Cairo’s New Administrative Capital
Wedian City: Lessons from the Past and for the Future

By

Mirette Khorshed

B.Sc in Architectural Engineering
The American University in Cairo
Cairo, Egypt (2012)

Submitted to the Department of Urban Studies and Planning
in partial fulfillment of the requirements for the degree of

Master in City Planning

at the

MASSACHUSETTS INSTITUTE OF TECHNOLOGY

February 2017

© 2017 Mirette Khorshed. All Rights Reserved

The author hereby grants to MIT the permission to reproduce and to distribute publicly paper and electronic copies of the thesis document in whole or in part in any medium now known or hereafter created.

Author

Signature redacted

Certified by

Professor Lawrence Vale

Department of Urban Studies and Planning

Thesis Supervisor

12/20/2016

Accepted by

Associate Professor P. Christopher Zegras

Chair, MCP Committee

Department of Urban Studies and Planning
Cairo’s New Administrative Capital
Wedian City: Lessons from the Past and for the Future

By

Mirette Khorshed

Submitted to the Department of Urban Studies and Planning
On Jan. 18, 2017 in Partial Fulfillment of the requirements
for the Degree in Master in City Planning

Abstract

The Egyptian government’s announcement in 2015 of its plans to construct a New Administrative capital, to be known as Wedian City, is the latest example in a recurrent pattern of announced administrative relocations and satellite cities being constructed on the outskirts of Cairo. Previous relocations and new cities, planned to be self-sufficient and independent have only been partially successful, and in most cases remain reliant on the city or have now merged into the original city.

As plans move forward towards the development of the new Administrative Capital – this thesis examines the socio-economic, political and historical context in which this project has been announced and the urban context in which it is being implemented. Furthermore, it hopes to critically assess some of the advantages and disadvantages of the development based on the initial released documents. Also, it attempts to draw conclusions and lessons from this proposal and the experience of other cities that may guide future phases of the project and aid in the assessment of possible future initiatives both locally and internationally.

The announcement and current move forward with the proposal for Wedian City is an opportunity to analyze a wide cross-section of topics pertaining to national, city planning challenges of both old and new cities in Egypt. Due to the scale and nature through which the project was placed into implementation, the proposal touches on various urban design topics and elements at various scales and levels. Upon a closer look at the proposal the project poses concerns if not addressed. Furthermore, since urban design is in many ways a tangible representation of current planning processes, and a physical transformation of the current state of affairs, conditions and priorities, the urban design of the new proposal will be given special attention within the context of the greater urban planning context.

In order to promote improved urban design outcome, based on previous experience, this thesis concludes and recommends additional considerations with regard to long-terms sustainability measures, more accurate outcome-oriented socio-economic accounting, and the integrated development of land-uses and urban components. The thesis uses the five principles of Good City Form proposed by Kevin Lynch throughout the process to improve key elements of vitality, sense, fit, access and control.

Thesis Supervisor: Professor Lawrence Vale
8.4 WEDIAN CITY: PARAMETER SET 02: ACCESS AND CONTROL 84
8.5 WEDIAN CITY: PARAMETER SET 03: 'META-CRITERIA': 'EFFICIENCY' AND 'SUSTAINABILITY’ 85
8.5.1 ‘SUSTAINABILITY’: THE GREEN SPINE 87
8.5.2 ‘SUSTAINABILITY’: DENSITY AND RESIDENTIAL HOUSING 88
8.5.2 ‘SUSTAINABILITY’: URBAN FABRIC AND A QUICK COMPARISON TO NEW CAIRO 89

CHAPTER 9 - URBAN DESIGN AS A POTENTIAL TOOL 93

CHAPTER 10 - CONCLUSIONS: RECOMMENDATIONS FOR THE FUTURE 98
10.1 CITIZEN PARTICIPATION, KEY PLAYERS AND DATA: ‘ACCESS’ AND ‘CONTROL’ 99
01 WHO IS THIS CITY FOR? CLEAR IDENTIFICATION OF THE TARGET POPULATION 99
02 WHO DECIDES? GREATER TRANSPARENCY IN THE SELECTION OF PRIVATE AND PUBLIC ENTITIES INVOLVED IN SUCH PROJECTS 101
03 ACCESS TO DATA AND PLATFORMS 102
04 DEVELOPING PUBLIC PARTICIPATIONS STRUCTURES 103
10.2 CITY AND URBAN DESIGN: 'FIT' 104
05 SUSTAINABILITY IN THE EGYPTIAN CONTEXT 104
06 RE-GROUNDING THE EGYPTIAN MODERN IDENTITY 108
07 THE CITY AS A LONG-TERM GROWTH PROCESS 110
10.3 CITY AND URBAN DESIGN: ‘VITALITY’ AND ‘SENSE’ 111
08 URBAN MORPHOLOGY AND INTEGRATION 111
09 DEVELOPING URBAN DESIGN GUIDELINES 112

CHAPTER 11 - FINAL REMARKS 116

REFERENCES 118
Chapter 1 – Introduction

1.1 - Brief Contextual and Political Background

In March 2015 the new current El-Sisi administration in Egypt announced its plans for a new Egyptian administrative capital located 45 km outside of today's downtown capital city of Cairo. For decades now, Cairo has been struggling with immense problems of overpopulation. This has resulted in congested streets, an overburdened public transportation system, a lack of suitable low and middle-income housing, growing areas of informal settlements, construction over agricultural land and extensive urban sprawl. In light of the recent turbulent years since the 25th of January Revolution in 2011, the subsequent years of protests, the ouster of President Morsi in 2013 and his subsequent removal by then Chief of Armed Forces – Abdel Fattah El-Sisi – the country has been fluctuating in its economic recovery. Today under the administration of President El-Sisi, elected in 2014, the administration attempts to remedy many of these accumulated problems with the proposal for a New Administrative Capital: Wedian City (plural for the Arabic word for 'Wadi' (Valley or Oasis)).

Figure 1 – Plan showing location of the ‘New Capital’ (Source: thecairocapital.com)
Although official and non-official theories behind the reasons for the proposal vary, these motives can be categorized into three main themes; namely:

- Political or ideological
- Economic: Investment or employment-generating
- Environmental: Improving overpopulation, congestion, housing conditions etc

Since its announcement, the project has undergone many cycles of change, from a change of leading design team, through to changes in investors and financial availability. The first set of conceptual drawings were designed by Skidmore, Owings and Merrill (SOM), a major international firm headquartered in the United States, and were revealed as part of Egypt’s Economic Conference in March 2015. According to the official announcement video, the plan is intended to target Egypt’s youth (30 years of age and below who statistically account for 75% of Egypt’s population). The initial plans also proposed the construction of a 5.55 sq.km Central Business District, one million homes (medium and high density), 660 Hospital and Community Clinics, an Innovation and Knowledge District including 1900 schools, 1950 Religious Buildings, Park spaces “6 times Larger than Hyde Park and 2.5 times the size of Central Park”, (New Capital Announcement Official Video, 2015) a new airport, extensive public transportation networks between the old city and new capital, as well as all the associated infrastructure. Further news sources claimed that the new administrative capital is intended to house five million inhabitants, as well as a new presidential palace and parliament. With the plan to house such an extensive number of inhabitants, as well as a diversity of land-uses and alternative activities, it is therefore essential to ask how much emphasis is being placed on the project as a housing settlement project or new city, versus a true administrative relocation. Although titled as an administrative capital the design for the new city is rather comprehensive in its components - with the administrative complex only comprising a part of the overall design. In late November 2015, land was officially designated towards the new capital project with the approval of new land for housing developments and the start of the first phase of construction over the subsequent months.

Although an ambitious plan, driven largely also by the need to incentivize foreign investment and create jobs (as such mega-projects have the capacity to generate), the plan has been received at varying levels of acceptance and/or skepticism, especially amidst the instabilities of the economy. When the plans were originally announced financial backing was to come from the UAE-based private investment
company - Capital City Partners, however following further discussions an agreement could not be reached and the negotiations were halted. New funding sources emerged and were announced in early 2016. Amidst approximately $400bn of investment from China, a portion of the project has been allocated to a Chinese contracting company: China State Construction Engineering Corporation. In mid-to late 2016 a second round of investments coming from China were announced, with further funding sources still uncertain.

In the months following the initial announcement of the proposal at the 2015 Economic Conference, the master-planning and urban design of the proposal was transferred from Chicago-based Skidmore Owings & Merrill to a local group of architects, urban planners and landscape architects. The selection process took place rapidly and the firms were brought together through the formation of a new consortium for the purpose of this project. The five firms were then designated under the name Urban Design Consortium +5 otherwise referred to as the UDC +5. Although the key drivers behind the project are the Ministry of Housing and the Ministry of Defense, the master-planning and design development of the project has been placed under the responsibility of the UDC+5 group. The involvement of a military-based authority is often questioned; however since most empty desert-land falls under the ownership of the Armed Forces, the Ministry of Defense is in many cases involved in similar national projects, and so its involvement is not unique to this project.

Following the status and changes in plans of the project over the subsequent months, the masterplan and designs of the new city were kept confidential for nearly a year following the initial release of the vision. Furthermore much uncertainty regarding the future of the project ensued, with only intermittent references and announcements regarding on-going financial negations made throughout the year. In September 2016 various elements of the schematic proposal began to be released to the public via various online news sources, newspapers, social media and official government sites such as the New Urban Communities Authority portal.

1.2: Problem: A Necessity or Repeated History?

The idea of creating a new administrative center outside the growing boundaries of greater Cairo is neither new nor unique to Egypt. As noted already in 1994 “The issue of moving the Egyptian capital away from Cairo has periodically surfaced in semi-serious national discussion over the last twenty
years” (p.254 Journal of Architectural and Planning Research 11:3, Autumn 1994). Since the sudden migration of citizens from rural areas towards urban settlements in the late 1950s, Cairo’s administrators have been struggling with Cairo’s growing population and rapid urbanization, and in previous years made similar attempts to decentralize the city. Two such proposals have been the plans for the cities of Sadat City and Nasr City, which during their initial release also intended to relocate the administrative functions outside the original boundaries of Cairo. However, these previous attempts and proposals are often cited as previous plans that failed to fulfill their intended objectives and failed to become the intended new administrative centers.

Madinet Al Sadat (Sadat City), planned at a location of about 100km north-west of Cairo is placed well outside the boundaries of Cairo’s growing metropolitan region on one of the major highways linking Cairo to Alexandria – referred to as the Desert Road. Although initially planned to house half a million population and “165,000 jobs in 25 years for the 500,000 target population.” (The Development of Sadat City, 1978), today Sadat City only houses approximately 150,000 residents. Furthermore, although the original scheme had intended to include the relocation of government buildings to the new site, these relocations failed despite the funds that were invested towards the initiative.

Aside from plans that have specifically attempted to create new administrative centers, recent regional planning initiatives have attempted to remediate Cairo’s current overpopulation and congestion through the creation of new satellite cities outside of the current capital. These satellite cities were originally designed with the intention to draw large portions of the population outside of the current center and create self-sustaining cities at these various nodes. As a result of these initiatives, satellite cities such as New Cairo and Sixth of October City on both the Eastern and Western edges of the city were developed. However, the success of these initiatives seems only partial, as economic opportunities were undermined during their development plans. Many of these satellite cities therefore only proved to become residential quarters for new residents, while leaving the majority dependent on job opportunities in the center. The reliance on the original city has resulted in significant dependency on daily commutes between the satellite cities and downtown Cairo; with many residents leaving their satellite homes by day and returning at night. This daily inflow and outflow of residents has resulted in heavy traffic flows especially during peak rush hours in the mornings and late afternoons. Satellite cities therefore, although intended as self-sustainable individual cities, failed to become truly self-sustaining
and are still heavily reliant on Cairo’s original center. This has resulted in extensive sprawl between the original boundaries of the city and the new settlements.

A lack of planned transportation systems between these cities has further exasperated the failure of these plans as the public transportation systems in place are incapable of supporting the vast numbers of residents needing to commute to work daily. This has resulted in an overcrowded and overburdened bus system and has forced many to depend on more independently run “micro-bus” systems, or for those who can afford it – created a heavy reliance on private cars. Due to the funds that would be needed to develop an efficient railway line between these satellite cities and the city-center, railway and/or metro lines have not been developed. In fact, at this point in time, they are only potential plans for the distant future; leaving current residents little to no hope for improved conditions in the near future.

These new ‘desert cities’ - as they are often referred to - struggle not only with lack of accessibility to them, as well as within them, but also struggle with creating thriving living and economic centers, attracting a diversity of socio-economic groups, and forming their own identities.

1.3 Urban Design and New Cities

Looking at the urban realm of these new cities many repeated patterns can be seen in the urban morphology, streetscape design and urban fabric. Furthermore, following the urban planning process leading up to the proposal of the new administrative capital, patterns in the urban planning and urban design approaches can be noted. This research will therefore attempt to highlight these patterns on both the urban planning level as well as the urban design level.

Although many of the problems facing new urban agglomerations have been widely identified and discussed, little literature has focused on the urban design patterns of these new cities (as opposed to the planning and/or the individual architecture of their components). I will therefore illustrate further, the challenges of new cities from an urban design perspective as the accumulation of the many policies, financial and investment strategies, planning and coordination. Understanding the urban design challenges is essential for Egypt’s new administrative capital and for the future planning and design of other cities.
Although the planned proposal was released formally as the plan for a new administrative capital, both official announcements and officially released pre-schematic drawings show that the administrative complex is only a small fragment of the planned new city. With the designs for the administrative complex not released formally yet, the focus of the thesis will be the urban design of the recently released overall masterplan of the city, rather than the urban design of the administrative district.

Since the success of the administrative capital and its goal to become a self-sustainable city is strongly tied in with the self-sufficiency and sustainability of the city as an entire system, the focus will be on that system. The analysis will attempt to critically assess the proposed plans and urban design at their most recently-released stage to highlight any new approaches for the design - as well as any recurrent trends that would need to be addressed in order to prevent previous mistakes from other cities. This study could be useful not only for the current phase under construction, but also its future phases and other cities nation-wide.

Chapter 2 - Methodology

Due to the initial confidential nature of this project, as well as the uncertainty with regard to its development beyond the conceptual phase, the initial methodology of the research had intended a greater focus on the historic perspective of administrative capitals in Egypt as well as international cases studies. However, with the release of the pre-schematic drawings the focus was shifted towards a greater focus on the current masterplan proposal and its critical assessment in relation to Sadat City - Egypt’s most relevant precedent.

Therefore, as outlined below the research methodology included a series of steps to gain a better perspective on the current and larger spectrum of urban planning and design trends nationwide to contextualize the new plan, as well as to gain a better understanding of past and present design processes and outcomes.

On-the-ground research was divided over two visits to Egypt; both of which involved visits and searches of various local and institutional archives. The intent was to consult original and first hand sources
pertaining to previous development plans for administrative and satellite city expansions in Cairo, and involved visits to the National Library and Archives of Egypt, and the American University in Cairo’s Rare books and Special Collections Library.

The analysis of the proposals was then conducted through using both primary and secondary sources as available, as well as interviews where needed, in order to get a more grounded sense of the proposals. Although the semi-structured interview questions involved interviews with members of multiple local and international organizations, as well as professionals and academics, none of the interviews will be quoted directly due to the political sensitivity of the project.

Focusing more specifically on the designs of the cities, Sadat City and the New Administrative Capital were both analyzed based on a fixed set of parameters, in order to allow for a comparison between the two cities. The selected framework for analysis was based off of Kevin Lynch’s five parameters as Lynch defined for good urban form; the specifics of which will be discussed in further detail in Chapter 5. Furthermore, the objective behind the analysis of both the proposal and outcome of Sadat City as well as the plans for the New Administrative City is to:

- Identify, analyze and compare some of the reasons behind the proposals
- Identify the different perspectives or advantage and disadvantages of each
- Identify some of their successes and problems
- Gain a better understanding of the projects and their challenges through conducting interviews and surveys with representatives of stakeholders and affected groups
- Synthesize an argument and some conclusions based on research results and supporting arguments.
- Provide future recommendations for future phases of the city or other similar developments.

Although developed at different times, the intention of both Sadat City and the new administrative capital are similar in nature as can be seen through their similar underlying goals. Within Egypt’s contemporary history Sadat City is the closest and most representative case study with much insight to both planning and design approaches, and outcomes. In light of the plans for the new administrative
capital an analysis of Sadat City’s intended development and actual results is critical for the assessment of the current proposal and any future similar developments.

In order to assess the current situation of Sadat City I will be looking at the four main objectives the plan intended to achieve. In an attempt to deal with an ever-growing problem the city was intended to target more than one issue by creating a new industrial zone and a new government city, drawing some of Cairo’s growing population away from Cairo and becoming a sustainable city in itself.

The analysis framework used will be based off of Kevin Lynch’s work as mentioned earlier and further explained in Chapter 5. For consistency purposes, both Sadat City and the New City will be analyzed through the same criteria. Sadat City’s urbanization will be analyzed through some of the original development plans, satellite imagery, a visual evaluation and illustrative diagrams of the urban form and conditions of the city. Aerial imagery of the current extent of Sadat City will be used to compare the city’s development in relation to the original master plans. I will emphasize that the aerial comparison will only serve to compare the ‘amount’ of development that was implemented, the urban fabric, as well as relationships between uses. In order to project a more accurate portrayal of the city’s ‘livability’ visual imagery will be included to support that analysis to more clearly show the current state of development of the city. Since the term ‘development’ in Egypt is often regarded from a rather quantitative perspective (for example, the amount of construction, number of units built, amount of green space developed etc.) rather than the quality of those spaces, and people’s responses to them, I would like to emphasize the quality of the urban space rather than purely its construction ‘completion’.

With an approximation of the current situation of the city illustrated, I will then proceed to analyze the different urban design ideals that could perhaps be acting intentionally or unintentionally in the city’s continued development. Finally, I discuss the urban design of the city in light of potential urban design ideals that could be implemented to push the city towards the direction it had been intended to fulfill. The purpose of suggesting potential urban design ideals that may be applicable to the case of Sadat City permits objective criticism of each of these ideals. The objective is to derive the advantages and disadvantages of each method used in the context of Sadat city. Those conclusions will then be used to compare and contrast the methods employed in Wedian City.
Chapter 3 – Considerations for Urban Design and Planning Analysis

Historically the construction of new capitals and ‘capitols’ has not been an all-encompassing solution to the problems of old capitals or original cities. Although new capitals have to varying degrees satisfied or failed their objectives, their construction rate and degree of completion has varied widely. Forecasting or predicting the outcome of a proposal is a difficult task especially in an environment of economic instability, political fluctuation and uncertainty. Furthermore, the measure or standards by which a city might be evaluated is highly subjective - differing from different individuals, political, social and ethnic groups, as well as different perspectives of local and international leaders and communities.

The purpose of this section is to highlight the complexity involved with the assessment of a new city, and the multiple considerations that must be kept in mind while analyzing its various systems. Although while conducting this research I have been asked at multiple times to label the project as ‘good’ or ‘bad’, an evaluation of a project of this scale is far more complex. Rather than assessing the project with a binary approach this thesis hopes to break down the overall planning process and current design into its constituents and highlight multiple areas of ‘potential benefit’ or ‘potential danger’. In this case, ‘how’ the project is implemented is equally significant to ‘what’ is planned. Furthermore, it is essential to differentiate between the ‘projected visions and intentions on paper’ and the ‘reality’ of those outcomes once implemented.

As mentioned earlier, in order to evaluate the plan, Kevin Lynch’s proposed criteria for good urban form will be used as a basis – however the following sub-sections will describe further considerations that should be kept in mind throughout the process. The plans and designs will therefore be analyzed from a series of different angles; keeping in mind four important considerations listed and elaborated on below:

3.1- What does it mean for a city to be considered successful?

A city embodies not just the physical environment that it is comprised of, but also the economic, social and political happenings of everyday life and work. Furthermore, even though geographically static in location, cities are in constant response to the changing needs and decisions of their inhabitants, stakeholders, policy-makers, and shapers (whether private developers, architects, planners or individuals). With this diversity comes a heterogeneity of people’s demands and views, also affected by context-specific resources potentials as well as limitations.
Therefore, what does ‘success’ mean for a city in the Egyptian context? Should it be measured by how much it has capitalized on its local context and geographic resources? Or whether it has provided equal access to education across its districts? Or amidst today’s economic crisis, could a city’s measure of success stretch as far as its ability to attract international capital for the nation as a whole.

It is important make the distinction between ‘success’ as a form of ‘definitive success’ which is difficult to measure, and ‘perceived success’ based on a certain set of defined or undefined criteria or parameters. With the diversity of expectations for a city and its various stakeholders, it is easy to find that the perception and expectations for what a good city is will vary widely. Whereas some may perceive a city as ‘successful’ if it is a thriving economic center, others might see it as a safe or healthy place of living, or for some a good image or icon for the nation.

3.2- A city is never ‘complete’ or ‘finished’.

