

## 8. TARGET SETTING CRITERIA

### 8.1. HOUSING TARGET SETTING

Population densities in the west of Bertrams and virtually the whole of Soweto are estimated at fewer than 200 people per hectare. This density has proven insufficient to support commercial activity and the economic viability of service infrastructure. Consequently at Hillbrow the density is estimated above 450 per hectare. This over densification has placed excessive strain on the social and economic infrastructure resulting in various symptoms of social breakdown. In order to sustain the proposed infrastructure in Newtown and create a buzz of activity, Newtown should aim for a higher order density of between 300 and 400 people per hectare. A higher order residential land use activity of about 70% is proposed for Newtown. This will ensure effective utilisation of the proposed infrastructure.

It is essential that residential developments aim to achieve this density at the proposed land use to render the area feasible for inner city development and to ensure sustainable development. Although a variation in housing developments adds a interesting variation to city scapes,, achieving the suggested density is desirable.

The approach adopted will use the recommended residential density of 300 to 400 people per hectare as a guideline to determine the magnitude of desirable residential density in the proposed facility. This estimation will help to maintain the overall precinct population density goals without placing additional stress on other sites.

A mix of residential typologies is desired for the project at 40% 3 bedroom units, 40% 2 bedroom units and 20% 1 bedroom units. This allows for the cross-section of family structures and elicits social interaction amongst a variation of residents.

Figure 55. illustrates that the estimated block area (including estimated centre to street dimensions) is 4761 square metres for the residential area. The estimated residential floor area is 3000 square metres. Residential densities for areas between 10 metres per person and 25 metres per person are calculated in appendix B for the project. It is assumed that 40% of the floor area would be allocated to other uses in the facility. Therefore 40% density is added to the projected residential density. This total figure assumes 100% residential use for the city block. The city block is then converted to one hectare at various floor areas per person. Various residential densities are then calculated for various land use percentages per hectare.

Appendix B illustrates that in targeting residential land use of 70%, and residential density of between 300 and 400, the optimum number of units would range between 30 and 36 units at 40% 3 Bedrooms, 40% 2 bedrooms and 20% 1 bedroom units for the proposed site. Although the projected space per person is relatively high this would be reduced by about 20% in an attempt to create cost effective housing.

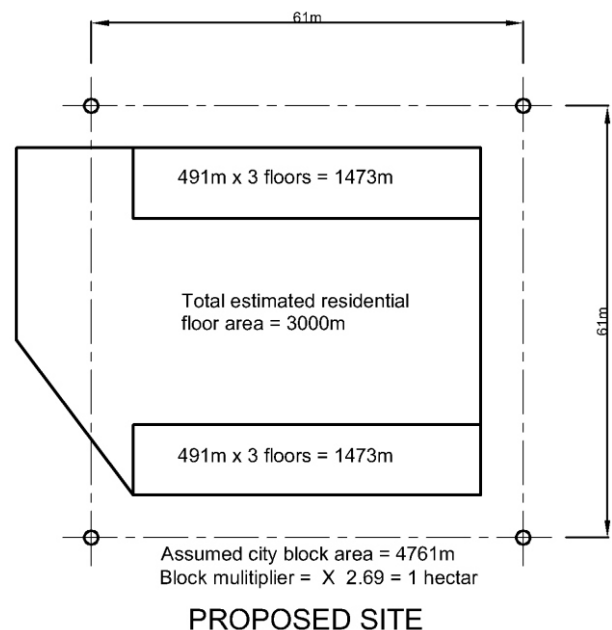


Figure 56. Estimated residential floor area

## 8.2. OFFICE TARGET SETTING

The Department of Trade and Industry (DTI) maintains that, “The small business sector plays a crucial role in people’s efforts to meet basic needs and help marginalised groups (like female heads of households, disabled and previously disadvantaged people) to survive during the current phases of structural changes where the formal economy is unable to absorb the increasing labour supply, and social support systems are grossly inadequate” (SARB, 2003).

