

SUBDIVISION PLANNING IN RIYADH: PROBLEMS & REMIDIES

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تهدف هذه الورقة الى استكشاف الجوانب السلبية في تخطيط تقسيمات الأراضي في مدينة الرياض، المملكة العربية السعودية. فالمسوحات واستبيان آراء المختصين في هذا المجال سلطت الضوء على مشكلة تخطيط تقسيمات الأراضي في المدينة. وقد أوضحت الورقة مراحل هذه التقسيمات والنقاط الرئيسية التي تكون الضوابط المتعارف عليها والتي تحكم عملية التخطيط. وقد تعرضت الورقة الى تخطيط حيين جديدين في المدينة حيث اوضحت الحاجة الماسة الى تطوير ضوابط جديدة لتقسيمات الأراضي.

This paper aims at exploring the inadequacy of the principles which govern land subdivisions in Riyadh, Saudi Arabia. Surveys and interviews of relevant consultants in the field shed light on the problem. The paper discusses the process of land subdivisions and the underlying principals of the common code which govern the process. By examining the essences of newly approved two master planned communities, the research shows the needs to develop new criteria for subdivision planning.

1. INTRODUCTION

This research aims to explore and explain planning criteria which will make master planning of communities a more preferred development option in Saudi Arabia. The paper provides a review of relevant literature in the field with specific emphasis on planning criteria developed by national and local municipal agencies in Riyadh. It then proceeds to discuss the methodology and data of the research and its limitations. The paper explains and analyzes two case studies, planned by the author, in full detail. Finally, the paper concludes by giving a planning model which may provide an acceptable way for the encouragement of the development of master planned communities.

2. NATURE & LIMITATIONS OF THE RESEARCH

Original research can be explorative, descriptive, and/or explanatory. This research covers to some extent all these purposes. However, the outcomes and conclusions of this work should be used and understood within the frame of the purpose of this paper. Results can not be universally generalized but one can safely assure their applicability within the Kingdom of Saudi Arabia.

3. LITERATURE REVIEW

Criteria for planning master planned communities differ among different nations. For example, in western societies municipal requirements place more emphasis on services and amenities requiring developers to dedicate more land for public usage. Other countries have different requirement; for example, the Saudi Land Subdivision Ordinance requires all subdivisions to dedicate 33% of their total area to public usages (i.e. roads, gardens, and mosques). This dedication is left open so planners can design the community with all possible flexibility. However, in many cases the allocation of this 33% is subject to the discretion of municipal officers who are in charge of subdivision planning.

Planning in Saudi Arabia has come along way; prominent international intellectuals in the planning field have discussed the evolution of planning in Saudi Arabia (i.e. Toulon, 1987). This evolution and development were mainly at the policy level and much work needs to be done at the lower (technical) levels. Municipal codes are located within technical levels which actually guide the technical portion of urban development.

Municipal subdivision codes in Saudi Arabia are based on a document published by the Ministry of Municipal

and Rural Affairs (MOMRA) titled: *Guide for Residential Land Subdivision Procedures*. Most of the consequent regulations by different municipalities draw heavily from this document. In this paper we shall call these subdivisions regulations the common code. The common code is based on MOMRA publication and the 33% allocation ordinance.

Other MOMRA publications such as the *Manual of Residential Planning* and *Model Urban Planning for a Residential Community* by Albeeah consultants, and the *Planning of a Model Residential Community* by Alnaeem consultants show different attempts to tackle the problem. Both publications emphasize design solutions to the problem.

The literature is rich in materials covering neighborhood and subdivisions planning. However, two main themes exist: conventional and new urbanist community planning. According to CNU (Congress of New Urbanism), conventional suburban development has the following characteristics (CNU, 2001):

- It consists of housing subdivisions, shopping centers, business parks, retail stores, service facilities, open spaces, and municipal buildings.
- It keeps all these uses separate.
- It maintains a street pattern that is dendritic rather than interconnected.
- It has no district center.
- It is less compact and non-conducive to the use of public transportation.
- It is low density and it tends to spread out.
- Its street system is designed with respect to the automobile scale not the human scale.

On the other hand the new urbanist approach, defined by Andres Duany and Elizabeth Plater-Zyberk, considers the design of the neighborhood as the heart of the whole approach. The characteristics of new urbanist communities are as follows:

- The neighborhood has a clear, discernible center.
- Most of the dwellings are within a five minute walk (on average 2000 ft from the center).
- Dwelling types are several ranging from single family houses to apartment units.
- Shops and offices can be found at the edge of the community to satisfy daily and weekly residents' needs.
- Small ancillary buildings are allowed within the back yards of houses.
- An elementary school is located within walking distant from all houses so that children can attend it safely.
- Children's play grounds are conveniently located throughout the neighborhood and within reach of family houses.
- Streets are a connected network which can take traffic as well as pedestrian to any destination within.

- Buildings in the central area of the neighborhood are placed close to the street edge to create well defined spaces.
- Prominent locations which may determine street vistas are reserved for civic buildings.
- The neighborhood is organized to work as a self governing body. A formal association is assigned to manage and maintain the community (Ibid, 2001)

New urbanists claim that their communities experience a strong sense of community, greater sociability and outdoor use, and stronger preference for new urbanist site design and housing diversity. The universal validity of this claim might be questioned as some recent studies have shown (Brown & Cropper, 2001). Other studies suggest that there is little urbanity in new urbanism (Southworth, 1997). However, there are several indicators which show that well developed new urbanist communities have succeeded. For example, during the author's work visit to Kent Land (a new urbanist community in Gaithersburg at the outskirts of Washington D.C.), he noticed that houses prices in the community are higher than those in the surrounding areas although the quality of houses are similar in both cases.

