

CHAPTER THREE: A THEORETICAL BACKGROUND ON ALTERNATIVE LAYOUT PROPOSALS

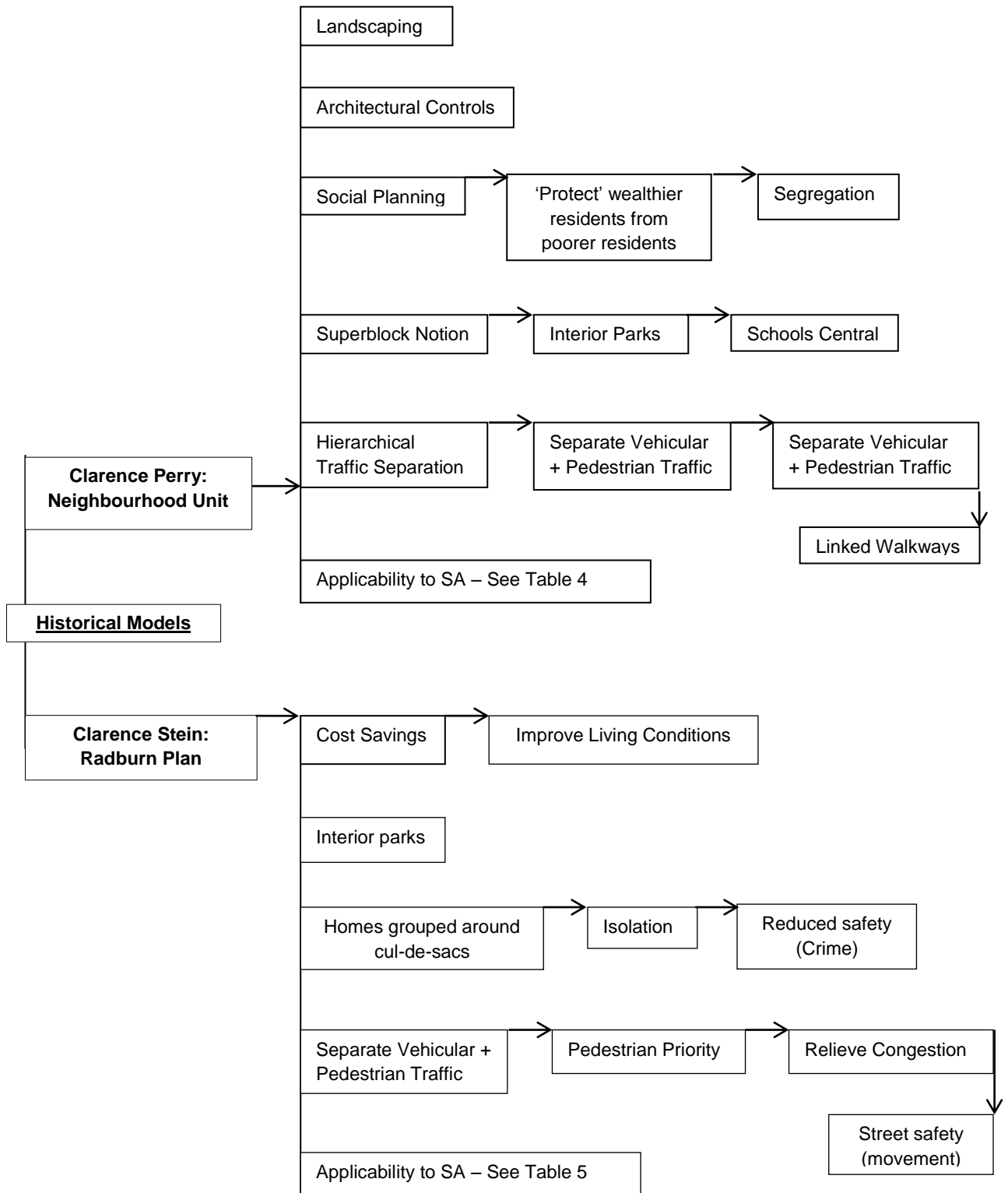


Figure 4: Summary of Chapter 3: A theoretical background on alternative layout proposals

Source: Own construction (2012)

Chapter 2 provided a discussion on some of the most prominent policies and government literature which have influenced South African low-cost housing delivery since 1994. Chapter 3 will explore well known historical layout concepts which support the objectives provided by South African housing strategies such as the BNG Initiative, which can in this regard still contribute to modern day housing delivery.

