Al Ain Civic Center Revitalisation Plan
American University of Sharjah

UPL 682- URBAN PLANNING RESEARCH WORKSHOP II

Professor Rafael Pizarro
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“Everybody needs beauty as well as bread, places to play in and pray in, where may heal and give strength to body and soul”

-John Muir
Dedication

“Life defined only as the opposite of death is not life.”
-Mahmoud Darwish

Walking into the Master’s program of Urban Planning in the American University of Sharjah for the first time we all shared a common ambition of growing larger than life to which we have been working for the past few years in the program. All this hard work to improve our lives is dedicated to our families and beloved ones, to our teachers and mentors and of course to the shrine of the American University of Sharjah for making it possible for us to follow our passion and achieve our dreams.
Acknowledgement

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We would also like to thank the experts who were involved in the work process of this project including the Abu Dhabi Urban Planning Council, Al Ain Municipality and the faculty at the American University of Sharjah. Without their passionate participation and input, the project could not have been successfully conducted.

We would also like to acknowledge Dr. Kolo and Dr. Varkki of the College of Architecture, Arts and Design at the American University of Sharjah as jurors and reviewers for this workshop, and we are gratefully indebted to them for their very valuable comments on this project.

We sincerely acknowledge the support and valuable guidance of our faculty and American university of Sharjah.

This book has been completed with the great support of some significant individuals to whom we are very grateful. It’s our pleasure to show our gratefulness to them.

Finally, we must express our very profound gratitude to ourselves as partners and team members for providing each other with unfailing support and continuous encouragement throughout the graduation year of study and through the process of researching and writing this project. This accomplishment would not have been possible without them.

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Executive Summary

The Al Ain Civic Centre Revitalization Plan is the result of collaboration between the Master of Urban Planning Program in the College of Architecture, Art, and Design at the American University of Sharjah and the Abu Dhabi Urban Planning Council (UPC) to explore ideas about alternative models of development in the Abu Dhabi Emirate. As part of the collaboration, UPC requested from the MUP program a development strategy for the area known as Al Ain’s Civic Centre and its surroundings. Although the traditional pattern of development in Al Ain is that of a car-oriented low-density sprawling urban growth, the mandate from UPC was to explore the possibility, via an urban design project, of achieving a high-density, vibrant, multi-use, pedestrian-oriented civic center area. The study that ensued after initial meetings with UPC, with Al Ain planning officials, site visits, and researching the current bio-physical and socio-cultural conditions in Al Ain, showed that the area where the current Al Ain government buildings are located (the Civic Centre proper) and the adjacent lands to the east and west of the Civic Centre presented over 120 hectares of vacant lots and undeveloped land located almost in the geographical centre of the city offering an excellent opportunity to propose a multi-use high-density masterplan well-served by planned and proposed mass public transit. The area, however, is largely underutilized due to the many vacant parcels and to the large parking lots scattered throughout the government complex. Following the mandate from Abu Dhabi’s Urban Planning Council to study the general area and to identify a focus area for revitalization, the MUP Studio chose a wider area going beyond the Civic Centre proper to create a lively high-density mixed-use urban district. The goal of the Studio was to produce a basic, yet comprehensive, master plan to serve as a development framework for further study and refinement. The masterplan is intended to envision how the area would look like if it was developed at the highest density possible maintaining the limit of ground-plus-four height limit set by Al Ain Municipality. Within this basic framework, the master plan is divided into three main specialized precincts. Yet, each precinct with a reach variety of land uses including commercial, office space, residential, institutional, recreational, and specialized-use buildings, all connected through a network of public, semi-public, and semi-private open spaces, and all served by a system of mass
public transit (trams and buses) and a bicycle-lane network.

The general urban form of the master-plan is compact and set on a grid-like street network with blocks no longer than 120 metres for easy walkability, and fully connected to the surrounding street system. The pedestrian network in the project is generally formed by date palm tree-lined boulevards, narrow streets and sikkak to provide cooled shaded passageways to residents and visitors.

The project features a variety of interconnected public spaces ranging from semi-private green courtyards in the center of residential and office buildings, neighborhood pocket parks, larger district parks, and a large 20-hectare date palm grove park on the site of an older date palm farm.

The area is transversed by the Al Salimi Wadi, which the master plan uses as an urban linear park and green corridor featuring a variety of open space recreational activities including grey water-fed ponds to support local fauna and flora, an amphitheater, a botanic garden, bicycle and jogging tracks and a tourist camel-track connected to the existing nearby camel farms in Al Ain. This green corridor is also part of the larger regional network of trails connecting oases and scenic routes in Ain Ain and in the Abu Dhabi Emirate.

Each precinct in the project has a main specialized use. The high-density mixed-use residential precinct on the west side of the master-plan is intended to house the large number of residential spaces with units ranging from single-family detached villas to one-bedroom bachelor studios. In between, there are two-, three-, and four-bedroom apartments ranging in area from 90 sqm to 150 sqm. The precinct also provides for new medical facilities, office space, a Mosque, a multi-faith religious building, a high-school, a middle-school, and a hotel. The ground floor in most buildings is used for retail commercial in the forms of convenient stores, restaurants, cafes, tea houses, and similar uses.

The Civic Center Precinct, in the center of the master plan, will continue to be the place for the existing government buildings in addition to a variety of residential building-types as described above (in the high-density residential precinct), additional government-related office buildings, a 250-bed hotel, and a School for the Performing and Fine Arts with a large auditorium. One of the most salient urban elements of the precinct is an ample shared-space (pedestrians and cars combined) tree-lined ‘Arts’ boulevard featuring large murals and arts displays associated with the adjacent fine arts school. The boulevard is also lined with art galleries, cafes, restaurants, and office-related commercial stores. A neighborhood mosque is also located at the center of the precinct.

The third precinct is the University Village Precinct located in the east side of the project area. This precinct may be considered the residential extension of the Al Ain University of Science and Technology. The precinct is organized around a large open space (with a mosque at its center) to be used as the public social space for students (residents and non-residents), staff, and faculty alike. The residential area, however, is the main feature of the precinct. Following Abu Dhabi’s Neighborhood Planning Guidelines, this residential ‘neighborhood’ for faculty and students is designed as a contemporary fareej. As such, this fareej presents a very compact, dense, low-rise and intricate urban form crisscrossed by sikkak laced by small intimate courtyard spaces.

Some elements typical of a masterplan were not included in this Al Ain Revitalisation Master Plan. Because the plan is intended to serve as an initial exploration of introducing high-density mixed-use development in the existing civic center of Al Ain, the focus on this project was on the basic elements of a master plan (urban form, land use, mobility, and open space), to explore at a later stage the implications of adding community facilities, and environment, energy, water, and waste management considerations.
The plan marks intends to respond to current issues such low-densities, scattered development, lack of urban spaces and urban activity. The plan also anticipates the expected growth in population and in different economic sectors of Al Ain.
The Al Ain Civic Centre Revitalisation Plan developed by the Master of Urban Planning Workshop originated on September 2015 as a request from Abu Dhabi Urban Planning Council to provide alternative development options for the Al Towayya, Al Jimi and Al Qattara Districts in Al Ain. The mandate was to develop a framework for a community revitalisation plan.