It is important to recognize the underlying principles which differentiate new urbanist communities from other residential development. Urban codes are seen by many (new urbanist and others) to be among the key principles. Working in local urban codes and subdivision regulations have helped new urbanist planners, in several occasions, to come up with distinguished communities. In other words, subdivisions planning criteria and regulations are very relevant for those who want to upgrade and enhance the quality of planning and development in new communities.

Data Analysis

This research is mainly based on three sources of prime data. First, a survey of consultants whom were engaged, at the time, in subdivision planning at the mayoralty of Riyadh. Nine consultants only were actually practicing subdivision planning at the time when the survey was conducted. They were contacted but only six of them responded. Second, the data of community real estate values (a questionnaire survey designed and collected by the author). Third, two master planned communities: Telal Arriyadh (TA) and Riyadh Al-Khuzama (RK) (both planned by the author). While the TA is under development the RK is pending municipal approval. The RK name may change as discussion between the owner and the relevant municipal agency is evolving around this issue.

However, the following paragraphs will discuss the common code embedded in the *Guide for Residential*

Land Subdivision Procedures and then it will analyze the data within its framework.

Guide for Residential Land Subdivision Procedures is a short document aimed at explaining land subdivision procedures and requirements. It consists of seven requirements as follows:

1. Inspection of the site and all related official documents.
2. Preparation of preliminary site plans.
3. Coordination with the Electricity Company.
4. Superimposition of the approved subdivision on the actual site.
5. Obtaining MOMRA approval of the superimposition.
6. Examination of the final subdivision by MOMRA.
7. Procedures of implementing the subdivision by the local municipality.

Each of the above requirements is explained in some details by the document. Of these seven requirements the second is of most important for the purpose of this paper. We shall review this requirement in detail and critique it.

Preparation of Preliminary site plan is a pre-requisite for the approval of any subdivision. It includes three procedures as follows:

1. Preparation of land survey
2. Studying the relationship between the proposed subdivisions and the surrounding uses.
3. Preparation of the final site plan.

The third procedure includes design policies and subdivision criteria. The design policies are general guidelines aimed at making a subdivision a better place to live in. For example, one of the policies states that: "the subdivision design must help residents to establish a sense of community". On the other hand, the subdivision criteria are normative and quantifiable. They specify the land areas for services such as mosques, schools, and parks and the maximum walking distant between residential parcels and these services. They also try to minimize the length of roads in any given subdivisions by specifying the maximum length of roads per hectare. They try to relate the average plot area with such maximum length. Table 1 explains this relationship.

In order to achieve the requirements of the above table, plots must be deep and have short road frontage. For example, the depth of the plot should be about twice the width. But due to the set back requirement of a minimum of 2 meters from all sides, the deep plot concept did not prosper and therefore, the whole concept of the above table was not easily adoptable. Figure 1 further explains the relationship in Table (1) in a chart format. It shows that road length per hectare should be a negative function of plot area.

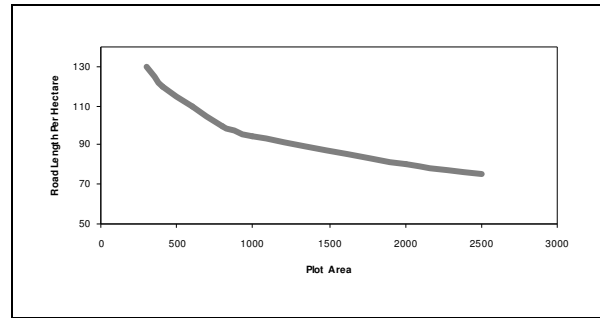


Figure 1. Road length decreases with increases in plot area.

Table 1. Plot area and road length per hectare.

Average Plot Area	Max. Length of Roads Per Hectare
300 M ²	130 Meter
400 M ²	120 Meter
600 M ²	110 Meter
800 M ²	100 Meter
1000 M ²	95 Meter
2000 M ²	80 Meter
2500 M ²	75 Meter
Max. Land Area of Roads	20% of The Total Subdivision Land Area

Source: Guide for Residential Land Subdivision Procedures, 1998, pp 9-11.

Table 2. Maximum distant between plots and public services.

Public Service	Max. Distant to Residential Plots
Local Mosque	200 Meters
Elementary School	550 Meters
Intermediate School	800 Meters

Source: Guide for Residential Land Subdivision Procedures, 1998, pp10.

It is important to note that the goal behind trying to minimize the length of roads in a given subdivision (as suggested by the second requirement: *Preparation of Preliminary site plan*) is the reduction of infrastructure cost. This policy assumes that less road length means less development and maintenance cost. It also suggests that larger plot areas mean less dwelling units per hectare and, therefore, they deserve less road lengths, which translates into less infrastructure cost.

Other subdivisions criteria specify the maximum distant between a public service and parleys. For example, no residential parcel should be more than 200 meters away from the nearest mosque. Table 2 shows the maximum distant between any given plot and the nearest public service.