This chapter will briefly discuss the concepts of Clarence Perry, namely the Neighbourhood Unit concept, and Clarence Stein, namely the Radburn Plan, with regard to alternative layout solutions which would theoretically promote community life and a quality environment. These models are included in this study because of the potential benefits to South African low-cost residential development which may be realised by adopting some of the basic principles advocated by these concepts.

3.1 Clarence Perry: The Neighbourhood Unit

According to the University of Saskatchewan (1998), Clarence A. Perry developed the neighbourhood unit plan in 1929. Perry's neighbourhood unit materialised as a response to the growing popularity of the automobile. According to Hall (1996:126), Perry already noted the influence of the private motor vehicle at the end of the 1920's, referring to it as 'the automobile menace'. His attitude is clearly demonstrated by his neighbourhood unit model. Perry attempted to identify the community as a separate entity with its own needs and qualities. Hall (1996:123) states that Perry was a very early example of a social planner, pointing to a motive behind the focus on the community and the importance of the neighbourhood as a moral and political unit. According to Baird et al. (2010:7) Perry's neighbourhood concept focussed on building community entities around schools and churches, which promoted the idea of walkability. Promoting pedestrian movement and focussing on institutional uses which promote community interaction may be of great value in low-income development in SA.

According to Siegel (2010:12) most early planners agreed that urban land uses should be separated into single-function zones or superblocks. Superblocks would boast park-like interiors, freestanding building placement and internal circulation networks designed for local access only. Perry's concept entailed creating homogeneous superblocks, which separated vehicular and pedestrian traffic, provided ample open space and a focus on developing community life around a neighbourhood school (University of Saskatchewan, 1998). According to Hall (1996:123) Perry was focused on the loss of productive power and believed that this could be rectified with the vocational extension of the public school system. This indicates a motive behind Perry's choice to place schools centrally within neighbourhood layouts.

Baird et al. (2010:7) states that Perry suggested designing neighbourhoods for pedestrians, by ensuring that the centre of the neighbourhood was accessible to pedestrians from all sectors of the neighbourhood. Perry implemented neighbourhood sizes which would contribute to pedestrian friendly walking distances and a street layout which kept main roads on neighbourhood edges.

Clarence Perry's ideal with the neighbourhood unit was the protection of wealthier city residents from forced integration with so called 'incompatible social groups', as well as providing a counterpoint to the diversity of city life. Perry advocated that the neighbourhood unit would copy village life in the core of the city (University of Saskatchewan, 1998). The concept of community attachment with village life can be seen as a positive aspect to be repeated in the South African cityscape.

However, Perry's idea of isolating communities from one another may be adjusted to promote the integration of communities, consisting of different neighbourhood units, each consisting of a diversity of income levels and races.

Various points of criticism have arisen in response to Perry's Neighbourhood unit. Some had even gone as far as to call the neighbourhood unit the cause for all modern urban ills (Allaire, 1960). It is argued that truly integrated neighbourhoods and communities only became a reality in a minimal number of rural areas and suburbs. The neighbourhood unit led to the segregation of racial, ethnic, religious, and economic groups in more than one case. Hall (1996:127) states that Perry's neighbourhood concept excluded blue-collar workers, Jews and coloured persons. This is contradictive to the integrated society sought in South Africa. According to Siegel (2010:16) the low densities provided by Perry's neighbourhood concept contributed to vast urban sprawl which contributed to an unsustainable urban form in terms of transportation costs, land costs and travel distances. However the dividing consequences of the model can be remedied by applying adjustments which may include introducing various high density housing typologies and subsidised and bonded housing units in one neighbourhood area.

Irrespective of the age of and the criticisms lodged against Perry's work, the Neighbourhood Unit concept's value and applicability to low-cost residential delivery in South Africa should be noted, as captured by Table 4.