After a project kick-off meeting at UPC’s offices in Abu Dhabi on October 2015, a meeting with Al Ain Municipality officials in Al Ain, a site visit, and a thorough study of “Plan Al Ain 2030: Urban Structure Framework Plan” the AUS student team engaged in the development of the AUS plan.

The major insights of the studies and meetings which structure the project background are briefly described in Appendix A.
Introduction to Al Ain City and Region

Al Ain is the soul of the Emirate. Its spirit emerges from the unique conjunction of Jebel Hafeet, the nurturing oases and the majestic desert that have together sustained over 5000 years of continuous settlement. It now exemplifies both the ancient Bedouin traditions and the modern aspirations of the Emirate.

Al Ain, which means ‘the spring’ in Arabic, holds many of the emirate’s greatest cultural assets relating to the national population’s Bedouin roots and culture. Covering an area of 1,270,000 hectares, the region of Al Ain is rich in areas of archaeological and environmental importance, characterized by the diverse landscapes of sweeping dunes and alluvial plains, along with agricultural activity and animal husbandry.

With over 400,000 of the region’s 540,000 people residing in Al Ain City alone, it is clear that the city is an important economic and social hub. Located in the plains descending west of the Hajar Mountains, the City of Al Ain is an ancient crossroads. For at least 5,000 years, it has offered a pleasant, cool respite from the heat of the surrounding desert. Al Ain is a city of lush oases fed by an ancient irrigation system known as ‘falaj’. It is also the ancestral home of Abu Dhabi’s ruling Al Nayhan family. (source: Plan Al Ain 2030)

The first stage in developing the master plan for the site was a study of the biophysical and socio-cultural conditions of the area surrounding the area, including the project site. (see Figure 4, 5, 6 & 7)

The findings, conclusions, and recommendation of the study informed most the strategies to develop the master plan and are recorded in Appendix B.
Al Ain Civic Center Revitalisation Plan
The main concept behind the Al Ain Civic Center Revitalisation Plan is that of sustainability. These plans are conceptual solutions to the challenges faced in Al Ain as the city is growing very rapidly.

In light of the request from the Urban Planning Council to produce a plan that would revitalize the area and reflect Abu Dhabi’s calls for sustainable emirate cities, the project is founded on the principles of urban sustainability.

Under this concept, the studio is proposing a master plan that comprises social, economic, and environmental sustainability. It relates to its geographical location and physical character. It is based on creating the actual experiences of living and working at the same neighborhood. It recognizes Al Ain as inseparable from the historical processes that formed it and works within the spatial framework of the existing urban space. Following the concept of urban sustainability, the master plan a compact dense form to counteract the scattered urban form of the city, aiming to combat car dependency in the area (see Figure 17). The plan reuses existing infrastructure, promotes open space, neighborhood areas to produce a higher quality of life and dynamic sites for economic interaction. Although different development scenarios were considered, the studio decided to explore one featuring highest density and intense land uses.

The plan proposes four centers of activities that serve the area’s community. The centers functions vary from one area to another based on the targeted occupants of each area. The plan is divided and organized into four precincts:

1. High-Density Mixed-Use Residential Precinct
2. Civic Center Precinct
3. University Village Precinct
4. Wadi Recreational Greenway

All the precincts serve the goals of holding urban sustainability, connect a dense network of pedestrian and cycling routes, resulting in short, varied and direct connections, and densification and intensification of residential and commercial uses around public transit stations. Public transport: frequent fast and reliable high capacity to reduce dependency on personal vehicles. Walk: high quality unobstructed foot paths that provide basic mobility for all. Mixed Use: a diverse mix of residential and non-residential land uses that
reduces the need to travel. Shift: reducing the large number of parking space and creating parking structures.

All the precincts are well connected and are laid over the principles of urban sustainability. Plan has a rich diversity of land uses ranging from retail stores, commercial centers, office buildings, places to worship, higher educational institutions, medical centers, neighborhood parks, public spaces for socializing and for artistic activities, pedestrian precincts connected internally and externally by public transport.

The Wadi is designed with native flora and fauna and for the enjoyment of the project’s residents and visitors. The wadi is made as a recreational and lively space. The residential units reflect the local culture practices which are achieved by the proposal of farej, the traditional Emirati neighborhood, in one of the precincts.
Land Use Plan

One of the main challenges in the area was the scattered pattern of land uses. The plan proposes a richer and better integrated land uses to help revitalize the area, make it denser and create a more lively urban experience.

The Residential Precinct is located on the northwest quadrant of the intersection of Hamdan bin Mohamed Street and Zayed Al Awwal street (see Figure 17). Due to its proximity to the already existing residential land uses, the precinct takes on a more residential theme that helps optimize the density within the area and caters for those uses. By utilizing a variety of residential building typologies and open spaces along with commercial, recreational and health land uses, the precinct is planned to provide for the proposed densities.

The Civic Center Precinct (See Figure 46) is the central precinct located between 124th street and 11th street going through the project bordered by the wadi from the southwest and Hamdan bin Mohamed street from the northeast. This precinct houses the area which allowed for a chance to densify the surrounding areas with mixed use residential buildings that will help attract users. To create activates within the area a special arts boulevard is proposed to create a 24-hour urban activity.

The University Village Precinct (see Figure 59) is located on the southeast border of the project area at the intersection of Hamdan bin Mohamed street and Mohamed bin Khalifa street next to Al Ain University of Science and Technology. The precinct is developed to provide housing and activities for the university students and staff. The land uses are distributed between low and medium density, with mixed use residential and institutional land uses (see Figure 18).
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<th>COMMERCIAL (PROPOSED)</th>
<th>GOVERNMENT (EXISTING)</th>
<th>OFFICE SPACE (PROPOSED)</th>
<th>TOTAL OFFICE SPACE</th>
<th>RESIDENTIAL UNITS</th>
<th>GROSS RESIDENTIAL DENSITY</th>
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<td>7,115 sq.m</td>
<td>40,310 sq.m</td>
<td>90,240 sq.m</td>
<td>130,550 sq.m</td>
<td>4,396 units</td>
<td>46 DU/HA</td>
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<td>Mixed-Use Civic Center Precinct</td>
<td>128,668 sq.m</td>
<td>259,204 sq.m</td>
<td>63,040 sq.m</td>
<td>322,244 sq.m</td>
<td>4,146 units</td>
<td>54 DU/HA</td>
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<tr>
<td>Mixed-Use University Village Precinct</td>
<td>5,89 sq.m</td>
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<td>0</td>
<td>0</td>
<td>599 units</td>
<td>15 DU/HA</td>
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<tr>
<td>Total</td>
<td>141,647 sq.m</td>
<td>299,514 sq.m</td>
<td>153,280 sq.m</td>
<td>452,794 sq.m</td>
<td>9,141 units</td>
<td>41 DU/HA</td>
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Figure 18: Land Use Area Detail

*Note:
- Average area for residential units was calculated at 120 sq.m.
* Calculations include parks and public easements except wadi area and large public utility facilities
Figure 19

Existing Land Use Plan
Land Use Plan

Figure 20
The transportation plan provides a balance of transportation maps. Two basic modes of public transportation are proposed in the plan. The plan favors and encourages bicycle use and walkability to reduce dependency on personal vehicles.