The DTI also maintains that, “there is ample evidence that labour absorptive capacity of the small business sector is high, the average cost per job created is usually lower than in big business and its role in technical and other innovation is vital for many of the challenges facing South Africa’s economy.” (SARB, 2003).

Various skills and development programmes are being implemented by the DTI. It is envisaged that these programmes would lead to the establishment of various new small businesses. The proposed site is strategically located within the central CBD which is targeted for the establishment of small businesses. Furthermore the existing and proposed high density housing schemes within close proximity to the site warrant the establishment of business premises. The DTI recognises five forms of small business:

- Survivalist enterprise (income on poverty line)
- Micro enterprise (1 to 5 employees)
- Very small enterprise (less than 10 employees)
- Small enterprise (less than 50 employees)
- Medium enterprise (less than 100 employees) (SARB, 2003)

Medium enterprises account for only 1,4% of all small business recognised by the DTI and are usually more structured in terms of management principles and staff numbers are high. Furthermore these businesses are more established than emerging business and provision for these will therefore be excluded in this project. It will instead focus on emerging businesses.

Targeted emerging businesses will include micro to small enterprises which, according to the DTI, generate moderate income levels. Facilities for survivalist enterprises, which generate income just above the poverty line, will only be factored in the street activity section and not in the building per se. There is no paid staff and it’s asset value is minimal. Economic activity of survivalist enterprises is directed at providing a means to keep their families fed and has little opportunity for expansion. (SARB, 2003).

Each floor of the proposed facility should therefore be able to accommodate 50 people (small enterprise at maximum capacity according to the DTI). These floors should however be sub-divisible to accommodate offices of 5 people (micro enterprise) and 10 people (very small enterprise) to cater for the ever-changing needs of business.

## 8.3. RETAIL AND RESTAURANT TARGET SETTING

The retail and restaurant component of the facility should maximise utilisation of street frontage on the southern and western facade of the building. A supermarket should be utilised as an anchor retail store in support to smaller retail stores. provided for basic necessities to the immediate community and building users. Small scale retail stores should utilise the predominant pedestrian movement pattern. The sizes to a large degree would be governed by the sizes of facilities above. At least one formalised restaurant should be provided in conjunction with fast food outlets. These facilities should be orientated towards the transport museum.

## 8.4. COMMUNITY CENTRE TARGET SETTING

The decision to implement a HIV/Aids centre is motivated in the theoretical motivation section that follows. It is evident in existing HIV/ AIDS training centres within an urban context that the most successful centres usually incorporate other community functions (appendix C). Although the existing facilities are characterised with relatively low use the projected use of these facilities can be assumed to drastically increase given the projected impact of the disease as discussed in the theory section. The function of the spaces within the existing facilities are utilised as a basis to derive functions of spaces within the new facility. As existing facilities are underutilised it is difficult to project the average number of future users. However given Johannesburg’s high projected residential density it is safe to assume that the maximum utilisation capacity of other similar urban HIV centres can be used as a guideline to derive sizes of spaces (appendix C).

Other community functions of the facility are not limited to specific uses as the desired utilisation of this space is better left to the social demands of the immediate community. The size of an average South African government school classroom of 50 students is used as a guideline to derive the size of this multi-functional space. In this way the effective transfer of knowledge can be assured.