In addition, a public service center is required for the first 2,000 population. The center may include a police station, health facility, post office, municipality branch, and firefighting station. The area should be no less than 10 hectare (10,000 meters) for the first 2,000 people plus 150 m² for each additional 1,000 people. Other relevant area requirements are as follows:

- Children's play grounds ----- Area $\geq 400 \text{ m}^2$ for each 20 dwellings.
- Neighborhood parks ----- Area $\geq 5,000 \text{ m}^2$ or 6.5 m^2 per person whichever is larger.
- Community center ----- Area $\geq 200 \text{ m}^2$ plus 0.13 m^2 for each person.
- Plot area should be no less than 300 m^2 .
- Dwelling unit area should be no less than 200 m^2 .

The last two points represent the dilemma in the existing regulation. While a given subdivision may not have any plot less than 300 m^2 in area and the plot can not be divided into smaller lots, a developer is allowed to amalgamate several plots and build as many units as he wishes so long as the unit area is not less than 200 m^2 . This clause, in our view, is problematic. If one obtains 4 plots of 300 m^2 each (total $1,200 \text{ m}^2$) he can easily put 6 units ($1,200/200=6$) thereby increasing the density by 50%. This issue represents a major shortcoming in all existing subdivision regulations in Saudi Arabia.

An additional shortcoming of the existing code is that it does not require land developers to give up assigned school parcels at no charge. The common code suggests that all lands assigned for schools in any subdivision may be kept under the ownership of the land owner. Educational institutions such as the Ministry of Education must pay the market value of school parcels before they can acquire them.

In addition, the existing common code does not actually follow the master plan of the city with respect to density. The code gives figures for population density and the corresponding land requirement. For example, if a developer proposes a higher population density, the subdivision officer/committee will require him to dedicate more land for public services. While these procedures are aimed to regulate subdivision development, it does not always achieve its purpose. For example, a developer may propose a subdivision plan based on a density of 70 (person/hectare) and dedicate the corresponding land requirement for relevant public services, but other developers/builders who build the different houses may actually increase the density of the development by building more than one unit on each. This is the case because the existing common code is inherently incapable of guarding against this practice.

The use of a discretionary committee to evaluate projects is seen by some as way to overcome the weaknesses of the existing code. The Riyadh mayoralty uses discretionary committees in most urban projects ranging from buildings along major streets to large subdivision projects. No independent study has yet evaluated this experiment but some intellectuals question its value. Indeed, a major study which was undertaken in the US has shown discretionary design

review is not demonstrably better than administrative review (Nasser & Grannis, 1999). Unlike discretionary review, administrative reviews use clear procedures to approve a project without being dependent on the professional, and sometimes subjective view of design review committee members.

While the existing subdivision regulations in Saudi cities are developed to protect the public interest and ensure fair handling of private lands, they none the less, need improvement and development to meet today's increasing and sophisticated residential requirement. One way of improving these common codes is through surveying professional views and studying relevant case studies.

4. THE SURVEYS

The first survey was limited to those consultants who practice land subdivision planning. They were eight items in the interview all but one are close ended questions. The first item relates to the percentage of land developers must dedicate for public usage (the 33% ordinance). One third believes it is low, the rest have different views on the issue. One interesting view suggests that the percentage of dedicated land for public usage must be related to the size of the subdivided land. This view seems to make sense. For example, is it appropriate to apply the same rule (33% dedication ordinance) to parcels which are very different in size (e.g. $2,000,000 \text{ M}^2$ vs $100,000 \text{ M}^2$). The answer is of course no. Over 80% of the respondents agree. This is the case because the larger parcel will accommodate more people who need more services even if population density is controlled.

With regard to land assigned to schools (based on the existing common code) it was very surprising that only 33% of the respondents believe it is low. Recent studies show that land area assigned to primary schools in Riyadh is equivalent to about 50% of land area assigned to primary schools in North America. When it comes to intermediate and secondary schools the percentage goes down to about 30% (Arraddadi, 2003). This great discrepancy between the requirement of the existing code, the view of the consultants, and requirements in North America is a testimony to the great need to develop existing subdivision planning criteria.

With regard to public parks and gardens the respondents seem equally divided on the issue. The major comment was on the location not the size. The mayoralty often requires the developer to place parks on major roads instead of inside of the community. The logic is simple, the mayoralty want a location that can be rented to park developers with a good return.

The respondents have absolute agreement on the sizes of lots assigned to mosques. All of them agree with the common code requirements in this regards. In the case

of the provision of parcels for children's play grounds, 50% of the consultants support making it a requirement. The other 50% suggest it is a good idea but it ought to be placed within community parks with no additional land dedication from developers.

The view of consultants regarding building more than one unit on a single family parcel is clear, almost two thirds of them rejected this proposal. This is in line with our earlier suggestion of the weakness of the common code. If one is allowed to develop more than one unit on a single family parcel, then what is the purpose of this code?

The consultant's survey was concluded by asking them about the problems they face when practicing subdivision planning. Most of the answers revolve around public procedures and approvals. Problems like vagueness, length of time, efficiency, and lack of clear and non-subjective procedures in approving a subdivision plan.

The second survey was meant to explore the causes of property value depreciation in Riyadh it investigates the causes of the lack of community. The questionnaire was distributed to consultants and real estate offices in Riyadh. The total number of the researched population was 870 offices. The respondents to the questionnaire were 81 offices or 9% of the total researched population (Alskait, 2002).

