

# THE ROLE OF TRANSPORT PLANNING IN THE QUEST FOR SUSTAINABLE LAND USE

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## ABSTRACT

Spatial planning and transport planning are intertwined in a number of ways and this paper intends to explain how these disciplines can complement each other against the backdrop of sustainability. The legislation in this regard does provide for this integration to take place and this paper endeavours to expound the integration.

### 1. BACKGROUND AND AIM

In South Africa we have the pre-democratic legacy of separate urban areas for different groups as per the ideology of apartheid. This obviously leads to many spatial planning, social and cultural problems that face us as major challenges. Among these elements is the motor car and transportation in general. Spatial planning is closely intertwined with the motor car and transport as all land uses have an influence on roads, transport and traffic while roads also to a certain degree determine the land uses.

Town-planning has not been static and various new planning lay-outs have been created as the norm and traffic has to be accommodated within these planning designs. In some instances the social character has been improved, but the domination of the motor car has not been addressed adequately. Town-planning practitioners have increasingly been aware of sustainable design and development and this means that the engineers who plan services [including roads] also have to adapt.

I shall endeavour to explain how the integration between town-planning and transport planning are intertwined disciplines and how these can be accommodated within the parameters of legislation.

### 2. TRANSPORT AND TOWN-PLANNING

Cars do pollute and consume our time commuting and this must be addressed whatever the overall value of them. The motor car plays the dominant role in the streets and as people become more and more streets become busier and increasingly dangerous. Children cannot any longer play in the streets and more open spaces have to be created where lots are also becoming smaller to give effect to the so-called compact city. New and regenerated neighbourhoods are becoming "unfriendly" as the now outdated inviting porch has made room for garage doors. The social links are now car based with wide streets in contrast to the past where social links were based on "friendly houses" and pedestrian friendly lay-outs (Crane 1996:52).

Effective travel plans are essential and so coincide with the particular development. These plans should be based on a robust planning and transport framework including not only

travel plan policy but also related planning policy such as densities and uses while on the other hand also including traffic policies such as car parking (Fraser & Addison 2002:279).

The compact city advocated by everyone and obliging town-planners to adhere to certain policies has an effect on the traffic in the sense that reducing the street distance between locations, mixed land uses, and supporting walking and other non-motorized transport. The compact city concept is based on mainly three elements (Crane 1996:56):

- More integrated land uses as this leads to a reduction in travelling.
- The effective travel distances have to be reduced between any two points.
- Pedestrian and transit oriented features will be promoted rather than car oriented features.

An aspect that is oftentimes forgotten is parking requirements and the affect these have on traffic. The whole design of a suburb should be designed for the access to businesses and then also to the parking areas required for the businesses. The street pattern will accommodate this aspect and ensure proper access and safe patterns. However, businesses that are extended or established in existing suburbs can disrupt the entire traffic pattern (Willson 1995:30).

When these individual site effects are extended over large areas they change urban forms and transport systems. This emphasizes the fact that poor zoning administration to control growth can have ripple effects of which traffic is a major aspect. Low density areas will illustrate the advantages of the car best as travel distances are large, but this can lead to more cars than necessary on the road network and this will lead to congestion. In other words the lower density may cause more cars on the road with all the other disadvantages of using more energy and more pollution and a demand for bigger parking areas at businesses. The denser areas will have more cars, but most likely all those cars will not be on the road network as they will not be in demand as travelling distances to amenities are shorter in distance and time (Willson 1995:40).

Transportation Demand Management [TDM] is regarded as the primary policy instrument for dealing with traffic congestion. This mechanism focuses on reducing peak period traffic with a variety of methods of which town-planning is but one. Howbeit, the planning and development should be aware and sensitive towards traffic and should work hand in glove with the traffic engineers as should be done with the entire team of engineers responsible for all services (Giuliano 1992:327).

Efficient transport is a critical element in the integration of the different urban areas and overcoming the fragmentation of the urban fabric. Shorter travelling costs leading to less expense will release a significant portion of income to be spent on family and household. Efficient transport is largely based on the efficiency of the urban area that in turn promote the efficient use of infrastructure, more efficient use of land, land uses and an integrated method of planning and development Department of Housing [s.l.]:16).

Sustainable development also has to take into consideration the location of shopping centres and here are a few aspects to keep in mind. Superstores are sometimes what consumers want, but they can be detrimental to sustainability in the following manner (Plowden & Hillman):

- Extra travel time to get to the superstore.
- The majority of poor people cannot reach these stores and have to revert to smaller shops, spaza shops and tuck shops where goods are more expensive.