9. BUILDING SPACE REQUIREMENTS							
Proposed land use	Number required	No. of persons per unit	Total no. of persons	Average space per person	Average space per unit	Total required space	Reference source
<b>HOUSING</b>							
3 Bedroom units	12	5 or 6	66	16m	96m	1152m	As per criteria
2 Bedroom units	12	3 or 4	42	16m	64m	768m	As per criteria
1 Bedroom units	6	1 or 2	9	16m	32m	132m	As per criteria
<b>OFFICES - estimated 50 staff per floor x 3 floors in subdivisible space as per criteria</b>							
Each floor office space	3	50	150	7m	350m	1050m	New Metric Handbook
Access to work places (10%)	3	50	150	0,7m	35m	105m	New Metric Handbook
Within office facility (meetings etc.)	0	-	-	-	-	-	New Metric Handbook
Inter office circulation (10%)	3	50	150	0,7m	35m	105m	New Metric Handbook
Support facilities (filing etc.)	3	50	150	2,75m	52,5m	157,5m	New Metric Handbook
Areas for special facilities	0	-	-	-	-	-	New Metric Handbook
Projected toilet facilities	Men: 2 toilets, 1 wash hand basin, 1 urinal Women: 2 toilets 2 wash hand basins					25m (est.)	New Metric Handbook
<b>HIV/ COMMUNITY CENTRE</b>							
Reception	1	2	2	5,5m	11m	11m	New Metric Handbook
Administration	1	2	2	7,5m	15m	15m	New Metric Handbook
Record storage	1	1,4m per 100 patients- estimated with existing centres				25m	New Metric Handbook
Waiting: 6 pers. per consult room.	1	24	24	2m	48m	48m	New Metric Handbook
Consulting rooms	4	3	3	3m	9m	36m	New Metric Handbook
Treatment rooms	3	2 to 3	Average size used		17m	51m	New Metric Handbook
Multifunctional community space	1	50	50	1,5m	75m	75m	New Metric Handbook
Projected toilet facilities	Facility linked with public toilets on ground floor- basic office module used here					25m (est.)	New Metric Handbook
<b>RETAIL/ RESTAURANT COMPONENT</b>							
Restaurant	1	Sizes dependant on upper floors. Maximum utilisation of street facade must be made.					As per criteria
Fast food	1/2						
Supermarket	1	Minimum size 200m maximum size 250m - dependant on upper floors				225m	New Metric Handbook
Retail	Number and sizes dependant on upper floors. Maximum utilisation of street facade with minimum 6,5m frontage.						New Metric Handbook
Projected toilet facilities	Men: 7 toilets, 5 wash hand basin, 5 urinal Women: 10 toilets 7 wash hand basins					75m (est.)	Based on existing models and ratios

<b>PARKING SPACE REQUIREMENTS</b>		
<b>CRITERIA</b>	<b>Total no. of parking spaces</b>	<b>Reference source</b>
<b>HOUSING</b>		
1 Parking space per unit	36	
Visitor: 1 parking space for every 4 units	9	New Metric Handbook
<b>OFFICE</b>		
1 parking space per manager and 1 parking for every 4 staff in SMME. Assumed 4 managers per 10 staff	40	New Metric Handbook
Visitor: 10% of staff parking	4	New Metric Handbook
<b>RETAIL/ RESTAURANT</b>		
One space per shop owner/ manager and one space for every 200m floor space assumed (1000m)	13	New Metric Handbook
Maximise street parking opportunity Parking basement planned in vicinity for public use.	0	
<b>HIV/ COMMUNITY CENTRE</b>		
50% of estimated 15 staff	8	
One space per consulting room (predominant form of transport is public transport)	4	
<b>TOTAL PARKING SPACES REQUIRED</b>	<b>114</b>	

## 10. THEORETICAL MOTIVATION FOR BUILDING TOPOLOGY

### 10.1. CATALYTIC ACTIONS

In the twentieth century, there was a heavy emphasis on theory-based urban form. The existing theories ignore some factors that are relevant and appropriate in other theories. As a case in point, a humanist scheme neglects economic issues; functionalist schemes ignore the importance of cultural traditions; systemic schemes are overbearing and too optimistic about technology and formalist schemes assume that Europe had resolved urban design by the nineteenth century. (Attoe and Logan, 1989).

European urban design theory may be described as being narrow and argumentative as each new approach seems to have developed to oppose and replace others, instead of building upon each other. Because all approaches are divergent theories tend not to encompass other theories. European urban design theory may share some common concerns and values but continued to move in different directions in the accompanying diagram.