Table 4: Applicability of Perry's guidelines to SA low-cost housing

Perry's Guidelines		Applicability to SA low-cost housing
Environment	-Homogeneous with similar race, income.	-Integrated society with a mix of income levels and races should be encouraged.
Size	-Neighbourhood population should be the size necessary to support its elementary school. -Radius of the neighbourhood at a maximum of one quarter mile, thus precluding a walk of more than that distance for any elementary school child.	-Public facilities should form a central part of the community, with facilities developed to suit the size of the population, not vice versa. -Size could be increased by placing wealthier home owners (bonded) who can afford public or private transport on the edge of the neighbourhood.
Focus	-Central common containing elementary school, churches, park & neighbourhood services.	-Access to public facilities should be key in SA. -Public facilities planned must be delivered.
Boundaries	-Arterial streets, wide enough to encourage traffic to bypass the neighbourhood.	-Good principle to be introduced in low-cost developments. -Leads to safer streets and less maintenance due to reduced internal traffic flow.
Open Space	-10% of area to contain parks and recreation spaces.	-Depending on higher densities due to double-storey semi-detached units and apartment buildings, open space could be increased to as much as 20% of the area.
Higher Density Housing	-Located adjacent to shops at periphery of neighbourhood. -Shopping districts preferably at major street intersections on periphery.	-Higher density housing could also be placed within the neighbourhood centre, providing more pedestrians with access to central facilities. -Larger facilities may be placed on periphery, with informal traders and smaller facilities spread throughout.
Internal Street System	-Special street system to facilitate internal circulation & to discourage through traffic. Pedestrian vehicular traffic separation encouraged. -Curved layout and light duty surfacing.	-Mixed mode network may be more applicable in SA -Heavy traffic should be kept out of residential areas. -Curved layouts are more expensive and are not as applicable to low-cost developments. -Proactive service delivery requires the highest level of road service.

Source: Own construction adapted from Allaire (1960) and University of Saskatchewan (1998)

The University of Saskatchewan (1998) states that Perry's concept was the basis for the development of the widely acclaimed plan for Radburn, Pennsylvania, which was initiated based on Perry's neighbourhood unit. Perry's neighbourhood concept instigated the ideas later carried out by Clarence Stein's Radburn Plan, such as the superblock notion, interior parks, higher densities clustered near the parkland, hierarchical traffic separation, architectural controls, linked walkways, cul-de-sacs, the separation of pedestrian and vehicular traffic, and the importance of landscaping.

The Radburn plan will be discussed below.

3.2 Clarence Stein's Radburn Plan

Joseph & Gordon (2000:251) states that the Radburn plan, designed by Clarence Stein, combined Clarence Perry's neighbourhood unit concept with a radically new street layout. According to the University of Saskatchewan (1998) Clarence Stein's Radburn Plan was developed with several objectives in mind. It was designed to relieve traffic congestion and promote street safety, alleviate crowded living and working conditions, provide city dwellers with more sunlight and air, to regulate the size of cities and to combine beauty with efficiency.

According to Gatti (1975) the most important new concept in the Radburn layout was the separation of pedestrian and vehicular traffic. Cotner (2009:1) states that vehicles were kept at the periphery to protect pedestrians and children from vehicular conflicts. This was done by doing away with the traditional grid-iron street pattern. The grid was replaced by Radburn's superblock concept. The superblock consisted of a large block of land surrounded by main roads. Homes within the superblock were grouped around small cul-de-sacs, with access to main roads provided through secondary access roads. Joseph & Gordon (2000:251) states that the Radburn plan's cul-de-sacs were separated by narrow pedestrian pathways which were connected to a central public space, which consisted of a park, playground and educational use. Cul-de-sacs addressed the grid layout's traffic problems on local streets.

According to Gatti (1975) the walks surrounding the cul-de-sacs divide them from the central park area and from other cul-de-sacs. To maintain the separation of pedestrian and vehicular traffic, pedestrian underpasses and overpasses linking superblocks, were provided. (Joseph & Gordon, 2010: 251). The system was designed so pedestrians could start at any given point and proceed on foot to school, stores or church without crossing a street used by motor vehicles. According to Cotner (2009:1) daily shopping, entertainment, schooling, recreational, and leisure opportunities were developed within and along the boundaries of the Superblock. The priority given to pedestrians may provide a commendable concept be duplicated in South African low-cost housing developments.

The remaining area inside the superblock was designated as park area. In South Africa a similar concept providing communal squares at strategic points, surrounded by different low-cost housing typologies and pedestrian walkways could be followed.

