CHAPTER 4: STRATEGIC SPATIAL PLANNING FOR SUSTAINABILITY

Figure 4.1 provides a graphical overview of the organization and structure of this chapter.

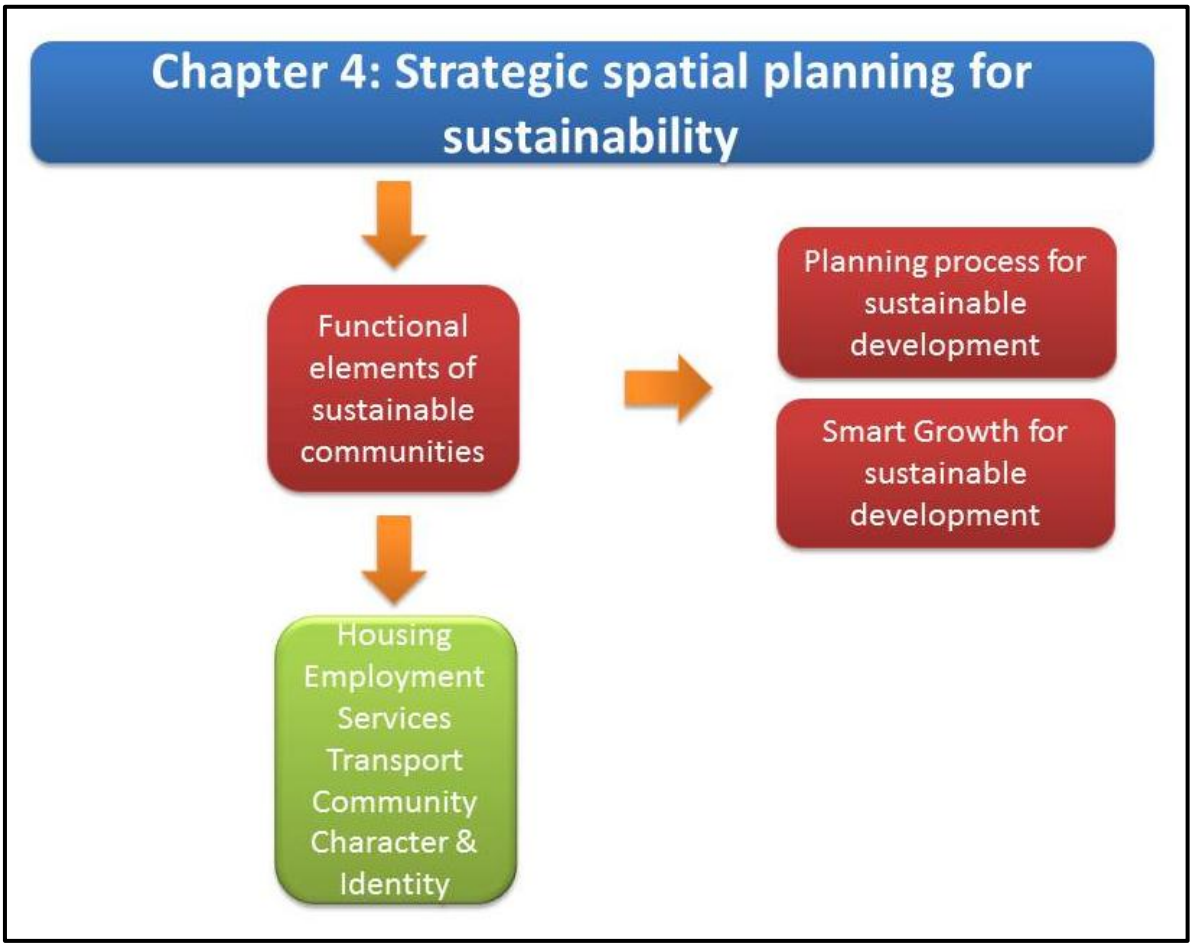

Figure 4.1: A concept map of Chapter 4

Source: Own construction

4.1 Functional elements

Sustainable communities comprise different functional elements. These elements are incorporated and reflected in the planning proposals and urban development pattern. The Nelson Mandela Bay Municipality (2007:36) argues that here are six main functional elements that will be further elaborated on:

1. Human settlement development
2. Transport
3. Employment
4. Services
5. Community
6. Character and identity

4.1.1 Human settlement development

The quality of the urban living environment is determined by the character and quality of housing. Housing meets a basic need, provides a family with living context and represents values and aspirations. "Integration and sustainability should inform the sustainable communities approach to housing in terms of qualitative and structural characteristics, layouts and the relationship between different functions, uses, and spaces." (Nelson Mandela Bay Municipality, 2007:38) These principles of housing apply to all developments, from green field to infill projects. Integration in housing manifests through a few planning considerations that are illustrated in ***Figure 4.2***

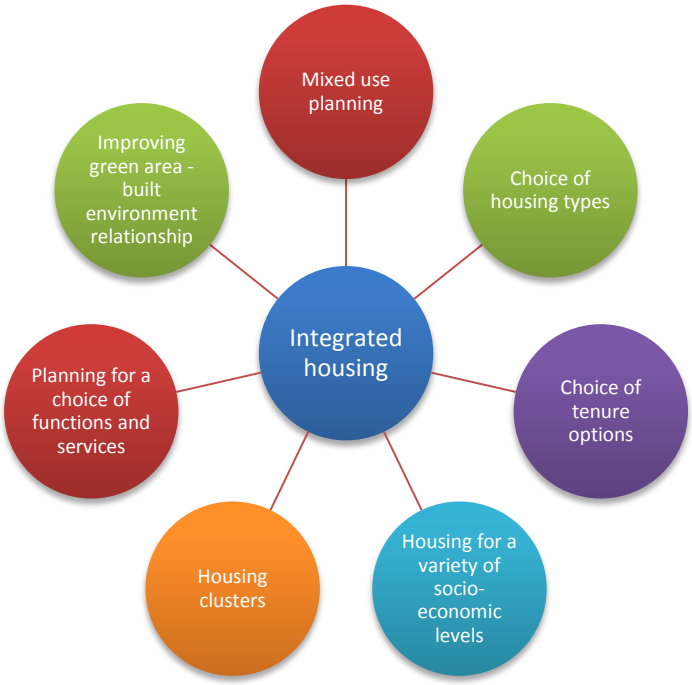

Figure 4.2: Manifesting integration in human settlement development

Source: Own construction

According to the Nelson Mandela Bay Municipality (2007:38) sustainability in housing is realised by:

- Creating quality housing with character and efficiency
- Increasing densities
- Using eco-housing design
- Creating housing clusters that promote social unity
- Using mixed use housing to support income generation
- Utilising institutional support
- Assuring flexibility so that growth can be accommodated
- Ensuring the durability of housing

Current housing densities of 20–30 units per hectare are too low to achieve an effective use of infrastructure. Low densities cause services to become more expensive and promote urban sprawl. In order for communities to be sustainable, housing densities must be higher than the present. Tonkin (2008:12) advocates the use of medium-density housing which consists of 40-100 units per hectare. The Breaking New Ground Plan (Department of Human Settlements, 2004:12) calls for "suitable policy instruments and adjustments to promote densification in urban areas". Higher densities can be reached by reducing erf size, infilling, designing narrower access roads and designing flats or walk-ups. Higher densities should especially be encouraged at central nodes and along transport corridors. The CSIR (2005:Chapter 5.6 p1) is of the opinion that "the higher densities would provide the economics of scale to support the facilities and/or transport service". The boundary of the urban edge should also be stringently enforced.