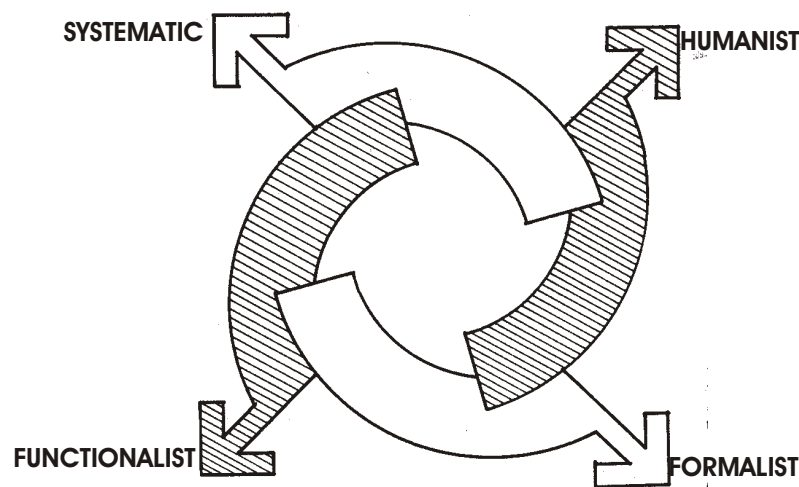


Figure 57. European theory

European theory is derived from social objectives whereas American practice often grows from assumed economic opportunities. South African design theory could be regarded as somewhere in-between as both dominant design approaches do not provide an easy fit for our context. Because of these differences, a unique South African approach to urban design theory is needed if we are to promote positive environments in our cities. We need an urban design theory that is appropriate to South African circumstances and allows architects, urban designers, and planners to develop a consensus about our values.

It is the values not the forms associated with theories, that are commended. The following values derived from European cities and urban design theories constitute the givens of good urbanism, not only in Europe but also in other cities:

- Mixed activities are basis to cities.
- Buildings (and the spaces they form) are the natural increments of urban growth.
- New urban growth must recognise the context provided by past construction.
- A major goal of urban design is the shaping of public open spaces, including meaningful street space.
- Streets must accommodate various forms of transit and enhance pedestrian activity and movement.
- Transportation systems should be rational.
- Urban places should be varied to enhance the activities associated with them: housing, neighbourhood shopping, major retail, civic, and so forth.
- Citizens should have a role in shaping urban setting.

(Attoe and Logan, 1989)

According to Attoe and Logan (1989), a sequence of limited, achievable visions is defined as urban catalysts. Visions for the new urban centre should be modest and incremental, but its impact should be substantial, in contrast to the large visions that have been in rule, with their minimal or catastrophic impact.