The data collected in this survey explored the causes of value depreciation in residential communities. In a paper presented to the Sixth Saudi Engineering Conference, the author found that individualistic house development is the major cause of house value depreciation in residential communities (Alskait, 2002). When each residential parcel is developed by its owner, then thousands of parcel owners become the actual developers dealing with hundreds of different contractors.

This process takes a long time, up to 30 years, because every owner develop at his own pace and financial capability. The final result is a residential subdivision not a community. A leading cause of this whole issue is the lack of suitable planning criteria. The data analysis of the questionnaire shows that the majority of the respondents agree that existing development lack proper qualities of residential development. This, among other factors, is a direct function of lack of proper planning criteria. Visual inspection of most residential areas in the city confirms this outcome.

Several questions in the questionnaire were factored together to test this claim:

Q6 (TRSHADES): Whether larger trees with spread canopy would enhance real estate value of the residential properties or not? (66% agree). The common code does not even discuss location and species of trees in its text!

Q7 (TRSHADES SAFEWALK): Whether the presence of sidewalks would enhance the real estate value of residential properties or not? (80% agree). The common code does not require designing and developing sidewalks in any approved residential subdivision.

Q8 (SAFECMNY): Whether the concept of safe and secure community (where women, children and the elderly walk, interact, go to school safely and securely) would enhance the real estate value or not? (94% agree). The common code does not have any requirement for the creation of true communities.

Q9 (INDVLISM): Whether individualistic house building contribute to the deterioration of the residential neighborhood and its real estate values or not? (72% agree). The common code does not even mention the recommended form of development.

Q10 (INDSMLG): Whether the time period for individualistic house development (which spans over 25 years and turns the subdivision into a construction site for this time span) contribute to the depreciation of building values or not? (77% agree). The common does not put any time limit to development.

The factors included in these variables were analyzed to see whether or not they can be consolidated in fewer factors. The analysis shows that variables 6 and 7 (TRSHADES and SAFEWALK) can be factored together in one factor. Table 3 shows the results. The new factor which is called *requirements of development* explains 65.46% of the variance in the original variables.

Table 3. TRSHADES, SAFEWALK and requirement of development.

Component	Total Variance Explained					
	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	1.309	65.461	65.461	1.309	65.461	65.461
2	0.691	34.539	100.00			

Extraction Method: Principal Component Analysis

Component Matrix^a

	Component
	1
TRSHADES	0.809
SAFEWLK	0.809

Extraction Method: Principal Component Analysis

a. 1 components extracted

In addition, the *requirements of development* factor correlates highly with its original variables. The factor loading of each variable on the factor is about 0.81. Given the above one may safely conclude that the

majority of the respondents would support planning criteria which promote human scale elements such as sidewalk and canopy trees.

Variables 9 and 10 can easily be combined into one factor, which is called *master development*. The results are shown below; this factor explains over 80% of the variance in both variables. The factor loading of each variable on the factor is over 90%. This can be interpreted as a clear sign that the majority of the respondents would support planning criteria, which promote master development.

Table 4. INDVLISM and INDSMLG are factored to Form *Master Development*.

Component	Total Variance Explained					
	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	1.649	82.443	82.443	1.649	82.443	82.443
2	0.351	17.557	100.00			

Extraction Method: Principal Component Analysis

Component Matrix^a

	Component
	1
INDVLISM	0.908
INDSMLG	0.908

Extraction Method: Principal Component Analysis
a. 1 components extracted

The *master development* factor is very important in the sense that it consolidates the purpose of the whole survey that is lack of community. Lack of community can be explained by several reasons, one of which is the absence of a physical environment that is conducive to mature social interaction. The presence of a good physical environment is an indispensable ingredient of true community. This element cannot be achieved without planning criteria which necessitates its creation.

It can be concluded, based on the above analysis, that most indicators suggest a major lack in subdivision planning criteria at the present time. This gives rise to an urgent need to develop a framework based upon which new criteria can be developed. The paragraphs that follow represent examples of residential community (designed by the author) that did not follow the common code to the letter. These examples did not follow the traditional path of subdivision planning line. Indeed, they can be a good source to help in the development of new planning criteria.

5. MASTERPLANNED COMMUNITIES: The Riyadh Experiment

Residential development in Riyadh is individualistic in nature. That is, every plot owner develops his house on his own. Most of the city residential areas were planned as subdivisions. Many of these subdivisions are owned by major land developers and real-estate brokers who sell them to individual owners per plot. These individual parcel owners start the subdivision development process. Almost every prospective home owner develops his own house acting as an owner, contractor, and consultant at the same time. This results in fragmented houses developed by different owners at different intervals of time. It takes, in many cases, up to thirty years for a whole subdivision to fully develop. Indeed, even after thirty years, most subdivisions have vacant land. This long period of time to develop a community did exist in some North American cities in the first decades of the last century (as in the case of Richmond) but by the 1940's it was controlled by land use codes (Southworth & Owens, 1993). Today it rarely exists in North America.

Due to the length of development the subdivision becomes a factory for building houses. The final outcome is a residential area which lacks the true sense of a community. A sense of community might not develop by provision of amenities (such as club houses, etc...) alone, but more importantly it will develop from feeling good about a place and feeling part of it (ULI, 2000). Due to this process, time became a factor of depreciation rather than maturity to most existing subdivisions. Indeed, subdivisions and housing projects are the two major forms of housing development in Riyadh.