Designing housing in the form of housing clusters aid the sustainability effort of communities. A housing cluster is a group of 30–50 housing units located around a common open space or along short streets. ***Figure 4.3*** is an example of a small housing cluster.

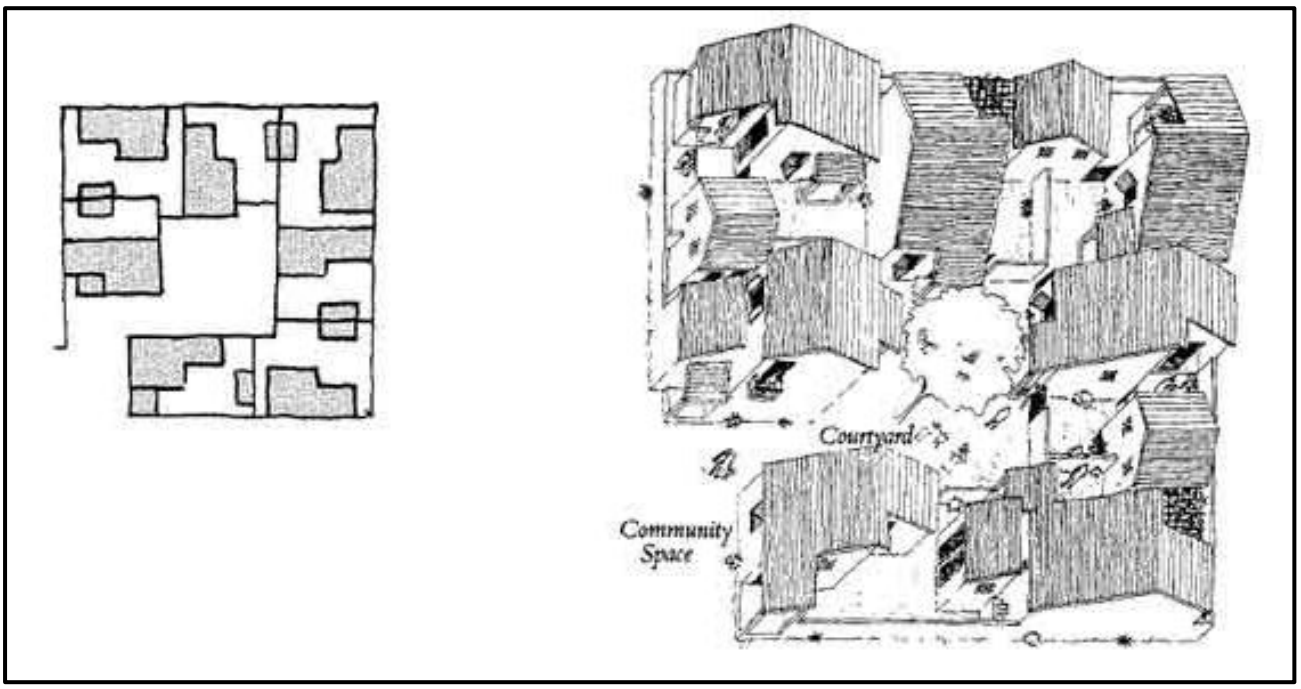

Figure 4.3: A small housing cluster

Source: Srivastava and Echanove (2008)

Playgrounds and crèches should be provided along with shaded meeting places, communal gardens and a common parking area. Different size units should be offered in order to accommodate families with different housing needs. The size of housing clusters should be limited so that they do not become too monotonous and to facilitate a sense of community. (Nelson Mandela Bay Municipality, 2007:42)

The United Nations Human Settlements Programme (UN-HABITAT) (2006:58) claims that the durability of housing is one of the least understood attributes of a nation's housing stock. They further state (2006:58) that 18% of all urban housing units are non-permanent structures and that 25% do not conform to urban building codes and regulations. UN-HABITAT (2006:63) say that durable housing is generally defined as a "unit that is built on a non-hazardous location and has a structure permanent and adequate enough to protect its inhabitants from the extreme of climate conditions such as rain, heat, cold, and humidity".

Mixed development in housing involves the integration of living, working and trading functions in local areas. Complementary functions should be grouped together to increase accessibility, availability and variety. Mixed development can be translated into examples such as:

- A building with a shop in the ground floor with accommodation upstairs.
- Small business activities, such as spaza shops, in housing areas.
- Urban agriculture in backyards.
- Using schools for community meetings, adult education or recreation. (Nelson Mandela Bay Municipality, 2007:43)

A mixed development approach also promotes safety as areas are inhabited during the day, while commercial areas and activity corridors are not deserted after working areas due to the residences there.

The Breaking New Ground Plan by the Department of Human Settlements (2004:8) calls for a shift away from product uniformity to demand responsiveness. They argue that there should be moved away from the "single houses on single plots in distant locations". Diversity in the types of housing promotes socio-economic, cultural and ethnic integration. Different designs and types of housing also cater to the different preferences and means of the residents and enhance neighbourhood variety and character. Variation in house types, heights, densities and tenure options improves the quality of life in the built environment. Row housing is one such an example of housing that creates a variation in type, height and density. An example of row housing currently under construction in Johannesburg is given in ***Image 1***.

Image 1: Row housing in Johannesburg, South Africa
Source: The Great Mirror (2012)

Housing diversity promotes all the aspects of integration, economic development and sustainability. It also allows for more interaction between the different groups and a more efficient use of resources. (Nelson Mandela Bay Municipality, 2007:45)

UN-HABITAT (2006:93) estimates that 30-50% of urban residents in the developing world lack any kind of legal document to show they have tenure security. In the North West, South Africa, only 54.1% of the population own the houses in which they live (Statistics South Africa, 2007b). The majority of residents often live with informal tenure systems, which means that their occupation of the land is either illegal, quasi-legal, tolerated or legitimized by traditional laws. These can be recognized or ignored by the authorities (UN-HABITAT, 2006:93). A diversity of tenure and financing options is needed to meet different needs. Residents should be able to choose between individual title, communal or sectional title ownership or rental options. (Nelson Mandela Bay Municipality, 2007:45) UN-HABITAT (2006:93) reasons that security of tenure is crucial to livelihood and should encompass at least a minimum package of rights. This formalization process can be accomplished through an incremental process of tenure upgrading (UN-HABITAT, 2006:93-94).

Safety and security in community areas and neighbourhoods are an integral part of creating sustainable communities. While residents of higher income neighbourhoods put up fences and hide themselves in gated communities this is not an options, or solution, for lower-income communities. The Nelson Mandela Bay Municipality (2007:48) suggests that in order to build safe and secure layouts the following should be avoided:

- "Isolated housing and recreation areas
- Narrow passages
- Concealed corners
- Dark under-passages and tunnels
- Areas not accessible to surveillance."