The project area is surrounded by four main arterial roads (Hamdan bin Mohamed Street, Zayed Al Awwal Street, 131st street and Mohamed bin Khalifa street). The arterials provide the main structure of the frame of the vehicular transportation network.

The arterials connect with the project area through the 124th street and 11th street, the two collectors that cross through the area. The plan provides a very elaborate network of local streets to minimize traffic in the inner parts of the project.

The plan proposes three bus lines that connect through the project and two tram lines all of which connect to the project through the main arterial roads and main collectors.

Also keeping in line with the concept the plan proposes a pedestrian and dedicated cycling lanes network supported with green corridors to provide natural cooling and shading. To support the walkability concept the plan proposes an urban form with building blocks that are less than a 100 meters in width and pedestrian sheds with 500 meters radius of catchment.
Regional Connections

- STUDY AREA
- TRAM LINE 1
- TRAM LINE 2
- TRAM LINE 3
- GREEN BUS LINE
- ORANGE BUS LINE
- YELLOW BUS LINE
- BUS LINE (ALAIN 2030)
- HIGH SPEED RAIL (ALAIN 2030)
- TRAM LINE (ALAIN 2030)
- MAJOR ROADS
- HIGH SPEED RAIL STATION (ALAIN 2030)
- TRAM STOPS (ALAIN 2030)

Figure 22
Mobility & Transportation Plan

Bus & Tram

Figure 23
Mobility & Transportation Plan
Vehicular Circulation Network
Figure 24
Mobility & Transportation Plan

Bicycle & Pedestrian Circulation Network

Figure 25
Street Sections

The street sections reflect the hierarchy of the streets proposed by the Al-Ain 2030 and the widths set by Al Ain Municipality. Due to the narrow width of the local roads the buildings allow for the streets to be shaded allowing for those streets to be walkable especially with the dedicated bicycle lanes and sidewalks.
Section C: Residential Street with Bicycle Lane

Section D: Local Road

Section A: Tram Line on Residential Boulevard

Section B: Residential Street with Bus Lane

Zayed Al Awwal St.
131st St.
127th St.
Al Baladiyya St.
120th St.

ALAIN CIVIC CENTER REVITALISATION
Street Sections

Section G: Local Road Section

Section F: Collector Road Section

Section E: Arts Boulevard Section

Section H: Local Road Section

Figure 27
Urban Form

The existing urban form of the area is very dispersed forming a scattered form of development (see Figure 28). To help counter this challenge the plan proposes a highly densified development with in a very compact urban form (see Figure 29).

The Mixed-Use High-Density Residential Precinct provides an urban form with different size buildings depending on the capacity of the unit. The Civic Center Precinct follows a similar approach to form, it provides compatible building typologies with the governmental buildings to create a visual balance between the existing and proposed. The University Village Precinct provides a contemporary Fareej form with narrow sikkas that allow for maximum walkability.
General Urban Pattern / Building Typologies

Figure 30
Open Space Plan

As part of the greater city of Al Ain the site shows a great potential for natural open space development. Inspired on the oases network in the region the plan provides a rich network of connected open spaces ranging from semi-private internal courtyards to a large green open space corridor represents in the Wadi recreational greenway.

Open spaces are categorized based on use into four main categories (public parks, semi-public courtyards, green corridors, and the Wadi) all of which are landscaped using Xeriscaping to conserve water given the desert condition of Al Ain and with the sustainability concept of the project (see Figure 31).

Public Parks are the public realm of the precincts where all public activities take place. Landscapes, street furniture and play spaces are provided in those parks. Surrounded with commercial developments at ground floor level the parks function as attractions of public activity.

All residential buildings in the project have semi-private courtyards. They act as spaces for social interaction within their residential blocks. The courtyards help the users of the building blocks to have their own public events and interaction.

The courtyards help provide natural lighting into the buildings to avoid artificial lighting. Tree lined streets and pedestrian boulevards function as the main walkable connection between the precincts. The corridors provide a naturally shaded and cool paths connects all the public green spaces throughout the project.

The Wadi is part of a natural and historical open storm-water drainage system of Al Ain, and presents a unique opportunity to create a recreational corridor for the project. Although the Wadi is normally dry most of the year, it is proposed that part of the grey water in the project be diverted to the Wadi in order to create a permanent wetland landscape with various elongated ponds along the corridor. The corridor is framed by a park at both ends (the East End Park and the West End Park). The parks serve as entrances, “public gates,” to the corridor. Between the two parks, stretching along the corridor, there are three main tracks (for bicycles, for joggers/walkers, and a special camel track for recreational tourism).
Alain Civic Center Revitalisation Plan

Open Space Plan

Figure 31

Legend:
- PRIVATE GREEN SPACE
- SEMI-PUBLIC GREEN SPACE
- PUBLIC PARK
- WADI
- TREE-LINED BOULEVARD
Figure 32: Top View Masterplan Annotations
Figure 33: Birds Eye View Masterplan Annotations
Precincts
Mixed-Use High-Density Residential Precinct
Mixed-Use High-Density Residential Precinct
General Overview

The high-density mixed-use residential precinct is located on the west side of the project, bounded by the Eleventh Street from the East, Zayed Street from the West, Hamdan Bin Mohammed Street from the North and Shakhboott bin Sultan Street from the South. The roads around the area are currently characterized by traffic congestion during work hours. The existing urban pattern is rather scattered, with lots of empty spaces in between buildings. The proposed plan is to increase density by 46 units per hectare by filling the empty plots with mixed-use residential buildings. The general concept for the district is to achieve a compact urban form with short walkable distances to work, commercial, and recreational activities. The aim here is to reduce dependency on cars within the precinct to achieve a more active lifestyle among residents and to address car-related air-pollution. (see Figure 34)
Urban Pattern

The ‘ground plus four’ (G+4: ground level plus four stories) topology is the most common in the area since it is the height limit set by the Al Ain Municipality. Distance between buildings are proposed to be from 4 to 12 meters in order to provide shade for pedestrians in Al Ain’s harsh desert climate, specially during Summer months (see Figure 35). Because the area has some existing low-density low-rise villas on its west side, this precinct also includes G+1 topology villas to match the existing pattern in that area and more housing choices for people with bigger families.
Land Use