As a result a confusion of the definition of a community has risen. Some have even started to call housing projects high quality communities. This has created the need for the planning and development of true residential communities. In addition, it also created the need for the development of suitable community development criteria. This paper will try to put a framework of criteria for residential community based on the author's experiment and other international experiments. Therefore, a detail explanation of the master planned communities *Telal Arriyadh (TA)* and *Riyadh Al-Khuzama (RK)* which are both planned by the author is very instrumental in justifying the need for new criteria. Figure 2 shows the locations of these two communities in Riyadh.

5.1 Telal Arriyadh

Telal Arriyadh is located about 800 meters to the west of the Al-Qassim freeway (an extension of the King Fahad Freeway). It is bounded from the north by a

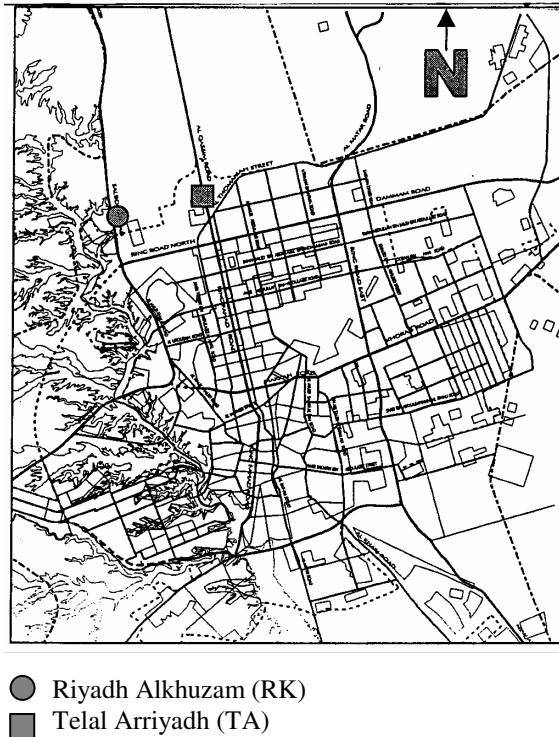


Figure 2. Locations of the TA & RK in Riyadh.

sixty meter-wide road which intersects with the freeway. On the other side of the freeway the Ashabab Football Club and a private hospital are located. The TA community is flanked by major roads on all sides. These roads are 60 and 36m wide and located to the west, east, and south respectively. The total area of TA is about one hundred hectares (square of one kilometer by one kilometer). The principle concept of the project was based on the need for the development of high quality community in a totally automobile-dependent city. For this reason, the residential area were planned to be inside while the corners were assigned for commercial uses. Basic services such as mosques and schools are distributed in a balanced matter, Figure 3.

The basic concept of the community consist of a very clear and strong center (a 10 hectare park and a central mosque), very clear boundaries (four major roads), very distinguished approaches (the four entries to the community), and a network of walkable streets among which is a community ring road. All roads have minimum right of way of 18 meters to allow for a reasonable side walk. The 18 meters road can be designed to allow for 7 to 7.2 meters two-way two lanes passage way, 4.8 to 5 meters parallel parking (divided equally on both side of the roads), and 6 meters sidewalks (3 meters on each side). A three meters sidewalk will be about sufficient to accommodate a nature strip, a pedestrian paved walkway, and a buffer strip (minimum 0.60 meters from the property line). Figure 4 shows a typical road in the TA; the passage way, the parking, and the sidewalks are all shown. However, 18 meters is not the

preferred width. If the planner can convince the developer to dedicate more width it will certainly provide for a pleasant street furnished environment. Figure 5 shows a cross section of a 20 meters road which is also used in the TA. Both the 18 and 20 meters roads are identical from a design point view and they only differ in the width of the sidewalk. In the case of 20 meter roads, the sidewalk is 4 meters wide as opposed to 3 meters wide in 18 meters roads.

The concept of the TA represents a response to the problems facing most residential areas in the city of Riyadh. It is quite difficult to call these residential areas communities because they lack the major elements which make a community. The lack of these elements (i.e. center, boundaries, approaches) contribute to making residential areas in the city no more than parcel of lands divided by asphalted roads without any sense of community in most cases.

The basic premise of TA is that the walking distant from any residential unit to the center is no more that ten minutes. Walking to other services such as local mosques is within five minutes. A walking distant of five minutes to the center and other services is preferred (recommended by the CNU); however, the area of the TA is too large to allow for that. If ten minutes is the maximum walking distant from the center of a community to its edges, then a one hundred hectare community (in square or circle shape) is probably the maximum size which can maintain it. A radius or diagonal from the center of a square (one by one kilometer) to the corners will be around 700 meters which equates to 10 minutes of walking. This time distant is what is expected from a typical resident of Riyadh giving the prevailing hot-dry climate.

The TA was designed to make walking an easy and preferred mode of travel. Since a community is a place where people are supposed to live, community life will not exist if walking is not a primary mode of travel. Walking is not only a good habit to make one healthy and fit, but also it is an indiscernible element in making a community healthy and prosperous from a value vantage point of view. When walking, people travel at a low speeds (4km/hr) which allows them to identify other walkers and even chat with them. Knowing each other in a community (even by face) is a key ingredient in developing the community value system. People behave in respectful manner among those they know, care more for those they know, and develop a sense of belonging when living in a place they know. Knowing a place means knowing its physical setting as well as the people occupying it. Morale and high values are among the goals we have tried to achieve in planning TA. I believe that moral community is possible and can be achieved through good planning. However, one must recognize that a well planned and physically developed community is necessary but not sufficient to create a high value system among residents.

