

THE IMPACT OF URBAN SPRAWL ON THE INHABITANTS OF ETHEKWINI MUNICIPALITY

Yusuf, M.P. and Allopi, D.

Department of Civil Engineering and Surveying, Durban Institute of Technology, PO Box 1334, Durban, 4000. Tel: (031) 204-2352/204-2310. Fax: (031) 204-2020.

E-mail: yusuf@dit.ac.za and allop@dit.ac.za

ABSTRACT

Most of South African cities are expanding primarily through the development of new housing areas beyond the existing urban periphery in a relatively unplanned manner. The urban periphery thus consists of pockets of housing developments which are isolated and separated from each other by major roads or open spaces.

Urban sprawl leads to an increase in the cost of providing for public infrastructure, more expensive residential and non residential development costs, reduces transportation effectiveness and choice of mode, higher energy consumption, reduction in community interaction, greater stress, destruction of the environment and inner city deterioration. The concept of one family per plot has also contributed towards the sprawling nature of our cities.

Transportation and land use patterns are interdependent. Automobile orientated transport leads to higher demand for land for the construction of roads and parking than other forms of transportation and encourages low-density urban expansion. This increases per capita land development costs. Automotive transportation allowed and encouraged radical changes in the form of cities and the use of land. Cheaper land in the outer parts of cities and beyond became attractive to developers; much of it being converted from agricultural uses.

Densification has to be assessed as a long term process with opportunities to restructure cities so that their ability to respond positively to challenges and proactively improve city performance. Cities are dynamic places and as issues and realities changes over time so must cities respond in order to satisfy the needs of all its inhabitants.

An on-site investigation will be conducted within the study area in order to establish the impact of urban sprawl on the inhabitants. Once the information has been collated and analysed, policy guidelines and recommendations to manage urban sprawl and thereby densification of the study area will be suggested.

1. INTRODUCTION

Urban sprawl is an issue that communities, city councils, environmentalists, farmers, planners and politicians have been debating about throughout South Africa for many decades and probably in the foreseeable future. Urban sprawl is characterised by spatially extensive settlements where building densities are low and consists of free standing houses on large parcels of land.

Growth which is compact around numerous smaller centres which are situated at a distance from the main urban core is also classified as sprawl.

The purpose for which land is used can also be an element to define sprawl. Other characteristics of sprawl are low density residential development, homogenous single family development with scattered units, non residential uses of shopping centres, retail businesses located in a strip, freestanding industry, office buildings, land uses which are spatially separated, reliance on the automobile for transport, large scale consumption of agricultural and environmentally sensitive land. Sprawl is a matter of degree and not an absolute form.

Sprawl development consists of three basic spatial forms:

- Density sprawl is the use of land for urban purposes along the margins of existing metropolitan areas. This type of sprawl is supported by unplanned extensions of basic infrastructures such as water, sewer, electricity and roads.
- Ribbon sprawl is development that occurs along major transportation corridors outward from urban cores. Lands adjacent to corridors are developed, but those without direct access remain as rural uses. Over time these nearby rural lands maybe converted to urban uses as land values increase and infrastructure is extended perpendicularly from the major roads and lines.
- Leapfrog development is a discontinuous pattern of urbanization, with patches of developed lands that are widely separated from each other and from the boundaries of recognized urbanized areas. It is very expensive to provide urban services such as water and sewerage in this form of development. Scattered or leapfrog development exhibit discontinuous development away from an older central core, with areas of development interspersed with vacant land. Scattered development may be multi centred and leapfrog development takes the form of a monocentric city.

2. HISTORICAL OVERVIEW

In 1973 when a global oil crisis occurred, the vulnerability of sprawled cities to the economic fluctuations and the limited supply of this non-renewable resource became appreciated. Since then increasing discussions of the economic sustainability of this urban form together with growing environmental concerns have been investigated.

The study area, which was chosen, is the Ethekewini Municipality. This paper explores the impact of urban sprawl in Durban, a city with a population of three million people (Census 2001). Durban's spatial form began to change in the late apartheid years, as rapid urbanisation and weakening apartheid controls led to a massive growth of informal settlements on the periphery. A few informal settlements emerged within central city areas as political instability undermined controls on settlement. By 1994 informal settlements accounted for about a third of Durban's population, but less than four percent were in central areas (Urban Strategy Department, 1995).

Some of the settlements have densified and a few land invasions have occurred since the 1994 elections but a commitment and intervention by National and Local government has prevented large scale land invasions.

Low income earners were offered housing subsidies, however most housing projects were in the urban edge leading to further sprawl. The Metropolitan Housing Service Unit is committed to restructuring the city along compact integrated city lines and has devised a number of innovative initiatives to housing development. However the task is constrained by the high cost of the scarcely available land, a demand for other uses for the land and also objections from communities adjacent to the land (Harrison P., 2003).