In all G+4 buildings, the four stories above the ground level are residential, while ground floors are commercial and community facilities. The precinct provides to the project 7,115 square meters of commercial space. Public facilities include two schools, a mosque, a sports center, and various pocket and neighborhood parks (see Figure 35 & 36). Near the existing hospitals the project includes office space for medical-related research centers doctors’ offices. The medical buildings area has views and direct access to the Wadi Recreational Green Corridor (see Figure 68). To provide clean air and a calm atmosphere for patients.
Land Use: First Floor

Figure 36
Transportation and Mobility

All roads in the area have been made pedestrian- and bicycle-friendly. Some bike lanes are dedicated, separating vehicular traffic from the bicyclist with a curb or a landscaped median. The plan also provides for spaces for bicycle repair shops scattered throughout. All streets have been equipped with public benches, other street furniture, and lined with building awnings, canopies and trees. The multi-modal public transportation system proposed for the entire project is also part of this precinct (see Figure 23 & 39). One of the tram lines passes through the precinct connecting Jimi Mall on Hamdan bin Mohammed St. with the inner part of the precinct, along Eleventh St. and continuing to Zayed Al Awwal St. The shuttle bus proposed in the Al Ain 2030 Plan is also included in the project to pass through the residential area along Zayed Al Awwal St. The route of the local road between the date palm grove and the Convention Center is proposed to be changed to connect to the Second Street passing between the iconic religious buildings (see Figure 39).
Vehicular Circulation Network

Figure 38
Mobility & Transportation Plan

Bus / Tram Line

Figure 39
Open Space

The network of open spaces in the precinct (See Figure 40) begins with the semi-private courtyards in the residential blocks to provide greenery, recreational space, air circulation, and sunlight to residents. The existing old date palm farm on the north part of the precinct has been converted into a public park. From the park, a one kilometer-long pedestrian boulevard lined with stores, cafes, restaurants, and a public library stretches south connecting to the Wadi Recreational Green Corridor (see Figure 44). Along the boulevard there are two large public plazas, a large neighborhood park, and the two iconic religious buildings. The first plaza is connected on its east side to the arts boulevard in the Civic Centre Precinct. The green spaces surrounding the existing Convention Centre and other public spaces are also connected to the north-south boulevard.
Figure 41: Residential Precinct Top View Annotations
DATE PALM GROVE PARK
The existing old date palm farm on the north part of the precinct converted into a public park.

TWO LARGE PUBLIC PLAZAS
Plazas connecting on the East side to the Arts Boulevard in the Civic Center and to the pedestrian boulevard.

MOSQUE

ICONIC INSTITUTIONAL BUILDING

SEMI-PRIVATE COURTYARDS
Provides greenery, recreational space, air circulation and sunlight in residential blocks.

PEDESTRIAN BOULEVARD
One kilometer-long boulevard lined with stores, cafes, restaurants and a public library connecting to the Wadi Recreational Greenway.

MEDICAL BUILDINGS AREA
Has direct access to the Wadi Recreational Greenway providing a calm atmosphere for patients.

EXISTING HOTEL

EXISTING MALL

EXISTING VILLAS
G+1 typology villas to match the existing pattern in the area providing more housing choices for people in the area.

MIXED-USE RESIDENTIAL BUILDINGS
G+4 typology buildings to add balanced density to the area.

PARKING STRUCTURE
Car Parking in the metro road.

RESIDENTIAL VILLAS
G+1 typology villas to match the existing pattern in the area providing more housing choices for people in the area.

MIXED-USE RESIDENTIAL BUILDINGS
G+4 typology buildings to add balanced density to the area.

EXISTING HOTEL

CONVENTION CENTER

Figure 42: Birds Eye View of Residential Precinct
Figure 43: Existing vacant land next to the 11th Street

Figure 44: Image of Pedestrian Boulevard facing North
Mixed-Use Civic Center Precinct
General Overview

The Civic Center Precinct covers an area of 68.5 hectares bounded by Hamdan Bin Mohamed Street from the northern boundary, 124th street from the south east, 11th from the north west and the valley to the south west. This is currently where all Al Ain governmental buildings are located such as Al Ain Municipality, Abu Dhabi Chamber of Commerce, Al Ain Court, Abu Dhabi Educational Council, Ministry of Education Immigration and Naturalization Department (see Figure 45 & 46). The focus is on the revivification of the area and in activating it many unutilized spaces.

The main concern for the area is the current non-vibrant and non-lively scene. The area is used primarily and solely for governmental and utility buildings which serve a single use only. The lack of activities is another issue, as the area is active and utilized during the work hours on week days but completely abandoned after 5:00 pm and during the weekends.

To revive the area (precinct) a plan of high destiny mixed-use residential developments are proposed in addition to land uses to attract night activities is proposed. In addition new office buildings, coffee shops and commercial buildings, arts and design school, concert hall and theater, Arts Boulevard and hotels (see Figure 46)
Urban Form

This precinct plan keeps the existing urban form intact in the physical sense of proportionality. The plan proposes that the already existing governmental buildings and the proposed urban form represented in the buildings, block typologies, and street patterns to be kept in line with the existing urban form in the area. This helps to create a visual balance compatible with the existing buildings. Keeping the massing for the newly proposed variety of buildings typologies and open spaces is amide to maintain the same visual proportion of the governmental buildings.
Land Use

The land uses for the new plots serve both the precinct and the surrounding sites by keeping compatible land uses between them. However, to achieve a lively and vibrant civic precinct the project proposes higher densities and retail/commercial land uses at the ground level of most residential buildings. Also night time activities such as musical and theatrical street performances to achieve a 24 hour urban environment. The large building blocks on the northern part of the precinct bordered by Hamdan Bin Mohammed Street are primarily used as mixed-use residential with commercial uses in the ground level of most of the buildings provide the dwellers a variety of activities. The precinct features commercial uses in the ground level of most buildings to provide coffee shops, restaurants, and retail stores within the precinct. On the south eastern boarder of the precinct overlooking the wadi a high density mixed use residential development along with two hotels is proposed to gain from the leisure provided for the wadi development (see Figure 47 & 48).
Bordered by the 124th street is two major hotels that will act as business hubs due to their proximity to the main streets and the office buildings on that border. Along that line to the southern border of the governmental buildings in the center proposed are office buildings with residential buildings nearby to help attract private businesses into the area (see Figure 47 & 48).
The Arts Boulevard

A special boulevard to act as a major attraction within the precinct (see Figure 58) and as a platform for art performances and night activities is created along the inner local road bordering the Immigration and Neutralization Department and the Department of Economics between the 124th and 11th street within the precinct. The boulevard will be a link connecting between the three precincts in the project. The purpose of the boulevard is to provide a variety of activities in an environment of artistic display. This proposal aims to attract Al Ain and the area’s residents and workers to the Civic Center Precinct.

Inspired by the works of street artists and various similar projects and initiatives in the world cities the boulevard utilizes large blank facades of the governmental buildings and the proposed residential and office buildings to display paintings of street art commissioned to local and foreign artistes. The paintings will reduce the harshness of the heavily concreted facades of some of the existing buildings while providing a pleasant, interesting and creative experience to the users of the boulevard. Various activities may happen in the Arts Boulevard such as paint and workshops open to participation of locals of Al Ain and residents alike (see Figure 49 & 50).