The Radburn layout furthermore secured parks without additional costs to residents, through savings in expenditures for roads and public utilities. The Radburn type layout requires less area of street to secure the same amount of frontage. This layout also emphasised the use of narrower roads and smaller utility lines. With these savings the cost of landscaping and play spaces could be covered. (Gatti 1975) This should apply to all low-cost developments, where people who cannot afford their own homes, cannot be expected to pay for the maintenance and construction of public spaces. Figure 6 is provided as a graphic illustration of the Radburn Plan.

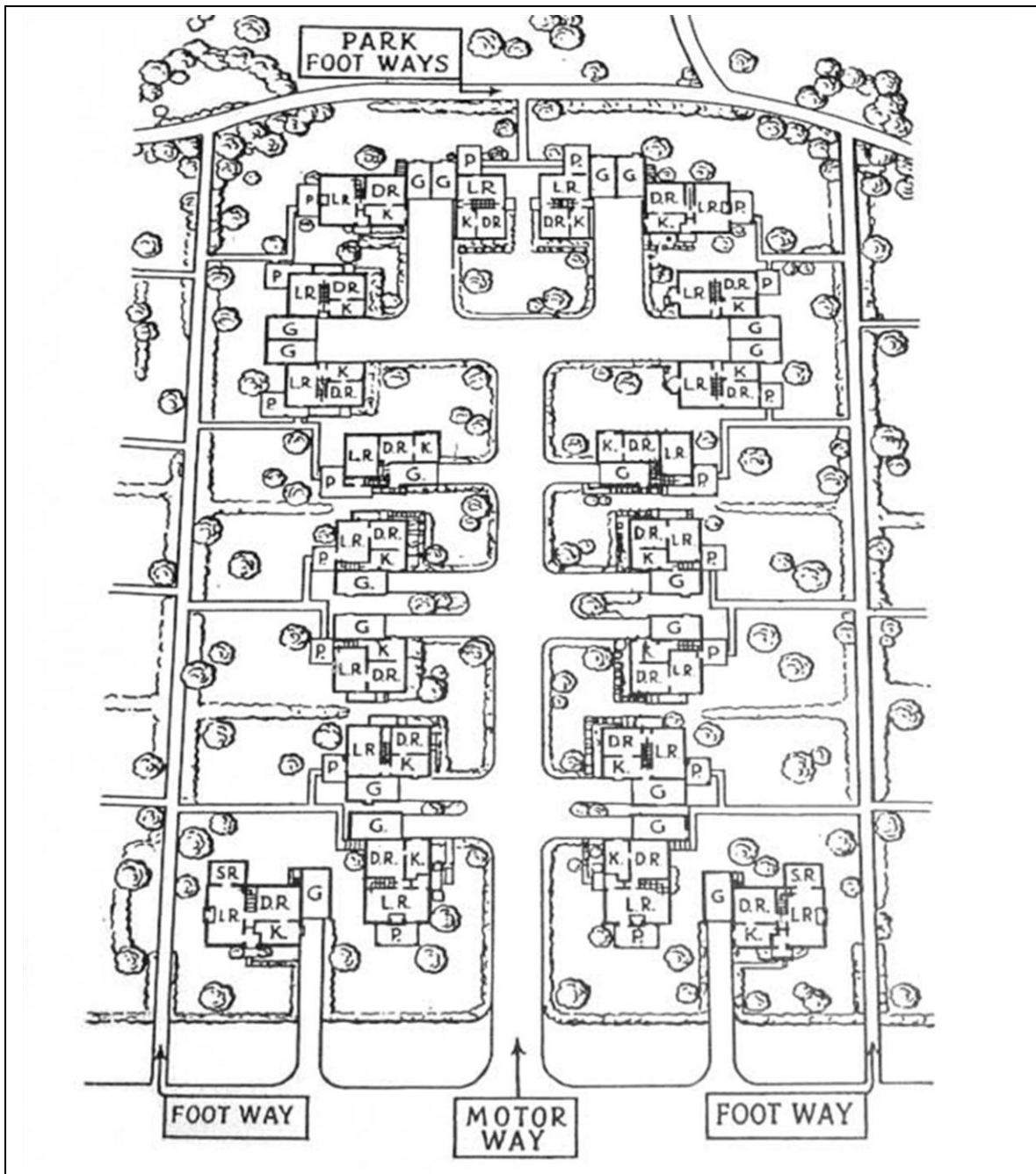


Figure 6: Stein's Radburn Plan

Source: Urban Nature and City Design (2006)

Gatti (1975) states that the genius of the Radburn Plan is apparent in the use of the small property lots and cul-de-sac construction to finance part of the land acquisition costs, as well as the grading and the landscaping which is generally the most costly part of park development.