When assessing a new plan, it is important to highlight the fact that a city can never really reach a point of completion. Perhaps it may become saturated with construction, or perhaps it may provide more housing than is needed (although rarely the case) or perhaps in other cases former drivers for the city have dwindled leading to declines in population and ‘shrinkage’ rather than growth (Ryan, 2012). Other more natural parameters may limit further expansion as well, either through natural boundaries such as harsh topography or water-bodies, seas, lakes or oceans. However, even within these limitations or points of saturation, the cities are in constant reaction to these changes and boundaries whatever they might be; responding not only to present changes but also their past and projected futures. These responses may be translated as physical changes in the urban fabric, translated as urban sprawl, or in the form of increased or decreased population sizes. Also if a response takes place in one direction, an opposite trend can develop just as easily with time or in response to another parameter. It is therefore essential to view cities in their continuous evolutionary state, as on-going process of “small-successes” and “small-failures” all of which together build the components of cities and lead to their overall perception as thriving or dwindling cities.

3.3- Urban Design: Who decides?

With the diversity of the Egyptian population, and profound gap in the governance structures that would enable wider citizen participation, the definition of what makes a successful city is especially
important since those with decision-making power and the average citizen may not have visions that align.

How can a consensus be reached on the goals that would create cities that would address the needs of a broader range of inhabitants? Can more holistic visions encompass various socio-economic strata rather than as sets of independent projects addressing an individual set of needs? In this case, does lack of public resistance indicate successful city governance, planning and design – or just as possibly a lack of awareness, or apathy towards the potential for change? Moreover, in the case of disagreement, what changes should be made and for whose benefit? Although these are universal urban design and urban planning problems – it is an especially important consideration where the framework for broader citizen engagement is lagging behind.

3.4-The adaptive nature of urban planning and urban design.

Urban planning and urban design professions are complex fields constantly changing in response to their environments. There is no ideal planning or urban design approach or method that can be implemented across cities; and even if that were to be attempted, urban planning and design ideologies and directions are in constant change and disagreement. Responsible and responsive urban design however takes the lessons learned from past ideologies, comprehends the on-going changes of the present and adapts its cities for future demands.

Effective urban planning strategies and frameworks must therefore accept the evolutionary and responsive nature of cities in their development rather than think of cities as static environments or products. Furthermore, with the ongoing trends towards globalization and iconography (especially in many emerging cities) even within the context of the city, cities built as monumental representations of present or past achievement, can do only that– act as an icon, overlooking future needs of their citizens.

As cities evolve so must their urban planning and urban design strategies. Egypt is no exception to this rule and must search for ways that would enable as opposed to deter such changes and adaptations. However, most importantly the complexity of translating a vision from an ‘idea’ to an ‘implemented’ design and project is essential, in order to ensure that the affecting parameters are kept in mind and addressed. As Alex Krieger writes in Towns and Town-Making Principles (essays) in reference to
Ebenezer Howard’s design approach: “It is easier to sketch or even build a town fragment than it is to achieve an actual town. How does one recover the physical planning principles that seem to make good towns without succumbing to mere appearances and producing simulacrum towns?” (p.13 Alex Krieger) 
This translation from an idea to outcome is the challenge the new capital faces today.
Chapter 4 - General Background and Cairo as a Context

Since this project is viewed as a national project, national considerations and challenges of the existing city of Cairo are important and significant to the assessment of the new city. Amidst the depth and breadth of struggles Egypt faces today, it is easy to overlook the origins and reasons behind the complexity of the problems beforehand. Without an understanding of their origins, new cities face the risk of failing for the same reasons. It is therefore essential to see Cairo as a series of experiences and lessons from which much can be learned for both its own future development as well as the development of other urban areas across Egypt.

Cairo, similar to any city with a longstanding history is composed of a series of urban elements and layers accrued over time. Unique in its local setting and geographic context the city intertwines a series of polar opposites: historic buildings with contemporary developments, the formal built environment with informal settlements and housing typologies across all economic strata. Simultaneously, the city is built up of publicly-owned streets, and private enclaves and residences, fenced off public spaces and narrow busy alleys filled with pedestrians, motorists, microbuses, over-crowded public transit, cars and carts, as well as deserted roads and vacant construction.

Centered alongside both sides of the river the city grows along the banks of the Nile River, intersects with agricultural land dependent on the water from the river and extends into the desert sands to the east and west. The city is comprised of a dense, complex urban fabric of various historic origins, socio-economic demographics, differing stages of development and urban conditions, presenting numerous challenges to those working on the urban environment.

Expected population demographics, are among the largest considerations that must be accounted for in national planning strategies. “According to UN forecasts, Egypt’s population will rise to 102.6 mn by 2030.” (BMI Research, 2015) Such statistics highlight the immense national pressures on providing sufficient housing for such a large, growing net population. Although these statistics are for Egypt nationwide, in recent years Cairo as the primary capital has been absorbing nearly a quarter of the nation’s total population.
Local government has constantly attempted to address this problem, and has redefined the relationship with housing over many decades. Summarized succinctly in A.M. Soliman’s paper The Egyptian episode of self-build housing, the author has classified housing development as having undergone five phases:

Phase 1: 1944-1952 During the post-war period 1945-1952, Egypt undertook urban renewal in order to provide what was deemed “better housing”, yet this often entailed the uprooting of communities.

Phase 2: 1953-1960 Since the July 1952, the government became deeply involved in the large-scale development of housing by acting as the main producer in housing supply.

Phase 3 1961-1970 Since the nationalization programs in 1961, central government became increasingly engaged and concerned and acted as a provider in housing supply in what has been a largely centralized system.

Phase 4: 1971-1990 After the victory of 1973 war, the state started to reconstruct and develop Suez Canal Cities (which saw) the birth of a major change in housing policy from one of direct provision of subsidized housing by the government using central funds, to a facilitator only, with user control of the building process.

And finally Phase 5: 1991-2010: the government has shifted towards “an “enabling markets” approach to housing. The enabling markets approach has encouraged reforms of various aspects (land titling, property rights, infrastructure, housing finance, housing institutions) of the housing sector, and embraced land issues within a housing framework.

(Soliman, 2012)

Regardless of the relationship between government authorities and housing, Cairo is faced by challenges not only with accommodating its residents— but also with providing access to basic infrastructure, economic opportunity, access to public transportation, education, as well as services. “Egypt’s
urbanization rate is expected to increase to more than 50% by 2030, meaning a greater demand for urban jobs, housing and infrastructure, and social services” (BMI Research, 2015) all of which underline the importance of ameliorated urban planning, management and coordination in preparation for the future. In a city growing so vastly both in terms of population as well as in terms of urban expansion, changes in the urban fabric since the 1950s have transformed the urban landscape drastically, resulting in a fragmented city and significant urban sprawl.

Although sprawl has affected the outer boundaries of the city, informal housing within central locations has contributed towards increased settlements within the city as well as the loss of agricultural land towards informal construction. This phenomenon however is not new and in fact Cairo has been struggling with the growth of informal construction over agricultural land for several decades now. As was already noted by Tayssir Chiri by 1985: “It is not easy to calculate the exact number of informal housing units built in Egypt each year, but they cannot be less than 40 thousand units per year, which represents a good proportion of housing supply in Egypt.” (p.7-8, Chiri,1985)

Simultaneously increased demands for housing in the center also propagated the conversion of many low-rise residences into high-rise residences. With increased densification, overcrowding and poor urban management, planning authorities have made increasing attempts to decentralize the city and accommodate parts of its growing population in cities outside of central Cairo. These cities are referred to as 'satellite cities’ – intended as separate bodies from Cairo’s central city, and fall on its outskirts. The effectiveness or success of such attempts has been contested since, despite the successful construction of housing in satellite cities, the cities have remained vastly dependent on the original city in terms of economic opportunity and access to commercial and non-commercial government services.

It is important at this point to differentiate between two distinct types of city typologies that have emerged as potential solutions to some of Cairo’s problems in recent years and have since then been repeatedly employed. Both of these models have involved constructing new cities outside the capital and both have intended to create new sustainable communities at their new locations. The first model however has been centered on those communities themselves, while the second has had the label or additional challenge of creating a new administrative center. In this second model, as part of the planning processes involved, these new cities have aspired to relocate existing government functions outside of Cairo’s center. Simultaneously these models have intended to be self-sufficient, capable of
providing the housing for both governmental and non-government related functions. The new Cairo Administrative Capital is a contemporary example of this model; other similar examples of this model have been Sadat City and Nasr City.

Looking individually at different existing typologies (satellite cities, attempted administrative centers and capitol complexes) it is clear that each has faced challenges in achieving its goals. However, although the challenges facing every city are rather unique, many challenges are also very particular to the Egyptian context and the planning profession in Egypt. A large concern with these phenomena is not uniquely their existence but rather their persistence and continued existence despite a clear identification at earlier stages. “Egypt is a vast country, and in its fertile Nile valley and delta densely populated; abundant with natural resources still not fully developed and teeming with problems – of congestion, overcrowding, overloading of the infrastructure utilities in the cities, of imbalance between rural and urban investment, of land starvation, of illegal settlement, of vast quantities of ill-maintained and sub-standard housing, and a host of others.” (Hyland, A.D.C., 1985) Although written roughly 30 years ago many of these concerns have remained largely unchanged. Since the many attempts at addressing these problems have largely failed, a critical section of this thesis will attempt to identify the underlying causes of some of these problems and attempt to propose potential solutions.

The growth of these new satellites has also enabled a new phenomenon where increasing numbers of gated communities or compounds have been forming. These gated compounds are today contested in academic discourse in Egypt due to the social, political and exclusionary connotations associated with the growing trend. “Gated communities are one of the most striking and revealing products of this new ecology of risk and monopolization of politics.” (Denis) - Although in popular demand by those who may afford it, designed for a specific group of people and inaccessible to the average citizen such compounds are a reflection of economic inequality, and for some a measure of power, wealth and status; bringing little benefit to the greater population.

4.1: Recent Urban Planning History in Egypt

Following the 2011 January Revolution and in light of the recently developed attitudes towards citizen involvement in politics, it is surprising that increased expectations for citizen engagement has not surfaced among the greater population. Historically this may be attributed to an engrained perception
of urban planning as a top-down process with traditional systemic processes heavily centralized and in the hands of government. ‘City planning’ and the provision of healthy, safe and livable environments is therefore largely viewed as a direct responsibility of the public sector or government.

To compound this problem, citizen participation for many years has been largely non-existent not just in planning but in political processes overall. Following the 2011 political turmoil and changes, public engagement in politics has drawn more attention and generated a multitude of perspectives and tensions between ideas of freedom and democracy, political representation, justice and inequality. Amidst this change there have been increased levels of fear of instability versus stability and various predictions for Egypt’s general future trajectory. Although striving towards a democratic state, different expectations and interpretations of the meanings of democracy have left Egypt with little consensus on its future. As reported in BMI’s 2015 report: “Egypt’s transition to a fully fledged democracy is likely to take several years at least, and there is no guarantee that it will achieve this goal.” (BMI Research, 2015)

With a lack of awareness about the right of the citizen to partake in city planning decisions that have direct consequences on them—this right is not sought after or demanded nearly as strongly as other citizen rights. In fact, public engagement is so absent that citizens have little interactions with the plans until their final stages and is often limited to direct opposition upon their public release. In a recent online article by Tadamun – an independent think-tank organization advocating for more inclusive urban planning processes and citizen participation - summarized concisely:

_Cairo’s residents have, for decades, been unaware of how planning decisions are made and what to expect for the future of their city. The problem with such a top-down approach is not only that it presumes that residents have nothing useful to input in the development of their own areas, but also that it is inefficient when plans are stalled as a result of citizen objection_. (Tadamun, 2014)

Many such visionary plans have been put forth only to fizzle out after some time once the reality of the disregard for citizens has been acknowledged and the plans’ unrealistic expectations become apparent.

An additional factor contributing to the potential underestimation of the importance of citizen engagement in planning processes is the strong involvement of the Egyptian Armed Forces in large-scale urban and transportation projects nation-wide. With much of Egypt’s empty desert land placed under
the ownership of the Ministry of Defense, the Egyptian military is a significant player in the development of many of Egypt’s large infrastructure projects. Acting as a separate entity from the political administration and government – in contrast to the slow output of government projects – the Egyptian Armed Forces are perceived as a large, coordinated workforce capable of large feats acting under strict timelines and projected deadlines for project completion. In fact, many large-scale complexes from stadia, to residential housing blocks, to hotels, bridges and large infrastructure projects are procured and constructed from start to completion by the Armed Forces – further removing the citizen from the process.

4.2: In Context: The Announcement of the New Cairo Capital

Within this context of lack of participatory planning it is therefore not surprising that the plans for the new administrative capital were revealed without prior notice to the nation as part of the Egyptian Economic Conference in March 2015. The economic conference was covered extensively through the various news agencies in attendance and within days the announcement had made international headlines. Only to cite a few, news agencies reported that “Egypt unveils plans to build new capital east of Cairo” (BBC News, 2015) and the “Egyptian government reveals plans to build new capital city” (ABC News, 2015).

Since the announcement of the project until the start of construction in 2016, no formal participatory planning or citizen engagement processes specific to the project were implemented. More recently in November 2016 tours of the site have been advertised and made publically available (at a fee) making the project available for ‘viewing’. Although these tours could on one hand be seen as a sign of citizen inclusion with regard to the current status of the project, it also highlights the city as a product to be showcased and sold to the citizen, future user or potential investor; and is indicative of a one-sided conversation rather than a form of mutual dialogue.

This proposal; however, is not unique in its unexpected announcement or rapid ascent to publicity. In fact, Egypt has had a recurrent pattern of showcasing complete plans and rendered developments as complete projects without the open consultation of experts, professionals, or the general public - only to have them stopped due to public discontent. Announced alongside the plans for the new administrative capital at the Egyptian Economic Conference in March 2015, the following design for an
iconic skyscraper represents just another example of proposals vanishing as suddenly as they have emerged. Similar to the Giza 2030 strategic plan the vision showcased a wide symmetric boulevard leading to an iconic centerpiece. Whereas in the original 2030 masterplan centered its axis on the ancient Giza plateau, this proposal has centered its boulevard on a replica and re-imagination of the pyramids.

Making international design headlines: “The Egyptian government has revealed plans to construct a 200-metre-high skyscraper modeled on the country’s most famous architectural structures.” (Dezeen online, 2015) Illustrated below is a rendering of the project—however, like many other projects announced so suddenly, it indicates the process by which many projects are announced (with little to nearly no awareness from the affected citizens). Furthermore, in light of the speed with which such announcements are often made, it is unlikely that comprehensive studies backing the projects and their feasibility are conducted to their necessary depths. Moreover, in spite of the limited citizen engagement process these projects are often released as “complete products” ready to be implemented fully. Beyond being contingent on the availability of funding—little room for change (if none at all) is showcased or projected to the general public.
4.3 Administrative Relocations in Egypt

Capital relocations are not a new idea. In fact, the relocation of Egypt’s capital has taken place at numerous points in time, and Egypt has situated its administrative capital at different locations across its history. With the earliest signs of human life along the Nile river going as far back as 400,000 years and the first remains of habitation dating up to 7,000 years back (p.12, Egypt) Egypt’s long-standing history has allowed for numerous occasions and reasons for a capital relocation to take place. Although the reasons for these relocations have been different, the significance of this historical fact is that the idea itself is not a new one.

While Memphis had been the initial capital of the Ancient Kingdom of Egypt, situated at the current location of Giza (part of the central Cairo region today), “Luxor, or Thebes, the city of the god Amon, was the capital of Egypt during the period of the Middle and New Kingdom” (Embaby, 2015) shifting over the time periods between the old kingdom towards later dynasties. Likewise, following the conquest of Egypt under Greek and Roman rule the administrative center of Egypt then became the newly-founded city of Alexandria. Based alongside the Mediterranean, “the location of this city gave a clear signal that the focus of Graeco-Macedonian Egypt was going to be the Mediterranean area both for trade and military purposes.” (p.293, Lloyd, 2014 - Ancient Egypt, State and Society)

Changing once again with the Arab conquest, ‘Fustat was founded at the beginning of the year 642’ and constitutes the base of today’s megacity as it set ‘the foundation of what was to become one of the largest capitals of the Arab world’. (p.11 Raymond, Andre – Cairo, City of History) With the newly founded capital city in 642 A.D. however, proposals to relocate the administration outside the center of the city were proposed even then. Although the reasons behind this relocation may be debated as famed historian Andre Raymond discusses in his book Cairo, City of History “(then) governor Abd al-Aziz had already taken steps to move the center of the government to Hilwan in 689, perhaps to escape the plague that afflicted Fustat.” (p.23). Although the reasons for relocation were different from the circumstances of today’s proposal; the reasons behind the relocation where uncertain even then, and the move of the administration could also have been attributed to the desire to portray a new sense of identity or accomplishment on the national level. As Raymond discusses further; “it was more likely that he wanted to establish a command-and-control site – it significantly received the name al-Askar, “the Cantonment” – at some distance from the great and busy city that Fustat had become in order to mark in a spectacular way the accession of a new caliphate. (p.24, Cairo, City of History)
The scale of the endeavor to relocate an administrative capital throughout Egypt’s history has varied from more symbolic shifts during ancient times, to more physical relocations in more recent history. More recent relocation attempts have varied in their degree of success or failure. In reference to an attempt to remove the current government to Hilwan, Raymond writes “the attempt did not succeed, because doubtless the distance from the capital was too great” (p.23)

Similarly, as ruling powers shifted, so did the locations of the administration and the reasons for their relocation. Previously, “Al-askar continued as a political and administrative center until the arrival of the Tulunids Ahmed ibn Tulun took up residence in the dar al-imara (governor’s residence) there before building his own palace.” (p.24 Raymond, Andre – Cairo, City of History) When the palace was finally built it was built northeast of al-Askar and as Raymond describes – it was built “to commensurate with his ambitions” (p.26 Raymond, Andre – Cairo, City of History) showing the close tie between the historic changes in rulership and administration. Although who, where and for how long administration was housed at a certain location has historically varied and taken on different forms, it is clear that relocations are not a new concept and there is much precedent to be learned from.

As discussed by Lawrence Vale in Architecture, Power and National Identity, it is also essential to distinguish the administrative complex or ‘capitol’ from what is known as the larger ‘capital’ city itself that may hold a part of the administrative functions or host other forms of activities as well. Furthermore, despite the relocation and construction of the palace itself, this does not indicate that a relocation of the administrative center has historically lead to the successful growth of an associated city. Reflected in the history of al-Askar - “no trace of the princely city of al-Askar has been found so presumable it had only limited success as a city.” (p.24 Raymond, Andre – Cairo, City of History)

Although new capitals and their associated capitol complexes have been developed as a result of various reasons and for varying purposes. As Vale discusses in Architecture, Power and National Identity “In the emerging postcolonial world of the middle and late twentieth century, the leadership of newly independent states frequently attempted to use architecture not only to house a new form of government (parliamentary democracy), but also to proclaim the worthiness of the new regime and advance its status. The professed goal of such government buildings is to forge something most often termed national identity or national unity; yet...the design of these buildings remains closely tied to political forces that reinforce existing patterns of dominance and submission.” (p.10 Architecture, Power
Although this has been the case across many cities, the identification of such motives cannot easily always be discerned amidst other projected purposes.

In Egypt this could clearly be seen during Ancient Egyptian times where the administrative headquarter – whether the pharaonic palace or the more modern citadel complex across history has served the image of its ruler. As Lloyd explains in Ancient Egypt, State and Society: “As in all state systems, the ethos of the Egyptian state required continual reaffirmation. The palace had a major role to play in this process in that it served as a context where the king could be accessed...and, as such, it could be employed as a major device for constant image projection.” (p.138, Lloyd, 2014) Therefore, historically, there has been large emphasis placed on the headquarters and the image these complexes portrayed on the nation; a phenomenon seen across centuries both in Egypt and outside of it.

Where on the spectrum of such image projections does the newly proposed administrative capital lie? As Vale explains further, “Although all capitals, beginning with the earliest citadel, have had symbolic roles that fortified and magnified the presence of government, nothing seems quite comparable to the manifold pressures of modern nationalism.” (p.17, Architecture, Power and National Identity) As such the role of representation of the capital city has inescapably carried larger notions of nationalism. Although this role per se may not be harmful in itself, the dominance of projecting this image over the needs of the city and its residents threatens the underlying ecosystem of the city and its growth.

With cities now competing globally for international recognition as markets for a globalizing economy; attempting to both house and attract residents, various industry sectors, investment and competitive environments for the necessary activities, the image of the administrative city continues in its significance. Balancing this ‘image’ and the reality of the city is perhaps one of the greatest challenges facing decision-makers especially in recovering or emerging markets.