The boulevard is paved is mason bricks with low speed buffer up to 40 Km/hr to reduce the vehicular movement within the boulevard to encourage walkability. The sidewalks are 12 meters wide with a dedicated cycling lane and performance areas along the boulevard for open musical and theatrical performances.

Supporting the artistic character of the Arts Boulevard, the plan provides an Arts and Design School as well as a concert hall. It is recommended that such buildings be commissioned to renowned architects so that the buildings may become iconic architectural pieces in the area.

To provide retail units as art galleries and art and design shops to attract residents and visitors into the precinct, a warehouse is created to provide the artists with rentable studio and gallery spaces located on the on the north western end of the boulevard on the 11th street.
Mobility & Transportation

The transportation system is designed to provide for the needs of the precinct without overly depending on vehicular movement. The system is designed to minimize car dependency and encourage walking and cycling. The system also incorporates public transportation represented in the orange bus line passing through the precinct connecting between the 124th street and the 11th street, and both tram lines passing by the periphery on the 124th street and Hamdan Bin Mohamed Street. The bus and tram stations are designed within a radius of 500 meters from each other to provide a good 5 minutes' walk able catchment (see Figure 53).

The vehicular movement is connected and integrated into the precinct through a network of collector and local roads that extends through the area. There are two main collector roads the run through the area connecting directly between the Hamdan Bin Mohamed Street and 11th street. The 124th street is connected to the area through the Arts Boulevard and another collector road parallel to the Boulevard both of which connect the 124th street to the 11th street in a cross sectional manner through the area (see Figure 52).

The boulevard is designed with special red mason brick pavement to cater for the low speed buffer of 40 km/hr.

The network is designed around the boulevard to minimize traffic movement on it especially in the mid section as that is where most of the activities will take place. The boulevard is connected to the network with only six local roads. Three of those roads connect the residential area on the corner of Hamdan Bin Mohamed Street and 124th street with the boulevard. And the other three are distributed between one that connects the governmental buildings in the mid-section to the boulevard and two roads that connect the residential area on the corner of Hamdan Bin Mohamed and 11th street. A pedestrian and dedicated cycling lanes network is established to encourage walkability within the area (see Figure 51).
Bicycle & Pedestrian Circulation Network

Figure 51
Vehicular Circulation Network

Figure 52
Mobility & Transportation Plan
Bus / Tram Line
Figure 53
The hierarchy of open spaces with the area is distributed between public parks, semi-public court yards and green corridors. This hierarchy provided by the proposed urban form provides plenty of open spaces in the ground floor level for social interaction and activities. The major public parks are allocated on 124th street next to the proposed hotels, along the wadi and next to the proposed Arts and Design School where they act as public performance spaces. The semi-public court yards act as open public spaces and as court yards for the residential and office blocks where they provide open areas for the kids to play in the residential blocks and interaction spaces in the office blocks. Green corridors are added to connect the open spaces and the area all together though the collectors connecting between the 124th street and 11th street and between Hamdan bin Mohamed Street and the 11th street. Those corridors are designed with green natural elements that help reduce the harshness of the structures and provide natural shade and cooling along them (see Figure 54).
Figure 55: Civic Center Precinct Top View Annotations
OFFICE BUILDINGS
This precinct has 63040 sq.m of office space to complement this type of use in the governmental complex.

ARTSBOULEVARD
A ‘shared-space’ pedestrian/vehicular cobble-stone paved boulevard lined with artistic murals, art shops, galleries, cafes, and restaurants providing a 24-hour ‘artistic experience’ in the precinct.

CONCERTHALL
A 300-seat space for the performing arts attached to the Arts and Design School.

BUSINESSHOTEL
This hotel is located on the 124th street and provides facilities for business men such as multi-purpose halls and business centers.

HOTEL
250-bed 4-star hotel catering to nearby Convention Center congress participants. The building has views over the Wadi Recreational Greenway.

Figure 56: Birds Eye View of Civic Center Precinct
Figure 57: Local road between municipality & 11th Street

Figure 58: Image of Arts Boulevard facing East
Mixed-Use University Village Precinct
General Overview

The University Village Precinct, at the East end of the project, is planned as the residential component of the Al Ain University of Science and Technology (see Figure 59). The project takes advantage of the large parcel of vacant land between the university campus and the intersection of Hamad Bin Mohamed St. and Mohamed Bin Khalifa St. to develop a mid-density mixed-use residential ‘village’ for faculty and students. The development features a large public open space (with a mosque at its center) that serves as a social, cultural, and recreational area for faculty, students, and visitors. A university-managed public auditorium is proposed on Hamad Bin Mohamed St. to serve as the preeminent space for large university formal gatherings, music concerts, theatre, and other cultural activities. For big sports events, the project proposes the construction of a stadium on the university premises facing the Al Salimi Wadi Recreational Green Corridor. A mid-size two-storey commercial centre is also proposed facing Hamad Bin Mohamed St. to serve the shopping needs of locals and for residents of the housing complex. And three other education-related buildings are proposed at the entrance of the residential complex.
Urban Form

The precinct features two distinct urban forms. The new buildings proposed on university premises mirror the existing university buildings typologies. Yet, the residential complex for students and faculty introduces a building typology not commonly found in the area, that of a contemporary fareej (see Figure 65). The fareej is modelled after Abu Dhabi’s Urban Planning Council guidelines in their “Neighbourhood Planning” manual. The urban form follows the traditional Emirati housing pattern with courtyard-style homes built to the edge of the plot, sikkak (small narrow paths between homes), barahaat (intimate public spaces), and meyadeen (larger gathering spaces).
Land Use

Like the other two precincts, this one presents a mix of land uses typical of sustainable development: mixing together commercial, residential, office, institutional, educational, work spaces, and cultural/recreational uses. It seeks to balance economic, social and educational opportunities in the area. The precinct also provides a sports complex facing the Al Sulaimi Wadi Recreational Green Corridor that includes a large stadium next to the university with track field and gymnasiums. Housing within the fareej provides flexibility of choices. The typologies include bachelor’s studios, two- and three-bedroom apartments for students and faculty in a mixture of single-individual to multi-family and single-family residential options (see Figure 60).
Mobility & Transportation

The precinct is a pleasantly walkable neighbourhood. The narrow short allies meandering through the fareej make for a rich interconnection of pedestrian routes in a cool shaded environment (see Figure 61 & 62). Although cars are allowed along the narrow vehicular road on the north side of the fareej, this street is a “shared space” where pedestrians have priority over vehicles. The University Village Precinct well connected to the other precincts and to the rest of Al Ain via the tram line and bus lines running along Hamad Bin Mohamed St. It accommodates the individual need of those that travel using public transportation (see Figure 63).
Mobility & Transportation Plan

Bus / Tram Line

Figure 63
Open Space

The precinct plan maintains the hierarchy of open spaces present in the entire project. It begins with small semi-private courtyards tucked between residential units in the fareej, then slightly larger barahaat ('pocket parks') between the fareej tight-knitted residential blocks, followed by the semi-public open space towards the east end of the precinct, which in turn is connected to the large public space with the mosque at the center (see Figure 64). These two large open spaces continue in a linear fashion along a tree-lined boulevard that surrounds the university along Hamad Bin Mohamed St. to connect at Al Baladiya St. (124th St.) with the Arts Boulevard in the Civic Centre Precinct along 10th St. (see Figure 58). The semi-public open space at the end of the fareej connects to the Wadi Recreational Green Corridor East End Park at the intersection of Hamad Bin Mohamed St. and Mohamed Bin Khalifa St. (see Figure 70). The grassy surface of the public open space is designed to allow light sport activities such as informal football, softball, or cricket games for students.
COMMUNITY MOSQUE:
The focal point of the university district, located in the center of the community park.