Another aspect of safety and security is traffic safety. Road design, traffic systems and control and provision for pedestrians and cyclists should take safety into consideration. (Nelson Mandela Bay Municipality, 2007:48)

When planning housing for sustainable communities it is important to consider and support disadvantaged groups. These groups often have difficulty in acquiring adequate housing. According to the Nelson Mandela Bay Municipality (2007:48) the needs of these groups include:

- "Access to appropriate housing
- Housing designs that can be adapted to fit their specific needs
- Ramp access to buildings and sidewalks
- Self-help housing processes
- Phased construction options
- Assistance in accessing subsidies
- Subsidised services
- Assistance in establishing housing associations and co-operatives."

Special needs housing is defined by Tonkin (2008:104) as "a facility providing safe and secure accommodation with support facilities and services". HIV/AIDS has a particular impact on housing provision. Affected households should be provided for by enabling additional buildings or extensions and designs that enable home-based care. The care of orphans in extended families

and linked household configurations that support child-headed households should also be taken into consideration. (Tonkin, 2008:105-106)

4.1.2 Employment

Dewar and Todeschini (1999:9) state that the most common form of settlement-making in South Africa is quantitatively driven and consists of achieving a balance between the area of the land parcel and the demands made upon it. This approach contains inherent problems, including the fact that it results in an environment that is inefficient and non-generative for income generation. To counter these negative impacts Dewar and Todeschini (1999:9-20) advise the following measures:

- Implement intensification instead of sprawl
- Ensure integration of the settlement as opposed to fragmentation
- Create greater structural complexity to provide a range of opportunities to accommodate an assortment of economic initiatives of different sizes
- Promote a mixture of land uses
- Create and keep a fixed, permanent edge between urban and rural areas and thus create agricultural opportunities

In sustainable communities local economic development (LED) should be supported in spatial and functional terms. Economic and social integration and sustainability is enhanced by opportunities that promote local work, trading, income generation and circulation of money. Employment is the primary, if not the only means of obtaining income, and is thus the key to economic sustainability. There are certain types of economic activity that has specific requirements and characteristics that need to be addressed when planning communities. (Nelson Mandela Bay Municipality, 2007:54)

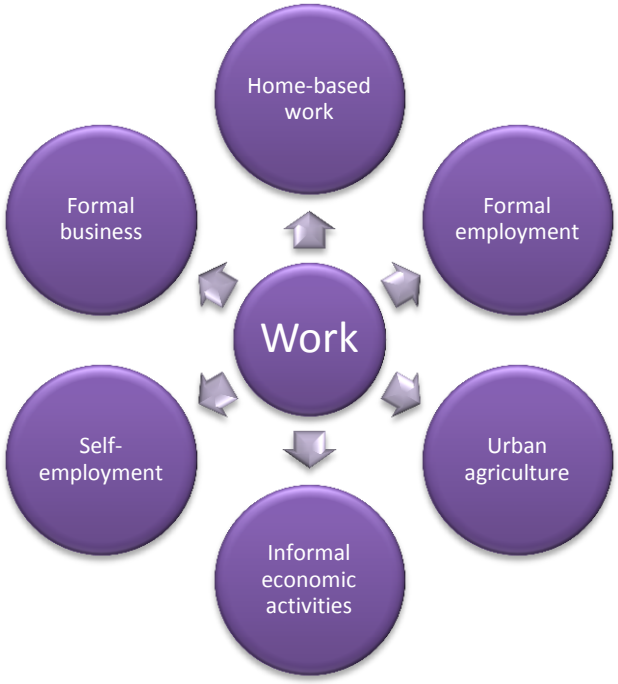

Figure 4.4: Economic activities that make up work opportunities.

Source: Own construction from Nelson Mandela Bay Municipality, 2007.

Figure 4.4 list the different economic activities that make up the functional element of employment.

Home-based work covers a wide range of work that can either be income generating or voluntary. According to the Nelson Mandela Bay Municipality (2007:54) the basic requirements for home-based work are:

1. Good household, cluster and neighbourhood design
2. Good accessibility of goods and services
3. Adequate child care and safety
4. Co-operation and mutual support
5. Quality local environment

Most people are employed in formal economical activities for a regular income. Formal employment often requires travelling great distances, largely by taxi and public transport. Formal employment can be supported by reducing travelling distances, making public transport cost-effective, creating local job opportunities and by making adjacent industrial areas accessible by foot or bicycle. (Nelson Mandela Bay Municipality, 2007:55)

Informal economic activities are often seen as the breeding ground for formal businesses and are an important source of income. Spatial planning should take informal economic activities into account and provide space and services therefor. Mixed development, flexible zoning regulation, access to customers and business support centres help to support this sector. The CSIR (2005:Chapter 3 p11) states that "settlement plans should ensure that sufficient intensity is generated at points in the settlement structure to generate local markets. A plan should provide easily readable spatial structure which unambiguously suggests major movement channels and places of gathering, allowing entrepreneurs to respond to the structure created".

Thornton (2008:243) defines urban agriculture as "any agricultural activity occurring in built-up 'intra-urban' areas and the 'peri-urban' fringes of cities and towns". According to the CSIR (2005:Chapter 3 p8) "land for urban agriculture is particularly important in settlements where people are dependent on their own produce for food and nutrition, or have to supplement their incomes". Urban agriculture allows for the production of food to supplement the household meals or household income through sale at market (Thornton, 2008:245). ***Images 2*** and ***3*** below, show examples of urban agriculture projects in Cape Town, South Africa. Spatial planning of communities should incorporate small scale, family based on-site urban agriculture. Spaces should be provided for local urban agriculture at household and neighbourhood level. These spaces can be allotment, communal or school-based food gardens. Local market places where produce can be sold should also be provided. (CSIR, 2005:Chapter 3 p8-9)

Image 2: Urban agriculture in Cape Town

Source: Makeka & Williams (2012)

Image 3: Urban agriculture in Cape Town

Source: Makeka & Williams (2012)

Self-employment is seen as entrepreneur development and these informal businesses should be supported to develop into established enterprises that are able to remain in community areas. "The non-spatial aspects that include training, marketing support and financial support should be available in the community areas and would be located in the Local Commercial and Social Service Centres or at Local Business Support Centres." (Nelson Mandela Bay Municipality, 2007:58) According to the CSIR (2005:Chapter 3 p11) entrepreneurs often find their own place in the structure of the community and provide their own infrastructure where necessary. Despite this, it may be necessary to establish urban markets and provide infrastructure for these entrepreneurs due to the problems of entry capital and urban management.

4.1.3 Services

Quality of life within a community is measured by the availability and quality of services. There are certain essential services that a community needs to function properly. ***Figure 4.5*** shows these services

Figure 4.5: Essential services

Source: Own construction from Nelson Mandela Bay Municipality, 2007

Good quality services address disparities in service levels which in turn promote mixed income levels and results in social integration. Physically integrating services and sharing facilities contribute to financial sustainability and reduces the need to travel. The CSIR (2005:Chapter 3 p9) advises that health facilities, for example, should be integrated with public transport as to ensure that it is accessible. Basic services (water, sanitation, roads and stormwater drainage, solid waste disposal and electricity) should be provided to all households uniformly and from the start. Other services can be developed over time. Service provision should be addressed in the planning phase with attention being paid to distances and the number of households per service.