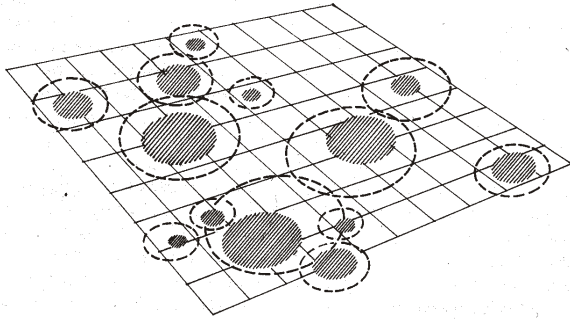


Figure 58. Catalytic actions

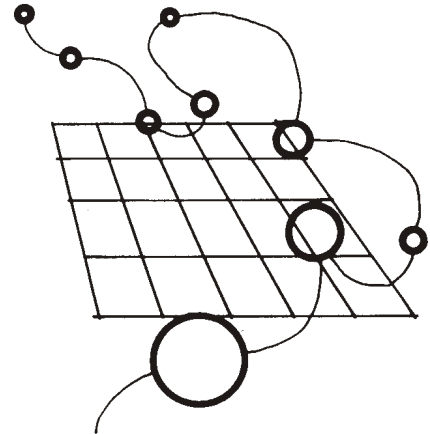


Figure 59. Necklace actions

An urban element that is shaped by the city and then, in turn, shapes its context could be defined as a catalyst. Its function could therefore be described as a continual “regeneration of urban fabric” (Attoe and Logan, 1989). An urban catalyst is not an end in itself, it instead stimulates further development. Urban catalysts are capable of moulding a city in many ways with a variation of possible visions. Urban catalysts are better thought of as smaller elements such a building. Although renewal and revitalisation schemes for cities are often referred to as catalysts, many of these schemes have little impact. Buildings themselves can be catalysts if designed thoughtfully, ensuring the high quality of urban redevelopment.

Catalysis involves the introduction of one ingredient to modify others. In the process, the catalyst sometimes remains intact and is sometimes itself modified. Adapted to describe the urban design process, catalysts may be characterised as follows:

- The introduction of a new element (the catalyst) causes a reaction that modifies existing elements in an area. Although most often thought of as economic investment catalysts can also be social, legal, political, or architectural. The potential of a building to influence other buildings, to lead urban design, is enormous.
- Existing urban elements of value are enhanced or transformed in positive ways. The new need not obliterate or devalue the old but can redeem it.
- The catalytic reaction is contained; it does not damage its context. To unleash a force is not enough. Its impact must be channelled.
- To ensure a positive, desired, predictable catalytic reaction, the ingredients must be considered, understood and accepted. Cities differ; urban design cannot assume uniformity.
- The chemistry of all catalytic reactions is not predetermined; no single formula can be specified for all circumstances.
- Catalytic design is strategic. Change occurs not from simple interventions but through careful calculation to influence future urban form step by step.
- A product better than the sum of the ingredients is the goal of each catalytic reaction. Instead of a city of isolated pieces, imagine a city of wholes.
- The catalyst need not be consumed in the process but can remain identifiable. Its identity need not be sacrificed when it becomes part of a larger whole. The persistence of individual identities many owners, occupants, and architects enriches the city.

(Attoe and Logan, 1989)

A catalytic theory of urban design is based on existing theories, leveraging what they have to offer. However, unlike existing theories they describe how to get from project goals to aligned design objectives and implementation. The concepts of action-and-reaction or cause-and-effect are integral to catalytic theory. This theory provides various mechanisms of implementation, final form, or visual character for urban areas, instead of a single solution. It uniquely prescribes an essential feature which is the power to trigger other action in urban developments. The resultant designs therefore encourage the interaction of new and existing elements and their impact on future urban form, not the approximation of a single physical design option.

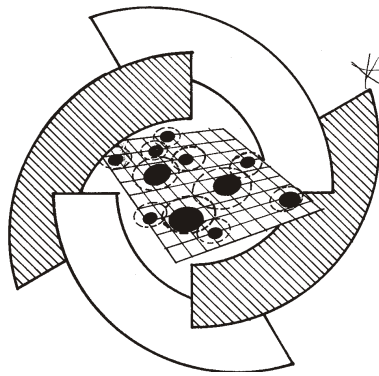


Figure 60. Appropriate design

It is often the case that buildings collectively form the overall design aesthetic of a city. However, individually, few buildings in cities are architecturally exceptional. If due consideration is taken by developers, each new development improves and enhances the profitability and design of a city. This is because each is related to others in a meaningful way. Buildings do set precedence and these matter.

Urban catalysis is a collective result of all stakeholders in the development process working together towards common goals. When the architect, planner, developer banker and politician support a well-conceived and well-designed project it can cause positive subsequent enhancements. Today, further relationships include public/private sector developments where common understanding of project goals and implementation is sought.