The analysis of proposed-Wedian city will therefore also address the challenges imposed on the new city, as a result of these two desired outcomes. With this brief overview in mind; the following sections will therefore approach the analysis of the new proposal for Wedian city not as a new solution or idea, but rather an old one that has been previously tried both inside of Egypt and outside its borders. With the proposal for Wedian city only in its initial phases of implementation and future phases of the project potentially ahead, this thesis take a more critical analytical approach towards the design in order to try
to pre-empt any potential barriers to its success. Learning from the lessons presented by previous capital relocations and attempts to create new cities; the thesis will attempt to highlight significant urban design considerations that could potentially affect the outcome of the newly proposed city.
In order to assess the different case studies and the analysis of Wedian City on a consistent set of criteria, the analysis will be based off of the five basic parameters set out and defined by Kevin Lynch in his book Good City Form. Although different urban planning and urban design scholars have based their perception and assessment of a successful city on different criteria, Kevin Lynch was widely known for his distinguished expertise in the field.

According to Lynch's approach to the city, a city's success may be assessed based on five parameters outlined below:

1. Vitality
2. Sense
3. Fit
4. Access
5. Control

According to Kevin Lynch a well-functioning and perceived city is one that fulfills all the criteria, in addition to what he defines as 'two meta-criteria', which must be considered for each; namely, the level of 'efficiency' and 'justice' of each of the fulfilled criteria (p.118, Good City Form) These five parameters (vitality, sense, fit, access and control), will form the basis of my analysis framework each of which analyzes one aspect of a city.

Therefore, in order to clearly define the framework on which the analysis of the designs of the cities will be based on, the five principles, are outlined as defined by Kevin Lynch below, and further explained. I will then elaborate on the meanings of each of these criteria and address specifically what each would mean for the Egyptian context. In order to make sense of these criteria and what they mean more specifically for a city in Egypt, I will analyze each separately.

1. Vitality as defined by Lynch refers to “the degree to which the form of the settlement supports the vital functions, the biological requirements and capabilities of human beings – above all, how it protects the survival of the human species.” This parameter, perhaps the broadest of Lynch's
parameters, highlights cities’ primary objective, as ecosystems created for human survival. (Lynch) As a general parameter this criterion is applicable to any city regardless of scale or context.

2. *Sense:* “the degree to which the settlement can be clearly perceived and mentally differentiated and structured in time and space by its residents and the degree to which that mental structure connects with their values and concepts.”

3. *Fit:* “the degree to which the form and capacity of spaces, channels, and equipment in a settlement match the pattern and quantity of actions that people customarily engage in or want to engage in.” In practical terms this may be translated to the adequate quantitative or volumetric accounting and accommodation of resident needs. The focus here is determining the right capacity for the target population; therefore, allowing the city’s urban environment to act as enabler. The definition here is also based off of a fluid, changing concept (of values or concepts adopted by a particular city’s residents) it must be emphasized here that this is a strong differentiating parameter for the Egyptian city. The adaptation of design based on social norms and cultural expectations could for instance be seen in the adaptation of residential architecture to such needs. For instance, whereas ‘western’ models of private gardens for many years adopted the concept of front-yards and backyards – of varying degrees of openness to their surroundings. On the other hand, the value of privacy in Egypt historically been higher as a result of societal and regionally pre-dominant societal norms. Although many of these norms have changed over time, the responsiveness of the built environment to such changes illustrates what Kevin Lynch describes as city form responsive to resident ‘values’ or ‘concepts.’ This concept of course although simple by definition has posed as a challenge to urban planners and designers across centuries since values of different cultures and sub-cultures change significantly.

4. *Access:* “the ability to reach other persons, activities, resources, services, information, or places, including the quantity and diversity of elements which can be reached.” Perhaps the clearest or most obvious of the criteria, this criterion can most easily be measured by taking into account the extensiveness and completeness of various forms of transportation between critical components. For the purposes of analysis in an Egyptian context, both formal and informal modes of transport or accessibility will be considered. This criterion therefore considers degrees of walkability, informal microbus systems, formal vehicular systems, bike-ability, and formal public transport.
5. *Control*: “the degree to which the use and access to spaces and activities, and their creation, repair, modification, and management are controlled by those who use, work, or reside in them.” Here the author highlights the importance of citizen and resident control over the activities that take place within the surrounding urban context. Control here signifies existing structures and frameworks enabling citizen involvement and engagement, and emphasizes urban design and planning process as a public process.

As defined, these definitions will be used to analyze the selected case studies. The five parameters although individually different; are in many ways interrelated. Keeping in mind the specific nature of both Sadat City and Wedian City (as a proposed-city) I have therefore grouped the most interrelated parameters together, and the analysis of Sadat City and Wedian City’s urban designs will be considered through three sets of grouped criteria:

1) Sense, vitality and fit
2) Access and Control
3) ‘Meta-criteria’: Efficiency and Justice
Chapter 6 - Sadat City: A Case-Study for Analysis

6.1 Sadat City: General Introduction: Background

Sadat City, proposed by President Anwar el-Sadat in 1978, was formed part of a larger national plan. In response to the very same struggles that face Cairo today. Therefore, as a result of overcrowding, lack of housing and congestion, plans for a new city outside of Cairo were created. The significance of this plan, especially today, is its striking similarity to the current day proposal for the new administrative city - not in terms of form or design - but rather in terms of concept and intended outcome. “Sadat City is intended to grow rapidly as a major Egyptian center for industry and government.” (The Development of Sadat City, 1978)

Looking at Sadat City as a precedent, although proposed precisely 40 years earlier, the city presents an uncomfortable deja-vu for those contemplating the potential success or failure of the newly proposed administrative city.

Concerns with regard to the urban life in Egypt’s cities is not a new phenomenon. Already in the mid-1900s, population statistics and general tendencies showed warning signs for the future. As quoted from the Sadat City report, exponential population growth was already anticipated over forty years ago: “Rapid population growth has resulted in about 8 million new residents over the past decade bringing the population of Egypt to an estimated 38 million in mid 1976.” ... “Greater Cairo alone has almost doubled from 3.7 million in 1960 to an estimated 8.8 million in mid 1976.” (The Development of Sadat City, 1978)

and nationwide “the urban populations population grew from about 2 million in 1907 to over 22 million in 1986, and is expected to reach 37 million by the end of this century.” (p.243, Salah EL-Shakhs, 1994) This problem stemming from an increased citizen migration towards Cairo in search of economic opportunities saw a sudden drop in population in rural areas: “In 1907 81 percent of the population lived in rural areas”. This statistic then saw a drop to “59 percent in 1966” and at the time was “expected to be 36 percent in 2000.” Aside from growing population statistics, the general trends have remained essentially the same and unresolved. With a sudden and unprecedented growth in population in Cairo in the 1970s the nation since has struggled with challenges of accommodating these changes.

In an attempt to remedy some of these problems then-President Anwar el Sadat announced the need for the development of new cities away from the Nile River and Delta. In 1974, President Sadat was recorded saying “not a single city has been established in Egypt since the opening of the Suez Canal (in
the late Nineteenth Century) and the construction of its three cities.” “Urban growth thus continued to be absorbed primarily by existing cities, and by villages which were transformed and reclassified into urban settlements”…” Such addition, however did not seem to address either of the two major issues of the distribution of urban population in Egypt, namely its adverse impact on agricultural land and its over-concentration in the country’s two primate cities.” (p.243, Salah EL-Shakhs, 1994) Another reference to his text writes “...the life if the Egyptian people cannot remain confined to the Delta and the narrow valley of the Nile...We cannot wait until the population grows to 40 or 50 million before we begin to act...I believe...it is time for drawing up a new map for Egypt. This cannot be achieved by setting up scattered projects here and there. It can be done by creating areas for population concentration and new economic activities.” (The October Working Paper, 1974)

“In the euphoria directly following the October 1973 War, President Sadat presented what he called Waraqat Uktubar (The October Working Paper, 1974), which described his vision of Egypt’s future and laid down a “comprehensive civilization strategy” The most important came the announcement of a new economic policy that came to be called the infitah (‘opening’ or ‘open door’). This new policy represented a stark departure from the socialist-inspired approaches of Nasser and aimed at increased foreign investment in Egypt, greater participation by the private sector in the Egyptian economy, more freedom for individuals to develop their own wealth and property, and relaxed currency regulations. The public sector would be streamlined to support an “outward-looking” economy (p.121, Sims, 2014).

Out of this vision the plans for Sadat City were formed. “The design was contracted by the Ministry of Reconstruction to a well-known American consulting firm” (p.124, Sims, 2014) Similar to the new proposal the cost of the new project was a large-scale national investment. “It was estimated that the first ten-year (1980-1990) capital investments in 1977 prices would total LE 550 million (300 for industry and 250 for all other construction). The total 25 year plan cost in 1977 prices was estimated at LE 2.2 billion, equivalent to S2.6 billion at that time (SCPSG, 1978).” (p.252 Journal of Architectural and Planning Research 11:3, Autumn 1994)

The following sections will quickly present the original goals and objectives of the plans for the city as had been intended at the time of announcement. I will then analyze the city as it stands today, comparing the outcomes to the original intended objectives. Furthermore, using Kevin Lynch’s
parameters of vitality, sense, fit, access and control as the basis for the framework the city's urban form will be analyzed.
6.2 Sadat City: Initial Urban Plans, Goals and Outcome

The design was laid out according to the two most important purposes of the plan - namely the industrial and government functions of the city - each of which were laid out along a predefined spine. The two spines run in parallel to each other from the southwest diagonally towards the northeast. Between these two spines are the residential areas flanking the administrative and central spine on both sides, as well as north of the industrial spine. As can be seen in the ‘25 year master-plan’ to the right, most of the industries were planned to the southeast of the city and downwind to prevent air pollution or contamination. Furthermore, green belts surrounding the city were created to protect the city from seasonal desert winds.

Although the city was primarily envisioned as an industrial and administrative city, it was expected to attract a population of half a million residents, “... it was to be self-sufficient, with a large industrial base and an ultimate population of half a million inhabitants, and the name was to be Madinat al-Sadat (Sadat City).” (p.124, Sims, 2014). Accordingly, the master-plan envisioned large expanses of residential areas, as well as commercial centers and services to support inhabitants’ needs. Services were to be located along both the main spine as well as more accessibly on the neighborhood level, and the initial plan was to have “6 neighborhood centers, each containing service facilities for 4,000 to 6,000 residents within 500 meters walking distance... linked to each district. (The Development of Sadat City, Official Brochure) Looking at the 25 year master-plan these centers were to be located around on the outskirts of the residential zones surrounding them. David Sims further elaborates on this point describing “land uses were strictly segregated, and in almost all neighborhoods commercial and service activities were limited to small shopping nodes located in areas centered within the neighborhood block” (p.134, Sims, 201)
The plans for Sadat City placed large emphasis on designing for the community. Spines running through the neighborhoods and districts were intended to provide the neighborhoods with small-scale employment opportunities. “Employment and other activity is arranged along a series of spines at the neighborhood, district, and city-wide levels.” (The Development of Sadat City, Official Brochure, 1978) “This concept of spines is designed to optimize accessibility to activities at every level within the city, minimize total trip lengths, and maximize the potential for walking and cycling” (The Development of Sadat City, Official Brochure, 1978) The descriptions of these initial intentions for Sadat City are significant since as will be more clearly discussed in the section on the new city, the two overlap in many of their original intentions. Sadat City therefore acts as an ideal precedent and case study.

6.3 Sadat City: Analysis Parameter Set 1 [Vitality and Fit]

Since the livability of a city is a criteria and goal not uncommon to many new plans; it is not surprising that both Sadat City and the new city make reference to the livability of their futures. Moreover, since the vitality and livability of an environment are closely interlinked; livability could arguably be a good measure of vitality. The intentions of Sadat City and today’s outcomes will however be discussed below, to further elaborate on the city’s growth process and outcome. “Sadat City is promoted as a place which provides superior living conditions compared to existing towns and cities. (p.248, Salah El-Shakhs, 1994) How well or unwell the city fares according to this criterion, depends strongly on the subjective interpretation of words such as ‘superior’ and what the current assessment of ‘existing’ urban environments is. Since the needs of people differ regionally and culturally, the goals for ‘livability’ vary widely from more basic needs to more elaborate or defined needs, and is therefore a quality difficult to quantify. Therefore ‘vitality’ or ‘livability’ here will be analyzed in terms of three basic criteria: land-uses (i.e. the basic accounting for activities through allocating land towards them), the robustness of the economic and mixed-use centers (as sources of both economic and food sustenance) as well as the livelihood of the residential areas (as both shelter and places for living).

6.3.1 Land-Uses

As with many cities around Egypt the sporadic and uneven acquisition and development of the land has resulted in a rather randomized and haphazard growth of the city. Taking a look at the urban fabric, a macro-view of the city, many parts of the city still remain void, even on the neighborhood level. The reasons behind this sporadic growth will be covered in more detail over the coming sections; however the some patterns in land use may be noted. A general overview of the original plans and the current
state of the city indicates that the general land-use designations for the newly developed land has been abided by and to a larger extent followed. Residential areas although not fully built up, have been developed formally and self-constructed as indicated in the 25 year master plan below. Furthermore, more generally various industries have placed their manufacturing and production lines along the industrial spine as planned.

(Image credit: The Development of Sadat City, 1978)

Looking at a current satellite image of Sadat City today the city is surprisingly close in plan to the original layout. As part of a larger national plan to draw urbanization away from Cairo, one of Sadat City’s specific objectives was to deal with the pressing problem of industrial zones spreading rapidly across agricultural zones. Therefore a large portion of the masterplan is devoted towards industrial land-use. Although the zones have not been built up nearly as quickly as had been planned, many of the developed properties are actively in use. The industries range from light to heavier forms of production and include construction material processing, metal and ore processing, ceramic production and red brick production. Other industries include food-processing industries including grain refineries and poultry processing plants.
The plan however suffers from a purely functional implementation of these zoning allocations, with very clear boundaries between the different land-uses and zones and little incentives and flexibility in regulations for fostering interconnectivity between the different land-uses and their integration. This has left the city as a series of separate isolated functions.
With such clear segregations based on the original land-uses the city's economic generators, residences, educational facilities, administrative facilities and open spaces are experienced as separate fragments of the city, rather than one cohesive part or segment of an interconnected city. As mentioned by David Sims, "any successful new city needs a solid economic base to grow and prosper, and if the aim is to attract huge numbers of ordinary people, their needs and problems must be well understood." (Sims, 2014) The industries were planned to provide a large portion of the jobs for Sadat City. However, as can be seen in Sadat City as a precedent, although the industries have been created, the city's characteristics have failed to attract the population intended. Many urban design factors may be attributed to this outcome.

As primarily an industrial zone, a variation of industries have moved to the city. Although the industries have been physically grouped together, within themselves they are comprised of a range of heavy to light industries which out of safety concerns by definition has restricted the use of some land-lots in their potential uses. Furthermore, due to uneven speeds of development land-lots have been allocated and developed at varying rates. This has resulted in many empty lots between the industrial sites, manufacturing factories and processing plants. The result is a form of sprawled development with little connectivity and integration between the different land-lots. Although the infill of theses land-lots by
various industries is possible over time, the current sprawled state poses a challenge in providing a form of continuity.

**Land-Uses and Zoning: Implementation**

**Industrial Zones:**
Factories and industries are distributed across several zones intended for industrial activities separate from the rest of the city.

The use and/or redesign and integration of the lots with the remainder of the city will be challenging given the sprawling spatial nature of industrial zones. Since most of the industries must also operate independently in most cases, direct connections would be unlikely, however nonetheless the public space and connecting fabric in between has been underdeveloped and under-considered. This has reduced the quality of the urban space surrounding these sites.

Similarly, the rest of the city suffers from a similar lack of integration of the city, with each zone operating rather independently from the other and having little connectivity in between. Schools, hospitals, residences, industrial sites and the local city administrative buildings are usually gated as can be seen in the images across, while simultaneously the city is intersticed with empty patches of undeveloped land.
Land-Uses and Zoning: Implementation

**Public Realm:** Public spaces ranging from streets to religious spaces (in this case built on private land) are disconnected from surrounding functions or separated by fencing. Security concerns pose significant challenges to connectivity.

**Educational Facilities:** Public Schools and Higher Education: Both private and public educational facilities are entirely enclosed by walls. Open forms of schools/campuses - even those in more urbanized cities are usually walled.

**Production: Industries and Agriculture Zones**
Both industrial and agricultural zones operate with little integration with the nearby city center.
Again, although the initial urban plans of the city appear to be implemented as had initially been intended, the translation of those functional uses towards usable, working and living spaces seems to have been limited strongly by independent forms of development. As can be noted in the images, there is little consideration for surroundings, or intermixing of land-uses, leaving public and private institutions operating in isolation or lack of consideration for one another. Whether a public educational facility or school, a private factory or agricultural land, the projects are built in isolation and operated independently of one another.

Similar to many cities around the world the originally designated land-use approach has not been evolved in response to some of the changing needs or unanticipated plans that occurred in the city since its original design. As Karen Chapple author of Planning Sustainable Cities and Regions: Towards More Equitable Development writes, “the problem is that zoning designations often remain in place while the market shifts, and zoning can be very hard to change.” (p.211, Chapple, 2015) In Sadat City, since the transfer of the government center did not take place and the city failed to attract the number of residents it intended zoning and land-use regulations should reflect and adapt to those changes.

6.3.2 Open and Green Spaces

Even though Sadat City is surrounded by vast empty lands, open and public space is limited. This is not due to the absence of public space itself, but rather the absence of adequately designed public space, or lack of adaptation or ‘fit’ (Lynch, 1984) of the open space towards public use. The conditions of the open spaces vary in their degrees of completion as well as formality. Furthermore, different variations of open space can be found throughout the city ranging from smaller semi-public spaces around the residential areas to more open unplanned expanses near the industrial zones and the edges of the city still under development.

Formal residential open space often looks like the image in Figure 1. Here the open spaces exist, are usually planted with basic sheltering of sporadic trees and grass. These public spaces are nearly identical in all forms of public housing across not just the city but across the country as well, and envisioning little function or specific use to those spaces, and no character, identity or sense of belonging.
Informal or even planned ‘self-build’ districts on the other hand often overlook the need for such semi-public/semi-private zones. As can be seen in Figure 2, any open space is then often overtaken and transformed towards more communal use. It is not uncommon to find parking lots, dead-end streets, or even used local streets taken up by neighborhood children or youth and transformed into football fields. As can be seen in Figure 3 and Figure 4 these problems are not unique to only the residential areas but also extend beyond the residences to larger open spaces. As illustrated, public open space between different forms of housing and separate land-uses such as educational zones are left underutilized and under-considered, often planted with green lawns actually quite unsustainable in the Egyptian desert climate. With an absence of vision or accounting for the uses of these open green spaces, the spaces often appear quite bland, limited in their potential usage, and generally exposed and unsheltered from the desert sun.

Moving further away from the central spine of the city towards the second spine of the city and city’s industrial zones, similar challenges in the urban environment can be noted. It is clear that the industrial zones have been planned just as the master plan has indicated it to be - an industrial zone - without further consideration for the individuals that will be commuting and working in these zones. The end-users are thus unaccounted for in the design of open space and implementation, and local and/or transient workers are similarly left to barren zones of open space.

The scarcity of green vegetation is not an unexpected quality of the city. As expressed in the The Development of Sadat City under the heading of “Greening the City” the official brochure explains “the arid climate requires that constant irrigation be provided for all plant life.” The document elaborating further that “While difficult on any location within the site study area, the greatest potential for supporting plant life is on soils concentrated in an arc in the north central portion of the site study area where the city is located.” (The Development of Sadat City, Official Brochure, 1978) Such clear awareness of the limitations for planting extensively in Sadat City can be seen today. Although some parts of the city are well-covered in vegetation where heavy irrigation can be afforded, the limitations imposed by harsh desert conditions can clearly be seen across the city.
Photos from Sadat City: Open Space, Public Space and Green Space

Residential Areas [Formal Public Housing, Formalized Self-Build ‘Ibni Beitak’ Neighborhoods]
Figure 1 and 2 [Left and Right]

Public Space between different land-uses
Residential and Educational Areas, and connecting routes in between

Industrial Zones
Transportation networks to and around industrial zones
6.3.3 Housing

Housing in the urban environment is a vital component of the city's vitality. In reference to Le Corbusier's own definition "the purpose of these tools (housing tools) is to facilitate living conditions, ensure the moral and physical health of the inhabitants, foster the perpetuation of the species." (p.45, Le Corbusier, Looking at City Planning) Keeping this in mind, as a crucial component of the urban ecosystem Sadat City's housing typologies will be analyzed more closely.

Sadat City was planned to house half a million new residents, alleviating pressures on Cairo as well as other growing urban areas around the Delta. Although only the originally defined residential zones have only been built up and developed partially, a variety of different models can be seen across the city. The different models differ not only in simple physical form, size and density, but also in terms of financial models that entail different relationships between the private development sector, public housing and planning sector, as well as citizen participation.