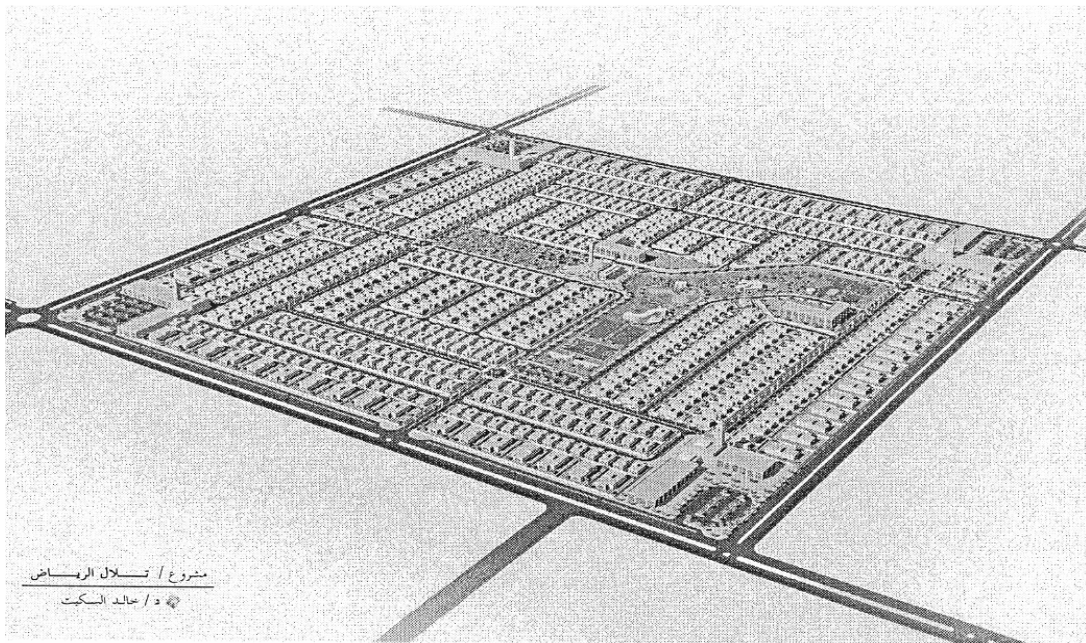


Figure 3. A perspective of Telal Arriyadh (TA).



Figure 4. A typical road in Telal Arriyadh.

In Figure 5, the 20 meters road has a sidewalk of 4 meters on each side distributed as follow: one meter buffer strip; 1.8 meter walkway; and 1.2 meter nature strip. In the case of the 18 meters road the walkway is reduced to a minimum of 1.2 meters and the buffer strip is reduced to 0.60 meter so that the total will be 3 meters.

With regard to parallel parking and passageway it is reasonable to allocate 2.4 to 2.5 meters for parallel parking and 3.5 to 3.6 per lane of passageway.

The TA concept draws from the world wide theme of developing livable communities; it also benefited from the philosophy of the Congress of New Urbanism (CNU) in neo-traditional development. The theme suggests that communities are not only places to reside but they are also places to fully live (e.g. learn, exercise, work, and enjoy life). Given the above, the TAs major components include residential neighborhoods, schools, pathways and central park (10 hectares), and commercial corner plazas (about 2 to 3 hectares in area).

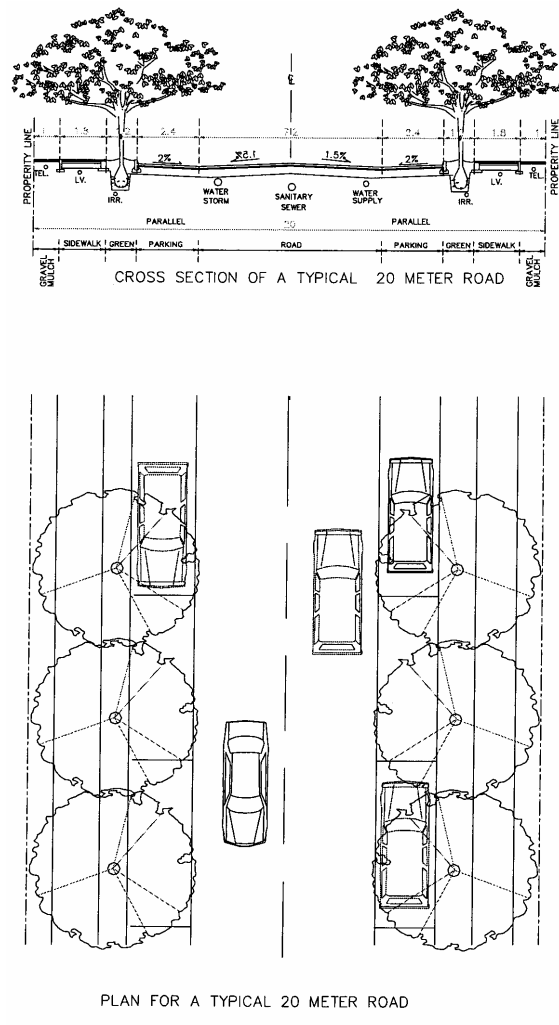


Figure 5. Typical cross section of a 20 meters road.