South African cities are different from cities elsewhere in the world, and our theory of urban design must reflect the differences. They still wrestle with the design influences of the apartheid regime where economic divides impaired interlinked development.

### 10.2. DEVELOPMENT STRATEGY THE CAPITAL WEB

A development strategy based on the “capital web” approach utilises the physical establishment of the public service infrastructure (roads, public environment, public amenities and services) and its facilities as the structure to the development area.

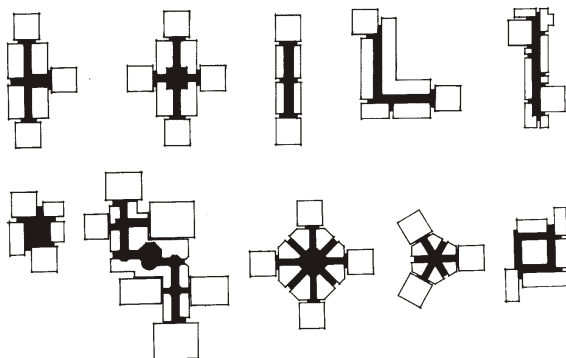


Figure 61. Structuring elements

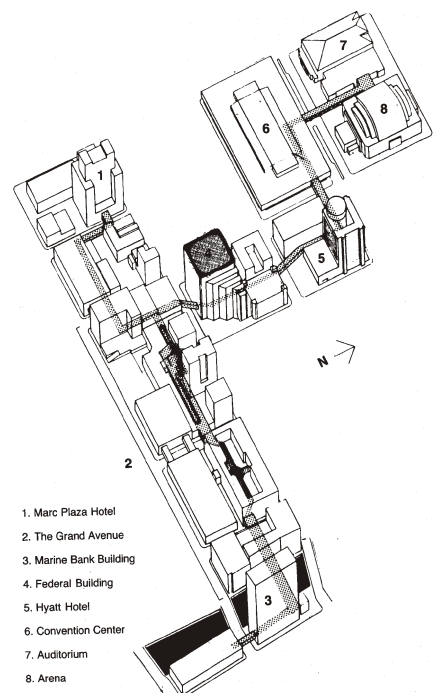


Figure 62. Downtown Milwaukee



Figure 63. Structuring elements in Newtown

The “capital web” of the Newtown Cultural precinct comprises the following components:

- The Public Environment, encompassing Mary Fitzgerald Square, Newtown Piazza and Turbine Hall square; and the connections between these.
- The proposed road infrastructure, including the “Mandela Bridge” (currently in construction stage) and the freeway on- and off-ramps.
- The strengthening of the Market Theatre Precinct node and its regeneration.
- The interlinking public environment.

It is anticipated that linkages between these key developments would influence and provide incentive for the upgrading of the derelict buildings between these linkages.

### 10.3. BACKGROUND TO THE SOUTH AFRICAN CONTEXT

South Africa is currently experiencing one of the most rapid population growths. The population increased from 37 737 200 in 1991 to 46 009 300 in 1991. In 1999 it was estimated by Statistics South Africa that about 60% of South Africa's population lives in urban areas compared to 47% in 1980 which is a clear indication of the rate of urbanization.

According to Statistics South Africa over the last ten years the gross domestic product grew by an average of 2% annually however the population increase caused the real gross domestic product to fall by an average of 1% annually. Clearly South African cities are unable to sustain economic activity for it's growing population. It is estimated that over 30% of South Africa's economically active population is currently unemployed. Plans by the department of trade and industry are currently being implemented for job creation however the impact is minimal. According to Statistics South Africa the unemployment rate has grown from 16% in 1995 to 30% in 2001. There is clearly need for intervention in this regard.



It is estimated that over seven million people in South Africa are currently living in informal housing. The Johannesburg housing company has been established by the Johannesburg Council for the delivery of housing stock. There is evidently a tremendous demand for housing within the inner city as all projects undertaken by the Johannesburg housing company within the inner city are fully let before completion. Given the estimated population in informal housing, the rate of urbanization and projected population increase there is a constant demand for cost effective housing within the inner city.