This makes perfect sense in any low-cost development as the cost of living in such an area is set at a minimum for the homeowner, and the cost to the builder is small enough to make the venture profitable. Seen in light of the numerous cases of construction companies withdrawing from government led low-cost housing developments in South Africa, this is a highly positive feature.

Murray (2006) states that one of the major negative aspects related to the Radburn Plan is the fact that it can encourage a feeling of isolation, which leads in turn to car crime due to a lack of off-street parking. It is necessary to note that this problem is a major concern in middle to high income areas, where car ownership is typical. In South African low-cost housing developments where private vehicle ownership is not the norm, this will be less of a problem. However it should be kept in mind that provision for ample off-street parking should still be made. Care should be taken not to create unsafe zones within low-cost developments where crime could be an intrinsic problem.

Stott et al. (2010) states that it was initially believed that the Radburn layout would encourage social groupings and social interaction, but that it led in fact to an overwhelming sense of dissatisfaction amongst residents due a closed-in feeling. According to Murray (2006) demolition in existing Radburn layouts is common to generate better access to properties, which improves street vibrancy and natural surveillance. By simply adjusting the plan and switching the front of the homes to the street side, the benefits of the Radburn plan can still be kept, whilst encouraging an “eyes on the street’ approach. It is important to note that people using the street as a communal area for socialisation and trade purposes, is a common site in the South African settlement. New developments should thus still encourage this occurrence in a safe and controlled manner by providing appropriate links between streets and communal spaces such as plains and squares.

As with the Neighbourhood Unit concept, the Radburn Plan should not only be seen as a historical and theoretical model, but its value and applicability to low-cost housing delivery in South Africa should be noted, as stated in Table 5.

Table 5: Applicability of Stein’s guidelines to SA low-cost housing

Stein’s Radburn Plan Suggests		Applicability to SA low-cost housing
Planning simply, but comprehensively	<ul style="list-style-type: none"> -Adjusting plans to the needs of specific communities. -Arrange buildings and grounds to optimise living conditions. 	-Designing for specific communities will always aid in the creation of unique and sustainable low-cost developments. Needs of the poor have to be the primary focus.
Planning Facilities:	<ul style="list-style-type: none"> -Public facilities should be placed strategically and should be well planned. -Industrial buildings should be placed where they can be used without wasteful transportation. 	<ul style="list-style-type: none"> -This entails ensuring that facilities promised and planned, are delivered. -Public facilities should be accessible to all.
Parking and deliveries	-Provision must be made for parking, deliveries and waste collection with minimum noise, confusion and danger.	-Low-cost developments should also better the quality of life of inhabitants and not cause restrictions on living.
Collective development:	<ul style="list-style-type: none"> -Bringing private and public land into relationship with one another. -Adds to the comfort of individual at a lower cost than under individual planning. 	<ul style="list-style-type: none"> -The planning of low-cost developments should coincide with the larger area in which they are situated. -Individual cells within developments should also link with one another.
Housing arrangements	-Occupancy of houses should be arranged on a fair basis of cost and services, including organising, building and maintaining the community.	-Fair and comprehensive planning should always be conducted.

Source: Constructed and adapted from Gatti (1975)

3.3 Conclusion to a theoretical background on alternative layout proposals

In conclusion it becomes apparent that the same problems have faced suburban structures for almost as long as suburbia has existed. This chapter clearly illustrates the resemblance between the problems faced in many housing developments and how historical models and their solutions can be adapted to the South African low-cost housing environment. Clarence Perry's and Clarence Steins' approaches to the importance of pedestrian movement and the vital role of institutional spaces and green areas are but some of the concepts to be introduced in South Africa. Only once an approach focussed on quality of life instead of quantity is followed, can one start to expect improved results.

Chapter 3 provided a perspective on historical layout concepts which may improve the quality of the neighbourhoods provided. Concepts will however remain theories when these models are not implemented by the stakeholders in charge of delivery. In this regard Chapter 4 provides a discussion on the role of the local municipality as a stakeholder in housing delivery.