All residents should have access to an appropriate water source. This is a source of clean, drinkable water from a source that is near the person's dwelling. Water should also be affordable, because as stated by UN-HABITAT (2006:74), residents of low-income areas often pay more for water than their wealthier neighbours. According to UN-HABITAT (2006:76) the ultimate goal is to provide water that is "affordable and at sufficient quantity that is available without excessive effort and time".

Electricity is the optimal source of power in communities due to its varied uses, but requires a network of power lines which may be expensive. Electricity generation is highly polluting and sustainable community planning should aim for local renewable energy production. Examples of renewable energy sources are solar, wind and bio-gas sources. Electricity saving in communities is possible especially when solar water heating is used. Solar water heating projects by Eskom have been implemented in many municipalities country wide. ***Image 4*** gives an example of solar geysers in the Ikageng neighbourhood in Potchefstroom.

Image 4: Solar geyser in Ikageng, Potchefstroom

Source: Own construction

The electric network should be designed so that all households, premises and street lights are a reasonable distance from a connection point. (Nelson Mandela Bay Municipality, 2007:67)

All households and residents should have access to improved sanitation facilities. According to UN-HABITAT (2006:83) a household can be seen as having access to improved sanitation if "it has a human excreta disposal system, either in the form of a private toilet or a public toilet shared by a maximum of two households". Sanitation can be directly linked to health, human dignity and quality of live. Sanitation does not simply concern the disposal of human waste but also the removal, management and treatment of these wastes. All steps in the sanitation process should be taken into consideration when planning for sustainable communities.

Public telephones should be particularly accessible in poor communities. Access should be safe and secure and no further than 500m from the household in case of an emergency.(Nelson Mandela Bay Municipality, 2007:67)

Education may be a provincial responsibility, but sufficient land needs to be made available by community planners. Dewar and Todeschini (1996:23) argue that educational facilities should be related to places of relatively intensive activity instead of taking up protected positions in the residential fabric. Existing school premises can be used after hours as adult education centres. The CSIR (2005:Chapter 3 p5) says that education facilities can be broken up into parts so that sport fields, halls, libraries, etc. can be shared between them, other schools and the community.

Social services cover many services and facilities required in a community. It is possible to co-ordinate and physically integrate certain services at local commercial or community centres. Social services include:

- Social services such as welfare grants payments and social workers
- Post offices
- Libraries
- Fire and emergency services
- Police services

Social services should be within 1000–2000m from the home as to be accessible. (Nelson Mandela Bay Municipality, 2007:73)

Community planners should allocate sufficient land and spaces for hire in community centres in order to support cultural services. The number, size and location of these sites will depend on the community's needs. Community halls and centres should be multi-purpose spaces as to cater for diverse activities. Dewar and Todeschini (1999:28) say that "where halls are provided, they should be located in association with public spaces to allow for events in one to spill over into the other, to provide alternatives in case of weather changes, to provide parking, and so on". Cultural activities and the interaction between community groups act as the glue that holds the community together and is important for sustainable development. Cultural activities and meetings can also be held in public open spaces, parks and sport fields. (Nelson Mandela Bay Municipality, 2007:74)

Commercial services in sustainable communities are manifested in different levels of hierarchy:

- Small and dispersed commercial sites such as corner shops may be situated within residential areas, near public transport routes or pedestrian walkways.
- Neighbourhood commercial centres should be provided within a walking distance of 800 meters for daily consumer goods as well as specialised shops.

- Local commercial centres serve a number of neighbourhoods and should be provided within a walking distance of 1200 meters.
- Community commercial centres serve an entire community or even two neighbouring communities and should be a maximum walking distance of 2000 meters. Centres such as these include daily consumer goods, specialised goods and services, a marketplace, municipal services, as well as health, professional and financial services. (Nelson Mandela Bay Municipality, 2007:75-76)

Table 4.1 contains quantitative guidelines for the establishment of public service facilities. The distance from home and the capacities for the services are also shown in the table.

Table 4.1: Quantitative guidelines for public service facilities

Facility	Access	Use capacities
Nursery school	Maximum of 750m from home	>5000 population
Primary school	Maximum of 1500m from home	3000 – 4000 population
High school	Maximum of 2250m from home	6000 – 10 000 population
Mobile clinic	Maximum of 1000m from home	5000 population
Clinic	Maximum of 2000m from home	>5000 population
Library	1500m – 2250m from home	5000 – 50 000 population
Community centre	1500m – 2250m from home	>10 000 population
Religious centre	Maximum of 1500m from home	>2000 population
Municipal office / Pay point	Maximum of 2000m from home	>50 000 population
Post Office	Maximum of 2000m from home	>11 000 population
Police station	Maximum of 1500m from home	>25 000 population
Fire station	-	>60 000 population
Community information centre	Maximum of 1000m from home	>22 000 population

Source: Own construction from CSIR (2005:Chapter 5.5 p9-17)

Figure 4.6 is a graphic representation of the distances services should be from the home.