SHOPPING CENTRES:
This will consist of buildings to form a complex of shops representing merchandisers with interconnecting walkways to enable walkability from unit to unit.

FACULTY ACCOMMODATION:
Accommodation for multi-family faculty members.

STUDENT ACCOMMODATION:
Accommodation for students singles / bachelors.

UNIVERSITY AUDITORIUM

UNIVERSITY BUILDINGS
Acts as a gateway connecting the university to the residential areas.

SPORTS FIELD
Providing sporting activities within the university.

Figure 65: Birds Eye View of University Precinct
Figure 66: Vacant plot next to University of Science and Technology

Figure 67: University Precinct Central Public Space
General Overview

Al Sulaimi Wadi is one of the most important natural features in the city of Al Ain. The wadi transverses Al Ain’s Civic Center area diagonally along a stretch of almost three kilometres with an average width of 100 meters (see Figure 69). Although in its present condition the Al Sulaimi Wadi may be considered what in urban design theory is known as “lost space” (a 'no-man’s land' strewn with waste and no specific use), the wadi is nevertheless an important part of the larger natural storm water drainage system in the city and the region. As such, it presents a unique opportunity to create a recreational green corridor for the project. The soils along the buffer areas of the wadi, for example, are rich in nutrients offering the potential to plant xeriscaped gardens with local shrubbery and native trees to become a shelter for native fauna as well as an attraction for Al Ain residents and tourists. In addition, the project’s proposed treatment of the wadi edges (sloping upwards gradually) will double as a natural flood control to protect adjacent structures. The Wadi Recreational Greenway is framed at both ends by ‘gateway parks,’ the East End Park and the West End Park (see Figure 69). These parks serve as entrances (“gateways”) to this green corridor. Between the two parks, stretching along the greenway, there are three main tracks planned for bicycles, joggers/walkers, and a special camel track for recreational tourism. The entire Wadi Recreational Corridor will be landscaped with local flora.

East End and West End Public Parks

Both parks are large public areas located at important road intersections to be accessible to project residents, to Al Ain residents, and to tourists. The East End Park (approx. 4 hectares), located at the intersection of Mohammed Ibn Khalifa Street and Hamdam Bin Mohamad St., is considered the main eastern public entrance to the project’s greenway recreational corridor. The park will be connected to the Al Sulaimi...
Park across Mohammed Ibn Khalifa St. via the pedestrian, bicycle and camel path that will pass under the existing bridge. The park provides benches, barbecue areas, shaded canopies, water fountains and water ponds, and an amphitheater for musical and other cultural events. Given that a bus and a tram station are planned on the adjacent streets, it is expected that this park will become a popular public attraction for Al Ain residents.

The West End Park (aprox. 6 hectares) is located in the south part of the High-Density Mixed-use Residential Precinct across Third St. (in front of the existing hospital, hotel, convention center, and the proposed medical office and research buildings) and at the end of the pedestrian planned boulevard stretching from the Date Palm Grove Park in the north of the precinct (see Figure 69).

The West End Park (aprox. 6 hectares) is located in the south part of the High-Density Mixed-use Residential Precinct across Third St. (in front of the existing hospital, hotel, convention centre, and the proposed medical office and research buildings) and at the end of the pedestrian planned boulevard stretching from the Date Palm Grove Park in the north of the precinct (see Figure 69).

Ponds

Although the wadi is normally dry most of the year, it is proposed that part of the grey water from the nearby water treatment plant be used in the Greenway to create a permanent wetland landscape with ponds scattered throughout. The ponds will serve as a natural cooling system and habitat for local wildlife. It will also help replenish the underground water reservoir by way of natural filtration.

The Desert Botanical Garden and Wadi Landscaping

A Desert Botanical Garden is planned near the middle part of the Wadi Greenway. This botanical garden will double as a recreational area for locals and tourists and as a research facility extension of Al Ain University for the study of the region’s desert flora. Landscaping along the wadi green corridor will be xeriscaped to conserve water.

Arts Workshop Space

An arts workshop area is located at the end of governmental buildings on Saeed Bin Tahnoon Al Awwal Street to be used by artists and art students throughout the year. The area will continue the visual axis that starts at the Art Boulevard and will have spaces for open air painting, sculpting and performances.

Bicycle, Camel-Tracks and Pedestrian/Jogging Path

The Wadi Recreational Greenway is laced from one end to the other with a pedestrian/jogging path, a bicycle-track, and a camel-track. The tracks go farther beyond the wadi area to be part of the larger regional system of recreational and tourist tracks in Al Ain. As explained above, they will connect with the regional system via an underpass connecting with the Al Sulaimi Park along Mohamed Ibn Khalifa St. The camel-track is particularly important as it will help to ease the camels’ movement to and from the camel race track in Al Maqam, passing through Oman border. Camel-riding in the wadi green corridor is expected to become a popular tourist attraction.
WEST END PARK (aprox. 6 hectares)
The park is located in the south part of the high-density mixed-use residential precinct across the Third St. This park contains open air gym, BBQ pits, benches and tree-shaded sitting areas.

ARTS WORKSHOP SPACE
The area will continue the visual axis that starts at the Arts Boulevard and will have spaces for open air painting, sculpting and performances.

BICYCLE TRACK
PEDESTRIAN / JOGGING PATH
The paths connect with the regional system via an underpass connecting with the Al Sulaimi Park along with Mohamed Ibn Khalifa St.

PONDS
The ponds will serve as a natural cooling system and habitat for the local wildlife. It will also help replenish the underground water reservoir by way of natural filtration. The pond will be filled with grey water.

EAST END PARK (4 hectares)
Connected to Al Sulaimi park via the paths under the exiting bridge. The park provides benches, BBQ areas, shaded canopies, water fountains and water ponds.

AMPHITHEATER
For musical and other cultural events.

DESERT BOTANICAL GARDEN
Used as a recreational area and a research facility for the study of the region's desert flora. The landscaping will be xeriscaped to conserve water.

CAMEL TRACK
Helps ease the camel movement to and from the camel race track in Al Maqam. Camel-riding in this area is expected to become a popular tourist attraction.