The original plans for the city envisioned low-rise forms of housing in line with the dominant environmental strategies of the time. Shaded passageways, passive cooling techniques and narrow alleys, were the design language of the time due to their ability to create cooler environments in the harsh desert climate. "The economies of the low-rise construction and constraints of the desert
environment influence dwelling design to be low in height and dense with respect to ground coverage in order to provide shade and minimize unirrigated open space. However, looking at much of the development taking place around the city today, many developments have easily reached 5-6 floors in heights and have made few considerations for the urban space surrounding them. The models viewed can therefore be divided into three broad categories:

- **Formal housing funded through the public sector and/or private developers and constructed by public or larger private construction companies.** This category refers to both lower income, middle or high-end housing.

- **Residential housing models acquired through purchase of property and construction through private funds and personal loans (on an individual level).**

- **Ibni Beytak (Build your Home) Program** - In an attempt to incentivize migration outside of Cairo land lots are allotted to qualifying low-income groups through an assignment system. Citizens are then free to build legally on the allotted land lots.

Above: *Residential housing* showing variations (Form, Size, Colors, Materials)
Both public sector and private sectors have adopted multi-story residential development models in recent years. High pressures to provide housing for a growing population across Egypt has made the following models a seemingly appropriate solution by providing residential units at higher densities and more affordable prices as compared to private individual single family residences. However, although the habitation and vacancy rates of the following models vary - several design under-considerations can be noted. Unaddressed, these considerations will lead to the continued isolation and their lack of appeal.

Under the Ibni Beitak program (2007) as “part of the National Housing Program, a cash subsidy for part of the cost (of plots) is available from the government. This program quickly became very popular and well over 90,000 plots have so far been distributed to all citizens, all of which are in the new towns.” (p.135, Sims 2014) Across Sadat City’s Ibni Beitak designated zones, many such plots have been claimed and developed. All plots under the program “are composed of 150 sq.m (of) serviced land plots that individuals can acquire to build their own houses (up to three floors, one unit per floor, 75 sq.m per unit) according to strict specifications and under tight control.” (p.135, Sims, 2014) Through this model of housing, the new land-owners are granted much flexibility to develop the plots as desired. Through this mechanism, individual land-owners have had much control over construction according to financial capacity, personal needs or preferences. As Ahmed Soliman describes with regard to the Ibni Beytak housing model in his paper The Egyptian Episode of Self-Build Housing, members were required to follow some regulations such as “the built up area should not exceed 50% of the allocated land plot,” or “unit (sizes) within 63 sq.m” (Soliman, 2012) and that the maximum height was mandated to the ground floor and two additional floors. However, beyond these basic regulations much freedom with regard to the remainder of the housing models has been left to the individuals, resulting in the extensive varieties of forms and designs exhibited across Sadat City.

Although the ‘Ibni Beytak’ self-build housing program has been largely successful both in Sadat City as well as other cities across Egypt, housing does not seem to have created the incentive needed to attract the numbers of people that had originally been intended. It seems the expectations for housing as a magnet had been set too high or implemented inefficiently or ineffectively. One of the original expectations had been that: “Home ownership is expected to be a powerful incentive to attract workers to Sadat City and is the reason why house lots are to be sold only to those having jobs in Sadat City” (The Development of Sadat, 1978), hinting at the seeming surplus of migrants that were expected
such that a filtration process would be necessary. Today however, it seems that there is barely enough residents to fill the vacancy rate.

Furthermore, from an architectural/aesthetic standpoint the argument for or against such housing models may take multiple forms, I would like to focus on the public realm tying the individual plots together. Regardless of the level of flexibility or stringent regulation of the homes themselves, the streetscape, rights of way, public spaces, open spaces and functions in between need not be left to random or circumstantial development. If there is one element within the chaos of urban development within these forms of neighborhoods that may be used to bring the Ibni Beytak neighborhoods together into more cohesive urban environments it is such spaces.

This observation is especially important since the Ibni Beytak model has been widely adopted across many cities in Egypt, and with its public acceptance it is likely that such models may be replicated in other new cities formed. As Ahmed Soliman asserts, “The Egyptian experience showed that the involvement of local people in the housing process became a major theme for providing a reasonable shelter, formally or informally, for low-income groups.” (Soliman, 2012) The existing models in Sadat City therefore present an important opportunity to learn from their successes and failures and provide an opportunity for optimizing future models.

A closer look at these models shows that although different, many of the existing housing typologies face similar and recurrent challenges.
03: Lack of Urban Design Guidelines, Regulation and Enforcement

While most large developments lack variety in urban form, height, size, material, color and typology, individually constructed land-lots by contrast lack regulation. Although basic building height regulations and minimum setbacks are defined and enforced; more granular regulatory measures are needed in order to integrate such residential areas. In order to achieve a coordinated and cohesive vision it is essential that both architectural elements as well as more macro-design considerations are taken into account and implemented. However, as there are typically no larger urban design visions or guidelines for many cities around Egypt, Sadat City has likewise fallen into the same pattern of haphazard individual construction.

6.3.4 Mixed-Use, Economic Centers and Services

Sadat City provides a centralized spine of services throughout the city. As can be seen below, these spines allow for access to basic amenities such as basic food supplies, access to pharmacies, car repair and stationary supplies to name a few. However, although the space for a diversity of services is provided, much of the current state and condition of the buildings satisfies only the most basic functional needs. Although spatially areas are allocated for communal functions these spaces are not capitalized on and not adapted beyond pure function, with little to no coordination between the different entities.

Such services and their integration with neighboring residential areas are however essential to the well-being of the city’s residents. Citing some of Le Corbusier’s work; in his text these services are not only considered important but even viewed as continuations of the home:

*Man today at the present stage of his behavior as a civilized being and of his social relationships requires additional services which are provided by organizations that are external to his dwelling, services that have been termed, extensions of the dwelling. We say, extensions of the dwelling so as to make it clear that these essential conveniences are a part of his daily life and therefore should be within easy reach. If they were unreasonable far out of his way, then hardship, fatigue and wear would set in; and these are not fleeting but daily evils, since they begin all over again every single day all one’s life long.* (p.46 Le Corbusier, 1971)
Looking at Sadat City however although services have been made available, their accessibility may pose limitations on the city’s ‘vitality’ (Lynch, 1984) since good city form not only provides amenities, it also ensures that the entire system allows for easy access. (Access within and to the city will be focused on separately in the following sections) By providing much needed services and amenities at close proximity and convenience these locations can act as magnets in their surroundings. The more central, accessible and connected these centers are, the more they have the potential to become nodes for various forms of interaction, community building, and integration. It is therefore important that such centers are accessible via pedestrian networks, convenient public transportation, bikes, and/or cars to maximize on this potential.

Economic centers have the potential to bring together people from the various neighboring communities. Many of the service nodes around Sadat City have not capitalized on this benefit. As will be illustrated in the following two examples, the centers are planned and then implemented purely based on function, or filled rather randomly by businesses with little coordination. Since the city has struggled to attract a larger population, the businesses that were intended to fill such spaces have also struggled with finding a local market demand for their services or products. However, despite such hardships, further elements have been imposed by a lack of consideration for walkability and access from surrounding neighborhoods. Looking more closely at the designs of such centers, realistic walkable distances and integration with the surrounding seems to be overlooked. Public space, transportation networks, pedestrian accessibility and integration with surrounding neighborhoods appears to be thought of as an add-on rather than a design parameter.

The following examples will illustrate some of the missing components that would need to be addressed in order to achieve better use and functionality of these service nodes. The intent of this section is not to critique what elements of the urban environment have not be been completed but rather challenge the haphazard manner in which different pieces of the city come to rise without greater integration.
6.4 Sadat City: Parameter Set 2: Access and Control

6.4.1 Highways, Roads and Local Streets

The location chosen for Sadat City was deemed strategic in terms of existing access to different strategic economic markets both nationally and internationally:

There are existing and developable regional transportation connections linking Sadat City with large national markets and with international markets via Alexandria's port and Cairo's airport. (The Development of Sadat City, Official Brochure – 1978)

As an efficient location for industry, the development of Sadat City avoids unnecessary expenditure on infrastructure costs, particularly transportation.” (Official Brochure) And “for reasons of economy, the existing network of roads is utilized in the initial stages of growth. (The Development of Sadat City, Official Brochure – 1978)

Transportation in Egypt is largely car dependent. Therefore, highways, arterial roads and local streets are one of the largest public investments. Keeping that in mind even as the city was being developed in the late 1970s there was consideration for the city’s existing transportation links and networks. However with the increase in widespread automobile access in Egypt, Sadat City was no exception to this trend. Road networks serve as the primary mode of access and transport to and from the city, as well as around it. These networks therefore extended across most parts of its developed spines, industrial zones and residential areas, as well as provide access to surrounding agricultural lands and highways. That being said, the road networks vary in condition, usage, as well as state of completion.

Although the streets are wide, largely uncongested and in most cases in good or fair conditions, little alternative transportation options are left to the average local resident. Looking at the city historically, in reference to some of the original plans of Sadat City is could be noted that “All major roads were exceptionally wide, and even the smallest local streets had widths rarely found in existing cities” (p.134, Sims, 2014) Unnecessarily wide streets where they are not needed however is equally detrimental to the urban fabric of the city as streets that are too narrow.
6.4.2 Public and Informal Transport, Bike-ability and Pedestrian Access

Although initial plans incorporated plans for public forms of transportation; current public transit is limited, similar to Cairo as well as other cities in Egypt. Furthermore, the absence of a strong transportation system within, and to and from Sadat City has resulted in the use of private vehicles, micro-buses and other forms of motorized vehicles to get around the city.

The city was originally planned to have separate bus lanes for buses to run through. This is one form of transit that has frequently been suggested as a solution to Cairo's heavy congestion problems. According to the original development plans and published in the city's official publication ‘The Development of Sadat City’, “the city's public transportation system is designed to operate buses within exclusive rights-of-way” with the reasoning being “the transit system operates more efficiently at a higher overall rate of speed within an exclusive right-of-way,” than it would as the mixed mode of travel it usually operates with. However, the current state of the city indicates an absence of these lanes and the bus system overall is at limited functionality. It is interesting to note however that the proposal for the new administrative capital proposes the implementation of the same separate bus-lane systems.

To compensate for the lack of formal transportation systems many informal means of transport have been brought to the city including micro-buses, mini-buses and semi-trucks/pickup trucks. These forms of transportation allow for quicker transportation within the city but also between other major cities or places of residence and Sadat City.

Although instances of bike use can be seen throughout the city, biking is not formally incorporated into the urban design of the streets or urban landscape and in a way considered an ‘informal’ means of transportation. According to the initial development plans “An exclusive system for pedestrians and cyclists is provided in the neighborhood spines.” (The Development of Sadat City - Official Brochure, 1978) Looking at the streetscape of Sadat City today however it is hard to tell that there had been plans for organized bike-lanes.

With much of the streetscape incomplete many of the pedestrian networks are broken or non-existent. Where sidewalks do exist, they are often planted with trees, or obstructed by lampposts. These obstructions are sometimes caused by lack of coordination between the different elements of the street.
environment, or the result of intentional planting/installation without the comprehensive consideration of the entire space and its functionality.
Sadat City was one among many of the new cities that had been envisioned and built on new desert terrain. With this however, came the challenge of creating an entire new ecosystem to support new incoming residents. Decades later, this challenge continues. Although in its current state, basic amenities and functions are available within their intended, designated zones, on a more granular level looking at the individual residential neighborhoods many are surrounded by harsh, vacant desert land.

It would be unreasonable to expect all desert surroundings to be developed prior to the official inauguration of housing developments; however, it is essential that the harsh boundary this context presents is taken into account. Furthermore, it is essential that the disadvantages such locations pose to the communities considering to relocate or invest in housing in Sadat City are taken into consideration. Although in many cases, it is expected that these vast expanses of space will be developed at future stages either via private or public development, there is no immediate guarantee. Furthermore, since neighboring developments may take years to be implemented, more short-term solutions for residents need to be considered throughout the design process of similar housing zones.
Therefore, this section will conclude with some questions necessary to the increased ‘vitality’, ‘sense’ and ‘fit’ of such residential areas. What temporary measures can be taken in order to ameliorate the immediate transition to new desert developments? What functions, activities, land-uses, incentives and policies should be created in order to address these concerns and environmental challenges? How may the harshness of these surrounding be alleviated in order to create a more welcoming environment to resident? These questions highlight many potential areas for better urban design and adaptation. Such questions are not only useful for future planning strategies towards Sadat City, but also towards other new desert settlements, including the newly proposed administrative capital.
This second parameter focuses on the urban space between the residential buildings on a more local level. As Jacobs writes:

“A city sidewalk by itself is nothing. It is an abstraction. It means something only in conjunction with the buildings and other uses that border it or border other sidewalks very near it. The same might be said of streets, in the sense that they serve other purposes besides carrying wheeled traffic in their middles” (p.29, Jacobs, 1961).

Therefore, the intention here is to gage and critically assess the livelihood, walkability and accessibility of the residential areas by looking at two distinct segments of the streetscape and outdoor networks.
Zones A & B together constitute the entirety of open space between two urban forms; however, Zone A defines only those areas and spaces in direct contact with the residences, while Zone B defines the remaining space.

Activating these two types of zones has the potential to re-create the busy, lively streets Cairenes are so accustomed to. However, as can be seen above, most of these spaces (Zone A and B) are left unused. From a technical point of view, efficient networks should allow for ease of access between the different buildings and the public domain, as well as easy access between different districts and nodes throughout the city. How and to which degree Zones A and B are interconnected throughout the city is a crucial measure of good access.

Zone A in direct contact with the surrounding buildings has synergistic opportunities with the public and semi-public interior activities of the buildings it surrounds. These spaces therefore act as potential semi-sheltered zones or connecting activities, that either merge with the primary floors of the buildings, or extend along its perimeters. These uses or functions could be considered public or semi-public, serving both the local neighborhood and, where applicable, could be welcoming to users from other surrounding neighborhoods or districts.

Accounting for such uses in the larger regulatory framework is essential to ensuring such activities are incentivized rather than prevented. Such uses not only activate such ‘dead-zones’ but also enable greater security within the spaces, increase access to services and amenities as well as act as potential economic generators for local residents.
ZONE A: Public or semi-public zones have the potential to capitalize on their proximity or attachment to the urban form by extending activities from within the building to the public domain. Although this example specifically refers to residential areas, the same concept may be applied to other forms of land-uses.

ZONE B: These spaces should be designed to serve functions, allow for specific activities, rather than left as general 'open green spaces'.

NETWORKS: Access /Connectivity
These networks define access across all public domain, to and from the residences. Depending on the distances of trajectories expected, appropriate transportation forms should be integrated into the urban environment.

These networks and their surroundings should be pre-planned and designed for during early stages of design rather than implemented as add-ons towards the end.
6.5 Sadat City: Key Conclusions

There are several key take-aways from the case of Sadat City. In order to maintain a good balance of ‘vitality’ and ‘fit’, two of Kevin Lynch’s key parameters for good urban form requires not only the livability of the physical environment but also for it to act as an enabler of citizen’s needs.

6.5.1 Lack of Economic Vitality

In today’s modern city a more general ‘vitality’ also includes economic vitality as a parameter enabling the continued survival of its population. Economic and capital-intense activities are generally drawn towards cities as nodes of activities and life. Citing Jane Jacobs in her book ‘Cities and the Wealth of Nations: Principles of Economic Life’, “Cities generate capital as a by-product of successes with new goods and services and replacements of former imports. Normally much of it finds use in cities themselves because cities require capital continually if their enterprises are to keep up-to-date, are to innovate, and are to multiply in number and kinds.” (p.106, Jacobs, 1984) However, which economic activities are implemented, as well as how they connect, integrate and interact with the city are equally significant towards the success of the city. This is one of the crucial parts that seem to have been overlooked or underemphasized in the case study of Sadat City.

It is further important that such shortcomings are clearly identified early since the continued stagnation or stunted growth of a city could result in the city’s slow resiliency towards sudden economic or industry changes. As an unfortunate example, in reference to Detroit at the time of Jane Jacob’s writing in the 1980s she states - the city as “a city economy... was stagnating.” (Jacobs) Such early warning signs in cities around the world should act as clear indicators for the need for attention. Detroit today, as a city considered to be ‘shrinking’ (Ryan, 2015) could have benefitted from an early identification and response to its stagnation.

Furthermore, Jacobs continues to elaborate on how capital-turnover within the city’s economic activities must be differentiated from capital invested towards activities sustaining the long-term growth and self-sufficiency of the city. “We must realistically assume that what happened to Detroit and the cities of Britain is being generalized, as it were; that the powerhouses of economic life, the cities, taken in total are gradually winding down their own development, foreshadowing a deep decline for themselves and for all economic life.” (Jacobs, 1984) Implying that too much exported
capital versus local economic development have only temporary and transient positive effects on the city; while in the long-run the cities economic sustainability is under threat.

It is essential also that such warning signs are taken into consideration early and responded to before populations begin to decline. Since, once populations and economic activities begin to continuously decline the after-effects are more difficult to deal with. As Brent Ryan describes in Design After Decline:

“Shrinking cities, quite simply, are terrible places to be poor, and they unfortunately are places with a lot of poor people. Improving the quality of life of these residents in whatever way possible should be a priority by any standard of justice or democracy.” (p.208, Ryan, 2012)

6.5.2 Under-Regulation of City Form

Urban planning and urban design mechanisms can have little effect on the city unless mechanisms for implementation are in place. This does not necessarily mean the rigid enforcement of a strict code, but in many cases could mean as little as clearer urban design guidelines or stronger incentives.

In the current state of regulation of Sadat City, under-regulation, and an absence of incentives to create better coordination between different projects, landowners, developers and various elements in the city, have resulted in a city built up of individualized buildings and projects. Furthermore, much regulation is rather focused on general aspects of the urban form enforcing land-use zoning, and building height regulations, basic setbacks and safety concerns; with little emphasis on deeper urban design possibilities and goals.

It is important to note at this point however, that many of the urban struggles Sadat city faces are not unique to its location or failure in urban design or implementation. Sporadic design and design implementation is a recurrent feature across most (if not all) cities across Egypt. Although this does not indicate a complete absence of urban planning or urban planning endeavors – it does indicate that incentives and regulations are not creating the cohesive, integrated and flourishing urban environments cities strive for. Although, both local and national institutions and organizations are heavily working at various levels of the city (whether from the private real estate sector, the public national planning levels, or variations in between) many of the work is largely independent and left
uncoordinated within the larger urban structure. How much each individual contributor to the urban environment adds or takes from the overall cohesiveness of the city is dependent on individual drivers, financial constraints, technical capacities and capabilities, as well as the larger regulatory framework and incentives. Therefore, even those who are working with the best intentions to improve the conditions of the urban environment or create new opportunities within the city are left to work in a piecemeal larger framework.

I will argue that the absence of urban design regulation is one of the fundamental missing elements in the growth of Egyptian cities. It is important here to distinguish between the blind or strict enforcement of urban design regulations versus ensuring their continuous suitability. As Salah EI-Shakhs writes in ‘Sadat City, Egypt and the role of new town planning in the developing World’: “As the Sadat City experience indicates, it is imperative that plans be flexible and adaptable in order to accommodate uncertainties and potential shifts in public policy without compromising the integrity of the final product.” (Salah El-Shakhs, p.243, 1994) Hence these regulations and plans although necessary should be capable of adaptation.

The end-result of a non-participatory planning process is often a two-dimensional zoning regulation implemented in a rather top-down form over the boundaries of the city. This has resulted in individually designed buildings and projects constrained by only basic regulatory restrictions – many of which have been notoriously circumvented. Although this kind of freedom has allowed many forms of construction, Egyptian cities fail due to an absence of greater, more cohesive plans.

When I emphasize urban design here I do not emphasize the beauty or aesthetic qualities of the space, but rather the different elements (large and small) that can maximize and optimize the use of those spaces to its citizens, residents and locals, and where appropriate its visitors. Within an under-appreciation for the role of urban planners, comes an even further under-appreciation for the role of urban designers in the city. With that is an absence for the need for context-specific urban design, better consideration of citizen and resident needs and context-specificity. There is a need for better adaptation of new designs towards the Egyptian local climate and overall sustainability, local culture, local perception, varying social norms, expectations for privacy and social interactions, and affordability.
Chapter 7 - Wedian City: Cairo’s New Administrative Capital

7.1 Wedian City: A General Introduction: Background

Wedian’ - plural for the Arabic word for ‘Wadi’ (Valley or Oasis) - is the name given to the new city outside of Egypt’s capital city, Cairo. It is located at a distance approximately 45km away from the center of the old city, and lies on the outer peripheries of the Greater Cairo Region. The proposal is bound on three of its sides by existing developments as well as high-speed highways. To the West of the new city is the existing and quickly expanding satellite city ‘New Cairo’ as well as the private and gated development of Madinaty. Existing highways connecting Cairo to the port cities of Suez and Ain el Sokhna then define the Northern and Southern edges of Wedian. Although as discussed earlier, decongestion, economic development and the relocation of the government district is the official reasoning announced behind the new city, a wide variety of other activities have been proposed as part of the proposal. A quick look at the preliminary master-plan illustrated below delineates the locations of some of the new zones which include: New Government, Business and Investment districts, Cultural Zones, University Zones, Trade Zones, Commercial and Resale Districts, Healthcare Zones, Exhibition and Conference zones and Industrial zones.