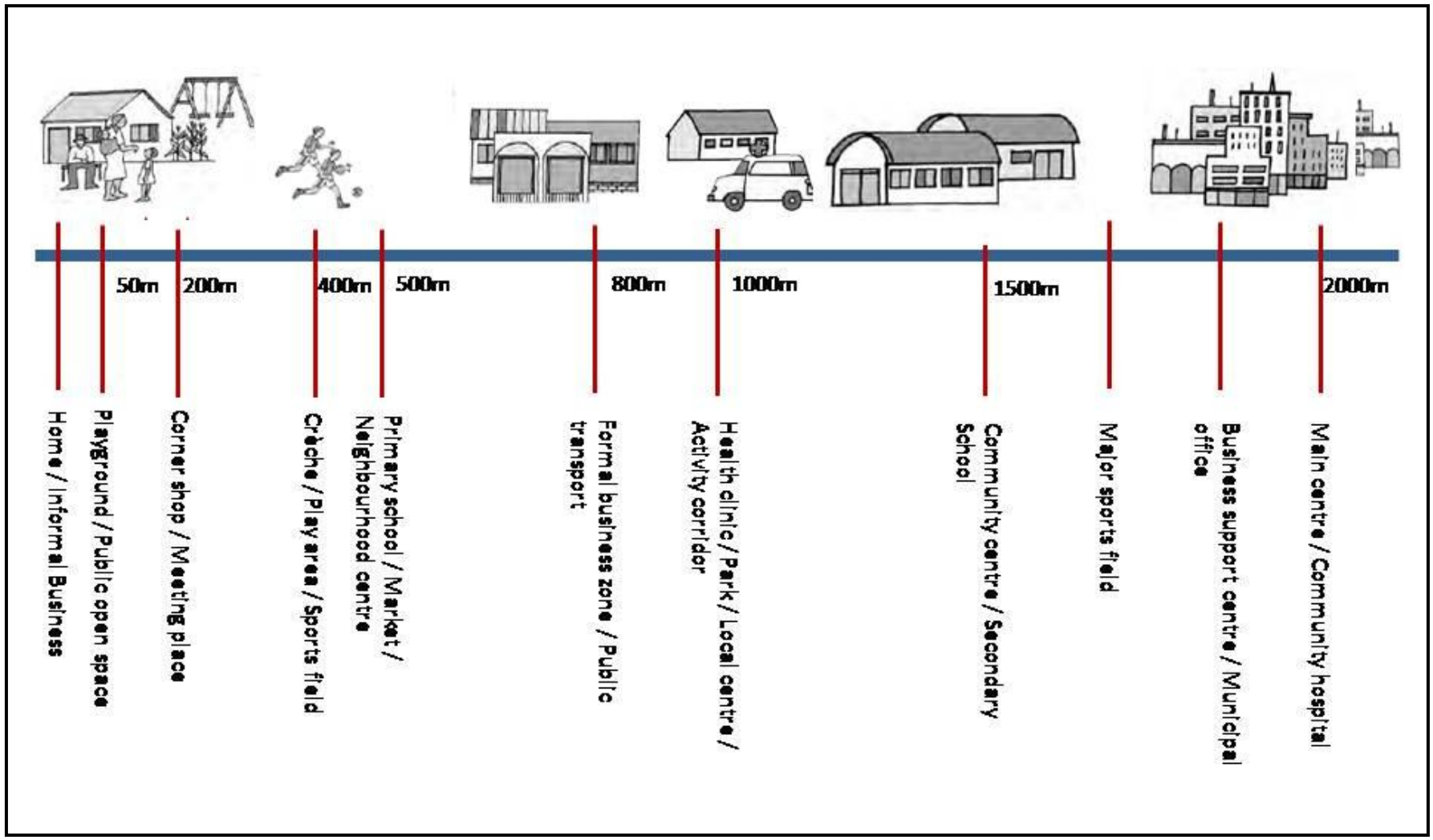

Figure 4.6: Service distances from home.

Source: Own construction form CSIR (2005:Chapter 5.5 p9-17).

Recreational and sport facilities are services that should be provided for in sustainable communities. The Department of Sport and Recreation (2010:188) states the standard of combo-playing fields (playing fields that can accommodate a range of sports) to be one per 2 500 population. These services require access to suitable local open spaces and facilities such as private spaces next to houses, semi-private spaces adjacent to houses, local open spaces within housing clusters and larger spaces and sport facilities at neighbourhood level. (Nelson Mandela Bay Municipality, 2007:76) The requirements for each is listed in ***Table 4.2.*** below.

Table 4.2.: Requirements for recreational and sport facilities.

Recreational or Sport facility	**Requirements**
Local open spaces	These spaces need to be safe. Surveillance and social control should be able via easy access and/or enclosure. These spaces should be available for use throughout the year and can be developed at three levels: neighbourhood or small community park, larger community park and metropolitan or sub-regional park. These spaces should be designed on a standard of between 0.5-0.7ha per 1000 population. Neighbourhood parks should be within 500 meters with larger community parks within 2000 meters.
Playgrounds	Playgrounds need to be close to home and family. Parents should be able to supervise. The playground needs to be safe from traffic. Playgrounds should be within a walking distance of 500 meters from home and should be accessed without having to cross major routes.
Sport fields	Needed at neighbourhood level. Sport fields with free access can be controlled and maintained by the community. Co-location with schools is preferable.
Major open spaces	These sites should be available for specific activities. Access should be available from community areas. Community involvement is needed for environmental protection.

Source: Own construction from Nelson Mandela Bay Municipality (2007) and the Department of Sport and Recreation (2010:120-121)

Dewar and Todeschini (1999:25) reason that community sports facilities should accommodate the activities of a full range of sporting actors, from the general public, to schools, to local sports clubs.

It is important to take future developments into consideration when planning and designing services and infrastructure for communities. UN-HABITAT (2006:47) states that when settlements are allowed to proliferate “it becomes more difficult and more expensive to install

infrastructure and services because no prior provision was made for the settlement's development".

4.1.4 Transport

Transport systems include different modes of transport for private and public transport and for the transportation of goods. The different modes of transportation in a transport systems should complement each other and be linked in an overall structure (CSIR, 2005:Chapter 5 p2) The spatial structure of a community is defined by transport routes. In a sustainable community transport needs to be manifested in an integrated system. (Nelson Mandela Bay Municipality, 2007:80)

To achieve integration and sustainability, the correct provision of transport is essential (Selman, 1996:40). Selman (1996:41) gives sustainability considerations that can be used as best practise guidelines when planning transport for communities in ***Table 4.3*** below.

Table 4.3: Sustainability considerations in transport planning for communities

Community element	Sustainability consideration
Housing	• Allocate houses in larger, existing areas where facilities and a range of transport option can be easily accessed. • Build houses where they can be served by public transport. • Avoid incremental expansion of settlements. • Avoid the development of small new settlements. • Encourage brown-field development. • Concentrate development near public transport nodes.
Employment	• Focus uses that generate travel in areas well served by public transport. • Encourage a balance between employment and population as to allow people to live near their work.
Retail	• Revitalise existing shopping centres. • Encourage local convenience shopping. • Implement a mixed-use development plan.
Leisure and recreation	• Focus facilities in locations that are well served by public transport. • Provide and maintain local leisure and recreational facilities.
Education and public facilities	• Facilities that have a large catchment area should be easily accessible by public transport.

Source: Own construction from Selman (1996:41)

Transport also influences corridor planning, higher densities and mixed development. In sustainable communities emphasis should be on pedestrians, bicycles and public transport.

Private vehicle use need to be reduced for cities to be sustainable and good public transport should be provided (Selman, 1996:42). The main design criterion for the structure of a sustainable community is based on walking, with a convenient distance to services. Priority should be given to safety, security, convenience and direct access when considering pedestrian and cycle routes. Precedence should be given to cyclists and pedestrians while cars and public transport should be required to reduce speed. Pedestrian walkways are an essential structural component of sustainable communities, connecting home, school, work and commercial areas. (Nelson Mandela Bay Municipality, 2007:80)

The CSIR (2005:Chapter 3 p8) states categorically that public transport is essential in areas with low levels of car ownership and that new developments should support public transport. Public transport in communities is presently provided mainly by taxis and buses. Mass commuting should preferably be facilitated by high capacity buses functioning on major bus routes supported by feeder buses or taxis. Commuter rail transport is another option for high volume routes. High density development should be centred on rail and road stations and stops. (CSIR, 2005:Chapter 3 p8) The CSIR (2005:Chapter 5.1 p 9) further states that public transport should be provided within a 5-10 minute walk from home, or no further than 500 meters.

Roads in sustainable communities should be designed to:

- Prioritise the movement and safety of pedestrians and cyclists.
- Lower traffic to ensure the safety of pedestrians.
- Provide walking and cycling paths on the most direct routes.
- Avoid long, straight roads.
- Provide alternative routes.
- Provide roadside parking.
- Distinguish road use and character by using different surfacing materials. (Nelson Mandela Bay Municipality, 2007:81)

4.1.5 Community

The term community refers to how people live together, interact and co-operate. Community development, positive social interaction and local organisation are fundamental to the development of a sustainable community. Community development is supported by:

- Good urban design.
- Provision of public spaces and meeting places.
- Identifying and prioritising needs and issues.