The TA perspective (Figure 3) shows that the community has four entries leading to a local ring road which in turn serves the whole subdivision. A central park is located in the middle. It has a major mosque which represents the focal point of the community. While earlier plans have attempted to develop a network of connected open spaces with the park at its heart, the size of the community, desire of the owner, and the trends in the local market did not support such an approach. Nonetheless, networks of interconnected open spaces have been advocated by planners as a major amenity in other countries (Arendt, 1996).

At the corners of the master plan, four commercial plazas are located. They are planned not only to serve the TA but also all the surrounding residential areas. These plazas have of four elements: commercial and office buildings, parking areas, a local mosque, and a gate which connects the plaza with residential units. The local mosque is located at the back area of the plaza. It is the farthest element of the plaza with respect to outer roads. This was done on purpose to

achieve three goals: first, to be as close as possible to residential areas in the back, second to provide for a quite place away from major roads, and third to guarantee that all worshipers who are coming from outside the community go through the whole plaza before they get to the mosque. The visual experience when passing through the plaza to reach the local mosque will boost commercial activities as well as the success of the plaza as a commercial center.

Since people pray five times a day four of which during commercial working time, reaching retail and service stores in TA will be an easy task for residents. When the male members of a family go to pray, they can easily perform their daily shopping needs (e.g groceries) without making additional efforts. In other words, a trip to the local mosque is in fact a trip to the commercial plaza, Figure 3.

In addition, the commercial plazas are not only a place for shopping. Local residents may find job opportunities in these locations. Offices, retail shops, and other activities will provide full and part time jobs to community residents. Part time jobs are very important to youth who can reach the plaza walking. These jobs will not only provide income to youth but also will teach them how to be disciplined and respectful to others.

5.2 Riyadh Al-Khuzama

Riyadh Al-Khuzama is a community which is located about 7 kilometers to the north of King Saud University, the largest university in the Kingdom of Saudi Arabia. The project is a residential community designed to become a peaceful place to live. It is a place where people can live, play, and go to school in manner similar to that of Telal Arriyadh but is unique in the whole city of Riyadh. The community fulfills the five principles the author is proposing for the definition of residential areas (based on previous analysis):

1. Dominance of residential use.
2. The Presence of clear boundaries.
3. The presence of clear approaches/entries.
4. The presence of a good network of walkable roads.
5. The presence of a clear center.

Like *Telal Arriyadh* the community is dominated by residential usage, and it is bounded by four major roads constituting very clear boundaries. The community has four clear entrances, a good network of walkable roads, and a community center consisting of a mosque, a library, and a sports club. The community center is surrounded by four neighborhoods and is located almost in the middle of the residential area. The four neighborhoods are linked and penetrated by networks of road the most important of which is the

community ring road. The ring road is connected directly to the four entrances of the residential area and simultaneously serves all the neighborhoods. The four corner areas of the community are assigned for two schools and two commercial plaza (Figure 6).

The total area of Riyadh Al-Khuzama is about 70 hectares, which is 30% less than that of Telal Arriyadh. The experiment of TA has shown that in the absence of a large community park it is better to reduce the community area to make it more walkable. It takes about 10 minutes walking to reach the center of TA from the most distant residential unit. In the case of RK the walking distant has been reduce to about 5-6 minutes. The five minutes walking distant has been promoted by the Congress of New Urbanism and in particular Andrea Duany, a leading community planner/architect and a well known member of Congress.

It is important to note that good planning and design cannot alone produce a distinguished community. Indeed, the quality and methodology of development play a major role in the final product. Assuming that RK will be developed to the best standards just as that of TA, the designer has put major efforts in showing all planning details which will help the developer complete the work up to the envisioned standards.

Visionary diagrams of all aspects of the project have been developed to better explain how the final product should look. When entering the community from any of the approaches, the central mosque minarate will act as vista to facilitate directions and provide good orientation to all visitors. A mosque is a place of worship and is usually visited five times a day. This requires the central mosque to be easily identified and reached.

The ring road and the four approaches are distinguished by palm trees located in the central islands of these roads, a characteristic which does not exist in any other road in the project. These palm tree islands along with the central mosque should make traveling in the community easily oriented.

As in the case of TA there are commercial plazas at the corners. However, only two corners were occupied by these plazas while the other two were assigned to schools. Assigning schools at the corners is not always preferred; however, the circumstances surrounding the planning process have resulted in that development. In addition, the fact the area around RK was not developed yet made the developer hesitant to accept four commercial centers at the corners. Commercial uses, especially retail, require a sizable population base to thrive.

Walkable streets are an essential element of the RK. All streets have a minimum right of way of 20 meters and consist of three elements: drive lanes, nature strips, and side walks. Parking is allowed along nature strips. This is aimed at encouraging walking as a primary mode of travel within the community. If the maximum walking distance is reasonable (5 – 6 mintues), all the roads have side walks (minimum of 1.2 meters), and all the side walks are protected and shaded by the trees in the nature strip, then walking will be a pleasant exercise.

6. MASTER PLANNED COMMUNITIES & DEMAND ON HOUSING

Developing master planned communities is an activity driven primarily by the private sector. There are no monetary costs to the public sector in developing these communities. Convincing private developers to assign certain percentages of their newly developed communities to low income groups is the least costly approach to meet the demand for housing. These will not only help the poor to find affordable housing, but it will also break the social barriers between the poor and the wealthy as both may live as neighbors in the same community.