Based on a series of official announcements and documents released regarding the project the new administrative capital is planned to cover a land area of approximately 170,000 feddans (roughly 714 sq.km or miles). As can be seen on the map on the following page, the scale of this city exceeds (by area) the size of the original city and is larger than ‘New Cairo’ – currently considered to be one of the three most successful satellite cities. As illustrated above, the city is located approximately midway between the city of Cairo and the port cities of Ain el Sokhna and Suez. Although there is much speculation regarding the amount of studies and research that was invested into the site-selection process; this section will present both sides and analyze some of the official rhetoric as well as speculations. Based on official government announcements, various news-sources and a formal interview with a key member of the design team –the official reasons by which this site has been chosen are listed below:

- Drawing congestion outside of the city
- Drawing residents and employees outside of the city center
• Spurring economic and business development around the Suez Development Corridor
• Absorbing sprawl that will inevitably take place regardless of this project.
• Intentionally drawing sprawl between the Cairo/New Cairo region and the designated corridor surrounding the Suez Canal.
• The site is at a reasonable distance, yet not as far as Sadat City (which had never drawn its intended population)

Based on a number of interviews with individuals involved in the project, non-profit urban development think-tanks and members of relevant academic and professional spheres, some have suggested that the selection process has been more arbitrary. There is some speculation as to whether the site has been the result of available, untouched land, the need for an administrative center at a secure, more remote location or the relative isolation of the site from the political unrest the downtown center has faced in recent years. I will therefore explore some of these possible underlying reasons more critically.

Congestion here refers to both the overcrowded city in terms of population, as well as its heavy traffic. I would therefore like to highlight and distinguish between both these two parameters since although they are very different and require different solutions; they are often referred to as one and the same problem. As Jane Jacobs in ‘The Death and Life of Great American Cities’ writes: “Automobiles are often conveniently tagged as the villains responsible for the ills of cities and the
disappointments and futilities of city planning. But the destructive effects of automobiles are much less a cause than a symptom of our incompetence at city building.” (Jane Jacobs) In other words, although the intention might be to alleviate the vehicular congestion of the city, the underlying roots of the causes of this congestion must first be identified.

Furthermore, even if vehicular congestion is remedied in central Cairo, it is important that the city remains aware that this does not necessarily mean that the city’s problems will be cured. This misconception is not region-specific however, and similar tendencies can be drawn from other locations. As noted by Jacobs: “A growing number of planners and designers have come to believe that if they can only solve the problems of traffic, they will thereby have solved the major problems of cities. Cities have much more intricate economic and social concerns than automobile traffic.” (Jacobs, 1961) In other words, although vehicular congestion is a legitimate and significant point of considerations for city planners, designers and administrators, it is essential that it is thought of in relation with other equally significant city components and systems.

7.2 Wedian City: Key Design Players: A General Overview of Previous Projects

Since the focus of this thesis is the urban design of the new capital it is essential to take into consideration the design teams that have been selected to take part in the development of the design proposals. As of September 2016 many components of the urban plans and designs have been released at various stages through the official websites and various forms of social media of the firms and organizations involved. All of the plans and drawings published in this thesis were at one point or the other released publicly either through news sources, or via the official online portals of the government or urban design consortium. However, although these drawings and plans were recently released, there has been little organized opportunity for the average citizen to formally discuss or critique these designs.

With plans for the new administrative capital moving ahead, a new consortium of consultants was formed to take lead on the project selecting five local firms: ARCHPLAN Architects & Planners, CUBE Consultants, Land Consultants, Ökoplan and YMCA (Yasser Mansour Concept Architects). Officially the consortium was registered on January 1st, 2015, and has been set up to “provide investors with services, including city planning, rural planning, land-use modeling, tourism and coastal areas planning,
industrial planning, community development and upgrading, urban design, architecture, landscape architecture, interior design, structural and civil engineering, electromechanical (MEP) engineering, road engineering, presentation & modeling, project and construction management, and research and development. (1) Although already an extensive list the selected firms have also been chosen with the expectation to “provide...support for investors regarding bidding and post commission processes, project planning and scheduling, site supervision, procurement and cost control, management of information systems, as well as programming.” (1)

As the official overview indicates the different design teams each bring in a different set of experiences and expertise to the project. Looking at some of the previous work done by the key players an overview of previous projects will be used as an indicator of the design methods and ideologies of the involved local firms and consultants. Although together the newly formed consortium will have to work in more coordination and negotiate or agree on the final design approaches; the following section will look at some of the previous work produced by some of the selected firms independently.

Although the experiences and portfolios of the selected design teams are larger and certainly not limited to those included in this thesis, the teams’ previous urban planning experience displays a large portfolio of private sector developments. Many of these developments although completed and even well-maintained are financed through private funds, maintained by private maintenance systems, outsource waste-management to private firms and are managed separately from the surrounding neighborhoods. In order to cover the costs of these independent processes these private developments are therefore often unaffordable solutions to the wider Egyptian population.

There is much that can be learned from the design, implementation and maintenance models used in these urban enclaves, however if the new city is intended to be more inclusive of different socio-economic groups there appears to be little engagement with other private or public organizations with greater experience working with more affordable solutions. Although the Ministry of Housing with its

(1) UDC +5 Official Website
experience with affordable housing models across Egypt is one of the two main headers of the endeavor to construct this new city, these housing models have had varied levels of success over the years. Furthermore, there seems to be an absence of inclusion of organizations with existing experience with local citizen engagement that could have been beneficial especially during the early phases of the design process.

The concerns with private development strategies is not that they are not feasible, but rather that they are feasible at high price margins. When attempting to design a city for a wide socio-economic demographic, this is a significant parameter that would need to be addressed. As an example, many private developments envision vast landscapes. These designs often fill out open spaces as ‘green spaces’ to be landscaped; however, such replicated ‘western’ models of green lawns to which many designers in Egypt gravitate are not sustainable in the Egyptian climate and require significant upkeep and heavy irrigation.

This is not to say that new Egyptian cities should not include open spaces, parks, commercial or entertainment zones, however addressing challenges of housing, transportation, socio-economic and community integration that Cairo struggles with underlines a need for more affordable and sustainable solutions. Such solutions whether in Egypt or internationally, necessitate the involvement of a very broad, interdisciplinary team and a diversity of stakeholders. Furthermore, the involvement or consultation of urban planning and urban design teams with extensive experience in publicly-oriented urban development projects is crucial throughout the process. It is therefore necessary that increased attention to the diversity of the design teams is kept throughout the future of the project. Awareness of the pivotal roles key design players have in the outcome of a new city, as well as their experience with the intended end goals and necessary process throughout must be taken into deeper consideration.
Chapter 8 – Wedian City: Urban Design Analysis

8.1 Wedian City: Economic Development and The Suez Development Corridor

One of the significant physical parameters to this mega-scale project is the physical location of the new city. A project of this scale has inevitable economic impacts on its surroundings and is a large underlying factor in site selection. Contingent on a good site selection; the effects could positively or negatively impact its surrounding environments, measure up to or fail national expectations, as well as determine the likelihood of success or failure of the project. The expectations for Sadat city were similarly set high to say the least: “The strategic location of Sadat City and Alexandria on desert land adjacent to the Delta, suggests that it could be- come the third or fourth largest city in Egypt.” (The Development of Sadat City, Official Brochure, 1978) Furthermore, similar to today’s proposal it Sadat was expected to “be further stimulated by the location of national government activities in a “Capital Crescent Region” of new and existing cities on the periphery of the Delta” (The Development of Sadat City, Official Brochure, 1978) However, since Sadat City failed to achieve such goals, it is necessary that more critical approaches to such strategies are taken such that more effective strategies may be taken.
The location at which the proposal is currently being developed lies at a unique position between Cairo, Ain el Sokhna and Suez. This is significant for two different reasons. New Cairo one of the most rapidly growing satellite cities has been developing at a rapid rate over the last decade with new private and public residential areas being filled rapidly. Simultaneously New Cairo has recently received a large influx of businesses that have either moved their headquarters outside of the central city or have set up secondary or tertiary bases at the city's outskirts. In a way Cairo has seen a rise of businesses venturing outside the city's center and clustering in New Cairo's central artery known as road ‘no.90’. The artery's surroundings have changed significantly over the years from derelict desert terrain to a rising business district with prime locations for large business headquarters, banks and commercial functions and retail use.

Furthermore, on the other end, are the cities of Suez and Ain el Sokhna. Although smaller in scale and population, the cities of Suez and Ain el Sokhna serve very important economic function in Egypt. Due to the very important trade functions both due to the freight economy passing through the Suez Canal as well as due to the trade and port services at Ain el Sokhna, the position of the new administrative capital is located within the context of three significant economic hubs and therefore places the new city in a very significant location.

Contingent on the city taking-off as a new economic and urban center, placing the new administrative capital midway between the current Capital and the Suez Canal region would ensure investment in and around its new location. Historically, the Suez region has been a somewhat disadvantaged region – following the 1973 war with Israel, many of the cities at risk of cross-fire had been evacuated and then repopulated following the end of the wars. Since then however, many of these cities never regained their populations fully; and in an after-effect there has been a strong desire by the nation to repopulate and develop the region (Sims, 2014) It is therefore unsurprising that previous attempts have been made to revitalize and generate increased economic growth in this region. At the time of Sadat’s planning the Suez Canal Corridor has also been part of the larger national plan. “President Sadat’s “new map for Egypt” includes the development of the Suez Canal Area into an industrial, agricultural, and touristic area; extending development along the Mediterranean and the Red Sea coasts as well as around Lake Nasser; and constructing new cities on desert land”” (The Development of Sadat City, Official Brochure, 1978) Despite this intent however, national planning today still struggles with achieving this goal.
Rather than drawing investments to other regions around Egypt this project seems to prioritize investment towards this zone over others. It is therefore necessary to distinguish between investment in Wedian city itself and direct investments towards the Suez Development Corridor. On this basis I will ask two questions that would be critical to the future assessment of the city’s potential contribution to such a larger economic goal. First, would the investments made into the project be sufficiently large or so strong that they would in fact have a ripple-effect significant enough to affect development or businesses along the canal’s intended region? Second, if the final objective is drawing investment towards the corridor, could direct investments towards the Suez Development Corridor be more effective?

The following section will accordingly look at Wedian city more closely from the perspective of a potential economic and investment hub.

8.2 Wedian City: As a Real Estate Development

The economic status of the country has seen much fluctuation since the 2011 political turmoil, however despite fairly positive prognosis for 2015, 2016 has seen further economic destabilization. According to forecasts published by BMI Research, “2015 will be a relatively positive year for the Egyptian economy, as the currency stabilizes and investment returns to the country.” (BMI Research, 2015) However, despite these predictions a decrease in foreign investments and limited foreign currency resulted in the gradual devaluation of the Egyptian currency over the months leading to its official floatation. Floated overnight on November 3, 2016 official exchange rates rose from approximately 8 EGP/USD to more than double at 18 EGP/USD. With an economy already struggling to recover since the recent political turbulences of 2011 such economic changes have only increased the nationwide need for foreign investment and aid. Although as a result of the floatation, Egypt has secured a loan from the IMF, more long-term and sustainable collaborations and investments will be needed.

In the wake of the current economic crisis it is neither surprising nor likely a coincidence that a megaproject of the magnitude of the new administrative capital has been proposed. Looking towards more contemporary history; some consider the capital-driven economy a consistent trend. “The Egyptian economy has always been part of the capitalist world economy...Under a capitalist mode of production, the reproduction of daily life depends upon the production of commodities through a
system of circulation of capital that has profit-seeking as its direct and socially accepted goal.” (p.12, Nasser’s Agro-politan Planning) Explaining further the author notes:

One possible way out of this problem is to channel capital and labor into long-term or geographically dispersed investments. These often take the form of physical and/or social infrastructure, such as investments in science and technology, new production capacities, new urban settlements and built environments, or educational infrastructures. (p.13, Nasser’s Agro-politan Planning)

With Egypt’s dire need for foreign investment, and rebuilding the stability of its economy and the faith of investors, such a project although debatable on many urban planning and design levels, represents a potential for foreign investment critically needed at the current time.

Analyzing this proposal at an additional level from a real estate perspective, even if economic pressures and investments are potentially a large driving force behind the project, it is crucial that other important considerations for Wedian’s future as a city are put into perspective. The question is how can this process be redesigned where necessary, and refined where needed to increase the project’s potential to fulfill longer-term objectives. In an attempt to put the new city on the global map, many cities have historically compromised the underlying needs of a city to cater towards a certain image. As the authors of Planning World Cities note in reference to many more established cities in the global arena:

The flows of the global economy are not the whole business of cities and other issues have become increasingly important. Higher urban quality has come onto the planning agenda in most world cities, from New York to Singapore. This high quality can mean a better physical environment but also a more varied and exciting cultural life. (p.274, Newman and Thornley, 2011)

This emphasizes a global increase in awareness towards other needs even in cities attempting to compete in the global arena. In Wedian city’s case, regardless of the dominant forces driving the project (although they may be debatable or multi-faceted) these forces must be kept in perspective with more long-term needs.
Furthermore, it is essential to separate the pure construction processes of the project from the project’s contribution towards long term economic returns. To illustrate this: Jane Jacobs, in speaking about Ghana’s Volta Dam (considered one of the largest hydro-electric infrastructure projects) says - “Carried away by the power of money to finance great capital undertakings many people seem to think of such investments as being development itself. Build the dam and you have development! But in real life, build the dam and unless you have solvent city makers and transplanted industries, you have nothing” (p.105, Jacobs, 1985) As Jacobs discusses, it is pertinent to consider the true benefits of the CBD as well as other infrastructure investments around the city and separate their benefits from the simple “completion of the project.”

Moreover, as a crucial part of the concept, Wedian is proposed as a ‘green’ city. Although ‘green’ in an academic sense can be interpreted in many ways, the term also has different connotations from a real estate or more commercial stand-point. In reference to the ‘green city’: “It serves to attract international financial and technological investment through ‘science parks’ and acts as an ‘incubator’ for start-up renewable technology firms and various ‘green’ businesses.” (p.106, Joss, 2015) As discussed, although ‘green’ development has many long-term benefits, the term must be separated from its more commercialized form often used for marketing.

Although the following sections will explore the new proposal through other parameters based off of Kevin Lynch’s parameters for a good city, the need for capital flow and foreign investment at the current time of the proposal is a significant lens that must be considered and kept in mind. In addition to these needs and design parameters, this section concludes with the need for the following specific considerations. Firstly, can the country’s need for the flow of capital be reconciled with the need for longer-term city-wide environmental and economic sustainability, affordability and attractiveness to all socio-economic groups? Secondly, if real estate has become one of the dominant means for attracting investments, can these developments be re-envisioned to be more accommodating to Cairo’s greater social needs? Finally, are new cities and therefore real estate developments in the desert really best sources for potential investment, and if not, what are the potential alternatives?
8.3 Wedian City: Parameter Set 01: Sense, Vitality and Fit

The urban design of a new city, touches upon a wide array and range of topics. As mentioned earlier, the methodology of the thesis will base the analysis of the new design based on the five parameters outlined by Kevin Lynch as a baseline from which the design of the new city may be analyzed. The first set will look at the sense, vitality and fit of the proposal, the second will focus on more technical aspects of access and control of the city, and the final set will take into consideration the ‘meta-criteria’ Lynch proposes regarding ‘efficiency’ and ‘justice.’

Vision, Concept and Symbolism

Although the relocation of the government center outside the current capital; has been referenced as the main driver behind the proposal of this new city, the proposal has wider visions and objectives for the city. Some of these intentions depicted on the materials gradually released by the official Urban Design Consortium +5 have indicated broadly the following vision and mission respectively:

- **Vision:** “Constructing a modern and current new Egyptian City that creates the base of Egypt’s deeply rooted culture and presents to the world a worldly and human prototype to build a life with innovation.”
- **Mission:** “Integrated growth and development that spurs a good and socially just life, connected to services, environmentally friendly and sustainable growth that respects the characteristics of history and place”

Although succinctly summarized in two statements, the achievement of these objectives is not quite as straightforward or easy, and the plans would need to fulfil many criteria before these visions can be translated into reality. The translation of these statements into a built environment entails a wide spectrum of urban planning and design considerations starting from the planning, design and decision-making processes themselves, to their development, implementation, and eventual maintenance. Furthermore, with various stakeholders and a diversity of needs at stake, public and private entities participating in the development process would need to enable the transparent and clear communication between parties involved.
A clear understanding of needs, potentials based on realistic assessments of existing conditions and future limitations (whether environmental, financial... etc.) and available technical expertise, form a large portion of the basis for good planning and urban design strategies. Without this planning may be misallocated or might address the problems inefficiently or superficially only provide short-term solutions. Strongly tied in with this concept, is the iconic image of the city and the intended and unintended connotations associated. With the grand visions projected for the future of the city, it is essential to separate the ‘image’ of the city being portrayed versus the reality of its implementation. In a way the ‘image’ that is being given to the city is that which Kevin Lynch refers in his writing to as the ‘sense’ of the city. In his book *Good City Form* Lynch further elaborates on ‘sense’ describing it as the ‘identity,’ ‘structure’ (or composition of a city), its ‘congruence’, ‘transparency’ and ‘legibility’ all in one (Lynch, 1984). However, it is important here to separate between an intended vision for the city (which whether ideal or not is still imaginary until built) and the ‘sense’ of an existing, constructed urban environment.

Although renderings and initial imagery for a city may portray a visionary intention for a new city such as that of Wedian, it is important to highlight the importance of the actual outcome for a true assessment of the proposal. Furthermore, referring back to Lynch’s five parameters of analysis of a good city, ‘sense’ alone will not establish good city form, and is in need of all its supporting parameters of ‘vitality’ and ‘fit,’ as well as the more technical aspects of access and control. As such, the ‘sense’ of a city alone, or an idealized vision for the future of a city or country will serve very few authentic concerns, or challenges of a city. A ‘vision’ or a future ‘sense’ of a city should therefore not be confused as a solution in itself. As tempting as it is to rely on iconic visions of the city to represent a new start, an iconic or monumental structure provides nothing more than just that - an icon or image - or at most a certain amount of national pride or unity at the most superficial level.

The following sections will therefore discuss some of the urban challenges that have faced urban environments across Egypt in the past, that in themselves will not be resolved with any degree of symbolism for new beginnings unless addressed specifically. These sections will attempt to highlight these areas and identify where new strategies would be needed if new outcomes are envisioned or desired. Again the analysis will follow the framework of the remaining four parameters and ‘meta-criteria’ proposed by Kevin Lynch.
Figures Above and Below: The rendering above shows the new gateway to the city. Although it is too early to tell if the ring-like gateway will be constructed, such visionary images cannot be expected to solve other problems. Beijing's CCTV Towers below, although icons for the city do not solve the city's heavily congested streets or heavy air pollution. (Above image credit: UDC +5, Below: Sciencemusings.com)
8.3.1 Land-Use and Zoning

The city is portrayed as a ‘green city’ consisting of 12 valleys; where every valley focuses on particular form of activity, predominant theme or value with its own residences of varying from low-income to luxury housing, as well as accompanying supporting services. Within the components of every ‘valley’ are planned green spaces, entertainment zones, trade, educational and healthcare.

As the land-use map indicates much of the master-plan is labeled to individual single land-uses with little mixed-use zones. This is an important observation since Sadat City suffers from severe separation of spaces it would be essential to make considerations with regard to interconnectivity between the different land-uses, projected activities and inhabitants.

8.3.2 Open Space, Public Space and Green Space

Open and truly public space is a rare commodity in Cairo. Few spaces can truly be defined as designated public spaces. Although public gardens and the occasional stretch of open space can be found, these spaces are rarely designed for public use and are often fenced off, gated or encroached by various forms of privatization. The only abundant public spaces available across all districts could be considered the road and street networks; which although theoretically belong to the car, are encroached upon not only
by pedestrians, but also by youth seeking open spaces to play, vendors seeking affordable locations to set up their temporary stalls, and more permanent services in the form of local coffee shops and retail spaces. These encroachments onto streetscape indicate not only an absence or lack of sufficient open space but also a lack of accommodation for retail needs and services.

In many ways the inclusion of large open green spaces in many of the rising new developments in newly formed satellite cities and private gated communities appears to be in reaction to the absence of such spaces within the central city. In this regard the plans for the new city appear to be no different in attempting to increase access to open space. However, in an attempt to address this lack of access to open space it appears that a differentiation between 'open space', 'public space', and 'green space' has been lost with the terms loosely used interchangeably and merged during design and implementation phases across Egypt.