- Community participation with improving and caring for the environment.
- Self- and mutual-help activities.
- Community involvement in implementation.
- Municipal community partnerships. (Nelson Mandela Bay Municipality, 2007:86)

Sustainable communities are characterised by their community spirit and a sense of togetherness and this ensures their continued development. If people have a sense of safety, belonging, harmony and high quality community life they feel they belong in the area and wish to remain and contribute to the community's development over time. Residents are able to raise issues and problems and seek solutions together through community organisations and local informal and organised structures. (Nelson Mandela Bay Municipality, 2007:86)

The National Planning Commission (2011:258) argues that "the planning system should encourage properly funded, citizen-led neighbourhood vision and planning processes". In accordance with this, public works programmes should be tailored to community building and focus on local needs. The National Planning Commission (2011:258) further suggests that municipalities should work with their local communities in developing local arts, culture and heritage precincts. This can aid in achieving the next functional element of character and identity.

Tonkin (2008:95) states that having strong leadership and community cohesion contributes to a community's sense of ownership. Tonkin (2008:95) goes on to say that "all components of sustainability are affected by a community's ability to organise itself and participate actively". The community participation process should include skills development, such as understanding the concepts of development, and leadership in order to strengthen citizenry. NGOs often offer to partner communities in leadership development.

4.1.6 Character and identity

The culture and lifestyle of the inhabitants of a community determine the character and identity of that community. The quality of the built and natural environment also influences the character of the community and contributes to social identity and sustainability. Townscapes and surroundings should be functional and well designed as they foster positive and responsible attitudes in residents. In order to create a harmonious townscape layout, streetscapes, building designs, landscaping and natural features should be integrated. (Nelson Mandela Bay Municipality, 2007:88)

Hodgson (2011:1) is of the opinion that “arts and culture strategies help to reveal and enhance the underlying identity - the unique meaning, value, and character – of the physical and social form of a community”. She argues that a community’s identity is not a static concept, but that it rather evolves and develops over time to reflect the range of social values within the community.

The actual living environment, conditions and ambience of an area is created by housing clusters along lanes or around common areas. Harmony, diversity and variety are promoted by providing guidelines for house designs, roof-types and orientation of stand-alone housing. Where the existing urban style and character is positive it should be preserved, perpetuated or complemented. Monuments, statues, fountains, commemorative gardens, etc. can be used as tribute features in communities. Areas of historical significance can be used to create a sense of community or identity within a development. Features in communities need not be complex or expensive in order to create quality environments. All that is needed are good layouts, housing design and the integration of nature into the built environment. (Nelson Mandela Bay Municipality, 2007:88)

A phased approach to housing and slower expansion can contribute to more harmonious settlements. The slower, more organic, approach enables greater community participation in design and implementation, wider variety in design, construction options and features. (Nelson Mandela Bay Municipality t, 2007:88) With the current backlogs in housing it might be difficult to follow a more measured pace in development, but it is crucial that developers take their time in order to ensure a greater local and community character. Tonkin (2008:96) says that “a community will only take ownership of a community project if they are consulted regularly and are able to participate in decision-making”.

Local activities are vital to the character and identity of a community. A range of activities (social, economic and cultural) enhance the culture and character of an area and helps to attract and retain a diversity of residents. A rich local character can help to contribute towards the local economy and help create new local economic opportunities by attracting tourists and visitors. Areas need to be made safe and this can also provide local income generating opportunities.

Table 4.4: Correlation between planning principles and functional elements of sustainable communities.

	Housing		Employment		Services		Transport		Community		Character and Identity	
	Applications	**Results**	**Applications**	**Results**	**Applications**	**Results**	**Applications**	**Results**	**Applications**	**Results**	**Applications**	**Results**
Poverty alleviation	Appropriate standards for water, sanitation, roads &stormwater and housing Space for home-based economic opportunities Self-built housing & local labour	Improved living standards Service availability Increased household income Skills transfer	Appropriate standards for water, sanitation, roads &stormwater and housing Space for home-based economic opportunities Self-built housing and local labour	Investment and funding Opportunities for work Less crime	Appropriate norms and standards for services. Water and sanitation. Roads and walkways. Waste removal. Health, education and social services. Commercial services. Informal trading spaces.	Improving living standards. Services availability An increase in household income.	Efficient public transport. Residents are now able to access job opportunities and services.	Reduced travelling costs.	Meeting places should be combined with local economic development. Spaces and centres should be multi-purposed.	Knowledge / skills transfer / sense of belonging.	Basic services should be provided for.	Sense of dignity within the community.
Focus on special needs	House design and flexibility to enable home-based care Improved care and support	Increased access Integration and acceptance in community Lower costs of care	House design and flexibility to enable home-based care Improved care and support	Opportunities for care giving	Home-based and community food gardens. Health services. Social and welfare services. Mobility Wheel chair friendliness. Community based education.	Provision for basic needs. Improvement in living standards.	Wheel chair friendly transport.	An increase in accessibility and mobility.	Provision of community support centres, easily accessible parks and multi-purpose centres.	Integration and acceptance into the community.	Parks for children, friendly pavements, walls for art and craft areas need to be provided.	More colourful and accessible areas.
Gender equality	House designs facilitate household work	Time and effort saved	House designs facilitate household work	Recognition of the value of unpaid work by women Support for home-based income generation	Increase access to services and facilities. Increase participation.	Shorter walking distance. Safer environment.	Pedestrian safety. Safe public transport.	Improved transport.	Accessibility to facilities for all genders. Provision of formal and informal meeting places.	Empowerment of women.	Provide meeting places.	Safe areas for the community can be a sense of place.
The environment	Ecological materials Waste minimisation, collection and recycling Greening Opportunities for wind turbines Solar heating	A more attractive and healthy environment Lower costs	Tourist stalls and areas for recycling, cleaning and refuse centres, community based businesses, tree planting projects	Opportunities for local maintenance, service activities and income generation Enhanced tourism potential Enhanced identity	Alternative sanitation options. Use of grey water. Communal waste collection points. Waste separation and recycling. Meeting places. Playgrounds.	Energy conservation. Social interaction. Economic opportunities. Cultural activities.	Environmentally friendly modes of transport. Promote public transport, walking and cycling.	Reduced pollution. Reduced costs.	Community assistance in maintenance of the public environment.	Cost effective use of resources. Aesthetically pleasing environment.	Beautification of the environment through street furniture, parks, landmarks and swimming pools, greening and tree planting.	Leisure, recreation and social cohesion.