- Severe environmental affects are experienced with large tracts of paving for parking.

In reply to the above the more compact urban areas appear to be the answer as here amenities are closer to one another and mixed uses are found in compact urban areas.

Town-planning cannot be concerned with only the physical and spatial aspects of planning, but have to take cognizance of aspects beyond the individual concerns of housing and services. Town-planning should address the total package of planning and development and of all elements of services (Marshall 2003:107).

### 3. LEGISLATION

The legislation in South Africa is of such a nature that planning and development must take place within particular parameters and against the backcloth of sustainability. The theory of compact cities and the integration of different disciplines, of urban areas, of the environment leading to sustainability can fulfil the role of the planning and development guidelines and also inform the legislation, but the policies and legislation must be in line with one another to form an uncontested unit. Legislation and policies must create an environment and atmosphere for proper planning and development that is sustainable and integrated.

In order to expound on this it is important to have a look at what the different legislation relating to planning and development determines. In each case the entire act will not be dealt with, but only the particular areas relating to planning and development will be expounded upon.

#### 3.1 The Development Facilitation Act [DFA]

The Development Facilitation Act (Act 67 of 1995) [hereafter referred to as the DFA] is the first development act since 1994 and it aims to do exactly what its name indicates and that is to facilitate development. This act has a set of principles that are applicable to the entire country and these will be dealt with in the following paragraphs [please note that only the relevant principles will be discussed otherwise irrelevant aspects will take up valuable time and space]:

- *Emphasis is placed on efficiency and the promotion of integration and the following elements are emphasized:*
  - ◆ *Not only spatial integration should receive attention but at various levels of the society development and integration should take place. It is interesting to note that land development forms the basis of the integration.*
  - ◆ *The fact that development should encourage short distances between employment opportunities and residential areas give substance to the using of "buffer zones" and also that integration of the different urban areas should take place as this will reduce the travelling distances and times.*
  - ◆ *In many cases excellent services and infrastructure has been provided and is not used near to capacity. This principle states that development should make use of these services and infrastructure and when development takes place preference should be given to where services and infrastructure is available.*
  - ◆ *This principle wishes to establish a trend that allows for different land uses to be combined and to settle alongside one another as long as the uses are compatible. Mixed uses seek to address housing backlogs and urban problems facing all over the world. Mixed uses should not be regarded as only offices in*

*residential areas, as this will not relieve the problems. Mixed uses should rather be considered as people once lived in Europe where shops and/or offices were at the street level and the family homes at upper levels (Goldberg 1997: 69).*

If the above scene materializes then of course other amenities for the community should be provided in clusters in close proximity and this could lead to the fragmentation of the CBD. When dealing with mixed uses the following gastronomic metaphor may be borne in mind (Marcuse 2000:13-14):

- ⇒ A fruit bowl in which different fruits sit next to each other, touching but not influencing each other, each with its own peel or shell around it none changed by the proximity of the other.
- ⇒ A fruit soup where many fruits are mixed and blended that it becomes impossible to tell the one from the other so that no individual identity exists.
- ⇒ A fruit salad where pieces of different fruits are mixed, but their separate identities are also preserved, the flavour of each subtly affecting each other, making a whole, but not dominated by one.

The latter mix is the ideal situation as it can be controlled and regulated and the "bad" uses can be eliminated. Mixed uses should be promoted bearing in mind that uses influence each other and that these influences must also be considered as bad influences can be detrimental to the area.

- ◆ *In a further attempt to reduce long travelling distances and time urban sprawl should be curbed as this will also imply that the separate areas should move closer together and that buffer areas should be used for settlements. Although some of the principles were quite prescriptive; such as to promote "compact cities". The normative element is lost in this case and a mandatory instruction takes its place (Jones 2002:22). The compact city has a variety of benefits of which the most important are that it reduces the affect on the natural environment by not taking up more space and being more pedestrian friendly which in turn reduces the use of motor vehicles (Goodchild 1994:152).*

It is also easy to speak about compact cities and intensification of urban land, but a sound balance must be maintained between residential uses and non-residential uses and this balance changes vastly when densities increase. The amount of open spaces, schools and other amenities such as clinics and police stations depend on the density [the number of people living in a particular area] and not on the area of land used for residential purposes. Sustainable development will also suffer from unbridled intensification as high density areas tend to do more harm to the environment than when densities are lower. This is because the burden placed on environmental issues (Goodchild 1994:147). Urban expansion without restraint also causes precious agricultural land and tourist attractions to fall victim to "development" (Tomalin 1999:37). It is imperative that the shape and growth of the urban areas be planned properly while bearing in mind the various uses of land.

