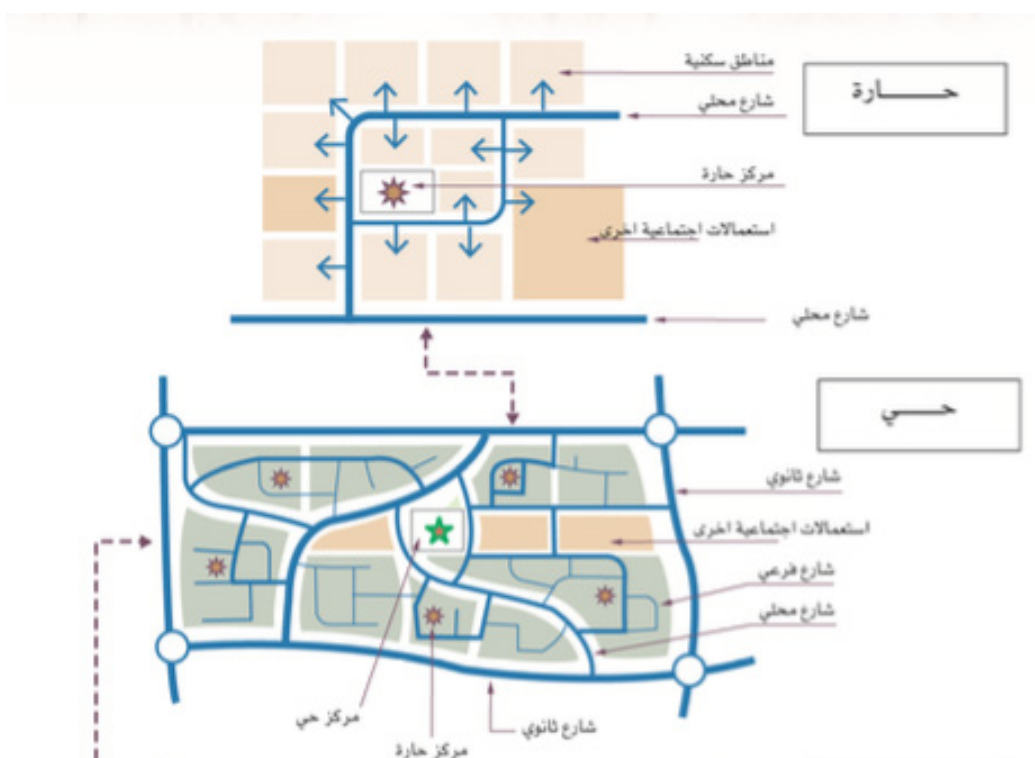


Figure 20. Diagrammatic explanation of Neighborhoods in relation to city (Source, Urban Physical Regulation book)

the communities living within them.

### Building Regulations for Muscat

Finally, when looking at the individual units within neighborhoods and their offset, the Muscat Building Regulation set the offset and design regulations for the built-up structure within the plot, however, it is relevant to note that the Ministry of Housing carries the plot divisions on which the respected owner would build up in accordance with the Muscat Municipality regulations. 'Muscat Building Regulations' guild by Muscat municipality under a local order no23/92 outlining the codes on material, setbacks, built-up ratio, and overall dimension of the building as seen in figure 21.

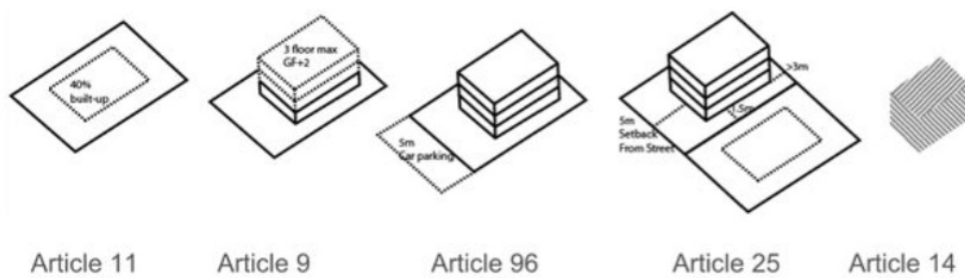


Figure 21. articles for Muscat building regulation (source, Urban Oman 2016)

#### 3.4.4 Al Khoud 6 and Al Mouj, the benchmark

Before the analysis of communities and unbuilt spaces, both neighborhoods; Al Khoud 6 and Al Mouj, are represented with their morphological mapping to explain the planning similarities and difference. Similarities in terms of the site, path and plots can be found. However, the internal division of buildings and objects exhibit a difference that can be relate to the difference in the responsible of execution of internal built-up structures and infrastructure. Figure 22 provides the compile of all the mapping.

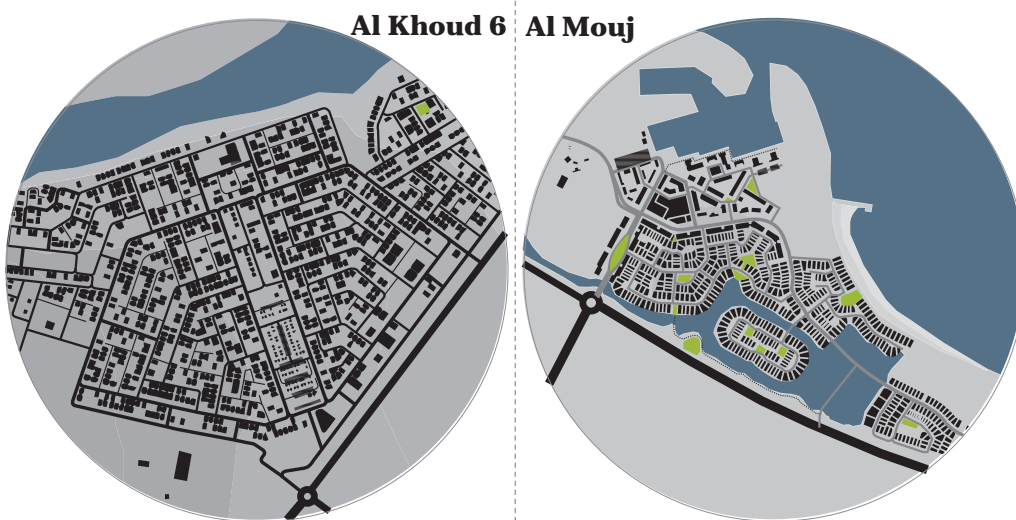


Figure 22. Compile of criteria resulting in a benchmark for Al Khoud 6 and Al Mouj







Al Khoud 6 and Al Mouj  
Left Right



## 4. Analysis and findings: Al Khold 6 & Al Mouj

### 4.1 Community and unbuilt spaces

Using the basis of literature to understand communities and their relation to unbuilt space within neighborhoods, a method of data gathering and analysis is further described.

#### 4.1.1 Three tiers of analysis: Thoughts, movements, and traces

The questions that arise when looking at the community and urban spaces are: what the requirements by the community, how does the community use the spaces, how did the community shape their spaces. Hence, we look at the thoughts that of the residents on their neighborhood spaces, then map their movement within these spaces, and finally trace the marks that they have left on their urban context. In order to analyze these questions, three tools are used for the extraction of data for further evaluation which are surveys, behavioral mapping, and finally spatial mapping. Interviews were considered in all aspects to fill the gaps in missing information.

#### Surveys

The aim of conducting a survey was to gain an understanding on how the community functions within the urban context and the connections they build in the process of doing so from their personal perspective. The structure of the surveys focuses on three aspects, daily tasks carried, their evaluation of the space within their neighborhood, and sense of community. These questions were targeted for all residents how used the urban surround beyond the boundaries of their residential plot, therefore, people walking the street, playing in parks, in front of communal center, or even in an afternoon school. The age group for the focus of the area was inclusive to all residents from below 12 to above 60 years old. Unlike social studies done by Claude S. Fischer in 1982 doc-



umented in her book "To Dwelling among friends: Personal networks in town and city" where she targeted the adults within spaces although she acknowledges that minors are effect the most on the social aspects of spaces within community. Her reasoning was based on practical and restrictive rules in the United States, in addition to the required data did not include the lifestyle of minors. In the case of Al Khoud 6 and Al Mouj, the community as a whole was targeted as there aren't any restriction on surveying on public spaces, in addition, the lifestyle of minors was included in the survey as neighborhoods in literature focus on the safe area for children to interact. The overall surveys carried were 40 surveys for each neighborhood. A main challenge that was faced during the conduction of surveys was the climate. Due to high temperatures in Summer in Oman, the likeliness of residents optimizing their time in the outdoors was very low, hence few individual were located in the surveys and observation during this period which would have been different if it was during the spring season.

#### *Behavioral mapping*

As a tool for observation the movement of individuals within a space, behavioral mapping was used to understand how the residents relate spaces to their daily lifestyle within a neighborhood. Looking at the two neighborhoods on three various times of the day within the week while mapping the movement of pedestrians and cars is used to identify the primary space within a community. The pedestrian where categorized in terms of nationalities, gender, and age. The cars where marked through in and out flow.

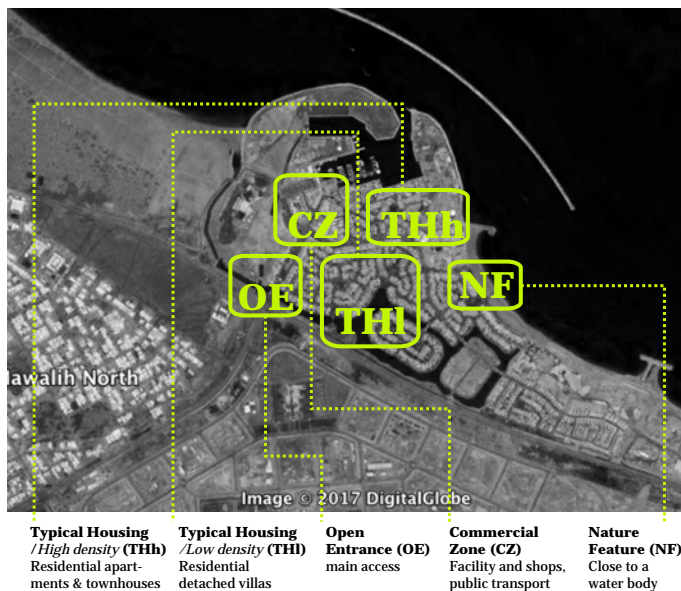
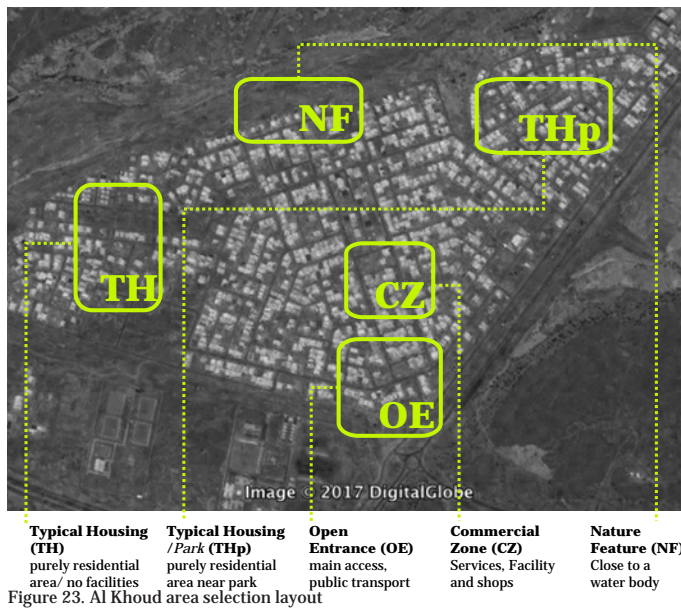
#### *Spatial mapping*

To understand the traces and appropriation to the urban context, mapping of areas beyond the internal plots; with the inclusion on main street, where alteration in forms of permanent and flexible objects where mapped. Through analysis in small sections of the neighborhood, a set of land alteration in terms of tangible and intangible traces of appropriations are mapped.

#### 4.1.2 Areas of study

A set of five areas where selected as representative spaces that are visible within the selected neighborhoods as shown in Figure 23 and figure 24. These areas were: Typical housing with two variations, Open Entrance, Commercial zone, and natural feature. In the case of Al Khoud 6, typical housing referred to areas with only the only residential building defined as TH and a different area with





a park within the residential area defined as TPp. While in Al Mouj, these difference was not relevant as the available of parks was within a radial line of less than 400 meters, hence, the difference on density was used to differential the two types of residential quarters defined as THh for areas consisting of apartment buildings and townhouse, in addition to THl for the areas where only detached villas were present. Open entrance looked and the primary entry point to the neighborhoods and the context that surrounds it. Commercial zones are areas where various land-uses were present. And finally natural feature, reflects in the case of Al Khoud 6 the areas near the wadi as it provides a unique atmosphere and in the case of Al Mouj, the beach was selected as it exhibits a relations similar to the one in Al Khoud 6.

These areas were further defined within the radial service that was mentioned by Perry and Duany & Platter-Zyberk as quarter of a mile neighborhood. Although in they refer to the size of the entire neighborhood being half a mile in diameter, in the case of Muscat, these divisions do not apply as they represent a small group of houses with a very low density as local neighborhoods are planned with a population of 5-10 thousand over a considerable area of land.

### 4.1.3 Neighborhoods general data

The general set of data gathered from the survey provide a demographic structure and description of movements within the larger section of Muscat and within the district. The information extracted were: Age, gender, number of household, nationality, profession, movement to location of profession, and finally the years they lived in the neighborhood.