	Housing		Employment		Services		Transport		Community		Character and Identity	
	Applications	**Results**	**Applications**	**Results**	**Applications**	**Results**	**Applications**	**Results**	**Applications**	**Results**	**Applications**	**Results**
Participation and democratic processes	Consultation and input in designs and types of housing Involvement in building and Maintenance	Meeting needs and priorities Sense of ownership and responsibility Work opportunities	Public participation towards future work opportunities. Mobilisation of communities Establishment of local support centres	Reduced local unemployment	Community participation in design, development and maintenance. Community involvement in maintenance and service provision.	Community involvement and sense of ownership.	Community consultation on input and design.	Meets community's real needs.	Create opportunities for meeting places. Promote public participation and consultation.	Implementation of projects is improved. Sustained community responsibility.	All ages, genders and cultures should be involved.	Ownership.
Local economic development	Home and cluster based work and trading spaces	Increased local economic activity, incomes, spending, circulation of money, and community wealth	Create opportunities for SMMEs and skills development Multi-purpose job creation and business support centres	Opportunities for work More self-employment	Community based waste separation. Home-based health care. Adult basic education. Community policing. Home-based economic opportunities. Informal kiosks. Labour intensive service installation.	Poverty alleviation.	LED initiatives in transport provision.	Access to markets.	Provision of home-based activities. Create opportunities for local market entrepreneurs. Production and trading opportunities.	Increased economic prosperity. Safer working environment.	Work opportunities are created by earmarking areas for unique development.t	Investment and work opportunities.
Accessibility	Mixed use and proximity to services	Reduced traffic and transport costs and increased accessibility	Work provided within walking distance and along public transport routes	Mobility and accessibility to and from work and home	Improvement in accessibility to services. Proper layout planning. Pedestrian movement routes and sidewalks.	Cost efficient mobility.	Networks to be planned for ease of access.	Heightened accessibility.	Provide safe and pleasant pedestrian walkways, cycle paths and bus stops. Provide paving and lighting.	Improved pedestrian safety and mobility.	Different materials should be used on different surfaces. Pathways should be wheelchair friendly. Specific street furniture should be used. Accentuate cycle paths, pedestrian crossings and walkways.	Safe flow of people and traffic.
Mixed-use development	Houses include workspaces, and shop fronts Allow extensions and additions	Local economic development Transport reduction	Combine uses such as housing, business, community, recreation, education and work	Local Economic Development Money stays in area which increases local buying power	Clustering of services. Mixed use in terms of services.	Accessibility. Diverse urban environment. Cost-efficiency.	Design of a mobility network around and in mixed-use areas. Co-ordination of land use and transport planning.	Reduction in amount of travelling.	Building design and access should accommodate mixed-use development. Options should be provided to residents.	Improve accessibility.	Buildings should be designed with specific themes. Housing blocks and marketplaces should also be designed with themes.	Sense of place.

	Housing		Employment		Services		Transport		Community		Character and Identity	
	Applications	**Results**	**Applications**	**Results**	**Applications**	**Results**	**Applications**	**Results**	**Applications**	**Results**	**Applications**	**Results**
Corridor development	Mixed use, higher density housing	Improved accessibility Local economic development	Provide public transport Promote higher levels of economic development along corridors	Viable public transport Improved accessibility to work/employment	Clustering of services. Alignment of service provision.	Economic viability. Accessibility. Cost-efficiency.	Increase in density. Trunk busses along corridors.	Efficient public transport.	Enhanced accessibility. Improved mixed-use development. Multi-purpose centres should be located along corridors.	Improved public transport. Safer public environment.	Buildings along corridors should also be designed with a specific theme in mind.	Creating a sense of place.
Safety and security	Design for surveillance and security	Decreased crime	Establish Community Policing Forums Locate works places close to places of residence and along main routes Promote varied activities on streets	Reduced health, insurance, policing and correctional services costs Enhanced investment, mixed income levels and tourism potential	Safe design for access to services. Plan for crime reduction. Street lighting.	Accessible, safe areas.	Priority should be given to pedestrian movement. Design areas for surveillance.	Safety and safe public transport.	Layout should facilitate surveillance. Use natural topography, landmarks, etc to create natural surveillance.	Improved safety and security and fewer fences within the community.	Cameras, pedestrian crossings and proper lighting should be installed.	A safer environment and a reduction in crime.
Variation and flexibility	Housing types Tenure types	Greater choice and appropriateness of housing	Different informal and formal work opportunities	Reduced crime, integration of 1st and 2nd economies	Flexible standards. Mixed-use planning.	Integrated city. Flexible standards.	Provide for and integrate different modes of transport.	More efficient transport. Linkages between different modes of transport.	Community participation is needed in planning.	The different needs of the community are met. Awareness is increased.	Different materials should be used and themes should be applied.	Sense of ownership. Interesting and beautiful environments are created.
Densification	Clustering of houses, smaller erven, and communal open spaces	Lower service costs Increased access to services	Promote work opportunities along corridors and in multi-purposes centres	Threshold population that supports local economic activity	Clustering of services.	Lower service cost. Higher accessibility. More efficient.	Multi-story development along corridors.	Reduction in travelling.	Different needs and groups should be provided for. Development along corridors.	Greater interaction between residents and functions. More compact social structures.	Urban designs with proper controls need to be implemented.	Liveable areas are created. Community units are orderly, neat and compact.
Reducing urban sprawl	Clustering of houses and higher densities	Improved access to services Improved access to public transport Reduced infrastructure costs	Economic/work opportunities provided within close walking distances and along public transport inside the urban edge	Work closer to home Economic injections Reduction in transport costs	Densify development. Clustering of services.	Cost-effective. Optimal use of infrastructure.	Increase density. Create public transport routes linking higher density areas, nodes, centres and employment zones.	Cost efficient transport.	Services should be centralised to provide bigger and better range.	The economic base and social interaction is enhanced.	Development should be densified. Public transport needs to be improved.	A more effective and efficient city.

Source: Own- construction from Nelson Mandela Bay Municipality (2007:38-91)

4.2 Planning process for sustainable development

In recent years the shift has been made from planning for people to planning with people. Community participation is essential in the planning process as it engages their understanding, ideas, commitment and energy. "Participation enables communities to play an active part in developing their areas, to address their own needs and problems, and to build local capacity." (Nelson Mandela Bay Municipality, 2007:98)

Botes and Van Rensburg (2000:53-54) give 12 emergent guidelines for participatory development:

- Whoever wants to get involved in public participation must demonstrate an awareness of their status as an outsider.
- Respect the community's indigenous contribution.
- Be a catalyst of development that assist and stimulates community based initiatives.
- Promote co-decision-making in defining needs, goal-setting and policy and plan formulation.
- Communicate programme successes and failures.
- Listen to community members, with special attention to the more vulnerable and less vocal marginalized groups.
- Guard against the domination of certain interest groups.
- Involve a myriad of interest groups to come together as partners.
- Ensure that process-related soft issues are handled with the same importance as hard issues.
- Aim to release the energy within a community without exploiting or exhausting it.
- Empower the community to share equitability in the fruits of development.

Botes and Van Rensburg (2000:54) state that these guidelines should not be seen as fixed rules, but rather as lessons that have been learnt by hard-earned experiences.