Figure 69: Top view of Wadi Recreational Greenway
Appendix A

PROJECT BACK GROUND

Highlights from the UPC meeting

On October 28, 2015 the workshop group met the UPC staff at Urban Planning Council Abu Dhabi to get insights about the project in detail. UPC made clear that Al Ain intends to protect its cultural traditions and scale and shaped by its unique natural environment.

UPC is working to achieve a comprehensive plan for the future of Al Ain as an environmentally, socially and economically sustainable city.

It proposes new ways to grow and leverage the economic opportunities at hand without sacrificing the environmental and cultural heritage of the city – and adds new elements to make it a dynamic hub in the modern global economy.

Meeting with Al Ain Officials

On November 6th 2015 the workshop group met the Al Ain officials in Reyhan Hotel in Al Ain.

The highlights of the meeting are as follows:

1. General aspect of Al Ain city discussed in the meeting
   
   • Vision of Al Ain: “the city of oasis”. The oasis is very important aspect for the city of Al Ain. They want to protect it and provide special treatment to prevent deterioration and neglect.
   • Al Ain area is from Alfaqee to Alqoua (About 2-hour car driving distance). Most of the desert is not utilized yet. There is a lot of vacant land available to develop and use in an integrated manner.
   • Alain is a calm city. The aim is to preserve the calm and homely atmosphere of the city. Away from the rush of city life in Dubai and Abu Dhabi most visitors come to Al Ain.
   • Almubazzerah (a hot water spring area), Alain Zoo and the malls are the most popular for tourists.
   • The water used in the city comes from desalinated seawater in AL Fujairah and Abu Dhabi.
   • 95% of the sewage is recycled to be used for plant treatment.
   • Solid waste recycled by “tadweer” (Abu Dhabi waste management center) and other private companies.

2. Regulations:
   • The area within a distance one kilometer from Oman boundary cannot be developed. This is a
   • Major restriction found out but government is working on to free the restriction soon.
   • By law, the maximum building height is 12
meters (G+4). Height limit is strictly followed in Al Ain so any design implemented should be as per this norm.
• Al wadi (the valley) area is protected from development. It works as an outlet for rain water so it is protected from construction.
• Lands provided by government for Emiratis were 60*60 square meters per family and changed to be 30*35 square meters per family. There is a change happening to induce more density.
• Old mud houses and narrow streets in AL Qattara and AL Jimi that people used to live in are taken by government who protected and modified them with traditional style materials.

3. The Challenges:
Public transportation
It was pointed out that the locals will not use the public transportation because the area is not crowded yet. They prefer to use their own cars.

Parking
There is underground free parking available for 230 cars, but people do not use it for cultural reasons; it is too far specially for wives and kids.

Density:
The lands provided by government will cover the local needs by 2030. After 2030 they need to study more about it. People prefer to live in large houses even if it was far from their work places but still Al Bastakiyah style will be suitable for them. Emiratis are not living in multi-story buildings.

4. Opportunities:
Bus service
The public bus route will start from 1 kilometer, 0.5 kilometer or 100 meter from Oman boundary (to be decided) until Ras al khaimah and Dubai. It will start within one to two months from now.

Wadi
Al Wadi (the valley) is used now for rainwater to be pushed in, and there are some walking paths around the valley to be used as sport tracks. Tourism activities could be successful.

Traffic
Traffic is not an issue in Alain. The maximum waiting time for some traffic lights on rush hours in Civic Center is only 5-10 minutes.

Parking
There are no parking problems in the city, except in Town Center (the shopping area) in seasonal times (Eid and Ramadan). “Mawaqef” system will be activated soon and it will solve the problem.

5. Issues:
The roundabouts are being changed to traffic lights to take more capacity, but some changes are making more traffic. Only residents use the City Center, and it is congested in Eid and Ramadan. Tourists do not use the area.

Many projects got cancelled because of the height rules limitations.

CURRENT CONDITIONS OF THE STUDY AREA

The study area provided by urban planning council of Abu Dhabi was Al Towayya, Al Jimi and Al Qattara Districts in Al Ain. This was the first study area identified.

Our team went forward with Al Jimi and Al Qattara District. After reviewing the opportunities and challenges and looking into the dynamics of the district. The area which needed the most concentration was the civic center area. This led to the conclusion to reduce the boundary of our study area. We reached to this conclusion from the meetings and our research in that area.

We further reduced the study area and concentrated on the civic center area. The reasons behind were the number of opportunities and challenges concentrated in the civic center. The opportunity to take what is good about the town Centre and builds on it, as well as address many of the issues that have been identified in previous consultations.
Appendix B

Biophysical Conditions Climate

Conclusion
Hot arid and sunny climate during summer makes outdoor activities very difficult. On the other hand, the warm winter is an opportunity for many tourist activities. December, February, March and November are within the comfort zone. January, April, October and May are close to the comfort zone but only of the area was shaded. … "

Recommendations
Planning for higher density neighborhoods in Al Ain is the best solution for the hot-dry climate according to a study done by... “Compact, mid-high density urban forms expose less building surfaces to heat gain and engender narrow, shaded pathway networks and greater opportunity for more comfortable, pedestrian movement. Mixed-use developments incorporating residential neighborhoods with relevant commercial, educational, recreational and places of employment require less reliance on the automobile and track generation. Thus they require less energy demand, less infrastructure investment and are more economical to build, operate and maintain”. In addition, recycling the water is a better solution in Al Ain to reduce the use of desalinated water from the sea, which is far from the city, to reduce the cost of transferring the water from areas further than 120 km.

Rainfall is rare in Al Ain. However, some months have more precipitation than other months. Collecting rainfall water will be an ancient use of a valuable resource – water – in this dry climate. According to Aquascape, a company that produces rainwater collection systems, and comparing the data with our area, 100mm of rainfall per year in Al Ain on a 743 square meter residential roof generates about 18,927 liters of water per year for each household in Al Ain, that can be reused . Many systems can be used to collect the water from roof of the buildings.

Wild life in Al Ain

Al Ain city is located at a meeting point of three different topographies, landscapes and ecosystems, made it very rich with wild life diversity, especially in the Oasis Mountains, and Wadi beds.

Historical development of low density has caused serious damage for wild life in Al Ain (extinction endangering many higher vertebrate) as urbanization encroaches in to their habitat. Further expansion beyond the current urban ring has to be stopped; new expansion should be through raising density of the existing developments, except for developments around Oasis, wadis and wadis fringes.
The revitalization of the native Food Web through use of local plantation landscaping, revitalizing bioaccumulation of Al Ain ecosystem, on the other hand designing urban structure properly provides shelter for many wild life species, resulting in an ecosystem restoration on the long run.

Vegetation:

Al Ain; branded as a garden city, an Oasis in the desert, and a shelter for the region's biodiversity and ecological system. It is vital physically and economically for Al Ain to sustain this and further improve it, to achieve this It is vital for Al Ain to sustain its urban boundary from expansion, to avoid further damage for virgin habitats, as urbanization causes biodiversity to decline and important habitats are destroyed while cities grow.