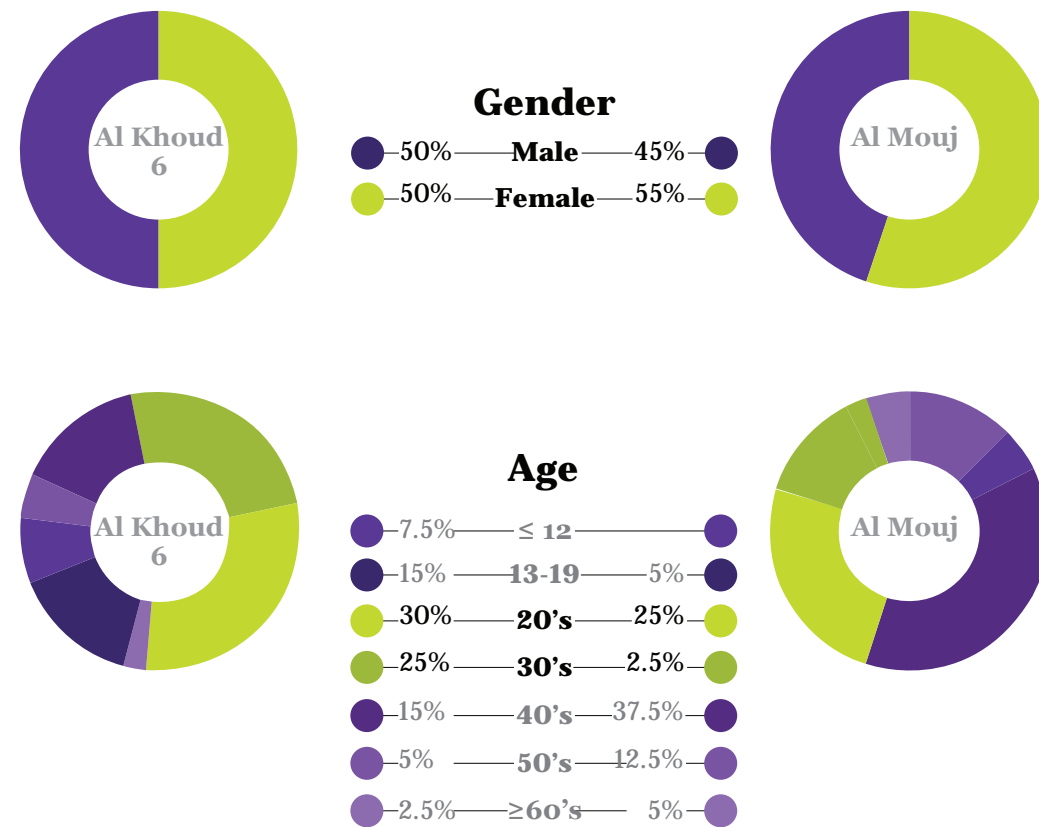


Figure 25. General data on age and gender of survey participant

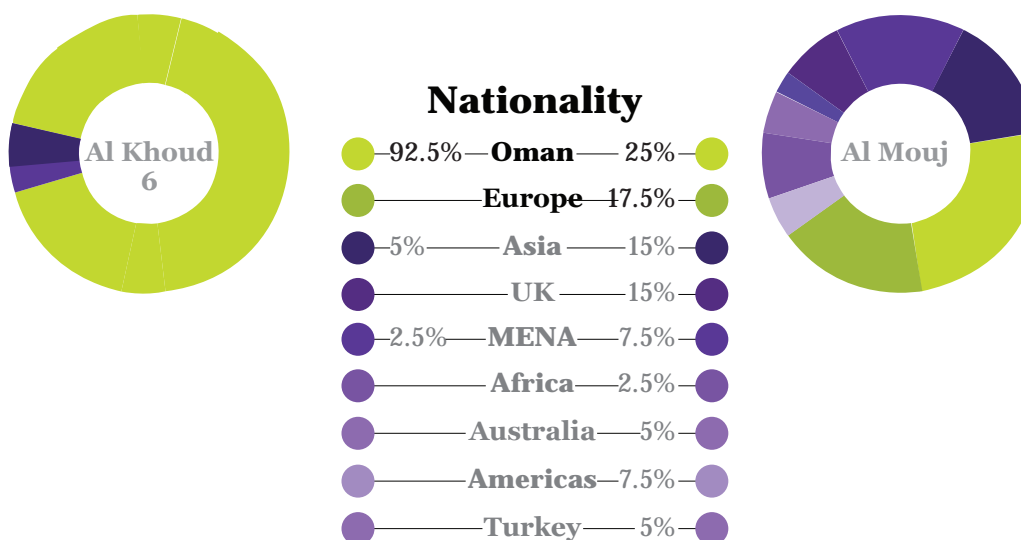


Figure 26. Nationalities of participants in the survey

As shown in figure 25, the survey was comparatively even in terms of both genders inclusions, however, slightly high ratio of females in Al Mouj. The age structure of residents was dominated by ages from 20's-40's, although, there is a higher number of participants for the younger age group in Al Khoud 6, however during the survey period at the Al Mouj, young kids were always surrounded by adults unlike the case of Al Khoud 6 where children of all ages were freely playing the surroundings. Only 7.5% of the participants in Al Khoud 6 were expatriates, unlike the case of Al Mouj where 75% were expatriates from vari-

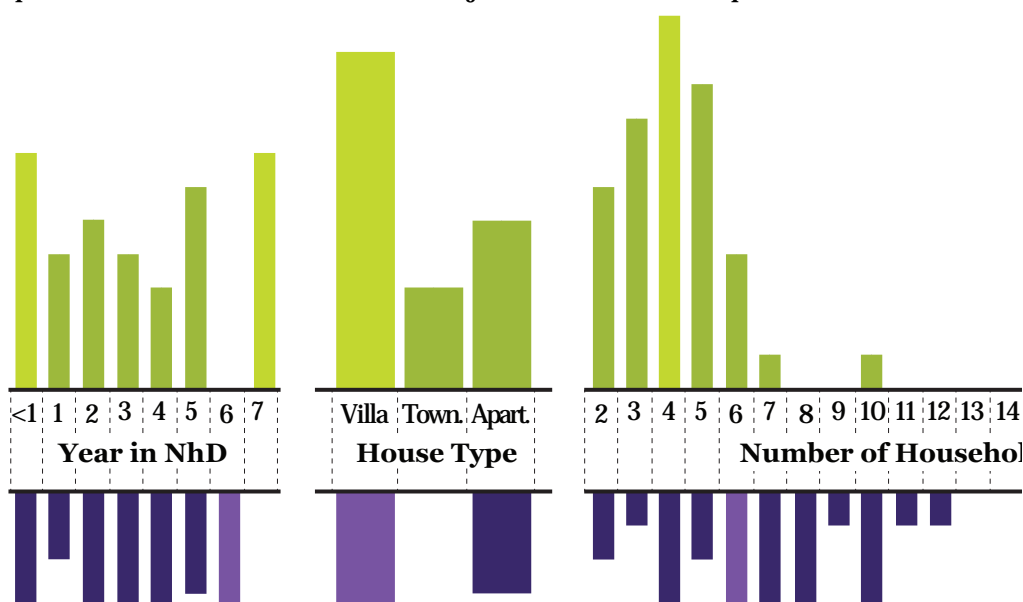


Figure 27. Type, year, and household number of participants in the surveys

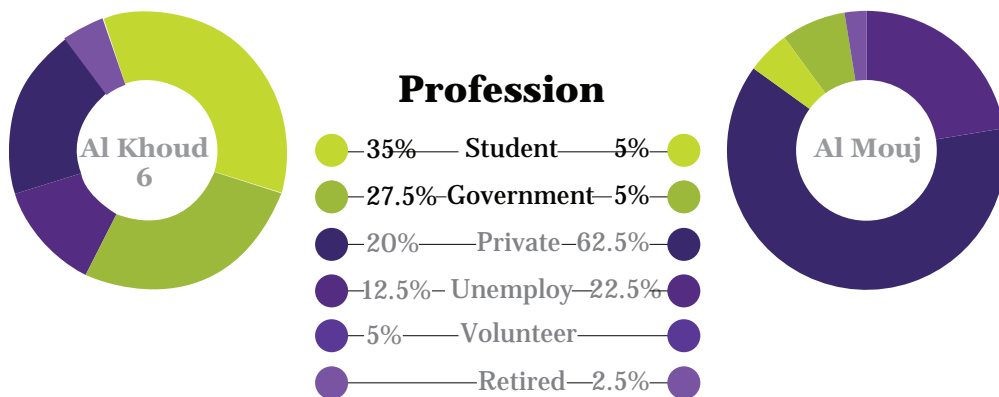


Figure 28. Profession of participants

ous countries while only 25% were Omani. It is highly relevant to state that all survey participants were approached in public settings during late afternoons when the weather was moderately suitable for outdoor activities within neighborhoods.

When looking at the residents living within neighborhood, a high percentage of families lived in Al Khoud 6 and Al Mouj for more than 5 years as shown in figure 28, although a comparative number of residents were very new to the neighborhood. Most the the residents in both areas lived in detached villas with a household average of 7.6 individuals in Al Khoud 6 and 4.1 individuals in Al Mouj. Daily tasks in regards to movements out of the neighborhood showed in figure 29 a large portion of the residents worked within the eastern side of the city which is known for it's commercial and offices districts, however, a few number of the Al Khoud 6 residents work or went to schools within near by district such as New and Old Al Khoud, Seeb and Mabilah. The majority of both neighborhood residents took private cars for their daily commutes with an average time of 20 minutes to reach their destinations. Al Khoud 6 exhibited a high percentage of transportation via communal means such as school buses and public transportation, this could be reflected to the high number of youth living within Al Khoud 6 neighborhood.

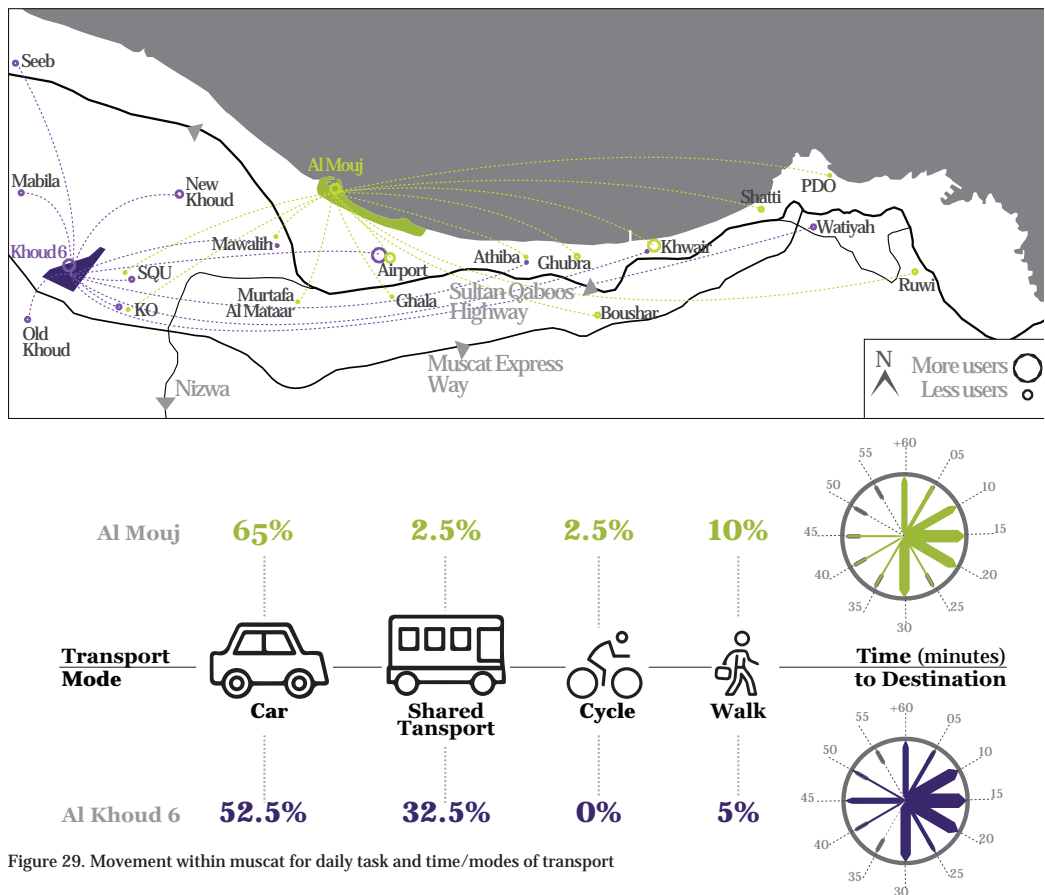


Figure 29. Movement within muscat for daily task and time/modes of transport

## 4.2 Thoughts on community and unbuilt spaces

A short survey was conducted to understand how the community perceived their surrounding and relation towards the community. Following the elements of sense of community outlined by McMillan and Chavis in 1986 on Membership with a community in regards to “emotional safety as security, sense of identification, personal investment, and finally common symbol system.” The survey was conduct in aim answer a few of these question along with the relation it provides to unbuilt spaces.

### 4.2.1 Community survey

The survey questions the resident’s knowledge on the number of neighbors within their surrounding of which they know. A high majority of residents in Al Khoud 6 mentioned that they know most of their neighbor while residents in Al Mouj know of a few only, figure 30. Their reasoning to this was the inconstant neighbors as they change frequently in addition to the different culture that

reflects on their different interest. However, when ask if they carry activities with their neighbors, both neighborhoods responded positively in this regards by 55%. The question then requests to find out the type of activity the do and the location where they would meet. Highest responds in Al Khoud was meet- ing at homes for Babysitting and lecture at the mosque, while at the Al Mouj, highest respond was meeting for gathering at homes as well. Figure 31 indicate the types of activities carried with neighbors while figure 32 looks at the spaces where they would meet with the neighbors.