- ◆ *The correction of the dysfunctional spatial patterns are also to receive attention and needs should be addressed and infrastructure optimized. The separate urban areas lead to long travelling distances and time and this should be curbed as much as possible.*
- ◆ *Environmental sustainability also receives attention and for the first time in the history of South Africa land development has to address the environment. Normative planning should also include sustainability as an important element and should specifically provide for it in planning. In theory sustainable development means development that meets the needs of the present without*

*compromising the ability of future generations to meet their needs (Yeld 1997:12). In other words, keep within the carrying capacity of the earth (Yeld 1997:27). South Africa does not have an attractive track record concerning sustainability, especially regarding the former homelands where people were forced to overcrowd and overstock which in turn led to terrible soil erosion and all kinds of detrimental effects on nature (Yeld 1997:14). The rapid urbanization could also lead to development that is not sustainable and the legislation is correct in ensuring sustainability.*

The principles of the DFA are sound and laudable, but the value of these principles lies in the expansion and implementation of these principles so that they can be guidelines for development. The principles then lead to the Land Development Objectives [hereafter referred to as LDOs] and this is where the crux lies, as the action part now has to be addressed. Again only the relevant sections are discussed and all emphasis is mine.

- LDOs should be applicable to the relevant municipality taking into account various aspects relating to the services and specifically mentioning certain aspects considered to be of great importance and these should receive special attention in areas for land development and planning.
- LDOs should address the growth and form as these have to be adapted to the new spatial principles. The emphasis is placed onto the previous Black and White urban areas that had to develop as separate towns in opposite directions and the ensuing aspects will address this spatial dysfunction.
  - ◆ This is a noble direction the government has embarked upon and it should be addressed substantially as the environment tends to be forgotten as development progresses.
  - ◆ Car ownership and the mobility of historically disadvantaged people are increasing rapidly and it is wise to specify this planning aspect.
  - ◆ The density of different areas is of importance to determine the form and growth and to provide adequate infrastructure. It must also be borne in mind that the densities have to increase, but some areas have to be connected by roads. A policy regarding densities should also be in place as urban sprawl should be curbed.
  - ◆ Land use control for urban land at the stage when the DFA was promulgated posed a major problem with the separate Black and White towns and specific attention should be paid to this at the level of LDOs.

As can be seen from the above the LDOs form the fulcrum on which planning and development hinges and are powerful documents in their own right.

### 3.2 Municipal Systems Act [MSA]

As time went by the municipalities were assigned more and more powers and the Municipal Systems Act, 2000 (Act 32 of 2000), [hereafter referred to as the MSA] was enacted and in this act the municipalities are obliged to be more developmental oriented and to exercise more powers and functions regarding the whole spectrum of planning and development. This is done in terms of the Integrated Development Plan [hereafter referred to as the IDP] and this document is compiled in terms of chapter 5 of the MSA.

This legislation specifically emphasizes the planning and development aspects, but also the improving of the quality of life of the communities. This is also expected against the backdrop of sustainability and the protection of the environment. The IDP consists of mainly a Spatial Development Framework, a Financial Plan, a Performance Management

Plan and a Disaster Plan. Numerous other sector plans are also involved, but they all resort under one of the afore-mentioned categories. In the process of compiling a Spatial Development Framework [SDF] and assessing land uses and the liveability of communities the issue of transport and all its accompanying facets are inferred. This is evident in the definition of "development" as found in the MSA:

"development" means sustainable development and includes integrated social, economic, environmental, spatial, infrastructural, institutional, organizational and human resources upliftment of a community aimed at—

- (a) improving the quality of life of its members with specific reference to the poor and other disadvantaged sections of the community; and
- (b) ensuring that development serves present and future generations

The budget of the municipality is also linked to the IDP and this means that a budget cannot be adopted if the IDP has not been completed. In the process of compilation and adoption of the IDP a comprehensive process of public participation has to be followed and this in turn makes the IDP part of the community.