Although the three terms 'open space', 'public space', and 'green space' are distinct from each other in every nearly every urban context, this distinction is particularly significant in a dry, hot and arid climate such as Egypt's climate. To illustrate this further the distinction is especially significant because in a harsh desert climate it cannot be expected that every open space or public space can be greened with vegetation due to the extensive amounts of irrigation that would be necessary for upkeep. Simultaneously, green space does not immediately mean that it is public - in fact many public gardens in Egypt are often gated and accessible only during certain hours, holidays or occasions - meaning that although they are public they are not necessarily open spaces. Furthermore, public space does not necessarily mean it must be open space - but could also be comprised of a semi-enclosed or even a set of enclosed buildings that are open to the public. A distinction between such differences is necessary, as the purposes of each of these three spaces are different and must therefore be considered and used in their specific contexts.

At this point I would also like to bring to light another perspective with regard to urban space and that is the concept defined by Margaret Crawford as 'everyday space' which although could easily be confused with 'open space', 'public space', 'green space' could mean either one of that at a given time or none at all. Margaret Crawford's writing on Everyday Urbanism interprets the everyday space as that space and/or series of spaces throughout the urban environment that are shaped to cater to the individual's everyday life. This means that the everyday space is the space that is the result of or is built for the needs of a single person or on a more aggregate level represents the spaces catering towards the needs of groups individuals. Although the specifics of these spaces will differ from individual to individual and different
communities the concept is particularly relevant in the Egyptian context where the everyday space is not only defined by the results of formal planning but also that of informal processes.

In urban environments where high levels of regulations are enforced, the urban theory of Everyday Urbanism has referred to more localized interventions or urbanization of space catering to the specific needs of individuals. In the Egyptian context, the growth of informality in both living and economic spheres has in a way indirectly brought this form of urbanism to the city and its spaces. This form of urbanism will therefore be explored further in the Egyptian context especially with regard to what I will refer to as the ‘interstices’ or ‘in-between’ spaces found between more formal functions and planned uses. ‘Interstices’ in this context will be used to refer to neither the formal or informal workspace, neither the home or institution; but rather will refer to all the in-between spaces between ‘formal activities’ such as public plazas and streets, semi-public or semi-private spaces, mobile transportation systems, bridges, markets and/or vacant lots to name a few.

Furthermore, how much open space is too much open space in the context of Egypt’s hot, arid, desert climate, where shelter from the sun is necessary, and green vegetation is difficult to maintain? Moreover, in order to activate open spaces, public spaces with the limited resources and financial budgets available towards the time spent on design, as well as implementation, investigating low-cost interventions is an essential process.

8.3.3 Housing

According to the official illustrations released 30% of the New City’s area will be dedicated to residential areas and ‘life’ and 1.5 million residential units. The initial proposals for the residential mix designate 35% of those residences as high density housing with (50-100 sq.m) of area per unit, 50% medium density housing (100-200 sq.m) and 15% low density housing (200-350 sq.m).

According to the pre-schematic master-plan every valley should consist of a residential area that ranges between 5,000 to 15,000 feddans and include all services and activities, and housing typologies such that it can accommodate all socio-economic demographics. The residential areas are divided into 13 different clusters or agglomerations named the: Government, Work/Business ‘Valley’, Monetary/Trade ‘Valley’, World ‘Valley’ (embassy and international centers), Knowledge (universities and research) ‘Valley’, Art and Culture ‘Valley’, the Green (Environmental) ‘Valley’, Life (entertainment and exercise) ‘Valley’, Planning, Justice (courts), Information (Media and communication), and Hope ‘Valleys’, and The Egyptians’ (complete/integrated) ‘Valley’. The intent behind every cluster is that each individual clusters should serve as the designated residential area assigned to the particular industry or service sector it
serves. Therefore, as illustrated on the plan below the government district is intended to have its own residential cluster, the education zone its own, healthcare facilities their own residential cluster and so forth.

Although this idea conceptually breaks down the ambitious housing districts into smaller districts with the intention of ease of access to amenities on a more local level precedents indicate that there appears to be a discrepancy between these visions and their completed built environment. This section will therefore attempt to analyze more critically the urban design of these residential areas. Since some of the patterns seen in the new design are similar to those witnessed in many of the new satellite cities around central Cairo it would be critical to pre-empt and address the formations of these patterns in the future phases of this new city.

Looking at the history of new cities around Egypt and new satellite cities, such visions for inclusive and diverse social and income groups has been prominently pronounced – with little translation to reality. The problem however is that these visions continue to be announced and proclaimed without critically addressing some of the challenges these new housing projects and programs repeatedly continue to face. As noted by A.D.C Hyland already in the 1980s on the housing trends at the time:

"...regarding housing and new settlement policy in Egypt, one cannot help but be impressed by the boldness of the vision, and the magnitude of the task of implementing that vision, to which the government of Egypt is committed." (Hyland, A.D.C., 1985)

Despite such observations however, little has changed since then. As noted by David Sims in his book *Egypt’s Desert Dreams* "... under the current national social housing program, ... (the program)
unrealistically aims to build a colossal one million subsidized units nationwide over the 2012-2017 period,” (p.146, Sims, 2014)

Furthermore, he continues to explain “the new towns’ share will probably exceed 70 percent of the national total. These figures for both private and social housing in the new towns are impressive, but...a large portion of these are unfinished and even more are vacant.” (p.14, Sims, 2014) This is a phenomenon which furthermore has not changed significantly since 2005 when “Under Egypt’s National Housing Program (2005-11), 255,000 public housing units were allocated to the new towns, representing a much higher 51 percent of national production.” (p.146, Sims, 2014)

Gated compounds pose a significant threat to the urban fabric of new cities. As can be seen on the satellite image adjacent, the urban landscape in nearby New Cairo has been invaded by large expanses of private development. As Metwally and Sahar write, “gated Compounds have physical impact upon the built environment, as it physically isolates a specific area from its surrounding and creates zones of restricted access within the urban (space)”. The fragmentation of space is a result of the physical isolation created by these private developments, increasing both walking and driving/(limited) public transit distances due to the necessity to circumvent their borders. Such clear divisions of space have prevented the formation of more homogeneous development and both socially and physically integrated forms of growth.

Looking at the specific case of El Sheikh Zayed City (New Cairo’s equivalent competing city on the West side of Cairo) Magda Metwally and Sahar Soliman Abdalla write “All the above cases of gated communities provide what the residents are seeking for, the clean... and comfortable environment, quietness, privacy, parks, green open spaces and social homogeneity. Projects differ in their design, social vision, and degree of exclusivity as they all offer a combination of healthy environments, quality of lifestyle, greenery, convenience, socially homogenous communities and prestige.” (p.11, Metwally, Magda, and Sahar, 2016) Although the appeal of such enclaves to many is not surprising - the intent of this section is to highlight both physical and non-tangible components of the built environment sought after in the built environment. Furthermore, the sale of these everyday parameters at high price tags indicates their clear absence or limited availability outside the realm of the gated compound.

It is necessary however to consider the larger context within which the development and sale of these gated units has been taking place. Although these developments may have acted in recent years as quick and easy ‘fixes’ to a clear demand; it is clear that their rapid growth has neither ameliorated Cairo’s housing problems for the average citizen nor have the developments benefited their surrounding urban...
fabric. As expressed by Metwally and Abdalla in their work, “gated communities can hardly participate in the solution of our urban and housing problems since most of the gated communities are not affordable for the average Egyptian.” (Metwally, Magda, and Sahar, 2016) With this in mind, it is necessary to seek out alternative solutions to both the needs of the average citizen as well as those seeking better living environments and conditions.

Although not written in reference to the new administrative capital, Metwally and Abdalla’s research on the Impact of Gated Communities on the Urban Development of New Cities in Egypt indicates that future growth of gated compounds are expected in the Greater Cairo Region’s new cities. Furthermore, they conclude writing explicitly that “Hence, planners and professionals should take in their consideration how to achieve the balance between the city and the irregular expansion of gated communities.” (Metwally, Magda, and Sahar, 2016) – a statement not unexpected given the many challenges compounds have created – emphasizes a key risk to the new city if not addressed. Keeping this in mind, as well as other bodies of literature on the topic, the prevention of such developments must be made a priority in terms of housing models in the new city. Even if the city is meant to attract members of all income groups – it has been made clear from past experiences both local and international, that gated communities have clear negative impacts on their surroundings. Private compounds are therefore not a design strategy for any city looking to increase community integration and urban connectivity.

Looking at the new administrative capital the vision and mission behind the proposal indicates a desired intention to achieve greater social justice, integration and equality. Analyzing the designs for the new city; however, there are several points that must be kept in mind while plans for the new city proceed –

1) The new city is positioned directly adjacent to the New Cairo satellite city (already full of private enclaves) and is also directly adjacent to the private gated community of Madinaty. As a feature already existing the nearby urban landscape unless the regulations for private developments are changed to restrict similar developments, the rise of this profitable model in the new city would likely be difficult to harness.

2) As the previous portfolios of the involved urban design consultants indicate, much of the firms’ work and experience has been in the field of private development of the gated communities. In many ways it could be of comfort to resort towards financing, development and design processes that have proved feasible and profitable from
previous experience, however if a new vision is intended for the city of diverse incomes, new models must be pursued.

3) Based on the general master-plan for the new city released, copious expanses of open green space can be seen throughout the new city. Although open space is a necessary feature essential to the well-being and wellness of city-dwellers as well as it is highly sought after in the context of Greater Cairo, such vegetated landscapes indicate the needs for highly profitable developments to help finance such vast amounts of open space. With that in mind it is essential that the financing of open spaces through private developments is weighed carefully against the permanent impacts of walled off-neighborhoods on the growth of new cities. Competitive alternative financing methods must therefore be developed in order to prevent the private sector from resorting to developments at such high premiums. However, although such large targets have frequently been met, the construction of these housing units is no indicator of their occupancy, or people’s perception of them. This distinction is important as the solution to housing seems to have been for a long time and continues till today to be addressed as a game of numbers.

The current approach has resulted in under-serviced residential areas disconnected from basic services. Furthermore, by creating residential zones that with low densities, designed only for vehicular access, New Cairo has experienced significantly sprawled development. In congruence with many of Egypt’s greater national plans to solve Cairo’s informal housing struggle, in recent years there has been much initiative placed towards setting large targets for new housing units. The plan for the new administrative capital is no different from this trend, and as can be seen in the master-plan a significant portion of the plan for the new city is devoted to new housing zones. As part of the written mission of the new city is the intent to provide housing for different socio-economic income groups. Within that attempt the goals appear to advocate for the inclusiveness of housing for government employees, middle income communities, social housing, as well as housing for higher income groups.

In today’s proposal for the new administrative capital this phenomenon is yet again no different from these observations from previous decades. Today the new proposal suggests the construction of one million housing units yet again with every zone being specifically designated to a particular industry. These residential neighborhoods are meant to form their own ‘valleys’ or ‘oases’ and are to be divided according to the neighborhood’s most adjacent industry.
Since the project’s ‘vitality’ is strongly dependent on the economic vitality of the city the following section will focus specifically on the mixed-use developments, economic centers, nodes, and supporting services planned for the new urban agglomeration.
8.3.4 Mixed-Use, Economic Centers and Services

New cities face the significant challenge of providing access to not only basic services for its inhabitants but also providing a variety of those services and choices to suit the diverse populations that are intended to live in them. The types of services, price brackets of goods and their exclusivity (intentionally or unintentionally) reflects the different communities and economic groups whose needs are being addressed and for who the project’s design and capacity caters towards.

Aside from planning for the presence of new economic generators it is also essential that the distribution of those opportunities throughout the city is considered. The same ‘amount’ of economic opportunity can be planned in the form of clusters, or concentrations of various forms of industries, as separated isolated concentrations of industry, or in the form of mixed-use development with various functions interspersed with smaller nodes or spaces designated for those same activities. The different forms in which economic opportunity can be placed affects the way these activities and industries interact with the remainder of the city.

Recent urban planning and urban design theory has advocated for an increase in integrated activities and mixed-uses to support the daily needs of residents. Mixed use in this case refers both to the vertical and horizontal distribution and integration of activities. As Chapple (2015) discusses in Planning Sustainable Cities and Regions “Mixed-use proponents generally support both horizontal mixed use (i.e. walkable clusters of different uses) and vertical mixed use (i.e. a mixture within a specific building or development)” (p.209, Chapple).

Measures towards increased sustainability also commonly advocate for increased integration between different activities and land-uses. As suggested by Pollalis in Planning Sustainable Cities “The blend of workability and quality of life – each supporting the other – is what draws people to take on the practice of sustainable urbanism: to live, work, and play in cities that sit lightly on the earth. A specific objective of the Zofnass Planning Guidelines is to illustrate synergy, the essential interactions among infrastructural systems that make up the city. The Transportation guidelines cross-reference the infrastructures of Energy, Water, Food, Solid Waste, Landscape, and Information, enriching and lending nuance to the strategies of balancing transportation and land use.” (p.76, Planning Sustainable Cities –
An infrastructure-based approach (Pollalis, 2016) it is therefore essential to consider the distribution and integration of economic centers amidst the remainder of land uses.

Looking at Sadat City it is apparent that the sprawled distribution and separation of land-uses has prevented walkability, access to services and general accessibility. Therefore, although the city includes a wide variety of functions and uses the distribution of those uses has a profound effect on the outcome and vibrancy of a neighborhood. “The context also shapes the character of mixed use: a vertically mixed-use development within a single-use district may not be particularly vibrant, while a horizontally mixed-use district may also not be very lively if different types of uses are dispersed and not within a short walking distance.” (p.209, Chapple, 2015) It is therefore essential that such problems with urban development are addressed in the planning of the new city.

Many businesses have recently been choosing to relocate to some of Cairo’s satellite cities. Many such local and international businesses have already relocated to New Cairo (immediately to the west of the planned new capital). On one hand the existing precedent of such relocations and their growing popularity, indicates that such relocations could further be welcomed. On the otherhand however, some question the incentive for relocations even further away from the center of the city, if a new business district in New Cairo has already been forming.

8.4 Wedian City: Parameter Set 02: Access and Control

Accessibility to the city is closely linked with the city’s location. Although a fairly obvious point to make, it is essential to differentiate access and location. Previous experience from Sadat City has shown that the selection of a seemingly strategic location alone does not immediately correlate with accessibility unless clear access networks are put in place. Although the selection of the location had taken into account nearby urban poles and their potential economic significance, access to the site is a technical parameter that must be planned for, developed, financed and then maintained. Citing some of the initial reasoning behind the site selection of Sadat city written at the time of the proposal: “The proximity of this site to national markets makes Sadat City a viable alternative to Cairo and Alexandria for locating industry and commercial activities.” (The Development of Sadat City, 1978) Such reasoning however does not replace the definite need for developing structured means of transportation and should be accounted for in Wedian.
Furthermore, previous experiences with satellite cities, have shown a recurrent pattern of absent or deficient planning outcomes regarding public transit. Whether intentional or not however, this translates to a definite barrier for socio-economic groups of limited means. With private cars and limited bus routes the only formal means of transport to many rising new satellite cities, these new towns largely cater towards car-owners and individuals of higher economic means.

In this section I will further elaborate and draw a comparison between the business district in New Cairo and the newly proposed central business district of the new city. The focus of this section again will be the urban design of the district. Although the spine along road 90 has gradually been attracting businesses, similar urban design challenges of space segregation and lack of integration and connectivity can be noted. As the business district grows, there is greater pressure on the surrounding urban environment to account for the number of employees, residents and visitors coming to the district. Since the district is under-served by formal public transit, even those who might live in a neighboring residential zone will be unlikely to walk to any of the commercial developments or workspaces. The current distances are beyond the scale of walkability, and the outcomes of the design process indicate little consideration for pedestrians in the design of the streetscape.

8.5 Wedian City: Parameter Set 03: ‘Meta-criteria’: ‘Efficiency’ and ‘Sustainability’

Kevin Lynch places ‘efficiency’ within his category of ‘meta-criteria,’ in other words, “criteria distinct from the five that precede them... (and) are meaningless until costs and benefits have been defined” (p.119, Lynch, 1984). He further elaborates they “are repetitive subdimensions of each of the five (original parameters)” (p.119, Lynch, 1984). In many ways Lynch’s term for ‘efficiency’ can be equated with today’s modern term of ‘sustainability’ a term which is affected by every dimension of a city and is similarly “meaningless” as Lynch (p.119, Lynch, 1984) refers towards ‘efficiency’ without the consideration of opportunity-costs (whether qualitative or quantitative).

Sustainability is one of the key elements advocated by the project. I bring it up here within Kevin Lynch’s meta-criteria since every mentioned urban parameter for a successful city must take into consideration its contribution to the overarching sustainability of the project. Many cities today strive to achieve higher levels of sustainability and reduced environmental impacts, increased energy efficiency and low
carbon construction. This has led to sustainability factors impacting daily urban planning and design processes across many places. Achieving higher levels of sustainability has further mandated wider consideration such as interrelated urban economics, policy incentives as well as other regulations. In light of this, the sustainability of a city must consider the entirety of its complex system.

I argue; however, that the current proposal if not developed further beyond its initial plans could easily fail to achieve sustainability measures, and fall into the same repeated patterns faced by many cities around Egypt. In many cases, sustainability seems to be taken at its most superficial level as simply installing solar panels on building rooftops and incorporating green-roofs and/or greywater systems. This approach however undermines the entire complexity and ecosystem of sustainability where the core infrastructures and relationships between different components of the city must be considered, coordinated and aligned in order to achieve the multiplicity of sustainability.

Looking at Wedian’s neighboring satellite city of New Cairo Reham Hafez notes in her publication *New cities between sustainability and real estate investment: A case study of New Cairo city* that New Cairo “has been developed as a result of the economy and investment politics of the Egyptian government at this time, which made it the focus of real estate investment. However, this resulted in negative influences on...(its) sustainability. This is made clear in the different stages of developing the city, - before laying the general comprehensive plan, during preparing the plan and the successive stages of development till now” (Hafez, 2015).
8.5.1 ‘Sustainability’: The Green Spine

The central Green River is indicated to cover 30.2 sq.km. (equivalent to 7,464 acres). Comparing this to Central Park in New York which covers 843 acres, as the initial announcement of the proposal had done, this equates to 8.85 times the size of Central Park. What the proposal fails to mention however, are two important parameters of consideration; namely, maintenance costs and management.

While Wedian is planned to be situated amidst desert climate, Central Park – which is already located in a climatically more welcoming environment – invests $67 million annually for upkeep. In fact, since the Central Park Conservancy was established in 1980 the conservancy has invested $875 million to date to make it the urban space it is. Such figures although not directly transferable to Egypt without more accurate conversions or taking into account the additional cost of bringing water for irrigation to the site, are at minimum strong indicators of the budgets required for upkeep.

Furthermore, any planned green space must not only consider the short-term development costs of the area but also the management, technical expertise and co-ordination of its long-term maintenance. To cite the Central Park Conservancy “Healthy cities need parks, and parks need management.” (Conservancy, Central Park, 2017) Although this seems fairly obvious, it is clear from the example of both Sadat City, as well as other cities in Egypt, that existing models for managing and financing such green spaces in the public sector have often failed.

Green spaces not just in the Egyptian context require a complex understanding of all the underlying systems involved. “To manage the Park, Conservancy crews aerate and seed lawns; rake leaves; prune and fertilize trees; plant shrubs and flowers; maintain ballfields and playgrounds; remove graffiti; conserve monuments, bridges, and buildings; and care for water bodies and woodlands, by controlling erosion, maintaining the drainage system, and protecting over 150 acres of lakes and streams from pollution, siltation, and algae.” In Wedian similar but more contextual considerations would similarly need to be accounted for, employing and involving management systems with both technical and managerial capacity. Again the cost of management of a park space of this scale cannot be under-emphasized and the careful planning and consideration of suitable finance models for its sustainability must be developed.
These concerns however are not limited to the Green River alone. Based on the initial statistics, open and green spaces are to be generously at approximately 15 sq.m/person (UDC+5, 2016). The considerations made above, similarly need to be made for the rest of the green spaces extending across the city. As David Sims questions with regard to other attempts of greening desert lands; “Assuming for a moment that Nile waters stored behind the High Dam will remain plentiful for Egypt to continue to consume its allocated water total, is there enough Nile water for Egypt’s desert reclamation schemes and plans?” (p.67, Sims, 2014). With limited water supplies in the new city’s arid, desert environment, careful irrigation considerations must therefore be made to minimize water consumption. Only then can the long-term sustainability of the open green spaces become possible.