The survey then looks at the frequency on which they would meet their friends within the neighborhood, figure 33. Similar to the previous question, Al Khoud 6 responds meet other people within their homes, while Al Mouj responds meet

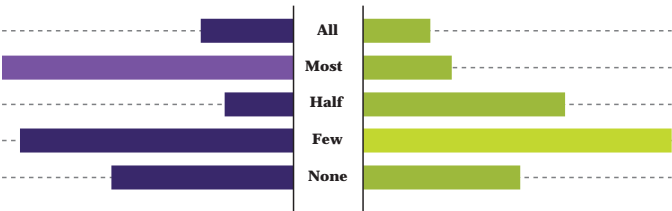


Figure 30. Number of neighbors known



Figure 31. Activities carried with neighbors

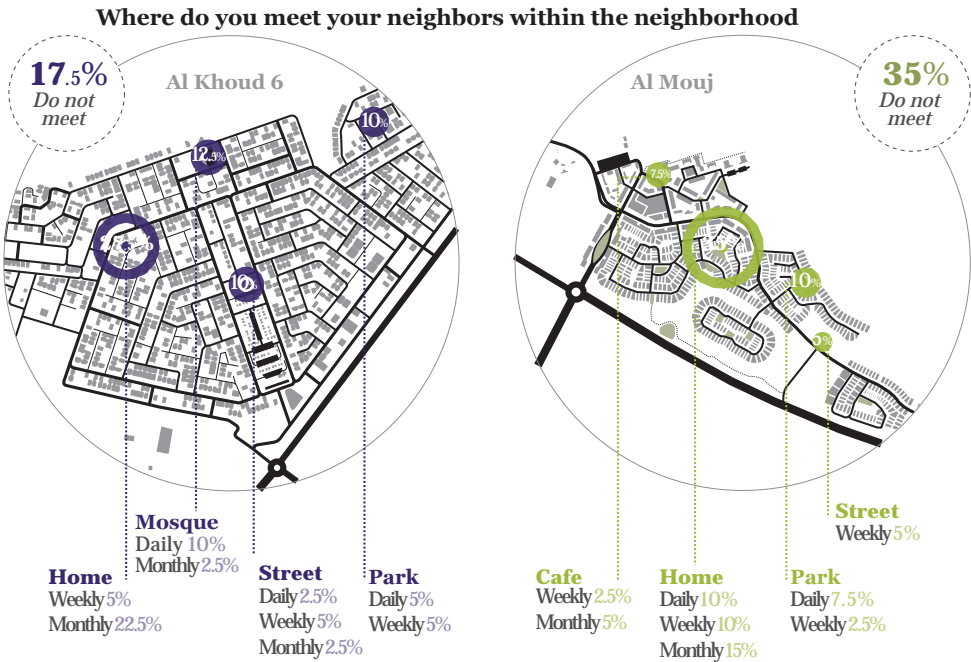


Figure 32. Frequency of meeting with neighbors

### Where do you meet your friends within the neighborhood

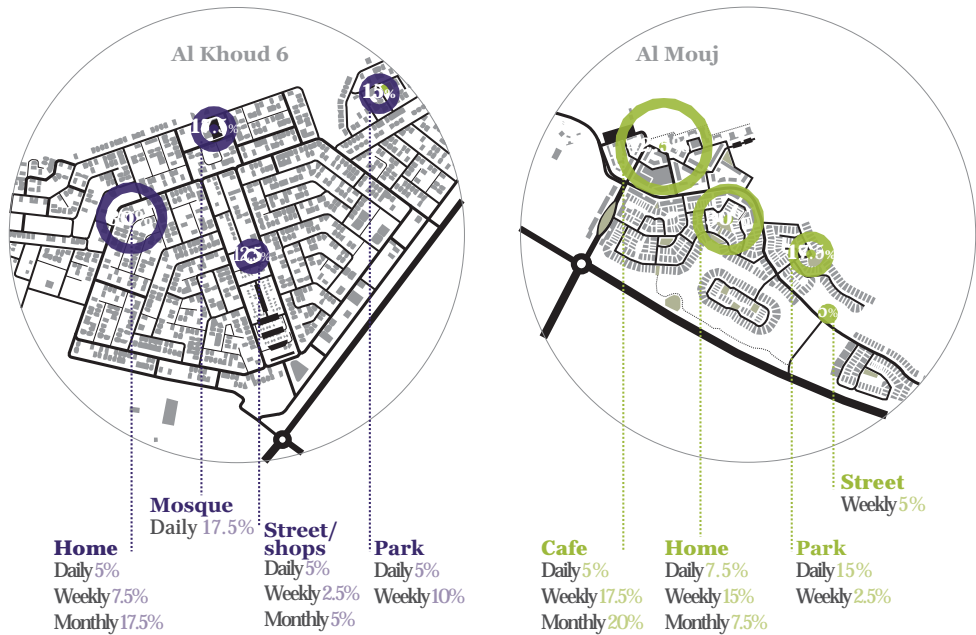


Figure 33. Frequency of meeting with friends inside neighborhood

their friends within the available facilities such as café and restaurants within the neighborhood. Further, the survey tries to understand the relation between the community and their neighborhood in general by first asking ‘what they like and dislike about their neighborhood’ as shown in Figure 34. In Al Khoud, the majority responded with the ‘Quietness’ of the area followed by the community while disliking the mixing of student’s dormitories with family along with the poor quality of maintenance by the municipality. In Al Mouj, an equal respond to pedestrian, community, facilities, and safety was agreed upon in regards to what they liked about the neighborhood, however, an equal amount responded with disliking the community along with the parking availability and quality of maintenance.

Finally, when asked what would they like to change about their neighborhood, the majority of responds in Al Khoud 6 was in regards to the access situation along with the lack of pedestrian sidewalks and parks for children to play in. However, the majority agreed that they would still like to live in Al Khoud 6 if they could live anywhere else as they appreciate the community and quietness available. In Al Mouj, the residents requested that they should have more events as these are organized by a committee within the customer service, in addition



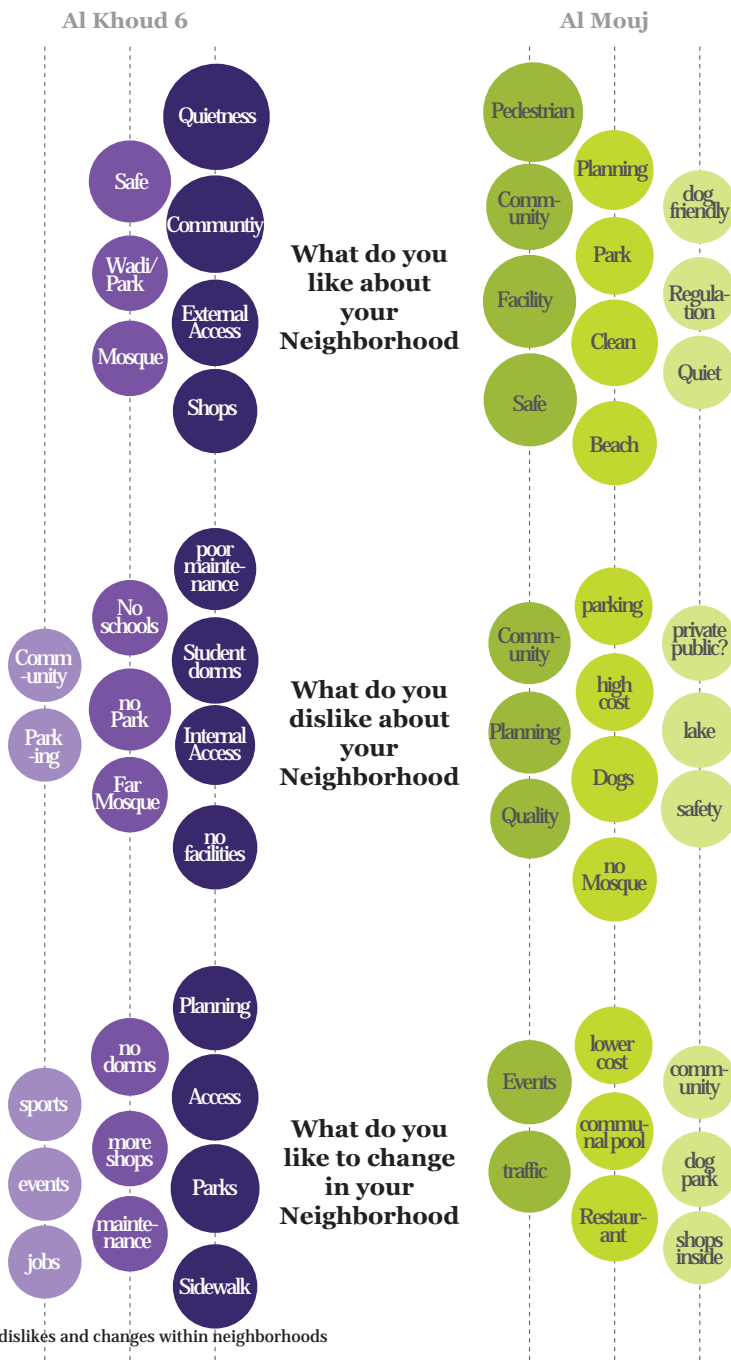


Figure 34 . Likes, dislikes and changes within neighborhoods

to proper management of traffic including access to the neighborhood, however this didn't not influence their opinion on whether they would like to leave the neighborhood or live here if they were given the option, with the majority as shown in figure 34, responds of wanting to stay at Al Mouj due to the facilities it offer along with the right for house entitlement for expatriates in Oman.



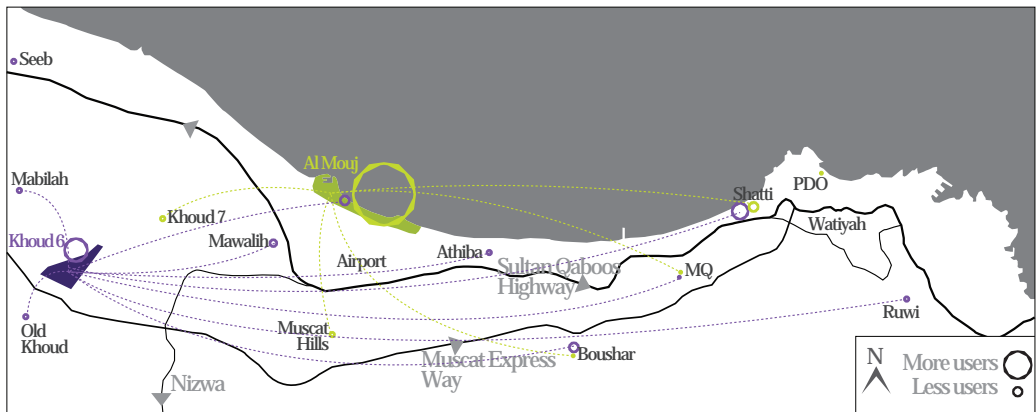


Figure 35. areas in Muscat they would like to move to

#### 4.2.2 Unbuilt spaces survey

Using the three criteria defined by Baker (2009) on unbuilt spaces in neighborhoods, the survey attempts to first understand the uses of spaces and facilities within the neighborhoods followed by spaces used for activities and the frequency of usage, and finally a rate of cleanliness, safety, and maintenance within the neighborhoods was outlined.

The facilities and spaces outlined were school/daycare, mosque, shops, and parks as shown in figure 36. These were selected as they represent the basic neighborhoods services in the 'Urban Physical Regulations' book. In regards to schools/daycare, both neighborhoods do not prefer to use the internal services by 57% as there are not governmental schools like in the case of Al Khoud 6, and non applicability for the residents in Al Mouj. However, when asked about usage of mosques within the neighborhood, 92.5% of residents in Al Khoud 6 used the facility with 52.5% driving to the mosque and 40% walking to it. In contrast, 100% of the residents in Al Mouj do not use the mosque in the neighborhood as it is not constructed yet, hence a large number of the residents use other neighborhoods mosque for Friday prayers. Over 90% of both residents used the neighborhood grocery shops by either driving, walking, or cycling to the location. The remaining percentage didn't use these facilities as they considered it expensive. Finally, parks were used by 55% of the residents in Al Khoud 6, while 92.5% of Al Mouj residents used their internal network of parks. These facilities were reached in both neighborhoods through walking, cycling, or driving.