South Africa is currently faced with much publicized HIV/AIDS epidemic. It is estimated that 4,7 million people in South Africa are currently effected with HIV. The University of Cape Town actuarial science indicates that this figure could rise to as many as 6,5 to 7 million over the next ten years where the number of deaths by other means would on average equal that of HIV. According to the United Nations South Africa has an average of 1800 new HIV infections per day. It is estimated that 24,5% of South African citizens are HIV positive. The effect of HIV on South Africans is tremendous; in 1998 250 000 people died of aids, in 1998 there were 100 000 aids related orphans and it is currently estimated at 420 00, by 2015 Aids would have decimated 4,47 million South Africans. The projected impact of HIV/AIDS on the economic status of South Africa is also tremendous:

-HIV/AIDS related sickness would directly affect productivity in the workplace and the competitiveness of South Africa's economy. This will also have a great effect on South African families and communities.

-As the disease depletes the labour force, especially when the skilled labour force is affected, the potential for economic growth is reduced potentially by up to 2% annually.

-By 2005 4 million families with incomes between R2500 and R8000 will face a 20% reduction in discretionary spending as a result of higher taxation to the fund state medical spending and increasing medical costs.

-Individual poverty grows as government resources are increasingly re-directed to address the impact of HIV/AIDS with proportionally less finance available for other social expenditure including education.

(DEPARTMENT OF HEALTH, 1998)

#### **10.4. NEEDS OF URBAN DWELLERS IN SOUTH AFRICA** **ECONOMIC ACTIVITY**

Of particular importance in South Africa, where rates of urban growth are extremely rapid and there are high levels of poverty and unemployment is the need to generate opportunities for small scale, self generated economic activity. The generation of small businesses and establishing places for the fulfilment of this economic activity is vital to the survival chances of these people.

#### **ACCESS**

It is essential that all citizens be given access to opportunities created. The full potential cannot be released if access to opportunities is isolated to a select few. The most feasible option in monetary and sustainability terms exists where people can gain access to daily activities on foot. Movement on foot should therefore form the primary form of transportation and urban design should be orientated around this. Urban design does however set some preconditions for higher orders of opportunities, activities and facilities. If the urban poor are to gain access to this the an efficient viable and co-ordinated public transport system is a prerequisite.

#### **PROMOTION OF COLLECTIVE ACTIVITIES AND CONTACT**

Within urban environments innovation and diversification is essential for further development. These are dependant on exposure, social interaction and communication. The places offering the greatest opportunity within cities are generally the places with the most interaction. The underlying principal is that cities need to be intensive rather than extensive.

#### **INDIVIDUAL NEEDS**

Individual needs of city dwellers need to be met in order for citizens to engage fruitfully in urban dwelling. Some of the physical needs that need to be addressed are health, safety shelter, employment etc: One of the most recent need that has to be addressed is the need for HIV/AIDS counselling and treatment. The projected impact HIV/AIDS clearly indicates the catastrophic effect if HIV/AIDS is not addressed.

The conclusion that could be drawn from addressing problems in South Africa is that designers need to create qualities of the city rather than suburbia. Suburban type dwellings are heavily dependent on private means and the use of expensive, resource wasteful technology. South Africa cannot assume to address its problems with the creation of a suburban type society. Designers must seek solutions within our cities as this is outstandingly the most viable option.

## 10.5. DESIRED QUALITIES OF A CITY IN SOUTH AFRICA

In order for urban design to satisfy needs urban qualities that contribute to the satisfaction of those needs have to be established. It is important that these qualities be identified for application within the urban context.

The overarching guide to quality in urban design is BALANCE. Balance may be interpreted in various orders, as will be explained later. Cities are dynamic systems that are subjected to continual growth, expansion and change. This constant changing of our cities is inherently positive as it adds to their diversity and enriches form-molding processes of our cities. Through this process fundamentally important relationships are formed and if a balance is not achieved these relationships may be destroyed by the dynamics of growth.