8.5.2 ‘Sustainability’: Density and Residential Housing

The proposal suggests the integration of high, medium and low density residential areas in the new city. Although density is often perceived negatively in the context of Cairo due to the struggles of the main capital city, moderate density can provide many benefits to the urban environment. “The world that is evolving will increasingly value proximity, which will create new development pressures on regions’ urban cores. Just as cities and regions are trying to prepare for millions of new residents, these pressures will translate into higher land prices and, potentially more exclusion.” (p.283, Chapple, 2015)

However, in reaction to the original city catering towards a large private sector demand (and predominately wealthier segments of the society) both public regulations and private developers have prioritized low density development. “Regulations limiting the density of population are extremely strict, and this combined with the large unit sizes, forces the development of residential units that are very expensive and difficult to market. As a result, virtually all privately built housing units available on the market are completely unaffordable to the large majority of Cairo’s households, even if finance were to be available – which, for most, it is not.” (p.187, Sims, 2010) David Sims further emphasizes that this problem is not unique to Cairo and is a challenge noted in many of Cairo’s surrounding developments. “Cairo’s desert development seriously threatens the current compactness of the metropolis, probably the single greatest advantage of Greater Cairo as an efficient megacity.” (p.209, Sims, 2010) Despite this however, low density development - often in the form of twin-houses and villas within gated communities - has become a highly profitable model for the developer. Moreover, due to its financial
return it is also a model that is unlikely to be stopped anytime soon unless higher density is incentivized, enforced or mandated where necessary.

Many principles of sustainability however are strongly tied in with density. Although the parameters themselves might be listed individually as separate categories as in the example below – guidelines for sustainability measures stress the importance of the relationship between the different entities. For instance, one approach stresses 7 components that must be considered with regard to the sustainability of the entire system: Landscape, Transportation, Water, Energy, Solid Waste, Information, and Food.” However, as is further elaborated “classification does not mean separation; the approach is intended to be a first step toward high-level integrated planning. (p.23, Pollalis, 2016)

8.5.2 ‘Sustainability’: Urban Fabric and a Quick Comparison to New Cairo

The mid-1990s also saw the emergence of New Cairo as an independent entity brought about by the amalgamation of three new settlements in the desert east of Cairo plus the addition of new tracts of land. Its enormous size (at 264 sq.km, more than half of the existing Cairo agglomeration) dwarfed any other new towns in the eastern quadrant. (p.130, Sims, 2014)

As David Sims mentions in his book Egypt’s Desert Dreams, New Cairo, Wedian’s neighboring satellite city, with a similar history of extension into the desert, provides a very useful example for comparison. New Cairo's masterplan (although developed over three separate stages) in its final iteration, is in many ways similar to the current plans for Wedian. A look at New Cairo’s masterplan shows a city centered around a central business district drawn across the extent of a central spine, surrounded predominantly by residential areas (a mix of both private and public), and interspersed with green space.

New Cairo today however faces strong forces segregating its fabric. Although the city is often perceived to be successful in having attracted residents, it is necessary to distinguish the type of urban growth taking place in New Cairo before it is used as a model for future development. Furthermore, much research on the sprawling urban fabric of New Cairo however has indicated that the results of the urban growth of the city are currently unsurprisingly not sustainable. In reference to New Cairo David Sims in
his other book *Understanding Cairo: The Logic of a City out of Control* writes, the reality of the city is “very far from any idea of a sustainable city with a low carbon footprint.” (p.209, Sims, 2010)

With the rapid growth of satellite cities around Cairo, sprawl has been a growing phenomenon in recent years. Although new satellite cities around Cairo were created intentionally, the sprawl that has taken place thereafter has been unintended. Although the reasons behind the sprawl are many, including limited availability of land within Cairo’s central region, the need to conserve arable land, the growth of informal settlements within the city (also covering vast expanses of land), further growth has necessarily taken place at the outskirts of the city.

Satellite cities despite having spurred much of this sprawl as a concept themselves were not necessarily a baseless idea. The problem however rather resulted from the cities’ lack of ability to sustain their own communities to the full extent necessary under a growing continuous demand for housing, economic opportunity at all income levels, as well as the provision of services and amenities for all, has left satellites struggling.

Furthermore, although the initial tendency towards unsustainable urban growth and sprawl stemmed out of well-intended incentives and regulations to draw development to these new satellite cities; more recent growth patterns indicate a need for a change in approach towards future urban growth. “Residential neighborhoods in the new towns were designed for low gross densities, with as much as 60 percent of the area devoted to open space, green areas, playgrounds, schools, and other services.” (p.133, Sims, 2014) Although abundant open space was viewed favorably in reaction to problems of overcrowding and high-density of the original city, the outcome of the urban growth has seen the results of overly spaced development.

The development of a new city outside of the existing boundaries of New Cairo, will likely absorb some of the expected continued sprawl that would (likely) have taken place in all cases at the site of the first phase of newly proposed Wedian. It is important to note that the new city is already located alongside existing, gated, private development which although already partially-populated, is in itself an urban barrier. The new city, at its pivotal location, and with the experience gained from neighboring New Cairo, therefore has the potential to redefine future urban growth patterns in its surroundings.
Some might say that the answers to resiliency must be sought primarily in building up center cities, glossing over the fact that suburbs now comprise the majority of our urbanized areas – in land area, population, and economic activity. This line of thinking overlooks the potential that more gain could be achieved by focusing on adapting our least sustainable landscapes, in suburbia, to transform them into more resilient, equitable, adaptable, walkable, transit-oriented, and more public-oriented places. (p.105, Retrofitting Sprawl)

This observation is important for the future of satellite cities which are currently suffering from sprawled out development and would benefit from potential changes in strategy towards them. Since the its proposal for Wedian calls for a new ‘city’ rather than a new ‘suburb’ or urban fringe, appropriate urban planning and design strategies should be used to achieve the intended result. The suburb-like resulting urban fabric of new satellite cities highlights the extent to which a new proposal for a new self-sufficient and sustainable city should contrast the strategies originally used towards New Cairo. To highlight this further I cite Dunham-Jones from his book on Retrofitting Suburbia:

The characteristics of suburban form differ markedly from urban form in several important ways:

- Suburban form is characterized by buildings designed “in the round” to be viewed as objects set back in a landscape they dominate; in urban form, a clear focus is on the fronts of buildings and how they line up to meet the sidewalk and shape the public space of the street.
- The dominant spatial figures in suburban form are private buildings. Public roadways, schools, and parks exist but are rarely treated as dominant spatial figures or outdoor public rooms, as in the case of urban form.
- Suburban buildings tend to be dedicated to a single use – residential, retail, office, or industrial – while urban buildings are more often mixed in use or may transition in use over the life span of the building.
- Suburban form is almost entirely auto-dependent, typically involving surface parking lots surrounding buildings, while urban form is not.
- Suburban roads are often organized in a dendritic pattern with deadends and cul-de-sac, while urban streets are organized unto interconnected networks
- Suburban form tends to be lower-density and evenly spread out, while urban form tends to have a higher net density as well as a greater range of localized densities. This is true for densities measured by population and building area.

- Suburban form is predominantly funded by short-term investors invested in volume, such as real estate investment trusts (REITs) and large-home-builders, while urban form is more likely to be funded with a combination of short- and long-term investment vehicles as well as a variety of partnerships.

(Dunham-Jones, 2009)

Looking at the urban fabric of New Cairo today, the satellite city fulfils most if not all of these criteria especially where private developments and gated compounds are present. Therefore, based on these criteria, planning outcomes in New Cairo could be classified as suburban forms of growth rather than urban forms of growth. Although a strict classification of New Cairo under lower-density suburban, or higher-density urban development was possibly not made during the planning stages of the satellite city towards one forms of growth or the other; the intention to develop Wedian as a self-sustaining and walkable new city would necessitate clear strategies and steps towards increased ‘urban’ (Dunham-Jones, 2009) forms of growth.
Chapter 9 - Urban Design as a Potential Tool

This section of the thesis will focus on where urban design regulations and the city meet. In a mega-project of this scale, design is only a small portion of the entire process and system, which must take into consideration larger financial, economic and political constraints. However, although it is only a small fraction of the process, it is the most long-lasting of the four considerations. Political administration may evolve or change, and the economic and financial impacts may be re-incentivized or restructured; however, buildings and large scale developments are almost semi-permanent in a sense and pose physical, social and financial difficulty to alter.

Despite this however, the design phase in many cities worldwide is hurried and accelerated with little consideration for many longer-term impacts. In the case of Wedian where progress from the release of the vision, concept and location to the beginning of construction; has taken little over a year, it is clear that the design phase of the project has certainly been short. Furthermore, with little consultations with the wider community and in light of previous disregard for urban design regulation an absence of urban design coordination would not be unexpected.

Furthermore, the presence of both formal and informal planning approaches towards cities - both in Egypt and around the world - is neither a new concept nor an unexpected one. In fact, looking at Egypt’s own history, “Egyptian hieroglyphs use two terms for an urban growth: niwt, meaning a city, and dmi, a town or settlement. The former appears to denote a natural growth, whether large or small, the latter a planned one,” (Uphill, 1988) which indicates that as far as ancient times cities in Egypt were observed to grow in different ways or as a combination of both. The struggle between the ‘informal’ and the ‘planned’ is thus a long-standing one; however, regionally and over time the predominance of one form over the other can be seen at varying degrees.

Moreover, the relationship between the two approaches can take different forms depending on the governance structure of the city or country, often in favor of one or the other. Where formal planning approaches with regulatory measures and design guidelines have been enforced stringently there has been resistance against such urban definition; resulting even in resisting schools of thoughts such as Everyday Urbanism. Yet, such concepts and ideals that cater towards the everyday are hardly new, since
this form of urbanism is the basis of cities, with people shaping the oldest of settlements based on everyday needs.

As settlement sizes have grown since pre-historic times from camp-side settlements to complex steel and concrete skyscraping environments, their constituent elements have therefore both changed and evolved over time, often growing into larger interconnected systems. Simple pathways between settlements have now evolved into entire complex networks stretching across continents over interstate highways, bridges and more local streets, and even virtually through vastly expanding forms of technology. How can such changes be measured, pre-empted and pre-planned for? Or more importantly, can a city even be prepared for such change?

Although in theory, if all formal governance structures, regulatory measures, and formal urban planning and design agencies were removed, humans would certainly re-adapt, self-organize and self-rely to provide basic living conditions for survival. Such resiliency and adaptability in the face of lack of alternative is already what can be seen across many informal areas and settlements globally. Although formed out of necessity, many of these approaches towards urbanization have been marginalized and hindered in their processes rather than assisted and supported.

But really, why should any formal organization be responsible for the growth of an urban environment? Increased interdependence between individuals, various groups and communities and more globally between nations, has resulted in a growing reliance on these structures and formal processes. Based on the need for various resources, goods and services amidst growing regulations, humans have grown increasingly dependent on formal regulatory systems to negotiate and provide for those needs on their behalf.

This is especially apparent in the growing urban environments of today; places and spaces of economic, ideological, political and cultural complexity composed of varying and often conflicting needs. The modern city and therefore even more so, the modern mega-polis has necessitated that certain degrees of formal governance ensure the needs of all its constituencies are coordinated and managed.

Simultaneously, increased coordination, and the possibility of global communication has enabled the synchronization and coordination of various needs, policies, regulations and incentives, as well as
solutions. These increased potentials have resulted in increased global collaboration; minimum health standards, international monetary funding and assistance, as well advocated for equal opportunities for all. With the standardization of these expectations however, there has been an increase in regulatory measures to achieve such levels of globalization. In many places individual attempts to survive in such regulated environments have been complicated by bureaucracy, inefficiency, or unaccommodating regulations and stifled businesses, services, start-ups and the production activities and spaces needed in their inhabitants.

Therefore, such environments are in need for certain amounts of regulation, but also a certain degree of flexibility and accommodation for various needs. The achievement of such a balance has challenged many policy-makers, and in the specific context of the city has baffled urban planners and designers in achieving the perfect balance. It is as a result, both urban planning and urban design regulations and guidelines of a city are in states of on-going iteration, adaptation and change. To add complexity, iterations made too slow, hinder the development and evolution of the city in response to both local and global changes; while iterations made to fast or too early before a city is ready for them may be misused or may not achieve the results expected.

Much literature on Egyptian urban environment, speaks of the urban challenges facing the city, however little focus has been given towards the potential of urban design interventions on the urban scale of the cities whether through a series of smaller projects, larger urban design interventions or even incentivized or enforced design approaches, methodologies, guidelines or codes. Perhaps the result of an absence of the separation of urban planning from urban design, or the result of design being largely the domain of architects, planners, developers or even construction engineers, there has been little regard for the built environment from an aggregated urban perspective (as opposed to the architectural granular level). Piecemeal design processes, regulatory systems, codes and outcomes have therefore followed.

Thinking about design strategies towards the challenges cities such as Sadat City face is critical if forward-thinking action is to be taken with regard to these urban environments. One example discussed by Brent Ryan revolves around “a rare but not unknown” (Ryan, 2012) model taken towards ‘shrinking cities’ using projective design. In the case, the more drastically damaged urban fabric of New Orleans’ uses projective design in its Make It Right homes: “on an individual architectural
level, (these homes) convey a more forward-looking approach than...perfectly ordinary homes” (p.211, Design After Decline)

Another approach suggested towards the similar urban fabric of shrinking cities is what Brent Ryan refers to as ‘patchwork urbanism.’ “Patchwork urbanism (which) implies that urban design, rather than acting homogenously across urban space in the same manner as zoning, acts in a strongly differential mode, influencing certain areas of the city more than others.” (p.214, Ryan, 2012) is similar in many ways to many non-profit prototype/acupuncture forms of interventions recently emerging across Cairo.

In writing about patchwork urbanism Brent Ryan specifically focuses on the cases of the shrinking city. I would argue the ‘urban fabric of Sadat City in many ways resembles U.S. shrinking cities today. As Ryan defines it “the new urban pattern resulting from shrinkage may be called patchwork urbanism. The patchwork is dynamic, shifting and challenging over time as abandonment, demolition, and new development each make their mark. If left alone, patchwork urbanism is messy, inexact, and somewhat unpredictable.” (Ryan, 2012) Sadat city’s urban fabric is dispersed, unevenly occupied and developed and quite randomly interspersed with vacated or undeveloped land. Although the result of different underlying causes; including uneven formal growth as well as informal unregulated growth; the current state of urbanism of Sadat City is in many ways quite similar to the case of Detroit as well as other cities across the U.S.

These are only a few examples to illustrate potential urban design approaches towards urban environments in Egypt, in need of exploration and integration with existing planning systems. Although the separation between architecture and the field of planning or urban design was not always clear historically in many countries, the formal separation of the fields in Egypt has not occurred yet. According to the author of Interdisciplinary Urban Design: Toward Egyptian Manifesto “…urban design did not reach the Egyptian reality yet” (p.11, Abo-Saada) further elaborating to say “members from the different groups of Egyptian architects suffer from the assumption of what can be known as ‘Intellectual Illiteracy’ in the realm of urban design.” (p.1, Abo-Saada)

The gradual separation of the disciplines had been gradual across many regions and locations. In France as was noted by Le Corbusier himself, “The city planner is nothing other than the architect.
The city planner organizes architectural space, determines the place and purpose of the containing vessels which are built, and links all these things in time and in space by a circulatory network. And the other man, the architect...likewise erects containers, creates spaces, determines the paths of circulation. In terms of the creative act, the architect and the city planner are one and the same.” (Le Corbusier, 1971) Although such perceptions have evolved since and now architecture, urban planning, real estate development and urban design are distinguished as separate fields across many nations, the clear distinction has not yet been achieved in Egypt. “Specialists and professionals still confuse UD principles with another principle that exists in different disciplines. These disciplines are city planning, urban planning, site planning and design, housing and landscape architecture.” (p.11, Abo-Saada)

However not only is there a lack of attention or distinction of the discipline, the enforcement of planning regulations is also weak. According to David Sims, “for the most part there is a huge and pervasive gap between government pronouncements and legislation on the one hand, and implementation and enforcement on the other.” (p.251, Sims, 2010) This further indicates not only current urban design challenges but also future enforcement of any design guidelines that may be proposed.
Chapter 10 - Conclusions: Recommendations for the Future

The following recommendations focus on the different aspects of planning and urban design processes that could potentially improve city design outcomes as based off of Kevin Lynch’s five parameters of good city form. The recommendations are therefore grouped according to those criteria and ordered sequentially. I.e. for example, the development of contextually sound sustainability necessitates accurate access to data, while, the formation of good urban design guidelines necessitates the acceptance of urban development as a long-term process and similarly requires access to data and a clear definition of the target population.

10.1 Citizen Participation, Key Players and Data: ‘Access’ and ‘Control’

01 Who is this City for? Clear identification of the Target Population
02 Who decides? Greater transparency in the selection of private and public entities involved in such projects
03 Access to Data and Platforms
04 Developing Public Participations Structures

10.2 City and Urban Design: ‘Fit’

05 Sustainability in the Egyptian Context
06 Redefining the Egyptian Modern Identity
07 The City as A Long-term Growth Process

10.3 City and Urban Design: ‘Vitality’ and ‘Sense’

08 Urban Morphology and Integration
09 Developing Urban Design Guidelines
01 Who is this City for? Clear identification of the Target Population

At their very origins settlements, towns and cities have been built to serve their settlers. The design of streetscape, public outdoor realm and the relationships between buildings can therefore also be interpolated to intend to serve the settler of a city. “Site planning, then, is the organization of the external physical environment to accommodate human behavior.” (p.12, Lynch, K. and Hack, G.) It is therefore essential that the intended settlers for these cities are identified and planned and designed for with consideration. With the growth of formal systems to govern cities the abilities and self-sufficiency of the individual has been de-legitimized along the way. However, where the informal sector has such strong presence in response to an Insufficiency of public systems “Governments and local authorities must, unequivocally recognize the important role of the informal sector and ensure that urban planning systems respond positively to this phenomenon, including through legislation.” (p. xxviii, Planning Sustainable Cities)

In the wake of desert developments, local government has in the process escaped the resistance and negotiations accompanying previously housing strategies of ‘urban renewal’ or resettlement. However, it appears as though an absence of existing settlements at these newly designated location of new cities has resulted in an apparent legitimization of government projects to be planned and processed without the need for consultation with the larger public and wider stakeholder. According to Ahmed Soliman author of both ‘Urban Informality in Egyptian Cities: Coping with Diversity’ and ‘Typology of Informal Housing in Egyptian Cities: Taking account of Diversity” informal settlements in Egypt can be categorized into three main categories (settlements built on Agricultural land, Desert land and public/private land) which can then be subdivided into 22 more specific categories based on land type/ownership. Such categorizations indicate the complicated nature of land tenure and home ownership, as well as act as indicators to the inadequate production of formal housing; leaving many to resort to informal means of securing shelter.

With an awareness of the complicated nature of housing in Egypt, it is essential that populations struggling for secure housing are equally accommodated for within the planning processes for new cities even if the lands themselves to not necessarily interact with existing populations. Since the plans for Wedian city advocate for equal housing for all socio-economic groups in its goals, such goals must be
clearly translated with increased attention to both previous and future potential affordable housing models, in addition to any other forms of housing models planned.
This section discusses some of the players in the urban development of new districts and new cities. The identification of parties and their role in the urban development arena is significant to comprehend why current trends have come to rise, how they have shaped new cities and how their presence may affect future trends. Urban growth in recent years has been the result of both formal as well as informal processes; therefore, key actors in the built environment have ranged widely from the individual citizen to the public sector to the Military Armed Forces to both local and international private real estate developers. In many cases these actors have formed partnerships, while in others projects have been constructed from start to finish quite independently.

Although government involvement in social housing is dominant and seen as the dominant leading entity; its relationship to housing as well as its responsibility in the arena of affordable housing has been difficult to keep track of. Ahmed Soliman lists that “Within the last six decades, the role of the government changed from innovator, producer, provider, facilitator or enabler into a cost recovery trend.” Explaining that “The change of role of the government is due to the rapid socio-economic and political transformation that faced the country.” (Soliman, 2011) Although published prior to the 2011 – 2013 political turbulences, I would argue the statement is equally applicable today where the government’s relationship to much public work has been strongly affected by political instability, the ensuing economic fluctuations, frequent changes in administration and government responsibilities.

In an active response towards slow or ineffective government interventions, localized pocket interventions by both private for-profit small business and non-profit organizations have been on the rise. These small-scale interventions have been filling the clear gap in addressing many of the pressing needs of some of Cairo’s most under-served and under-represented communities, and particularly those belonging to low-income groups.

Such NGOs and non-profit organizations have harnessed a wealth of knowledge and experience working with many under-represented communities. Moreover, working closely with these communities they have earned the trust of many local residents as well as internal organizational structures. Although the new city is being built on new terrain with no informal settlements or low-income housing in its vicinities, such organizations’ experiences and understanding of lower-income communities across Cairo would be invaluable knowledge in the development of new strategies towards the new cities especially since the project is projected to be inclusive of all income groups.
03 Access to Data and Platforms

This is not to say however or make an incorrect accusation that data is not available to local or international scholars or practitioners who search for it. With the correct authorization or a backed-up request to the correct authority information is released as needed; however, this in itself is not an easy task for a number of reasons. Firstly, finding out which authority should be contacted regarding the information under consideration is not often clear, and it is not uncommon for individuals seeking information to be directed to try contacting multiple authorities before finding out which they should approach or who they should contact. Once the correct authority is identified, one must often then prove to the authority the need and intentions behind the search for information; either though supporting documents or authorization letters from academic or professional institutions.