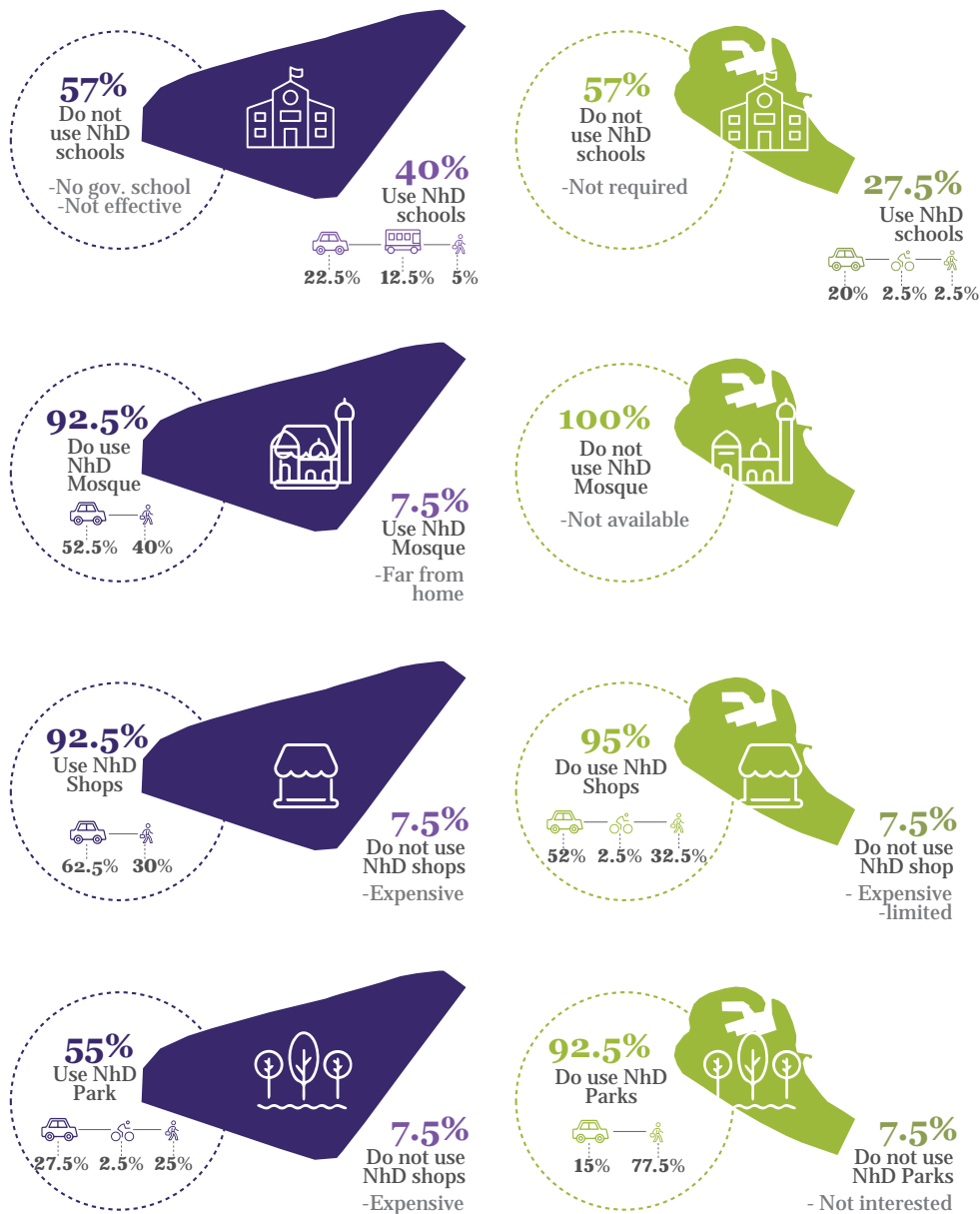


Figure 36. Allocating basic facilities and services along with their usage

The second aspect of the survey was investigating the spaces used for activities such as football, playgrounds and finally exercise within the neighborhoods as shown in figure 37. For football, the majority residents in Al Khoud 6 referred to empty plots within the neighborhood while high number of residents of Al Mouj mentioned facilities outside the neighborhood. In regards to playgrounds and play spaces, the majority of responds from Al Mouj mention parks as a primary

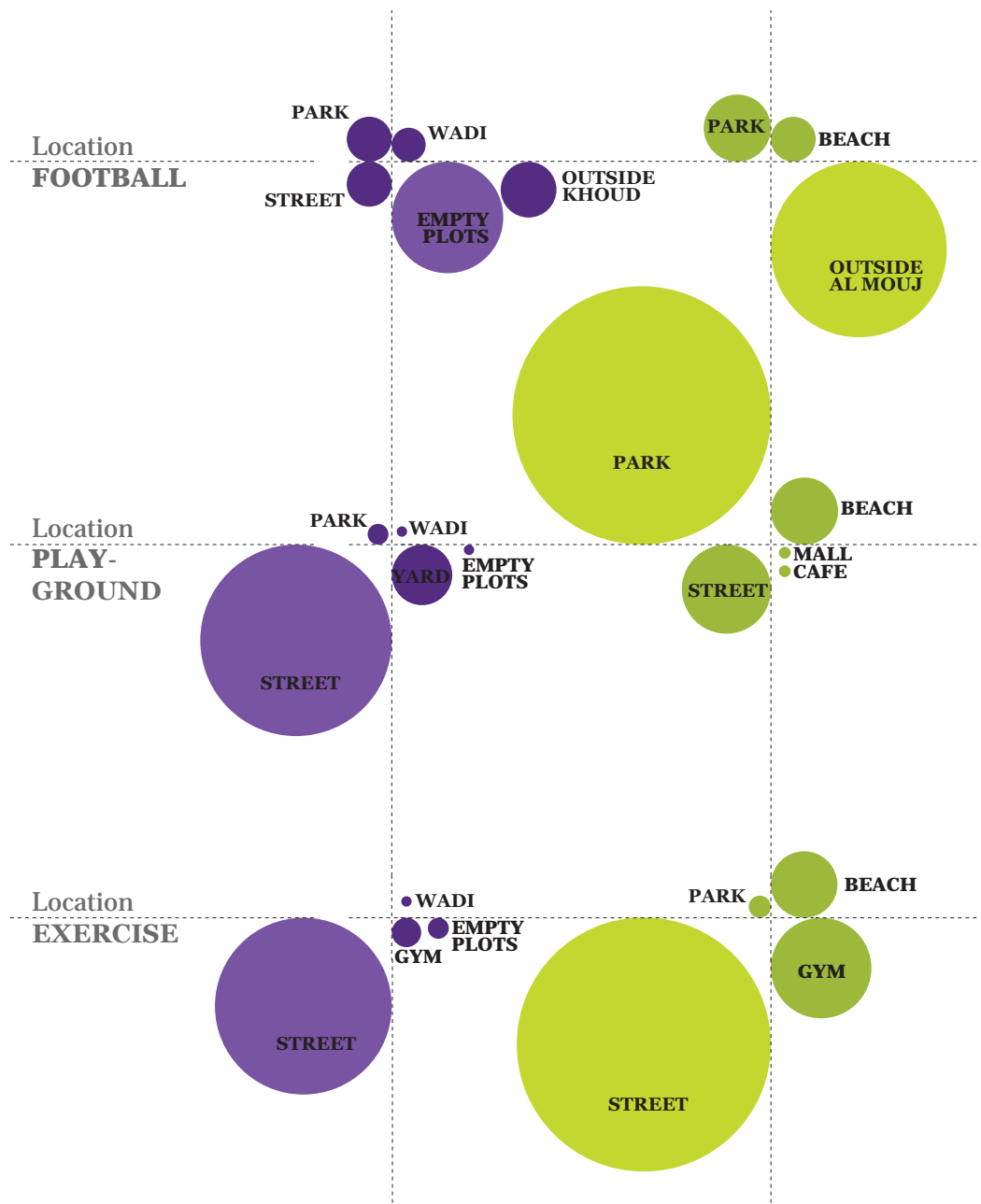


Figure 37. areas used for activities

location used for this activity, while a large group of resident from Al Khoud 6 refer to the streets as an area where kids could be found playing. Finally, for exercise the street is highly rated by both neighborhoods as an area for walking or running followed by gym and the beach in the case of Al Mouj.

The frequency of usage of these spaces; parks and street, was evaluated in terms of daily, weekly and irregular frequency of usage as shown in figure 38. In Al Mouj, streets were used for walking on daily bases by 75% of the survey participants while 47.5% of Al Khoud 6 residents walked in the street daily. The frequency of park usage on daily bases was 55% in Al Mouj while only 2.5% in Al Khoud 6 used the park of daily bases. This question was further asked in terms of whether the participant spent their afternoons outdoor or indoors, with 40% responds to outdoor at Al Khoud 6, it is becoming clearer that afternoons are

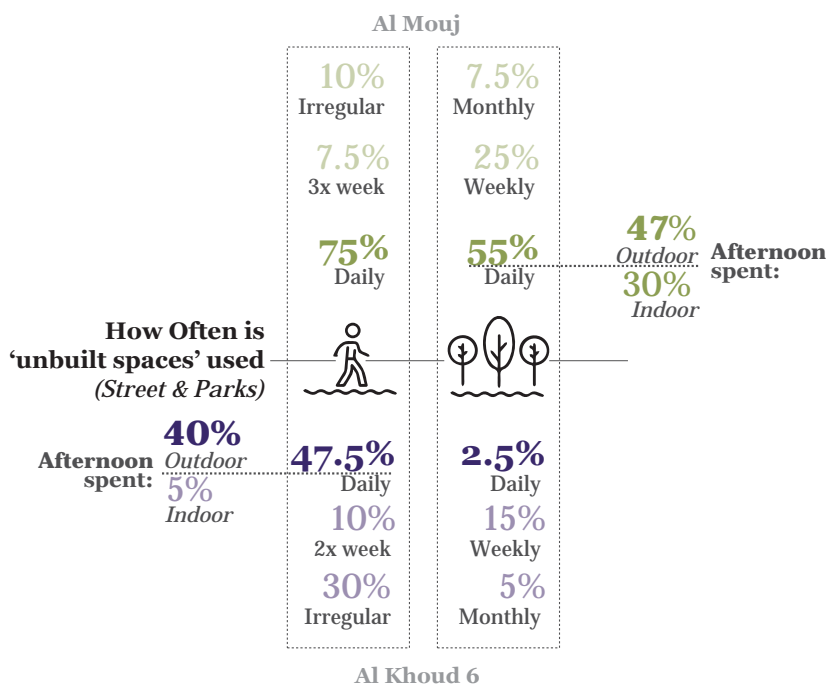


Figure 38. Frequency of usage of unbuilt spaces such as street and parks

spent walking or running in the streets, while in the case of Al Mouj, only 47% refers to afternoon in terms of time spent in the park as walking is often done in evenings. With the low usage of parks within the neighborhood in Al Khoud 6, identifying other areas where they would visit other parks in Muscat was relevant. Thus, figure 39 indicates other parks used on monthly bases by residents of Al Khoud 6, with favor to Sahwa Park.

Finally, rating the neighborhoods in terms of cleanliness, safety, and maintenance which reflects the satisfaction of residents towards their surroundings as shown in figure 40. In Al Mouj, the majority of residents were extremely satisfied with the cleanliness of their neighborhood unlike the case of Al Khoud 6

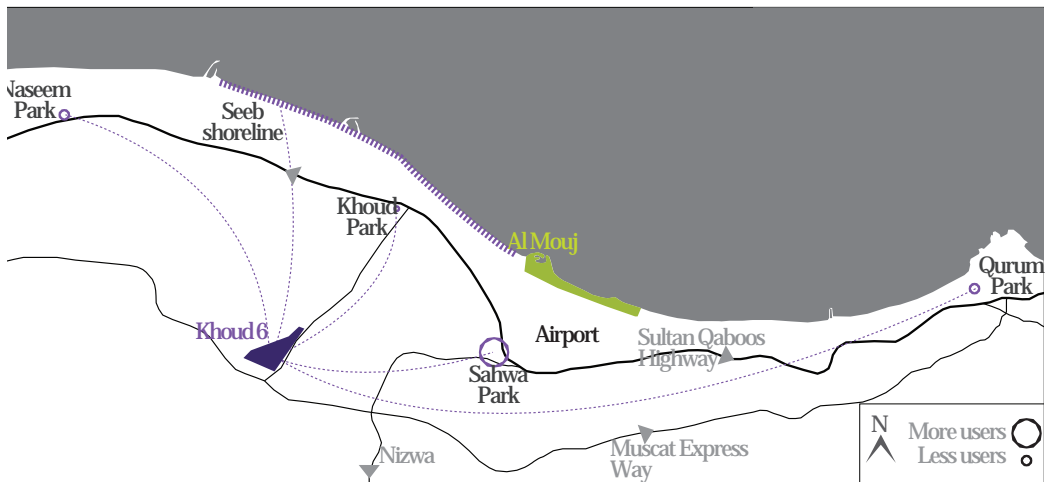


Figure 39. Parks used on monthly bases due to lack of internal parks

where the majority were not so satisfied. However, in regards to safety, both areas felt extremely safe within their neighborhoods. Maintenance, throughout the conduct of the survey was evaluated by the participant by comparing the situation to other neighborhoods in Muscat, thus, both residents considered their neighborhoods well maintained in comparison to other areas within Muscat. The cost of these services were also mentioned during the survey as residents of Al Mouj expressed the high cost of maintenance and security that must be paid by all residents of Al Mouj, while these elements are covered by the public sector in other neighborhoods of Muscat just like the case of Al Khoud 6.

#### 4.2.3 A reflection on thoughts

An understanding of lack provision vs resilience can be reflected in the case of Al Khoud 6 as the area includes less the minimum basic neighborhood infrastructure, however, they accommodate with the lack through finding alternative spaces for playgrounds and football unlike Al Mouj. Here, all facilities are available but with an annual fee for the maintenance of these facilities, thus, the satisfaction of them are quite high.