Dewar and Uitenbogaard in the book "A Manifesto for Change" identified three orders that are centrally relevant to urban design. The first and highest order identified is a balance between "society and the cosmos". More broadly, the phrase reflects a concern with holistic design approaches. All environments of quality are expressive of wholeness. Integral to this quality is a sense of place that recognises and celebrates the natural, cultural and historical uniqueness of different generations and times. It is this uniqueness that provides cognitive landmarks to users of the environment.

The second order identified is that between "society and nature". Urban contexts are a continuum of rural and urban landscapes. Retaining contact with the natural context within which the urban development occurs is of vital importance. The importance of this concept allows people to be part of the totality of the place in which they live.

The third order is the balance in the relationship between people, as expressed through urban activities. This order relates directly to levels of urban performance that should be achieved. Urban performance refers to the way in which urban structure accommodates, promotes and enhances the activities and events that define urban life. The provision of equal opportunities of access to all city dwellers forms part of this concern. The main criteria that is central to positive urban environments are:

### FREEDOM

Urban settlements are enriched when they promote the maximum positive freedom for people to engage in activity. The structure should be designed to release the energies and talents of many people so as to enrich the quality of urban environments. In this way truly stimulating, diverse and complex environments emerge. The complexity of the environment in turn reflects and contributes to the richness of human experience.

### EQUITY

Positive urban environments provide equal opportunities for all its inhabitants. Through their structure and form they enhance and promote urban activities and processes of urban life, and they allow all people easy access to the opportunities they generate.

### INTENSITY, DIVERSITY and COMPLEXITY

Positive urban environments are characterized with intensity and diversity of activity. Intense interaction and high levels of population support create the most fruitful ground for the generation of urban opportunities. The need for access similarly demands the existence of diverse activities over relatively small distances. This is also dependant on the existence of high levels of support over relatively small areas. Therefore, successfully performing environments are necessarily complex and they contain a variety of overlapping conditions and activities. The preconditions set the stage for the positive spontaneous and unexpected to occur.

A variation of intensity and exposure, from very intense and exposed to quiet and private are possible and desirable. The positive quality of urban dwelling is offered to urban dwellers when they can choose to reside in high intensity environments without totally sacrificing access to privacy, quiet and nature.

### INTEGRATION

Integration between different elements of the city is evident in positively performing urban environments. The essence of urbanity is that individuals, groups and communities can benefit from greater opportunities and facilities than can be generated by their operating in isolation. The more intensive activities and events must be accessible to as many local areas as possible. In positively performing urban areas it is therefore possible for poorer inhabitants to gain easy access to the opportunities and facilities created in more intensive areas.

## COMMUNITY

The concept of community relates to creating a sense of absorption into urban life. The urban dweller in this way becomes part of many communities and many social alignments in the course of their lives. Social interaction is given as an essential for human development. The physical environment affects processes of urban socialization, sense of identity and richness of urban experience. When urban environments are positively made and celebrated they provide places and alternatives to the limitations of home life. They provide experiences and opportunities which cannot be obtained in isolation operate like release valves to the pressures and intimacies of the dwelling unit.

Human interaction cannot be forced therefore the intensity of communal interaction will vary with varying conditions. The creation of opportunities for such interaction to occur is of utmost importance. Cities represent a mixture of complex forms of social organizations and institutions. In this regard social order directs spatial order and complex social and cultural fabric of cities should find expression in the built environment.

“Only when a city achieves this celebration of life is it possible to talk of urban efficiency. The search for ways of celebrating life therefore must be the central issue informing thinking about urban structure and design. The capture of these qualities requires a creative act: it defies standardization and the predetermination of form. It is impossible to determine the future, but it is possible to recognise the lasting quality of what is done today.” (Dewar & Uitenbogaard, 1991)