### 3.3 Environment Conservation Act

As we have now seen the development legislation puts a high premium on sustainability and integrated planning. This leads to the environmental legislation where obviously more emphasis will be on the environment, but the idea of integrated planning and development also receives attention.

The definition of "environment" infers the traffic as an element that influences the environment and this means that it should be considered. "Transportation" is also listed as an identified activity that could have a detrimental effect on the environment. This means that specific attention will have to be given to transport in the scoping report and environmental impact assessment where a change in land use is envisaged (sections 1 and 21 of the Environment Conservation Act (Act 73 of 1989)).

In all the above legislation a golden thread can be followed and that is integrated planning and development must take place against the backdrop of sustainability. The integrated planning also includes transport planning and this is emphasized in the following paragraphs where we shall look at the legislation governing transport.

### 3.4 National Land Transport Transition Act

Section 4 of the National Land Transport Transition Act, 2000 (Act 22 of 2000) [Transport Act] clearly states numerous principles for the compilation of a transport policy and in these the concept of integrated planning clearly emerges such as in item (j) where it is stated explicitly:

"(j) Land transport functions must be integrated with related functions such as land use and economic planning and development through, among others, development of corridors, and densification and infilling, and transport planning must guide land use and development planning."

Section 18 of the Transport Act deals explicitly with integrated planning as the following quote will illustrate:

#### **"18 General principles for transport planning, and its relationship with land development**

(1) Land transport planning must be integrated with the land development process, and the transport plans required for that purpose by this Act are designed to give

structure to the function of 'municipal planning' mentioned in Part B of Schedule 4 of the Constitution, ...

- (3) Transport plans must be developed so as to-
- (a) enhance the effective functioning of cities, towns and rural areas through integrated planning of transport infrastructure and facilities, transport operations ... within the context of those integrated development plans and the land development objectives set in terms of section 27 of the Development Facilitation Act, 1995 (Act 67 of 1995); [Section 27 of the DFA deals with the compilation of LDOs and these have been dealt with *supra*]
  - (b) direct employment opportunities and activities, mixed land uses and high density residential development into high utilization public transport corridors interconnected through development nodes within the corridors, and discourage urban sprawl where public transport services are inadequate;
  - (c) give priority to infilling and densification along public transport corridors;
  - (d) give higher priority to public transport than private transport by ensuring the provision of adequate public transport services and applying travel demand management measures to discourage private transport;
  - (e) enhance accessibility to public transport services and facilities, and transport functionality in the case of persons with disabilities; and
  - (f) minimize adverse impacts on the environment.

- (6) The MEC must ensure the co-ordination of the planning processes of all planning authorities under the jurisdiction of the province and, in so doing, must ensure that all plans address-
- (f) the integration of transport and land use planning within the context of the Development Facilitation Act, 1995 (Act 67 of 1995), or any other similar provincial law."

In this section it is clear that the Transport Act wishes to complement the DFA so that a single entity of integrated planning can be formed. The MSA with the inception of the IDP perpetuates this idea and that is why transport is one of the sector plans and also has to be addressed in the SDF. Two further references to land use planning are also found in the Transport Act, *viz.*:

Section 21(3) The national land transport strategic framework must-

- (j) set out a general strategy for land transport and the environment;
- (k) set out a general strategy for land use restructuring;

and section 22

- (3) The provincial land transport framework must-
- (ii) further be prepared with due regard to the relevant integrated development plans prepared in terms of any relevant local government law and the relevant land development objectives set in terms of section 27 of the Development Facilitation Act, 1995 (Act 67 of 1995); [this is the section dealing with LDOs as discussed *supra*]
  - (g) describe mechanisms that have been instituted to resolve possible conflicts between provincial transport and land use planning;
  - (i) include the approved spatial plan of the province;"

Integrated planning does not only mean that various disciplines should be integrated, but that the planning process should be integrated and this in turn then leads to a complete

integration of process and disciplines. The entire concept of integration should be viewed as one where the community as a whole can benefit the most such as with proper transport, sustainable environment, proper town-planning and improved liveability.

#### **4. CONCLUSION**

The aim is to have cities, communities, and planning and development that can be sustainable and in the process also have effective transport systems. It is clear that the legislation available requires it and that the means and mechanisms are in place – but we have to implement it and see to it that integrated planning and development take place in a sustainable manner.

This will demand innovation and planning and development as done in the past will not suffice and we shall have to innovate or evaporate.

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