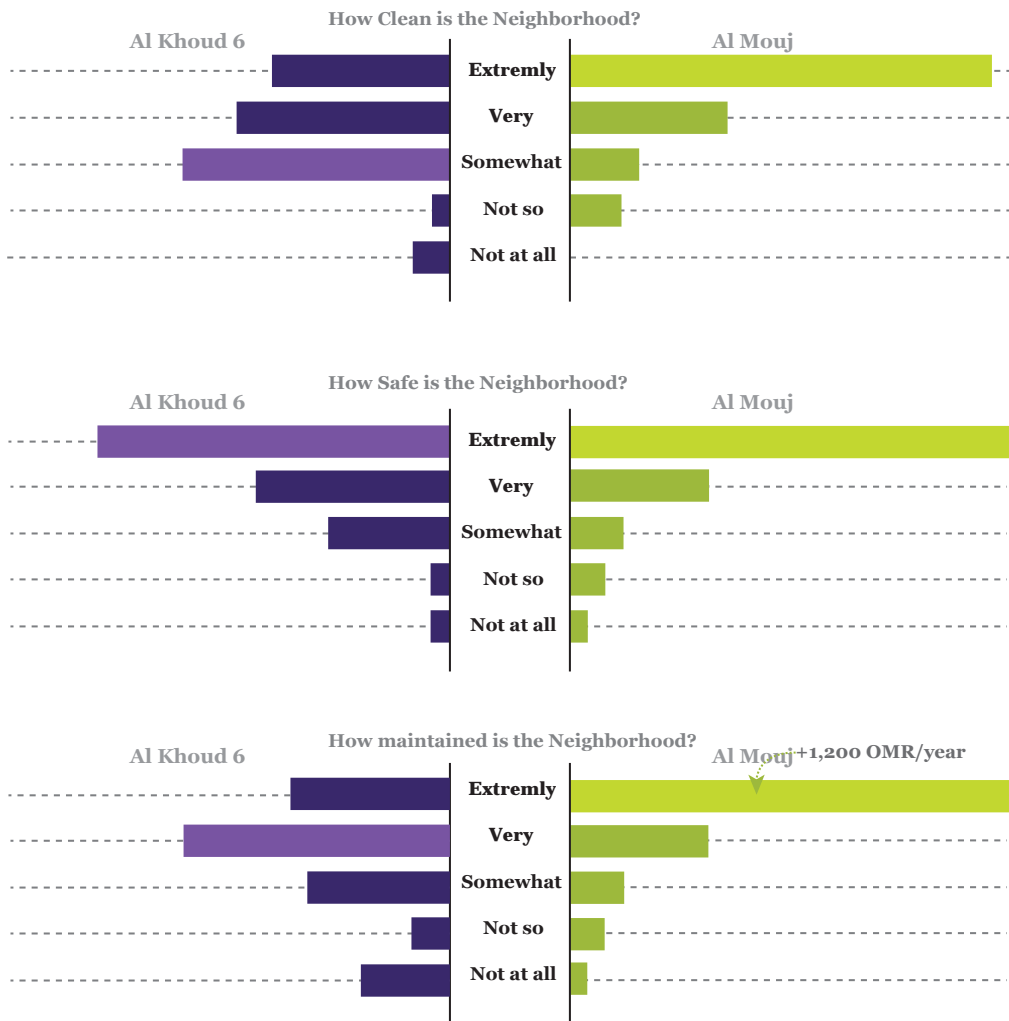


Figure 40. Satisfaction with overall neighborhood in terms of cleanliness, safety, and maintenance.

### 4.3 Movement within community and unbuilt spaces

Behavioral mapping was used to understand how the residents used their surrounding environment throughout the day. Using the five division section of the neighborhood, a second dimension of the radius of these locations was used in reference to Perry and Duany and Plater Zyberk rule of quarter a mile neighborhoods. Hence, wherever possible, the radial definition of quarter mile radius was used to map movement within these five locations as shown in figure 41.

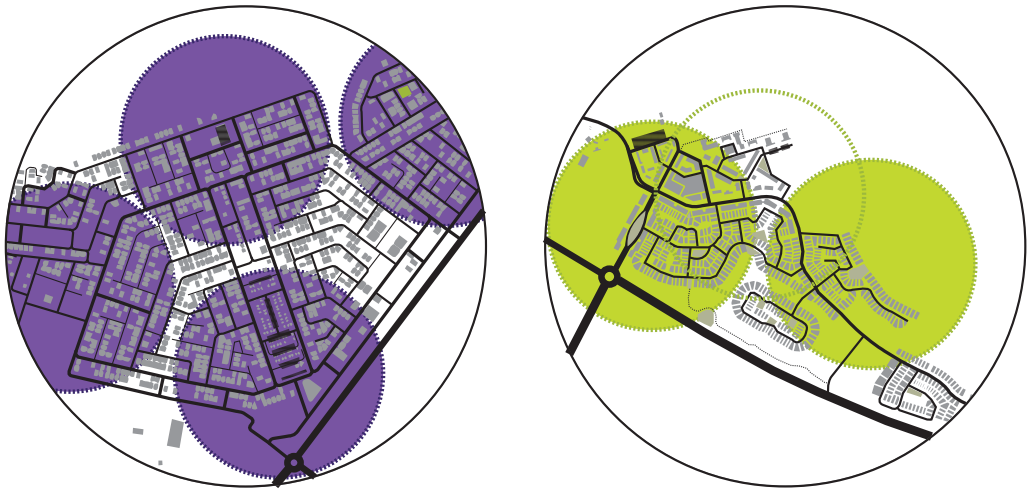


Figure 41. location of behavioral mapping in Al Khoud and Al Mouj

#### 4.3.1 Community in Unbuilt spaces behavioral mapping

Two types of movement mapping was carried, first, pedestrian behavioral mapping within the five areas, second, mobility mapping to understand intensities of traffic within the neighborhood. Figure 42 looks at the pedestrian movements within neighborhoods in comparison to the same defined areas on the other neighborhood. Similarities can be drawn in the natural feature and commercial zones area as they both exhibit high pedestrian movements within. In the natural feature area at Al Khoud 6, high movements are the mosque and its exterior shop was recorded, similarly, the playgrounds in the beach at Al Mouj were busier than the beach stretch as it had seating and facilities. The typical housing are harder in comparison as they offer different typologies hence relating to different density and movements within a space. However, a comparison between the two types of residential show a relative similarity between the movements of pedestrian within the area, however, with a slightly higher number of pedestrians in the parts with more public parks. However, in the case of Al Khoud 6 area TH has a central strip of empty plots that are being used as sport field by the resi-

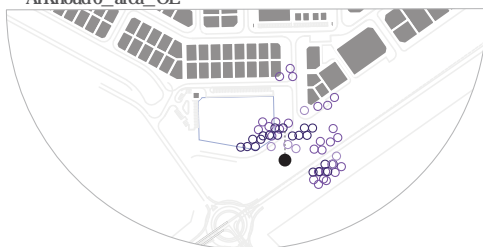
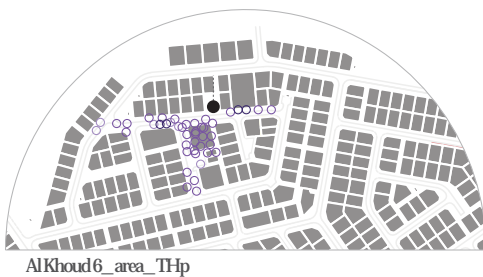
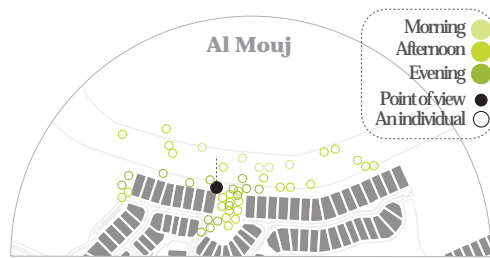
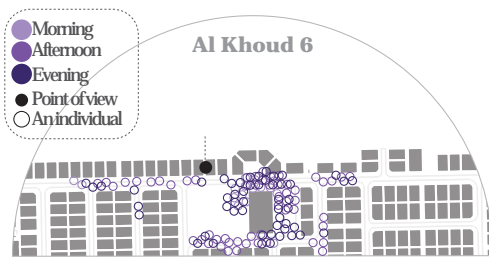


Figure 42. Pedestrian movement within the neighborhoods



dents and labor working and living in construction projects inside the neighborhood. Male residents use the eastern side of the strip for playing football while the Asian expatriates use the middle section for playing cricket.

On the contrary, mobility within the neighborhoods as shown in figure 43, illustrates the similarity of car traffic within the two neighborhoods, beginning with a high intensity open entrance to low traffic natural feature. Areas in-between; especially the commercial zone, exhibit the transition between high intensity entrance to lower intensity residential areas. The residential quarters demonstrate similar traffic movement within between the two types and the neighborhoods. Looking at the commercial zone and open entrance of both areas along with both levels of mobility shows that in Al Mouj pedestrian traffic does not reach the main street as there is a bus stop at the beginning of the commercial zone, on the contrary, Al Khoud 6 has the location of the bus stop of the opposite side of the secondary road, hence pedestrian traffic is pushed out the neighborhood with an additional need to cross a fast lane without a pedestrian path to reach the bus stop. It is also relevant to note the different type of access provide a different values of traffic intensity (see table NUMBER). In Al Khoud 6, access is slowed down by two sharp turns causing high level of inconvenience and traffic.

#### 4.3.2 A reflection on movements

In regards to pedestrian behavioral mapping, it is noted that areas with a dual or more function are highly attractive for pedestrian, even the availability of empty plots offer flexible areas for interaction and activities. Car traffic can also be influenced by the number of adequate access to an area, hence in the case of Al Mouj commercial zone, traffic is moved around the area leaving the middle section for pedestrian movement much safer.

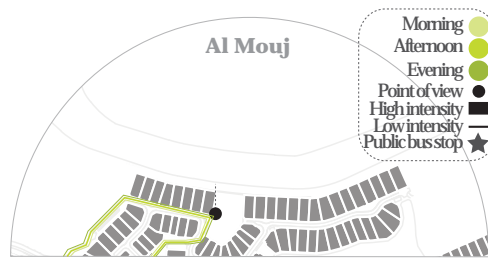
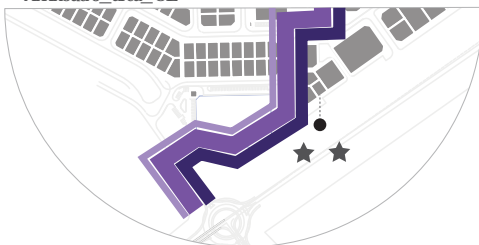
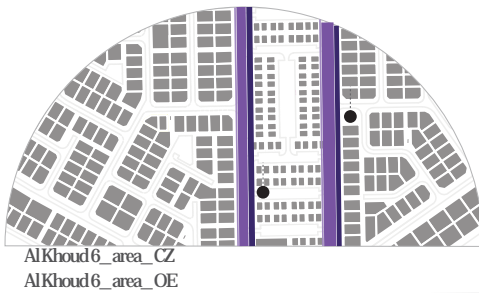
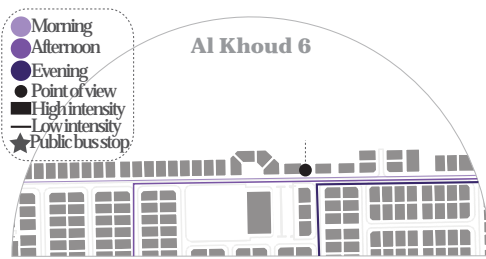


Figure 43. Car movement within the neighborhoods

#### 4.4 Traces on community and unbuilt spaces

In order to understand the community from the perspective of their spatial context, mapping and observations along with interviews assisted in defining how each neighborhood utilized their surrounding for communal purposes. The first criteria for analysis was to define areas that are public vs areas that private, hence, the type of usage could further be analyzed whether it related to community needs of private interest.

As seen in figure 44, Al Khoud 6 with the exception of few areas consist of private lands with connecting streets that serves the public interest, here the Wadi is also regarded are a public space as it is a natural element. In the case of Al Mouj, the definition of semi-public areas are introduced as there are limitations on accessibility via cars to most of the neighborhood with the exception of the commercial zone and the typical housing unites with high density. This term is also applicable to the beach as a walking distant of one kilometer is required for visitors to reach the beach as they do not have car access to internal parking near the beach.



Figure 44. Private, public and semi-public areas

##### 4.4.1 Community in mapping and interviews

Tracing communities within Al Mouj was a change as the area is designed and build by an investor. Alteration of public spaces are highly unaccepted in addition, limitation on altering private properties are applied for the uniformity and image of the neighborhoods, hence with the exception of very few house the negotiated the landscaping applied on their house entry for personal interests, no sign of communal spatial appropriation within the neighborhood could be found.



Transition of mosque from 2008 till 2016



Knowledge neighborhood (social media)

In contrast, Al Khoud 6 within the two types of spaces; public and private, exhibits communal spatial appropriation in private plots and infrastructure. The mosque as a public religious and communal facility was initiated by the community in 2010 with a small structure for serving the purpose of prayers. The plot is given by the Ministry of Housing during the urban designing phase to Ministry of Endowment. From this point, individuals are welcomed to acquire a plot to build a mosque for public service. In the case of Al Khoud 6, the community took on the building cost of the mosque through communal funding, hence, during the designing of the mosque, the 'Sablah' as a hall was added to accommodate events and activities within the mosque premises. The traces of community associated with the mosque is visible through the vibrant and active use of the Sablah on weekly or even daily bases during some seasons.

The sense of accomplishment with the construction of the mosque was a catalyst for the new neighborhood internal name for the area known as 'Hay Al Ma'rifa' which translate to 'Knowledge neighborhood'. With the activation of the new name, the community has been organizing events and summer schools for their youth and other neighborhoods youth. This platform also supports local initiative and other surrounding initiatives from neighboring districts through advertising and promoting them on the social media page of Al Khoud 6 community profile.