In order to bring developers to accept the above suggestions, municipalities must provide incentives. Most developers believe that the land subdivision process is too lengthy, vague, and depends primarily on the will of the planning officer/committee. In addition, some developers claim that the 33% which is assigned for public services is not always respected. These grievances of the developers may constitute good grounds for improving the subdivisions process and developing an incentive system. An incentive system which is based on a defined time frame for the approval process, and clarity of the procedures will eventually lead developers to play a major role in subsidizing low income housing at no cost to the public sector.

Having introduced the common planning/subdivision code, and having explained in detail the concepts of both TA and RA, it is possible to draw a general frame work for subdivision planning.

7. A PROPOSED FRAMEWORK FOR SUBDIVISION PLANNING

The proposed framework is not a technical criterion, rather it is a guide on which subdivision planning criteria can be based. It is an attempt to rectify the existing common code. The major flaw of the existing code is the fact that its application does not bring about residential communities. In addition, this code is not conducive to the actual development of true residential

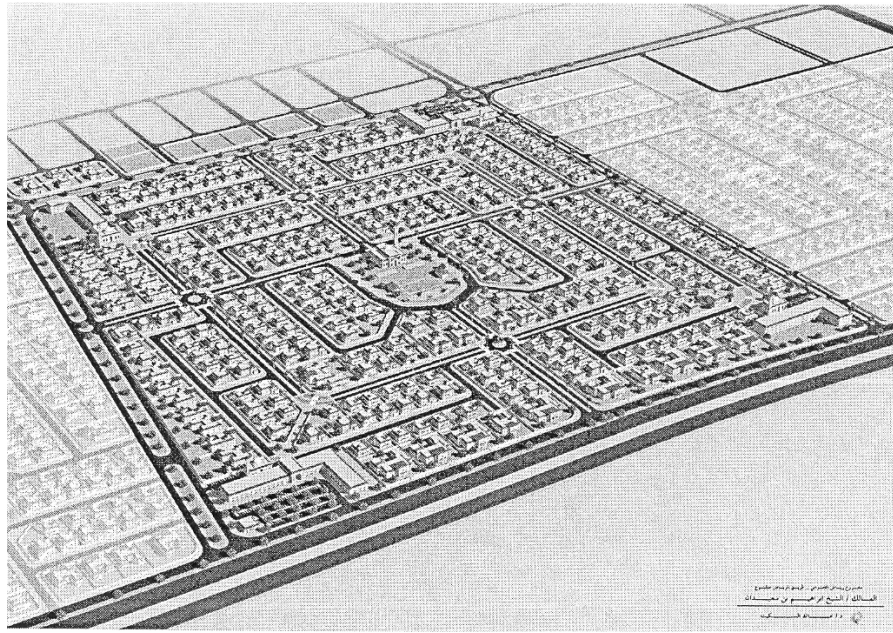


Figure 6. Riyadh Alkhusam (RK).

communities. Also, it lacks a framework which is scientifically justifiable. Therefore, the framework is based on three principles:

1. Its application should lead to actual development of residential communities.
2. It has to be conducive to developers.
3. It has to have scientific justifications.

Using the above principles as pillars for subdivision planning, the framework may set stages for the development of a comprehensive subdivision planning model. This code needs to be updated and developed by the support of all relevant parties: municipal agencies, developers, investors, planning professionals, and the public.

In order to achieve the first principle of the framework, the model code must have clear follow up processes to guarantee that the final product has met its objectives. It is of no value to develop the most comprehensive code without any monitoring or follow ups. To meet the second principle, the model must develop approval procedures which are fair and conducive to developers. It should be clear of all ambiguities which may leave too much power at the disposal of the planning officer. In addition, it should treat the developer as partner in the development process. It should also allow for incentives which are not at conflict with the public interest. Finally, and to meet the third principle the model must have scientific justification for its overall framework. For example, it should not require certain land dedications or shape of roads (straight or circular) without logical and scientific justifications.

It is strongly believed that new planning criteria in the form of a new model code, based on the above three principles, will lead to a better living environment in the city of Riyadh. These principles are supported by the analysis in this paper. The alternative is a continuation of the status quo which produces residential areas not residential communities.

8. CONCLUSION

This paper explored the experiment of land subdivision in Riyadh - Saudi Arabia. It showed how newly master planned communities can make up for the inadequacy of existing subdivisions. It also showed the need to improve the existing planning code to meet changing residential requirements. The analysis of the interviews of the consultants and the analysis of the questionnaire suggest that there is a consensus among planning professionals to update, improve, and develop the existing code. The need is urgent to develop a new code which can meet the living requirements of the new generations.

Two case studies of two projects planned by the author were discussed. *Telal Arriyadh* and *Riyadh Al-Khuzama* have introduced new concepts in subdivision planning. They are based on the livability theme, an element which is missing in most existing residential areas.

Finally, the paper concluded by proposing a subdivision planning framework which takes into consideration the existing shortcomings of the common code. This framework is a general outline aimed at

facilitating the future development of planning codes to serve the purpose of developing adequate livable communities. The framework is intended to be the base for a new model code. This model code should lead to the development of true residential communities and eliminates all the obstacles that currently exist.

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