The Oases are part of the legacy of Al Ain and must be sustained, while large cultivated farms in the city centre has to be re-claimed for urban activities as sustaining them is becoming very expensive physically, ecologically and environmentally.

Fragmented small patches of garden and open spaces in the urban area are not big enough to support complex ecological communities, while Wadis with their size and extinct present a distinguished opportunity to become a natural reserve of habitats, and for natural tourism and activities, Wadis fringes and surrounding have the potential to host ecological, botanic and urban-agricultural activities.

Road and street plantation are to provide shade, improve air quality, and for aesthetic reasons, but personal car dependency and more efficient roads designs has to be applied to achieve this (right of way and intersections types).

All excessive water demanding plantation must be avoided, including grass fields, around public buildings and parking plots, xeriscaping techniques using local plants and trees would reduce water demand while provide natural habitats and food base for local wild life and fauna.

Soils:

Soil nature of Al Ain city is of Lithic Torriorthents (soft grained), with a shelow bedrock. This soil composition can be of an advantage for urban use, because the soil is composed, dry and with a superficial bedrock., which reduces building’s foundation’s size and cost. On the other hand; this soil composition is cause of sand storms and is poor for agriculture and landscaping use, as it cannot store water for long being close to the bedrock causes the water to runoff without being charged in to the underground water stream.

Hydrology:

Al Ain is terrestrial city; the closest connection to sea is 140 KM. This makes Al Ain dependent on ground water for fresh water need, According to record the water aquifers levels are dropping very fast. This makes hydrology Planning and fresh water mitigation an issue of life and death for Al Ain, desalination and pumping of sea water proved to be un-feasible financially and environmentally.

To sustain the future of Al Ain’s water resources, a very strict measures has to be implemented including; Individual water use limits and caps for residential, industrial and commercial uses. Reconsideration of the size, crops and irrigation systems of all agricultural farms in Alain, searching for alternate to avoid all excessive water demanding plantation for both cultivation and authentic proposes; including grass fields, foreign trees. The recycle of all used water for domestic use when possible or for irrigation, commercial and industrial use.

Eco System

Al Ain region is part of a desert climate zone characterized mostly by scarcity of resources with temporally long lasting system based on low production and low energetic reward as in all desert ecosystems, making it sensitive and fragile, in small parts of the desert like the Oasis and Wadis energetic reward is high due to concentrated moisture and organic matter, which creates a shelter for many types of desert flora and fauna.
**Socio-Cultural Conditions**

**Demographics**

Al Ain has the largest proportion of citizens among cities of the emirate of Abu Dhabi, with less expats proportion. In response, local culture, heritage, genders, and ages need to be given higher consideration, including special facilities for women, seniors and young’s including labor segment.

**Economy**

The economy of Al Ain will grow based on national, international and healthcare tourism, benefiting from its distinguished topography, climate, heritage and location, while solid and high quality infrastructure available in education, healthcare, retails and industry would be the leverage for a mixed sustainable and clean economy.

**History and Heritage:**

**Issues/Challenges/Considerations:**

As the history and heritage of Al Ain form an important part of its character a challenge is posted to deal with and incorporate those sites within the city vision and future, as such sites might form an obstacle in the way of some of the developments or some of the plans. Such plans include the increase in the population density or the introduction of CBD’s to which such locations or sites would be vital and the removing of the heritage buildings would be recommended but that should never be the case.

**Conclusions/Recommendations:**

Al-Ain is a heritage hub in the country and there is a significant amount of interest given by the UNESCO to conserve and maintain those historical and heritage sites. Taking the previous into consideration and as well the proximity of some of those sites such as Al-Muwaiji Fort and Qattara and Jimi Oases the following recommendations must be taken into serious consideration during the development of the project plan:

- The south western border of the project area overlooks Al-Muwaiji Fort the birth place of Shk.Zayed Al Nahyan and Shk. Khalif Al Nahyan and remarks the rise of the Nahyan dynasty to power. This border must be preserved and the a development boundary must be implemented to control the development rates towards the site of the fort to prevent any extension of development into the site that might degrade the significance of the fort.

- A strict architectural code must be implemented on the south western region of the project area bordering Al-Muwaiji Fort to keep all new developments within a vernacular theme to preserve the original architectural language of the fort and emphasize the historical significance of it which empowers the projects vision to up bring the national identity of the city and revitalize the tourism in the city through preserving its history.

- The Northern border of the project site overlooks Al-jimi and Al-Qattara Oases which contain Al-Qattara fort and tomb as along with a working falaj, all of which are included in the UNESCO list of historical and heritage site to be preserved with a strict buffer zone around the of no development. Due to that a development boundary must be implanted to that border to control the development rate in that zone.

- A strict sustainable code of development and criteria must be formalized an implemented especially in the northern area bordering Al-Jimi and Al-Qattara oases to keep the development strictly green and sustainable to avoid degrading the natural elements of the oases.

- The transit oriented transportation system proposed in the project must include the northern area on the project to reduce the effect of heat islands and CO2 emissions on the natural elements of the oases.

- Industrial land use to be completely prohibited in both the Northern border,overlooking Al-Qattara and Al-jimi oases, and the South Western border, overlooking Al-Muwaiji fort for what that land use holds of a degrading impact to such sites.
Commercial and retail land uses are advisable on both borders to help attract tourists and tourism movement to the sites.

Socio-cultural Conditions

Land use

Conclusion / Recommendations
Residential land use is a dominant factor and needs to be reduced, commercial land use, parks and community facility land uses need to be increased and evenly distributed. Recommended land uses for the project site should be high to medium dense mixed uses evenly distributed within the project site.

Development Pattern/Urban Form

Conclusions / Recommendations
The development pattern in the study area clearly shows fragmented development patterns with lots of undeveloped spaces in between them. The development patterns that fall within the project site are B and D. Suggested development patterns for the project site should be fine grained and compact and adopted from the Abu Dhabi neighborhood plan where the Fareej is 240m x 240m with a population of 125 and 5.76ha, 3.3 units/ha.

Open Space

Conclusion / Recommendations
Al Ain has done a good job in preserving its open spaces but there seems to be a weakness in linkage and connectivity between these open spaces, furthermore there does not seem to be provision for activities. There should be provision for large event spaces such as outdoor shelters suitable for events, family gatherings. Provide some covered activity areas such as benches, playgrounds or courts for more year round use. The Wadi should serve as designated pedestrian walkways as well as bike paths with a lot of trees shading the path (green pathway).

Architecture Patterns / Building Typologies

Conclusion / Recommendations
Although there are several building configurations in Al Ain it lacks coherence in its expression as a city, there is also an absence of distinctive architectural vocabulary that is responsive to the climate. It is recommended that there is coherence in the architectural vocabulary, for example all G+4 building should follow a certain type of window shape, detailing of materials or having certain cantilevered canopies on the ground level proposed for retail. Achieving this can help lead to a memorable city.