In addition to the mosque as a private land developed for communal use, infrastructure within the neighborhood calls for communal efforts. In the case of water and gas underground infrastructure, the main utilities are extended around the area and

along main access within the neighborhood. Hence, communities living in purely residential areas require to issue a collective letter requesting an extension of these services to their houses. Therefore, the municipality as a responsible along with utility companies focus their efforts on inhabited neighborhoods due the rapid urbanization of land. The tracing of these communal effort on the provision of service are visible on the work that is currently being carried on some streets within the neighborhoods. The deconstruction of sections of the streets as seen in area THp are integrated in the municipal planning in anticipation of infrastructure provision in the long run.



Broken streets part of the infrastructure

layout in area THp

#### 4.4.2 Unbuilt spaces in spatial mapping

In regards to unbuilt spaces whether public or private, Al Mouj not correlate with this definition as construction of building is done through phases, thus, no empty gaps or unbuilt areas are left accessible for the public. Similar to the situation of community traces, Al Khoud provides a selection of activities on this regard on both public and private areas.



Uses of unbuilt spaces in Al Koud 6

Due to lack of playground and football field facility appropriation of unbuilt land is used to accommodate these aspects within the neighborhood by the community, thus, football fields marked with basic construction materials are visible in larger empty plots within the center of a residential quarter or along the flat land of the Wadi. In addition, empty plots at the entrance of the neighborhood is optimized by mobile food caters during the evenings, as these land are usually left empty as a buffer between a secondary route and a residential neighborhood. Hence, on evening during the week day, this area faces heavy traffic as show in section (4.3), which

is ideal for such small venders to position themselves in a busy road. These venders mostly sell light snacks of barbeque, in addition, some occasions were observed where venders sold home products. These kind of activities are considered legal as they do not occupy private land nor do they have a solid construction.

#### 4.4.3 A reflection on traces

Traces of community in unbuilt spaces provide a set of stories that can be translated into principals of planning. The top-down planning system carried within neighborhoods in Muscat offers many loop holes where the residing communities role are activated similar to the case of Al Khoud 6. Unlike the case of Al Khoud 6, Al Mouj with its intensive supervision by the developer leaves no room of the community to participate and change the surrounding, hence their surrounding is given and they would have to accept its context.

### 4.5 Triangulation

#### 4.5.1 Triangulation relations in the analysis tiers

Figure 45 presents the relation within the discussion on communities and unbuilt spaces with the three different spectacle on understanding their relations.

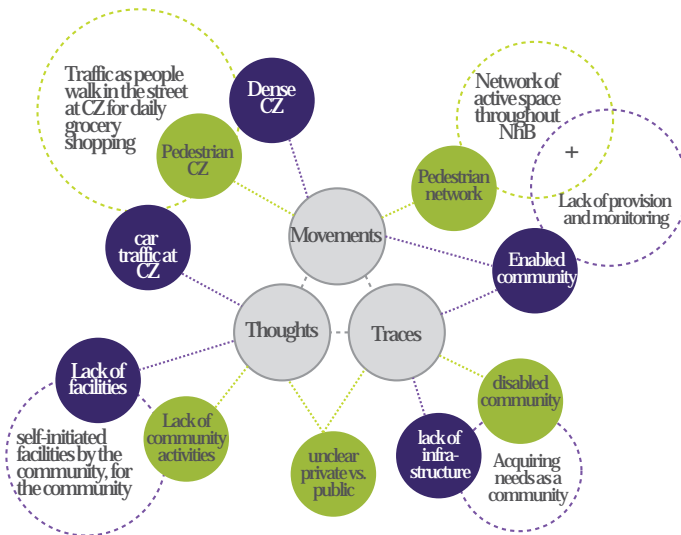


Figure 45. Triangulation of Thoughts, movements and Traces













# 5. Recommendations

## 5.1 Levels of community and unbuilt spaces

With three perspectives on view communities and unbuilt spaces, with the addition of literature and best practices, and overview on criteria for developing or improving exiting neighborhoods that are facing rapid urbanization of the surrounds could be reached. Here the discussion is relevant on the planning and designing scale as representatives from both strata's play key roles. In the planning aims at setting guidelines and frameworks on which local administration can take forward, while designing is regards as tool for communities of individuals who are directly influenced by spaces to take upon them the journey of shaping their own surroundings.

### 5.1.1 A look to community planning in Muscat neighborhoods

Like most fast growing cities, focus on regional development is usually the focus, similar to the current status of Oman, layers of discussion on how to economically improve regional growth is intensively regarded rather than looking at economies within the smaller scales. What makes the scale of neighborhood relevant in such a context is that it could provide a variation of opportunities within larger voids of the city of Muscat. However, the centralized administration of these area should start fragmenting in order to reduces cost of center administration but also, activating the role of private development. Nevertheless, initial set of guidelines are key for for allowing small and private investors to develop neighborhoods and communities within the overall aim and structure of regional administrations.

With the current context of Al Khoud 6 and Al Mouj, extracting data on the levels of land organization is a step on development these guidelines and frameworks. Both neighborhood provide a success story in one spatial planning and community development. Here, variation of criteria does not only support the

overall framework, but also assures its sustainability as these two case provide the two extremes of neighborhood planning in Muscat. Al Khoud 6, with its lack of phasing in development offers short term opportunities for communal enhancement through the available voids. The unbuilt space are versatile in a manner that could accommodate with the 'life-long' neighborhoods suggested by Duany and Speck. In the case of Al Mouj, the integration of a locally controlled authority for the management of the neighborhood provided quicker solution to planning and spatial changes. However, these bodies should include levels of communal integration as the current visible situation disabled the community for enhancing their environments. The case of infrastructure provision in Al Khoud is ideal for land and communal administration as their role could be further developed.

#### 5.1.2 Enabling communities

Communities as a vital influencer in the urban contexts is key when demand is above the norm of supply. As seen in the case of Al Khoud 6, although there are not an legal power associated with their role in planning the community, yet the gaps in planning and spatial context was a catalyst for these communities to beginning with shaping the context as the set the stone for settling within the neighborhood. Here, flexibility associated with the land-use regulation could result in to a great or horrific development. The bases of its success is the approval and fulfillment of requirement in provides the local community, as usage and provision have great influence on projects or proposals. In the case of Al Mouj, learning for the steps that communities have taken upon themselves to enhance their context in the manner that reflects their needs was a key to their success, however, it is highly relevant to note that the within a neighborhood, a number of communities for various interest are inevitable, however, their shared perspective on the neighborhood is common.

#### 4.1.3 Spatial potential of unbuilt spaces in neighborhoods

Learning for the case of Al Mouj, a pedestrian neighborhood in Muscat is possible. The arguments used by many of the locals and planners at administrative levels is 'the climate is not suitable for walking'. Naturally with the current weather of the Muscat, a pedestrian route for that is within the comfort levels that we have been accommodate to is not the goal. Using the natural elements to create micro climates within inner routes or road the form a network leading from and two and relevant or prominent location is a step towards pedestrian

neighborhoods.

In attempt to take this idea forward, a schematic plan of a primary route in Al Khoud 6 was outline then further developed using the criteria used in Al Mouj. As shown in figure 46, the eastern road offers a lop with a connection to many opportunities on it's path from mosque, bus stop, commercial district and opportunity for additional green parks on the unbuilt areas. Similar to the approach taken for the construction of the mosque, communal investment on such a project does not assure its completion, but also its success as the community would take pride in the achievements.

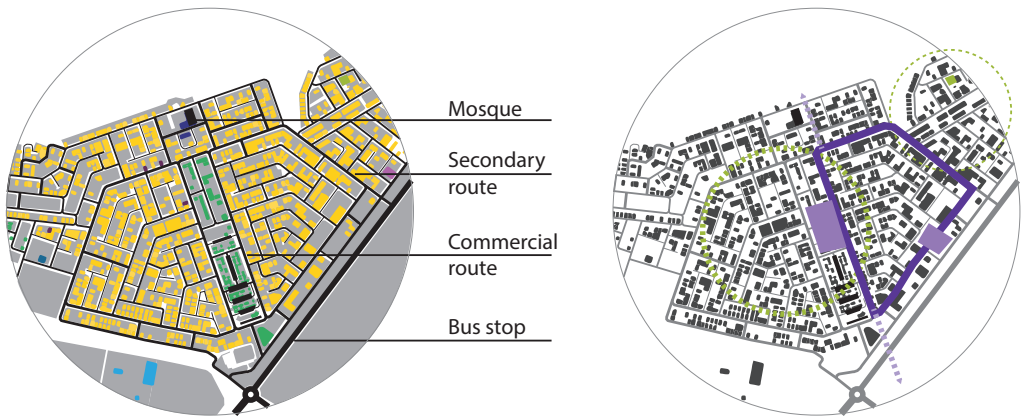


Figure 46. Al Mouj pedestrian strategy in Al Khoud 6





## 6. Conclusion

Understanding the relation between communities and unbuilt spaces as a design element is outlined through investigation of terminology in literature and conceptualization of these elements into local context with a comparison of ideal and less ideal neighborhoods presents the key element for neighborhood design as the thesis describes. Therefore, understanding the aspects required for achieving a neighborhood that takes into consideration the needs and requirements of communities within a local level in relation ideal global understanding of neighborhoods are examined in this thesis.

The discussion begins with an intensive review on three topics: neighborhood, community, and unbuilt space with a focus of understanding how communities in urban neighborhoods accommodate to unbuilt spaces in Muscat currently planning scheme. The neighborhood definition through literature provides the basis for on which selection and setting benchmarks of local neighborhoods is achieved. These definitions are considered in international as well as local and regional understanding of neighborhood. Similarly, review on communities in urban planning and sociology describes criteria for the evaluation of the selected neighborhoods to further relate it to the surrounding context of unbuilt spaces. Finally, voids within urban spaces regarded as unbuilt through common definition used in literature is extracted for allocating these spaces with neighborhoods in addition to study the relation between them and communities.

Understanding the current context of the Sultanate from its geographical, historic, political and economical, and finally its legislative structure are steps required for further development of recommendations. Here a look at Muscat along with its Wilayat and subdivision allow for deeper comparison of neighborhood



formations along the city. Criteria extract from main objective and assisted with the selection of a neighborhood to further analyze the formation of communities within them along with the usage of unbuilt spaces by their residents. The selection of the two neighborhoods Al Khoud and Al Mouj provide a contrast in the planning structure and designing process of the neighborhood, however, morphological and distribution of land uses within them were relatively similar. Hence, a set of intensive analysis with the approach of understand the 'thoughts', 'Movements', and 'traces' of the community living within these neighborhoods provide a set of guidelines that can be followed by local urban planner in aim for retrofitting strategies of development of new areas.

A look at the current scheme of plot allocation raises question on the new neighborhoods formed as old neighborhoods reach the full capacity of distributed lands, hence, with focus on the local context and looking for opportunities, one should wonder if urban extensions are always the solution, perhaps, we should consider it less and look at the potentials that current cities offer.

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# Appendix

## Defining Neighborhoods (table A)

Author	Clarence Perry	Duany & Plater-Zyberk	Kevin Lynch	Jane Jacobs	UN Habitat	Summary
Title	Neighborhood Unit	Ideal Neighborhood design	True social neighborhood/	City vitality	sustainable neighborhood plan	
reference/ data type	Perry, 1929, pg 489/ Quantitative	Duany & Plater-Zyberk, 1993, pg xvii/ Mixed	Lynch, 1981, pg 250 / Qualitative	Jacobs, 1961, pg 408-409/ Qualitative	UN Habitat, 2015/ Quantitative	
Size	Size of pop. relate to requirement for one elementary school	Optimal size, quarter mile from center to edge	small, defined, homogeneous clusters of dwellings	high range of diversity in uses and people in districts	high density (15,000/sq. km)	High density defined by (elementary school, quart mile center to edge, 1500 individual /sq.km)
Boundary	arterial streets on all boundaries of neighborhood	defined center and edge	-	combat presence of border vacuums	-	Defined centers and edge through arterial streets
Open Space	A system of Open spaces	Public space and civic buildings	clear local community areas	-	-	Availability of open space system
Services & institution	Institution sites within service spheres of neighborhood			promoting functional order	limited land-use specialization (single function less than 10%)	Decentralized of services and institutions (single functions less than 10%)
Mix land-use	Adequate local shops around the circumference of the unit	balanced mix of activities	convenient local services and quiet streets	good economic environment for people	Mixed land-use (40% floor space for economic use)	Adequate mixed land-use (40% of floor space)
Street network	Internal street system to facilitate circulation within neighborhood	Network of interconnected streets (building and traffic)		network of local street neighborhoods	efficient street network (18km street/ sq.km)	Internal street network
Administration	-	-	locally controlled settlement	-	-	Locally administered settlements
Social mix	-	-	-	unslumming slums for growing diversity	Social mix (20-50% floor area for low cost housing)	Diverse social mix (20-50 low-cost housing)