Therefore, resolving delayed access to data and information is needed in two main forms:

- Transparent access to information on plans and projects especially in the early phases of their development
- Access to up-to-date and current statistics, maps, future projections as well as plans for legal changes.

In the first case, lack of transparency in the early phases of public sector plans prevents citizens from not just awareness of changes in the neighborhoods, districts or cities they reside in, but also prevents citizen engagement and both positive as well as critical advice from many highly educated professionals and academics specialized across various relevant fields. Furthermore, although plans and proposals are sooner or later announced and progress reported, it is often at a stage too late for major alternations or changes to be made.

In the second case, regarding access to current data and information; although not impossible to obtain, access to data is often a long process, with an awareness that data obtained is often inaccurate. Without a solid base of knowledge of existing statistics and the current state of affairs, critical analysis of existing conditions with the intention of implementing any sort of urban intervention is very difficult at a larger scale. As such, data access presents a major obstacle towards grounded, and accurate professional and/or academic engagement with many urban planning issues.
Harsh criticism of current lack of citizen participation in political and government processes can be found in abundance: “Municipal government in Egypt is sick, and the majority of the population suffers. The illness is actually political –institutional crises characterized by excessive centralization, lack of transparency, and communication failures between the administrative apparatus and citizens. Moreover, the enormity and the diversity of the city’s problems exponentially accentuate the dysfunction and deficiency of the local administration.” (p. 179, Sarah Ben Nefissa)

This relationship between the citizen and the government raises significant concerns with regard to citizen involvement and indicates a dire need to develop more elaborate and long-term relationships with affected communities with regard to national and local projects. However, Egypt is not the only nation struggling with public engagement. “In Dubai, planning decisions are not typically shared with the public. Because the government prefers to make decisions quickly and without interference, it does not involve the public in its decision making” (Alawadi, 2017). Such methods appear to attempt to short-cut and accelerate development processes; however, the long-term drawbacks appear to be equally overlooked. One of the greatest barriers to addressing urban challenges early on is the absence of open communication and early opportunity for dialogue, discussions and critique of those plans and developments. This does not only apply to large-scale plans of national scale, but also to smaller-scale interventions. Furthermore, access to data does not only apply towards early transparency regarding future plans, but also access to data on what is existing.

Many of the more recent satellite cities have formed on empty desert lands. With an absence of existing communities on these sites there have been lower resistance rates to these projects over projects attempted within central Cairo. However, this rather convenient absence of communities on the sites of these developments has created a convenient illusion that citizen engagement in the planning phase of these projects is unnecessary or optional. However, I must argue, that a citizen’s right for awareness, involvement, and participation in a project on desert land is just as much necessary as in projects taking place where communities live. Urban planning projects of this scale require immense budgets, financial investments, long-term planning and large-scale collaboration between different agencies. The scale large scale of these projects however mean that not even the most established economy could proceed with such projects without there being some form of opportunity cost to the citizen at the cost of proceeding with such a project. With direct or indirect effects falling on every individual, citizens should at minimum have the opportunity to have a share in the decision-making process of such large- scale investments and projects.
Although a structure and defined hierarchy between planning and city management entities do exist, the structures are quite cumbersome and members of local communities are often uninformed or unaware of how, where or to whom they should express local community needs, problems or suggestions. Furthermore, even if an issue, suggestion or maintenance concern is raised addressing these concerns often take months on end to be addressed, if ever at all.

Structured city management and clear and organized communication with the local community are therefore a crucial missing element in the effective maintenance and development of a city. In the absence of a clear organized and transparent city management system, necessary organizational structures as well as technological infrastructures are in dire need.

### 10.2 City and Urban Design: ‘Fit’

#### 05 Sustainability in the Egyptian Context

In an attempt to “modernize” the built environment the architectural general trend and perception of the designers and architects has led many to import western trends and ideals in their work to fit the general perceived trend of modernity. In an attempt to fit a certain image – many design elements have been imported without consideration for the drastically different environmental conditions. Whereas glass facades might be suitable in cold environments where sun and warmth is welcome, using such materials present immense environmental challenges when used in the hot, arid climate surrounding Cairo, presenting immense energy loads on their HVAC systems necessary for compensating the amount of heat transferred.

Therefore, it is important that the city's measures of sustainability take into consideration wider and more interrelated relationships. One of the goals of the city is to ensure that 70% of all rooftops are covered with solar panels or green rooftops and 40% of the right of way is projected to be dedicated to pedestrians and bicycles to further promote the city's goals as a ‘Walk-able City’. (UDC +5 Proposal). Since direct sunlight is in high abundance across Egypt, such sources of renewable energy have high potential for generating at least a portion of the energy needs in different sectors. However, the simple installation of such systems is not an all-encompassing solution to sustainability.
The use of solar panel systems not an indicator of sustainability unless further considerations are made regarding the energy loads of the buildings, the transportation systems used by individuals to reach those buildings, or the maintenance costs of upkeep. Previous trends show a clear tendency to overlook the city as an ecosystem when aspiring towards sustainability; hence, it that deeper considerations are made.

‘Sustainability’ is a word globally abused in many contexts; used vaguely in different contexts to mean different things. Used in the context of environmental sustainability, organizational and financial sustainability, or the long-term sustainability of a living ecosystem it has come to mean many things to different individuals and entities. When looking at the implementation of sustainability in Egypt, efforts can be seen in many industries and activities. There seems however to be a lack of coordination of efforts and portrayal of the interrelation of different fields and activities towards sustainability.

To many cities – efforts of sustainability have included the fixing of solar panels and greywater systems to various public sector buildings, promoting the construction of solar and wind farms, as well as promoting more energy efficient lighting systems. In the environmental sense these efforts are essential in the promotion of more clean energy, as well as reducing energy loads, as well as promoting greater energy efficiency.

It is essential however, that efforts promoting sustainability are taken to the next level in order to truly meet international levels of sustainability. In order for such a leap to be made, it is essential that the perception of sustainable cities is moved away from the outwardly perception of sustainability as individually solar-powered buildings or the construction of individual solar farms but rather as a fully-fledged ecosystem that constitutes the city.

I will therefore link the goal of sustainability to another goal of the city; namely, Wedian as a smart city. The proposal advocates for the use of various forms of digital technology such as wireless telecommunication, digital displays, street-lighting control, local and satellite television networks as well as electronic forms of inquiry and maintenance. Although the relevance of some systems such as ‘satellite TV’ in the ‘smartness’ of a city may be questionable, elements such as public transportation are also discussed. “Contemporary policy discourses, however, appear to conceive of the sustainable city more generally as high-tech city: it is not just various ‘green’ technologies that chiefly define this city, but also the integral use of ‘smart’ or ‘ubiquitous’ technology” (p.107, Joss, 2015) The crucial aspect of this however is the coordination of these different elements in their complex systems. Although this is
also mentioned in the proposal, the implementation of such goals has been the main struggle with many city initiatives in Egypt.

A city cannot be considered sustainable without a sustainable transportation system. It cannot be considered sustainable if local members of a community cannot access their jobs at a reasonable distance from their place of residence or via sustainable means of transportation. The built environment cannot be considered environmentally friendly by providing green space yet overlooking the massive cooling loads necessary to compensate for vast expanses of glass covering its rooftops or facades. Both local researchers and professionals in Egypt have attempted to decrease carbon emission of the built environment through individual research or various projects. However, in order for cities to achieve true environmental sustainability such considerations need to be made on far larger scales – addressing greater expanses of the urban environment and incentivizing both the public and private sector towards more sustainable models of construction, considering both design, implementation and maintenance. In reference to urbanization in Dubai, “the most sustainable neighborhoods will feature compactness, connectivity and multiple transportation options, diversity, culturally relevant urbanism, and climate-sensitive urbanism, all integrated in the urban fabric.” (Alawadi, 2017)

Another level of sustainability, which is often under-considered, is the long-term financial sustainability of the urban environment in terms of not only project completion but also management, up-keep and maintenance. It is not sufficient to only consider the initial financial feasibility of plans to their construction, but also to project the future impacts of urban decisions made today. In order to do this the elaborate interdependencies between different elements of city life need to be identified and taken into consideration as codependent elements of the urban eco-system.

Since one of the main premises of the new administrative capital is its portrayal as a sustainable city of the future, it is essential that these parameters are taken into consideration.
In a struggle to emerge and compete with global economies, and provide an image of a technologically advanced state many foreign elements of perceived modernity are being imported across the country's built environment. Unfortunately, impressive images are frequently sought after as the solutions to problems rather than investments in the underlying problems.

Like many nations with longstanding histories, Egypt struggles with encompassing the old with the new. Much land across Egypt is protected due to the presence (and often even just potential presence of historic artifacts and monuments). Rightly so these regulations prevent the formal development of these lands. Although informal forms of encroachments are not uncommon, these regulations largely ensure the protection of Egypt's irreplaceable monuments.

Where such lands lie at the outskirts of cities or far outside the boundaries of the urban realm, there is little conflict of interest and clash between the demands of the urban setting and its neighboring monuments. However, where the boundaries lie at far closer proximity - the demands of the urban environment and the protection of such lands are not always seen harmoniously.

As the populations of many cities across Egypt continue to expand; increased demands for good living conditions and economic opportunities continues to grow as well. Due to Egypt's harsh weather conditions, urban settlements have historically settled along the Nile River largely due to access to
water and fertile agricultural land, significantly different from Egypt's desert terrain. This has therefore lead to a large concentration of historic monuments along the Nile Valley and its riverside cities. Special historic, educational and economic opportunities therefore lie within the rich settings of these cities. Although Cairo has perhaps attracted the majority of the nation's population, many such historic cities and their resources are under-capitalized respectfully. Furthermore, while much research has explored the visual incongruence of the architecture, the lack of visual uniformity or the absence of a modern ‘Egyptian architectural language’ the connectivity between monuments, historic landscapes and natural resources and reserves with a special consideration of the spaces between the different uses and functions has been undermined and needs further research.

It is essential that the value of such elements of both historic and natural heritage are seen and identified as resources, rather than boundaries cutting through the urban landscape.

In many cases these problems are perceived as purely problems in “tourism” or left to the Ministry of Tourism. Activating such cities however is far more deeply rooted than creating touristic programs or incentives. The relationship between quickly urbanizing areas and the many of Egypt's historic monuments are especially critical for cities whose urbanization has not expanded to engulf some of these historic sites already.
07 The City as A Long-term Growth Process

The time factor being emphasized in this section however attempts to underline the rapid pace at which development and solutions are expected to be delivered. Although on one hand many problems may lie untouched or unaddressed for years at a time, at other times solutions are presented as complete packages ready for implementation - only to be implemented at varying rates of success or completely stopped due to mass public discontent.

The construction of an iconic building or the image of a new sustainable or smart city may provide short-term benefits in terms whether in the form of new spaces, businesses, national identity or hope, however the use of such imagery should not replace the more difficult search for a sustainable, long-term solution to the roots of a city’s problems. As Jane Jacobs succinctly puts it “It may be that we have become so feckless as a people that we no longer care how things do work, but only what kind of quick easy outer impression they give. If so, there is little hope for our cities or probably for much else in our society. But I do not think this is so.” (Jacobs, 1961) Similarly, I believe there are many who are concerned for the core of the urban problems facing Egyptian cities.

Despite the pressures to provide immediate solutions and the desire to accelerate outcomes, it is essential that current pressures and both short-term and long-term potential results are factored and weighed during the decision-making process. In order to take these larger considerations into account and allow time for both the integration of local community members, local professionals and both local and international research communities as needed, design processes must be allocated their due time. Further research and accounting for the possibility of committing to more time towards the design phase is therefore necessary towards more designs and plans more reflective of citizen needs.

Furthermore, beyond the initial founding of a city, the development of the ecosystem within it is a long-term process, one that must be accounted for. This means that cities may need more long-term investment approaches towards them as opposed to design-build approaches.
10.3 City and Urban Design: ‘Vitality’ and ‘Sense’

08 Urban Morphology and Integration

One of the necessary components of urban growth is the decision-making process is the customization of the physical components of the city and its urban morphology to the specific needs, habits and customs of the intended dwellers and environment. As David Sims observes with regard to Sadat City:

Land-uses were strictly segregated, and in almost all neighborhoods commercial and service activities were limited to small shopping nodes located in the areas centered within the neighborhood block. Specific commercial areas or spines existed within each new town, and it is in these zones that all larger office and retail establishments as well as government offices were originally intended to locate. And all industry and warehousing were restricted to designated zones far from residential quarters. While such planning norms may represent an ideal in western cities, they are questionable for an Egyptian urban culture that excels at diversity and compactness, and they are especially questionable in Egypt’s new towns where harsh desert climate prevails, shade should be given premium, and all greenery will require copious irrigation forever.

(p.134, Sims, Egypt’s Desert Dreams)

Looking at the plan for Wedian City today however, it appears that the same urban pattern has been allocated to the new city. Clear strategies for improved urban integration and urban morphology must therefore be employed.

Even with incentives in place for higher densities, the sheer scale of a city of this scale will mandate the division of areas amongst different owners and stakeholders. The presence of different financial arrangements and partnerships in their development however can lead to varying timelines and degrees of completion and therefore uneven forms of development. This phenomenon is not unique to Wedian or Egypt. Similar observations can be made in other regions as the author of Sustainable cities: Governing for Urban Innovation writes “‘urbanization’ occurs at various scales and rates of intensity and speed, resulting in diverse patterns of urban development and rural-urban relationships” (p.49) With regard to the rural-urban relationship, in the Egyptian context of new cities in the desert this translates to the ‘desert-urban relationship’ and the challenge of creating a sustainable ecosystem within that desert setting. Set within a bare and harsh landscape, clustering sufficient development and inhabitants to sustain the benefits of a minimum density of activities is therefore especially crucial and challenging. This is perhaps why the idea of an ‘Oasis’ within the desert is even in theory proposed.
Since a clear distinction between architecture and urban design has not yet been made in Egypt nationwide, I will therefore emphasize the need for developing such guidelines - and begin by highlighting the difference between architectural regulatory measures and urban design guidelines - highlighting what they entail and what they do not entail.

1) Architectural Guidelines: deal mainly with the architectural style, design and functionality of the building itself. This includes both exterior elements of the building such as materials, paint colors, decorative features, proportions of windows, doors, gates and fences, but also minimum health and safety standards for the interior spaces including daylighting, natural ventilation, safety of stairwells, emergency exits and access for people with disabilities.

2) Urban Design Guidelines focus on the larger considerations between building form and space, street fabric, open space and the activities across them. Rather than focusing on the individual building, the focus is on the relationship between the different forms, uses, activities, inter-space connections, access to, from and between spaces and buildings, streetscape and design of plazas, outdoor parkspace and transportation. Such guidelines must also address health and safety concerns of these
spaces, ensure accessibility for individuals with disabilities and coordinate the design language used throughout.

How do designers promote those characteristics in ways that support urban form?

- Block size is probably the most important factor in determining walkability because it also indicates its interconnectivity.
- The distances people will walk vary. They will walk further for their commute trip to work or school than they will to a restaurant during their lunch hour.
- Density and mixed use also increase walking while reducing driving.
- Streets with people on them and with people overlooking them through windows promote safety.
- Narrow streets or streets with medians are safer to cross than wide streets and are one of several traffic-calming techniques designers can use to slow traffic.
- Sidewalks, especially if they are tree lines or otherwise buffered from traffic, also increase pedestrian safety and comfort. Street furnishings with places to sit welcome pedestrians and enhance walkability.
- People are more likely to walk when they find the sights along the way of interest.
- Attractive environments attract more people and more opportunities for building social capital. Designers should provide opportunities for pedestrians to greet and observe other people and their activities. Avoid monotonous or blank building facades, oversupplying parking, or spatially separating pedestrians, buildings, and cars from each other.

(p. 175, Dunham-Jones, Ellen, and June Williamson, Retrofitting Suburbia)

Urban land-use regulations can only ensure the building typologies. However, urban design regulations allow for further considerations of context and coordination with surrounding buildings, open spaces and transportation networks. The basic vocabulary entailed with such morphological decisions (depicted below) are decisions of spacing, height, general form, and the spines or continuous networks in between these forms and spaces. Currently many of these decisions are however made only individually on the level of the land-lot or a few combined land-lots at most. Broader visions however would allow for the development of policy incentives that can enable the development of desired growth patterns with increased coordination and integration between different individual land-lots. These
growth patterns and morphologies have the potential to alter the experience of the users as well as the experiences of surrounding buildings. It is through such urban design visions for districts that appropriate zoning regulations and building codes can be developed.

Creating urban design regulations and policies that will incentivize the growth of certain forms over others is a powerful tool for the controlled growth of the city. Morphological decisions allow for the control of density and regulation of the size, direction and future capacity of urban growth, potential usage as well as congestion. Furthermore, these decisions allow for a more context-conscious and integrated growth of the city; such that individual urban forms do not overshadow or overcast their neighbors, block their access to ventilation, daylight or views; and if implemented correctly, allow for greater pre-determined connectivity and access between the different components.

Example: Spacing

Higher density - Too little public realm?

Lower density - Too much public space?
Example: Variation through building form and height
Chapter 11 - Final Remarks

The New Cairo Administrative Capital represents what is considered in many places to those in the urban planning profession a rare opportunity to envision and develop a new city from a blank slate. As a holistic plan to develop an entire city the proposal touches upon every area within the urban planning discipline. Developing a city from scratch involves not only the purpose or vision for the city, but a long-term anticipation of its growth, accountability for socio-economic and financial feasibility, master plan implementation techniques, development policies and incentives, urban design strategies, transportation management, strategies for long-term environmental sustainability, economic and social sustainability, construction management, and future maintenance to name only a few.

It is therefore difficult and somewhat useless to critique and/or analyze the urban design of the new proposal without discussing the various leading entities involved in the project, previous planning challenges, the larger planning frameworks involved as well as current planning and implementation strategies. Furthermore, urban environments are intricate systems with cities seeking increased coherence and coordination between these different systems in order to achieve better qualities of urban life and experience. Therefore, the interactions between these systems has also been identified and the significance of their interactions highlighted.

Since the new city is proposed as a solution to some of Cairo's existing urban challenges, and is marketed as a ‘new beginning’ - a visionary city of integration, social and economic diversity, sustainability and justice - the different parameters that would need to be addressed to achieve such an ambitious goal have been outlined and analyzed individually.

The purpose of this thesis however is neither to support the current proposal nor to negatively critique the plans, or the reasons behind it. The intention of this research is rather is to learn from past and current urban planning processes and design patterns in hope of increasing awareness with regard to urban planning and design approaches for the coming new phases of the new city if the project is continued, as well as to assist with other new cities. Since the rise of new cities in the desert in Egypt's contemporary history, and in light of the current urban patterns they portray, a change in strategy towards these new urban agglomerations is necessary.
The topic of this thesis therefore closely ties in with a question regarding the fate of the future of planning in Cairo. With an economy more dependent on foreign investment and a strongly established real estate market, further dependency on an unregulated private sector poses severe concerns for the future of the city.

The new Cairo Capital announced in March of 2015, is likely expected to allocate the megaproject to private development and construction companies. However, as can be concluded from a brief overview of private development tendencies of current projects (although they could be successful from a financial and delivery standpoint) are aimed at a specific target population. With large expanses of land often left to private development and in light of current tendencies to allow free-reign to the private sector with little to no regulation and direction - the question is what is to stop the New Cairo capital project from becoming one large agglomeration of gated communities and private developments?

Although historically, the proposal and for large-scale national initiatives that have fallen through have not been uncommon, past over-enthusiasm for national projects has not deterred government administrations from making similar overly-optimistic proposals. Today’s proposal for a new administrative capital continues to appear to be underway. Therefore, an awareness of its potentials, drawbacks and general planning and urban design history in Egypt is essential to prevent the recurrence of mistakes.

Egypt is a case no different from many cities worldwide still in need of refining approaches towards their changing urban environments. As one author puts it “The way to steer the city toward a resilient transformation is not yet clear, but cities across the world are investigating diverse avenues to do so.” (p.26, Alberti) Although new or modified urban planning and design approaches do not guarantee immediate or permanent solutions, they are an on-going evolutionary process that takes place in tandem with the development of a city. Moreover, the challenge of planners and designers has been achieving the intended goals within both forecasted limitations and un-forecasted obstacles. As Alberti writes “…complex systems are only partly knowable, highly unpredictable, and uncontrolled.” (p.30, Alberti) they “mimic biological systems in many ways, yet they exhibit characteristics that break many known natural rules.” (p.12, Alberti) and thus must be treated as such.
References


*The Development of Sadat City*. [Cairo: Arab Republic of Egypt, Ministry of Housing and Reconstruction, Advisory Committee for Reconstruction], 1978.


p.119
Bibliography of Additional Sources Consulted


“Cairo-2050-Vision-v-2009-Gopp-12-Mb (1).pdf,”


“Corey_Relocation of Nat’l Capitals 1 (published).pdf,”


Image Credits

Unless otherwise referenced: Photographs are the author’s own photos.

UDC + Plans and Drawings: UDC+5 Social Media. Publicly available online, 2016.