Tshabalala and Lombard (2009:397) says that "community participation is a means of empowering people by creating the space for them to engage in developing their skills and abilities to negotiate their needs in the face of forces that often appear to obstruct and discourage them". For participation to be meaningful, procedures for democratic decision-making should be created at the local sphere of government. The Integrated Development Plan (IDP) provides an opportunity for municipalities and communities to deliberate and interact on issues of local development (Tshabalala and Lombard, 2009:397). The phases through which compiling an IDP go is graphically illustrated in ***Figure 4.7.***

Figure 4.7: Phases of the compilation of an IDP

Source: Own construction from Tshabalala and Lombard (2009:397)

The planning framework of the sustainable community is closely related to the principles of the Integrated Development Plan (IDP) and the Spatial Development Framework (SDF). The role of sustainable community planning is to provide a basis for detailed planning and sector planning initiatives. The different levels of spatial planning should be inter-linked and connected to the financial planning as well as to the implementation programmes as shown in ***Figure 4.8***.

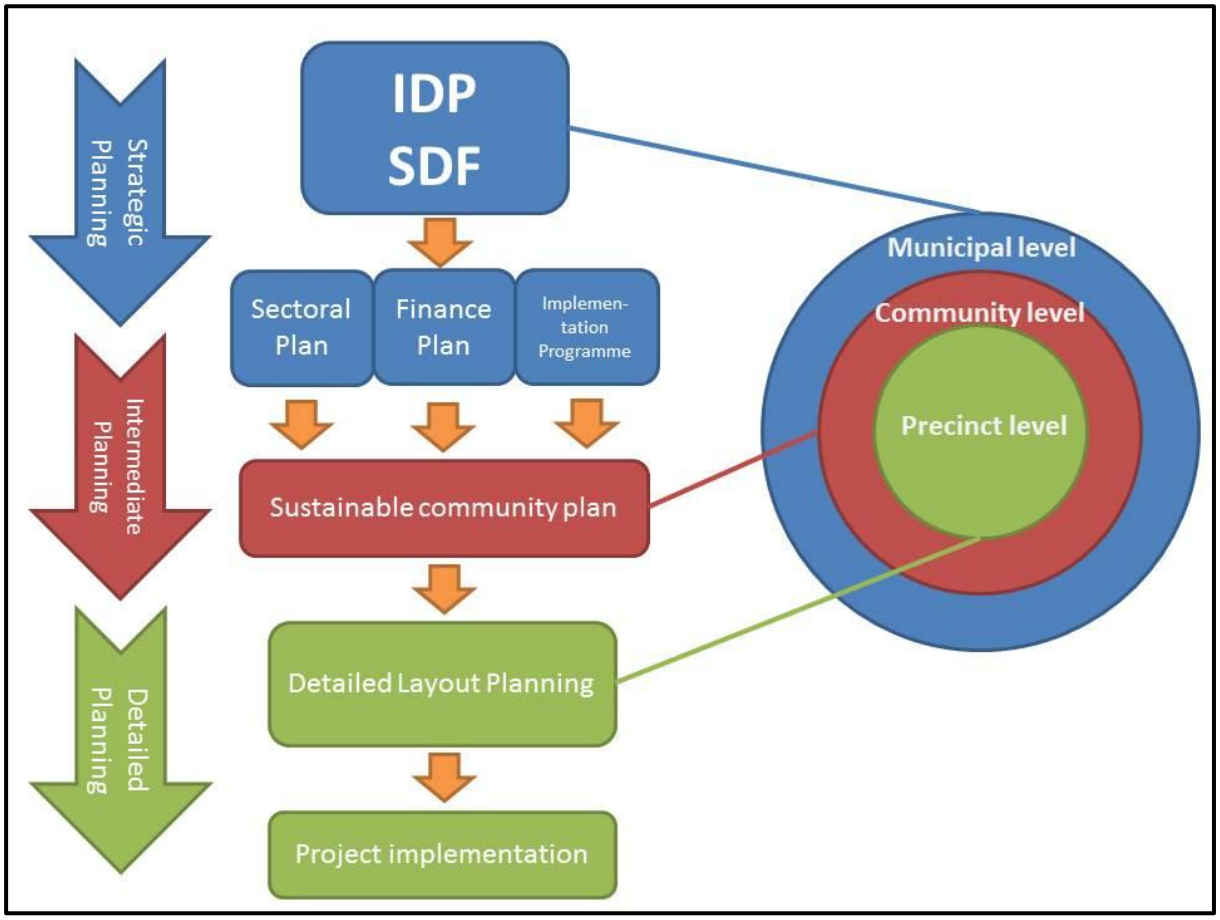

Figure 4.8: Application of the planning framework for sustainability.

Source: Own construction

The planning process for sustainable community developments has three main phases that are linked to each other.

1. Programming
2. Planning
3. Implementation

The different phases in the planning and implementation process (shown in ***Figure 4.9***) are sequential and they may overlap. Reviewing the plan may also result in renewed planning activity and the planning process may start anew. This process could continue over a long period of time as demonstrated in ***Figure 4.9*** below.

Figure 4.9: Phases of the planning and implementation process.

Source: Own construction

4.3 Smart Growth for sustainable development

Farr (2007:20) explains Smart Growth to be an "urban planning and transportation theory that concentrates growth in the centre of a city to avoid urban sprawl". According to Downs (2007:367) the concept of Smart Growth stemmed forth as a reaction to the undesirable features of continuing growth through urban sprawl. These undesirable features include the conversion of open space to urban land, the lack of choice in housing types and the lack of urban renewal in older neighbourhoods. Tregoning, Agyeman, and Shenot (2010:342) say that Smart Growth "has evolved rapidly from its mid-1990s origins as an effort to recast the policy debate over sprawl in a way that more directly links the environment, the economy and daily life concerns". Downs (2007:368) states that the general principles of Smart Growth are:

- Compacting settlements,
- Raising densities in residential areas,
- Encourage mixed land uses and pedestrian friendly layouts,
- Levy the cost of new developments onto its consumers through impacts fees rather than having the community carry the costs,
- Promote public transport, and
- Revitalize older neighbourhoods.

These principles are similar to the planning principles for sustainable communities as discussed in ***Chapter 3***. Alexander and Tomalty (2010:409) advocates for Smart Growth stating that it "provides an opportunity to implement some of the historic concerns of urban sustainability".

Tregoning et al (2010:341) are of the opinion that Smart Growth shares many of the goals of sustainability, but with a key difference. While many sustainability efforts appeal almost entirely to environmental sensibilities, the concept of Smart Growth centres around basic quality of life issues. Tregoning et al (2010:342) states that "that concept is not a reformulation of sustainability, but a new iteration of it". Farr (2007:20) argues that Smart Growth values the long-term and regional consideration of sustainability over a short term focus. Smart Growth is instrumental in the creation of sustainable communities as it embodies the planning principles of such communities.

4.4 Conclusion

Sustainability is not something that can be achieved over night. Considerable preparation goes into planning and developing every aspect of a community in order to make it sustainable. To simplify the planning process a settlement is broken up into the different functional elements that make up a settlement. These functional elements are then linked with the planning principles discussed in ***Chapter 3***. The process and phases of planning and implementation are also discussed to give a broad understanding thereof and the part it plays in creating sustainable communities. All the core principles of sustainable community planning and development are encapsulated in the concept of Smart Growth. Thus sustainable community development cannot be achieved without implementing Smart Growth.