## Selection of Neighborhoods (table B)

Fulfillment of Objectives	Muttrah	Qurum/ Shatti	Madinat Qaboos	Al Khwair	Wadi Kabir	Seeb	Hail	Al Mouj	Ghubra	Athiba	Mabilah	Khoud	Nahda/ Amerat
Availability of data	Y	Y	Y	-	Y	-	-	Y	-	-	-	Y	-
Recent NhB (+2008)	-	-	-	-	-	-	-	Y	-	-	Y	Y	Y
In Seeb (west expansion)	-	-	-	-	-	Y	Y	Y	-	-	Y	Y	-
Site													
Flat topography	0	1	0	1	1	1	1	1	1	1	1	1	1
Mostly built up	1	1	1	1	1	0	1	1	1	1	0	0	0
less than 2 sq.km area	1	0	0	0	0	0	0	1	0	0	0	0	0
NhD assessment													
accessible via arterial	1	1	1	1	0	1	1	1	1	1	1	1	1
accessible via main	0	1	1	1	1	0	1	0	1	1	1	1	1
mixed land use	1	1	1	1	1	1	1	1	1	1	1	1	1
Estate value (+100,000)	1	1	1	1	1	0	1	1	1	1	0	0	0
Planned as Ideal	0	1	1	0	0	0	0	1	0	0	0	0	0
Public services	1	1	0	1	1	1	1	0	1	0	1	0	1
amenities	1	1	1	1	1	1	1	1	1	1	1		1
Typology													
mixed	1	1	1	1	1	1	1	1	0	0	0	1	1
majority owed by residents	0	0	0	0	1	1	0	1	1	1	1	1	1
affordable	1	0	0	1	1	1	1	0	1	1	1	1	1
Total	9	10	8	10	10	8	10	10	10	9	8	7	9

## Field work, Khoud 6 (table C)

	crossing								to building							
	adult				child				adult				child			
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
	Omani	None	Omani	None	Omani	None	Omani	None	Omani	None	Omani	None	Omani	None	Omani	None
CZ, Morning E, 23.04	1	10	-	-	-	-	-	-	7	23	3	-	-	-	-	-
CZ, Morning E, 24.04	1	22	-	-	-	-	-	-	12	35	1	1	-	-	-	-
CZ, Morning E, 25.04	1	14	-	-	-	-	-	-	19	32	2	-	4	-	-	-
CZ, Afternoon E, 26.04	3	24	5	1	-	-	-	-	10	18	-	2	6	1	1	1
CZ, Afternoon E, 27.04	7	39	-	1	5	-	3	2	-	6	-	-	-	-	-	-
CZ, Evening E, 23.04	9	26	-	-	-	1	-	-	17	19	1	3	3	-	-	-
CZ, Evening E, 24.04	5	22	-	-	-	-	-	-	11	20	1	1	-	-	-	-
CZ, Evening E, 25.04	4	49	-	-	-	1	-	-	11	26	4	-	3	-	2	-

Car (30 min)	In	out	average (I)	average (O)
CZ, Morning E, 23.04	65	108		
CZ, Morning E, 24.04	107	105		
CZ, Morning E, 25.04	79	116	<b>84</b>	<b>110</b>
CZ, Afternoon E, 26.04	355	288		
CZ, Afternoon E, 27.04	804	720	<b>579.5</b>	<b>504</b>
CZ, Evening E, 23.04	240	176		
CZ, Evening E, 24.04	196	144		
CZ, Evening E, 25.04	282	294	<b>239</b>	<b>205</b>

	crossing								to building							
	adult				child				adult				child			
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
	Omani	None	Omani	None	Omani	None	Omani	None	Omani	None	Omani	None	Omani	None	Omani	None
CZ, Morning W, 23.04	2	15	-	-	-	-	-	-	5	21	2	-	1	-	-	-
CZ, Morning W, 24.04	-	15	1	-	-	-	-	-	3	17	2	2	-	-	-	-
CZ, Morning W, 25.04	1	8	-	-	-	-	-	-	8	24	1	-	1	-	1	-
CZ, Afternoon W, 25.04	4	8	-	-	-	-	-	-	12	17	1	1	-	-	-	-
CZ, Afternoon W, 27.04	4	31	-	-	1	-	-	-	1	5	-	1	-	-	-	1
CZ, Evening W, 26.04	2	8	-	-	-	1	-	-	9	7	4	1	-	-	2	1

Car (30 min)	In	out	average (I)	average (O)
CZ, Morning W, 23.04	92	100		
CZ, Morning W, 24.04	55	124		
CZ, Morning W, 25.04	95	128	<b>81</b>	<b>117</b>
CZ, Afternoon W, 25.04	204	234		
CZ, Afternoon W, 27.04	678	708	<b>441</b>	<b>471</b>
CZ, Evening W, 26.04	288	252	<b>288</b>	<b>252</b>

	crossing								to building							
	adult				child				adult				child			
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
	Omani	None	Omani	None	Omani	None	Omani	None	Omani	None	Omani	None	Omani	None	Omani	None
NF, Morning, 28.04	2	1	-	-	-	-	-	-	4	8	-	-	4	1	-	1
NF, Morning, 29.04	-	4	-	-	-	-	-	-	5	5	-	2	-	4	-	-
NF, Morning, 01.05	-	2	-	-	-	-	-	-	3	5	-	-	1	-	-	-
NF, Afternoon, 27.04	7	22	5	-	5	-	-	-	11	2	5	1	3	-	15	-
NF, Afternoon, 29.04	7	8	9	-	3	-	3	-	-	2	-	3	-	-	-	-
NF, Evening, 26.04	19	20	-	1	2	-	-	-	13	-	-	20	-	1	-	-
NF, Evening, 29.04	2	2	-	-	-	-	-	-	7	4	-	7	-	7	-	-

Car (30 min)	In	out	average (I)	average (O)
NF, Morning, 28.04	17	49		
NF, Morning, 29.04	70	50		
NF, Morning, 01.05	60	30	<b>49</b>	<b>43</b>
NF, Afternoon, 27.04	72	42		
NF, Afternoon, 29.04	75	50	<b>73.5</b>	<b>46</b>
NF, Evening, 26.04	135	200		
NF, Evening, 29.04	68	60	<b>102</b>	<b>130</b>

	crossing								to building							
	adult				child				adult				child			
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
	Omani	None	Omani	None	Omani	None	Omani	None	Omani	None	Omani	None	Omani	None	Omani	None
THp, Morning, 28.04	-	3	-	-	-	-	-	-	-	-	-	-	-	2	-	-
THp, Morning, 29.04	-	4	-	-	-	-	-	-	2	-	-	-	-	-	-	-
THp, Morning, 01.05	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
THp, Afternoon, 28.04	-	-	2	-	2	-	3	-	-	-	1	15	-	5	-	-
THp, Afternoon, 29.04	1	-	-	-	2	-	-	-	2	1	16	-	9	-	-	-
THp, Afternoon, 30.04	1	9	2	-	-	2	-	4	-	5	4	12	-	14	-	-
THp, Evening, 29.04	-	-	-	-	-	-	-	2	-	1	-	-	-	-	-	-
THp, Evening, 30.04	1	-	-	-	1	-	-	-	1	1	1	1	-	-	-	-

Car (30 min)	In	out	average (I)	average (O)
THp, Morning, 28.04	20	20		
THp, Morning, 29.04	30	30		
THp, Morning, 01.05	30	30	<b>27</b>	<b>27</b>
THp, Afternoon, 28.04	10	5		
THp, Afternoon, 29.04	30	45		
THp, Afternoon, 30.04	30	30	<b>23</b>	<b>27</b>
THp, Evening, 29.04	30	40		
THp, Evening, 30.04	20	10	<b>25</b>	<b>25</b>

	crossing								bus stop							
	adult				child				adult				child			
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
	Omani	None	Omani	None	Omani	None	Omani	None	Omani	None	Omani	None	Omani	None	Omani	None
OE, Morning, 25.04	-	2	-	-	-	-	-	-	5	-	1	-	-	-	-	-
OE, Morning, 28.04	1	12	-	-	-	-	-	-	1	3	-	-	-	-	-	-
OE, Morning, 29.04	-	11	-	1	-	-	-	-	4	-	1	-	-	-	-	-
OE, Afternoon, 29.04	-	14	-	-	-	-	-	-	5	-	-	-	-	-	-	-
OE, Afternoon, 30.04	8	15	8	1	-	-	-	-	7	-	1	-	-	-	-	-
OE, Evening, 26.04	7	-	8	-	-	-	-	-	3	-	-	-	-	-	-	-
OE, Evening, 27.04	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-

Car (30 min)	In	out	average (I)	average (O)
OE, Morning, 25.04	336	504		
OE, Morning, 28.04	400	240		
OE, Morning, 29.04	220	450	<b>319</b>	<b>398</b>
OE, Afternoon, 29.04	510	370		
OE, Afternoon, 30.04	1110	440	<b>810</b>	<b>405</b>
OE, Evening, 26.04	660	610		
OE, Evening, 27.04	510	480	<b>585</b>	<b>545</b>

	crossing								to building							
	adult				child				adult				child			
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
	Omani	None	Omani	None	Omani	None	Omani	None	Omani	None	Omani	None	Omani	None	Omani	None
TH, Morning, 28.04	-	4	-	-	-	-	-	-	3	-	-	-	-	-	-	-
TH, Morning, 29.04	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TH, Morning, 01.05	-	5	2	-	1	-	1	-	-	1	-	-	-	-	-	-
TH, Afternoon, 27.04	9	-	-	-	2	-	-	-	2	1	7	-	4	-	-	-
TH, Afternoon, 29.04	12	9	2	-	-	2	-	-	5	-	1	-	5	-	14	-
TH, Evening, 26.04	-	-	-	-	-	-	-	-	-	3	-	-	-	-	-	-
TH, Evening, 29.04	3	-	-	-	1	-	-	-	1	-	1	2	-	-	-	-

Car (30 min)	In	out	average (I)	average (O)
TH, Morning, 28.04	15	25		
TH, Morning, 29.04	10	15		
TH, Morning, 01.05	20	30	<b>15</b>	<b>23</b>
TH, Afternoon, 27.04	25	5		
TH, Afternoon, 29.04	35	15	<b>30</b>	<b>10</b>
TH, Evening, 26.04	25	20		
TH, Evening, 29.04	15	10	<b>20</b>	<b>15</b>

## Field work, Mouj 6 (table D)

	crossing								to building							
	adult				child				adult				child			
	Male		Female		Male		Female		Male		Female		Male		Female	
	Omani	None	Omani	None	Omani	None	Omani	None	Omani	None	Omani	None	Omani	None	Omani	None
THI, Morning, 26.05	-	3	-	1	-	-	-	-	1	2	-	-	-	1	-	-
THI, Morning, 28.05	-	5	-	2	-	-	-	-	3	4	2	3	-	-	-	1
THI, Morning, 06.07	-	2	-	-	-	-	-	-	-	1	-	2	1	-	-	-
THI, Afternoon, 26.05	5	10	1	4	-	6	-	2	1	2	-	3	-	-	-	-
THI, Afternoon, 28.05	2	15	-	7	3	5	2	3	-	3	1	4	-	2	-	-
THI, Afternoon, 06.07	1	13	-	10	5	7	-	-	-	5	-	6	2	-	-	3
THI, Evening, 26.05	-	3	3	7	-	1	-	2	4	1	-	1	-	-	-	-
THI, Evening, 28.05	-	5	-	8	1	3	-	-	-	4	-	3	-	1	-	-

Car (30 min)	In	out	average (l)	average
THI, Morning, 26.05	20	45		
THI, Morning, 28.05	17	34		
THI, Morning, 06.07	15	40	<b>17</b>	<b>40</b>
THI, Afternoon, 26.05	55	45		
THI, Afternoon, 28.05	65	30		
THI, Afternoon, 06.07	66	21	<b>62</b>	<b>32</b>
THI, Evening, 26.05	30	40		
THI, Evening, 28.05	15	10	<b>23</b>	<b>25</b>

	crossing								to building							
	adult				child				adult				child			
	Male		Female		Male		Female		Male		Female		Male		Female	
	Omani	None	Omani	None	Omani	None	Omani	None	Omani	None	Omani	None	Omani	None	Omani	None
THh, Morning, 26.05	-	9	-	-	-	-	-	-	-	-	-	-	-	-	-	-
THh, Morning, 28.05	1	5	-	1	-	-	-	-	3	-	2	-	-	-	-	-
THh, Afternoon, 26.05	-	11	-	7	-	4	-	2	-	4	1	5	-	2	-	1
THh, Afternoon, 28.05	2	3	-	5	-	2	1	-	2	-	1	-	-	-	-	-
THh, Evening, 26.05	4	7	2	8	1	3	-	1	3	5	-	-	-	4	-	-
THh, Evening, 28.05	-	1	-	2	-	1	-	2	2	1	1	2	-	-	-	1

Car (30 min)	In	out	average (l)	average
THh, Morning, 26.05	55	60		
THh, Morning, 28.05	45	70	<b>65</b>	<b>58</b>
THh, Afternoon, 26.05	95	45		
THh, Afternoon, 28.05	65	35	<b>80</b>	<b>40</b>
THh, Evening, 26.05	45	30		
THh, Evening, 28.05	35	20	<b>40</b>	<b>25</b>

	crossing								to building							
	adult				child				adult				child			
	Male		Female		Male		Female		Male		Female		Male		Female	
	Omani	None	Omani	None	Omani	None	Omani	None	Omani	None	Omani	None	Omani	None	Omani	None
OE, Morning, 28.05	-	1	-	2	-	-	-	-	1	-	2	-	-	-	-	-
OE, Morning, 06.07	-	-	-	-	-	-	-	-	1	3	-	1	-	-	-	-
OE, Afternoon, 26.05	2	6	2	-	1	2	-	-	-	1	2	-	1	-	-	-
OE, Afternoon, 28.05	1	4	-	1	2	-	-	3	-	3	-	4	-	2	-	1
OE, Afternoon, 06.07	-	9	-	4	-	-	-	-	1	-	-	-	-	-	-	-
OE, Evening, 26.05	-	-	-	-	-	2	-	-	-	2	-	-	-	-	-	-
OE, Evening, 28.05	1	5	-	1	-	-	-	-	2	4	1	-	-	1	-	-

Car (30 min)	In	out	average (l)	average
OE, Morning, 28.05	290	380		
OE, Morning, 06.07	460	290	<b>443</b>	<b>340</b>
OE, Afternoon, 26.05	580	350		
OE, Afternoon, 28.05	470	410		
OE, Afternoon, 06.07	640	360	<b>555</b>	<b>385</b>
OE, Evening, 26.05	420	210		
OE, Evening, 28.05	380	190	<b>400</b>	<b>200</b>

	crossing								to building							
	adult				child				adult				child			
	Male		Female		Male		Female		Male		Female		Male		Female	
	Omani	None	Omani	None	Omani	None	Omani	None	Omani	None	Omani	None	Omani	None	Omani	None
CZ, Morning, 26.05	-	1	-	-	-	-	-	-	1	4	-	2	-	-	-	-
CZ, Morning, 06.07	2	4	1	2	-	-	-	-	6	11	8	-	-	-	-	-
CZ, Afternoon, 26.05	4	16	1	-	1	2	-	1	-	4	2	8	-	2	-	1
CZ, Afternoon, 06.07	3	13	5	4	1	-	4	1	-	1	5	1	-	-	-	1
CZ, Evening, 28.05	26	31	4	10	5	7	4	6	26	14	13	18	4	3	6	2
CZ, Evening, 06.07	19	25	5	7	-	-	2	-	19	10	3	5	-	2	-	1

Car (30 min)	In	out	average (l)	average
CZ, Morning, 26.05	90	60		
CZ, Morning, 06.07	130	190	<b>110</b>	<b>125</b>
CZ, Afternoon, 26.05	320	80		
CZ, Afternoon, 06.07	290	110	<b>305</b>	<b>95</b>
CZ, Evening, 28.05	150	120		
CZ, Evening, 06.07	310	190	<b>230</b>	<b>155</b>

	crossing to beach								to building							
	adult				child				adult				child			
	Male		Female		Male		Female		Male		Female		Male		Female	
	Omani	None	Omani	None	Omani	None	Omani	None	Omani	None	Omani	None	Omani	None	Omani	None
NF, Morning, 26.05	-	2	-	3	-	-	-	-	-	-	-	-	-	-	-	-
NF, Morning, 28.05	1	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
NF, Afternoon, 26.05	-	3	-	4	-	2	-	1	-	-	-	-	-	-	-	-
NF, Afternoon, 28.05	-	3	1	4	2	3	1	4	-	-	-	-	-	-	-	-
NF, Afternoon, 06.07	5	10	4	6	2	7	1	3	-	-	-	-	-	-	-	-
NF, Evening, 26.05	3	6	-	5	-	1	-	3	-	-	-	-	-	-	-	-
NF, Evening, 28.05	-	2	2	8	1	-	-	-	-	-	-	-	-	-	-	-

Car (30 min)	In	out	average (l)	average
NF, Morning, 26.05	10	45		
NF, Morning, 28.05	14	60	<b>12</b>	<b>53</b>
NF, Afternoon, 26.05	70	55		
NF, Afternoon, 28.05	65	40		
NF, Afternoon, 06.07	90	85	<b>75</b>	<b>60</b>
NF, Evening, 26.05	180	120		
NF, Evening, 28.05	150	160	<b>165</b>	<b>140</b>



## List of Interviews (table E)

	Name	Organization	Objectives	Date	Position	format
1	Hilal Al Busaidi	Msucat Municipality	municipal role for neighborhood	15/05/17	Architect	Semi-structur
2	Ahmed Al Thahli	Msucat Municipality	street division in NhD	15/05/17	Road engineer	Semi-structur
3	Hanan Al Jabri	Msucat Municipality	Urban spaces in Muscat	29/05/17	senior architect	Semi-structur
4	Khalfan Al Na'bi	Ministry of Housing	NhD planning codes	5/1/2017	head of urban design	Semi-structur
5	Asma Al Nathiri	Ministry of Housing	NhD planning codes	6/1/2017	senior urban designer	Semi-structur
6	Raghda Jaber	Oman national spatial strategy	inclusion of NhD	31/05/17	policies expert	Semi-structur
7	Sonja Nebel	Researcher	Development patterns	17/03/17	researcher	Semi-structur
8	Swarup Dhar	Al Mouj	Urban principles for Al Mouj	24/05/17	Urban designer	Semi-structur
9	Al Amin	Kabli	regional spatial strategy , NhD	16/05/17	Urban planner	Semi-structur
10	Maryam Al Shargi	Ministry of Housing	social inclusion in NhDs	5/2/2017	Architect	Semi-structur
11	Suead Al Ma'wali	Khoud 6 resident	understanding the NhD	24/04/17	residents	Semi-structur
12	Mike & Jane Wilson	Al Mouj resident	understanding the NhD	26/05/17	residents	Semi-structur
13	park keeper	Local Administration	maintenance of Parks	5/1/2017	gardener	Semi-structur
14	Moh. Al Zadjali	ASAAS	Urban development projects	13/02/17	project manager	Semi-structur
15	Public transport	Mwasalat	routes within NhDs	No contact	-	-
16	Utility	Water & Electricity	NhD servicing	No contact	-	-
17	head of archtitechtu	NCSI	statistics (quantitative)	No contact	-	-
18	Local Administation	Muscat Municipality/ Seeb	prioritization of projects	No contact	-	-
19	representative/seeb	municipal council	role of communitites	No contact	-	-
20	Hamad Al Gharibi	Researcher	social reseach of urban sprawl	no response	-	-

## Survey questions

### **SURVEY**

Date:...../17

**“Rethinking Unbuilt Spaces Within Neighborhoods”**  
community planning / Livability / socio-cultural integration

#### **General**

Time: | Initials: | Sex: **M / F** | Age: **<12 / 13-19 / 20's / 30's / 40's / 50's / +60's**  
 Living in? .....For how Long?.....  
 Number of 'Household'.....  
 Nationality: Omani / Other:.....  
 Profession? ( **Student / retail / government / private / labour / other** .....)

#### **Weekly Task**

1- Where do you work? Study? Other daily task?.....  
 How do you go there? (**Car / walking cycling / public transport / Other:**.....)  
 How long does it take you to reach?.....

2- Do you use the nearest

School/Daycare	Mosque	Shops/Grocery	Parks/Wadi
<b>No</b> , Why?.....	<b>No</b> , Why?.....	<b>No</b> , Why?.....	<b>No</b> , Why?.....
<b>Yes</b> , How? (Walk / Cycle / Car)	<b>Yes</b> , How? (Walk / Cycle / Car)	<b>Yes</b> , How? (Walk / Cycle / Car)	<b>Yes</b> , How? (Walk / Cycle / Car)

3- Where do you meet your friends within the neighborhood?

**No**, Why?.....  
**Yes**, Where?.....  
 How often? (**Daily/ weekly / monthly /irregular**)

4- Do you (your kids) spend the afternoons in? **Yard / Elsewhere**. Where?.....

5- Is there a park in Al Khoud 6/ Al Mouj?

<b>No</b>	<b>Yes</b>
- Do you go to any other park?	- Do you go there?
<b>No</b> , Why?.....	<b>No</b> , Why?.....
<b>Yes</b> , Where?.....	<b>Yes</b> , How often?
How often?	( <b>Daily/ weekly / monthly /irregular</b> )
( <b>Daily/ weekly / monthly /irregular</b> )	

### **Neighborhood**

- 1- How many of your neighbors do you know? ( **All** / **Most** / **Half** / **Few** / **None** )
- 2- Do you meet up with your neighbors?  
**No**, Why?.....  
**Yes**, Where.....  
How often? (**Daily**/ **weekly** / **monthly** /**irregular**)
- 3- How clean is the neighborhood? ( **Extremely** / **Very** / **Somewhat** / **Not so** / **Not at all** )
- 4- How safe is the neighborhood (Day & night)? ( **Extremely** / **Very** / **Somewhat** / **Not so** / **Not at all** )
- 5- How well maintained is the neighborhood? ( **Extremely** / **Very** / **Somewhat** / **Not so** / **Not at all** )
- 6- Do you walk in the street?  
**No**, Why?.....  
**Yes**, How often? (**daily** / **2x a week** / **3x a week** / **irregular**)
- 7- Which areas is used for  
football...../cycling/playing...../ running/exercise.....

### **Community living** (OPEN-END QUESTIONS)

- 1- Where did you live previous to Al Khoud 6/ Al Mouj?.....  
Why did you move here?.....
- 2- Do you do any activities together with your neighbors? (eg. babysitting, walking, leisure )  
**No**, Why?.....  
**Yes**, What?.....  
How often? (**Daily**/ **weekly** / **monthly** /**irregular**)
- 2- What do you  
like in Al Khoud 6/ Al Mouj?.....  
dislike in Al Khoud 6/ Al Mouj?.....
- 3- What would you want to change in your neighborhood?.....  
.....
- 4- If you could live in any area in Muscat, where would you live?.....  
Why?.....

# خلاصة

إعادة النظر في الفراغات الغير مبنية في أحياء مسقط  
تتبع تخطيط المجتمع عبر التوسع الحضري

رؤى الزين

لقد تم وصف الحي الحضري كمصطلح يدخل في تخطيط وتصميم مدينة ما من قبل العديد من مخططي المدن والمهندسين المعماريين وكذلك الأخصائيين الاجتماعيين. وتتكون الوحدة من كتل عدة تشكلات سكنية بالإضافة إلى الخدمات الأساسية المطلوبة للحياة اليومية. في مدينة مسقط نجد أن الأحياء التي تشكلت نتيجة للزحف العمراني قد استهلكت جزء كبير من البعد المكاني للمدينة لعوامل عدة. ويثير هذا النوع من التوسع الحضري السريع سؤالاً حول استراتيجيات التخطيط في مسقط وفي البلد ككل مع زيادة الطلب على الأراضي والنمو الديموغرافي.

هذا البحث يدرس تعريف الحي كخطوة لزيادة فهم العلاقة بين المجتمعات والفراغات الحضرية فيها. ويتم استخراج مجموعة من المبادئ والقواعد من المقالات الأدبية لتقييم اثنين من الأحياء المختارة والتي تم تحديدها باستخدام مجموعة من المعايير على الأحياء المحلية التي تم تصميمها وتشبيدها خلال الفترة الحالية للتوسع السريع ، وذلك مع البيانات المتوفرة للتحقق عن مدى التوافق مع تعريف الأحياء. ولقد ركزت طريقة اختيار الأحياء على حي يصور المبادئ الحالية المتبعة في تصميم الأحياء، و إلى جانب نهج مخالف في القطاع الخاص و العام. وبعد إعداد سلسلة من الخرائط المورفولوجية، يتم وضع معيار لتقييم الحيين من حيث المجتمع و الفراغات الغير مبنية. وبالنظر في العوامل المحددة للسياسات وصانعي القرار الذين يشكلون هذه الأحياء كذلك تم اعداد الخرائط المكانية والسلوكية من خلال التحليلات النسبية للحيين والتي تبين إمكانيات تطوير هذه السياسات و نهج التصميم المتبع في الأحياء الحالية مع التركيز على المجتمعات والفراغات الحضرية.

وتغطي هذه التحليلات النسبية ثلاثة جوانب رئيسية لتصميم الأحياء في ما يتعلق بالمجتمعات والأماكن الغير مبنية وهي: الأفكار والتحريك والآثار التي يتركها السكان كوسيلة لاستيعاب احتياجاتهم داخل محيطهم. ويوفر النظر في هذه الجوانب الثلاث قائمة بجوانب و مبادئ التخطيط المستنبطة من الدراسة الميدانية و المتطلبات المحلية. وبناءً على هذه المبادئ، تم سرد وتوضيح محاولات تعزيز الأحياء الحضرية.

الكلمات الدالة:

جودة الحياة | المشي | المجتمع | الأحياء | السياسات العمرانية



## إقرار

هذه الرسالة مقدمة في جامعة عين شمس وجامعة شوتجارت للحصول على درجة العمران المتكامل والتصميم المستدام. إن العمل الذي تحويه هذه الرسالة قد تم إنجازه بمعرفة الباحث سنة ...

هذا ويقر الباحث أن العمل المقدم هو خلاصة بحثه الشخصي وأنه قد اتبع الأسلوب العلمي السليم في الإشارة إلى المواد المؤخذه من المراجع العلمية كل في مكانه في مختلف أجزاء الرسالة..

وهذا إقرار مني بذلك،،،

التوقيع:

الباحثة: رؤى محمد الأمين الزين

التاريخ: ٢٠١٧/٧/٢١م



# إعادة النظر في الفراغات غير المبنية في أحياء مسقط

## تتبع تخطيط المجتمع عبر التوسع الحضاري

مقدمة للحصول على درجة الماجستير في العمران المتكامل والتصميم المستدام

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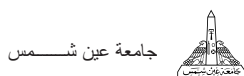
أ.د. ....  
أستاذ  
جامعة

تاريخ المناقشة: .....

الدراسات العليا

أجيزت الرسالة بتاريخ: .....  
موافقة مجلس الجامعة .../.../...

ختم الإجازة  
موافقة مجلس الكلية .../.../...









# إعادة النظر في الفراغات غير المبنية في أحياء مسقط تتبع تخطيط المجتمع عبر التوسع الحضاري

رسالة مقدمة للحصول على درجة الماجستير في العمران المتكامل والتصميم المستدام

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