The Ethekewini Council has avoided confrontation with high income landowners and community members with regard to the location of new low cost housing. A large scale housing development primarily for the poor is occurring in Cato Manor. However, we find that mainly single unit one bedroom dwellings have been constructed in Cato Manor. There is very little or no land for

expansion. South of the Cato Manor Police Station between Johanne Nkosi and Colin Shum Avenue, high density four storey development has been constructed. However, this is in a very limited area and this form of development need to be extended over vast areas of Cato Manor. Owing to the close proximity of Cato Manor, about 7 kilometres from the city centre, it would have been an ideal opportunity to construct high density flats interspersed with medium and low density dwelling so that the previously disadvantaged inhabitants of the Ethekewini municipality can benefit from the advantages of living close to the city centre and work opportunities.

3. IMPACT OF URBAN SPRAWL

3.1 Access to Public Transportation

Access to public transportation is an essential right of the inhabitants of a city and in particular the low income earners. In Durban and other South African cities, there is continuing community protests over increasing public transportation costs to the commuters and improved levels of service and conditions of service. The public transportation service is neither adequate nor cheap in South African cities.

The reasons for these are complex. Fixed line public transportation is viable but requires high threshold of support. In most South African cities, densities are simply too low to allow for an efficient service to exist. While some service lines are viable, others are not.

The concentric outward low density sprawl from one or more central points mean that public transportation systems and in particular train cannot serve urban inhabitants on the urban edge efficiently. As the fixed lines move outward, the distance to be travelled to the terminus by commuters located in the interstices between lines increases exponentially.

Owing to the two factors, public transportation will continue to be inefficient and costly. The impact on the urban poor is massive. Costs in monetary terms are high, not only because of inefficiency and continual increases in travel costs but also because most commuters using rail transport have to firstly walk to bus stops thereafter travel by bus/minibus to the train station. Owing to the fact that each mode of transport may have a minimum charge, this increases the cost of public transportation dramatically.

The inability of the public transportation to effectively serve the poor has forced many of the urban poor into purchasing a motor vehicle which is about the most expensive mode of transport and which they cannot afford adequately. The motor vehicle has become the accepted and efficient choice of transport but there is no freedom of choice of the different modes of transport. As there is an increase in traffic volume, this is now a justification for the expansion and construction of new roads.

This leads to higher trip generation, which is not being questioned seriously. The cause of higher trip generation is the spatial dislocation between places of employment, commercial and social activities and places of residence. If the relationship between these is well planned, then this will lead to a reduction in trip generation. New centres of accessibility and public transportation routes need to be planned and different modes of transport need to be coordinated.

This change in mode of transportation, by providing increased mobility and allowing for the outward movement of the population is perhaps the single most important factor which leads to urban sprawl. The use of the motor car is thus a factor which allow access to undeveloped areas further from the city.

3.2 Air Pollution

Vehicle emissions are the foremost source of air pollution. Diesel trucks and cars emit a wide variety of gases, such as carbon monoxide, nitrous oxides, polyaromatic hydrocarbons (PAHs) and other products of incomplete combustion. Diesel emissions are a leading source of the highly toxic dioxin, which accumulates in our food chain. The nitrous oxide are converted by sunlight into unhealthy ground level ozone especially on hot windless summer days.

Motor vehicles comprise one of a number of important contributors to acid rain and depletion of the ozone layer. The carbon dioxide in vehicular emissions is a major greenhouse gas that has been linked to global warming.

Owing to the expansion of the residential area in Merebank, south of Durban, has resulted in the oil refinery and Mondi factory being mainly surrounded by residential areas. The pollution emanating from such industries has a detrimental effect on the health of surrounding residents.

Many inhabitants of the city travel by car from as far as Hillcrest, Tongaat and Amanzimtoti to the central business district, thus adding to the air pollution.

3.3 Water and Land Pollution

Chemical gases and particles which are released into the air by cars and trucks eventually come to rest onto building, street and land surfaces. Vehicles often leak oil, gas, brake fluid, windshield detergents, engine coolant and worn metal particles. Car tyres leave a residual of zinc and other pollutants as they wear. Hardened sidewalks, street and parking lots often provide direct conduits to stormwater drains, allowing these pollutants to wash directly into lakes and streams without any filtration.

The many settlements which have developed close to rivers, streams and catchment areas in Cato Manor and along the Umgeni River has led to the deterioration of the water quality and pollution.

3.4 Environmental Sustainability

Urban sprawl leads to the insufficient use of land, which is a non renewable resource, through the consumption of excessive quantities of land that may be highly valued in relation to agriculture, minerals, aquifer recharge potential and amenity. Owing to the nature of urban sprawl, development may encroach into land which are geologically unstable, susceptible to flooding, wetlands, etc.

Sprawled cities consume considerable quantities of water required to irrigate extensive gardens (Davies and Day, 1998) and require greater quantities of construction materials for infrastructure and detached buildings. Sprawled cities require greater quantities of energy than compact cities. This is due to heavy car dependence and excessive trip lengths characteristic of sprawled cities.

Urban sprawl is rapidly spreading as people move into the countryside for a better lifestyle while commuting to nearby cities to work, shop, go to school and recreate. In the city most land is devoted to streets and parking lots, rather than livable, walkable places for people to enjoy. Our quality of life declines as more greenspace are covered with concrete.

Agricultural land is being lost around the Gateway shopping centre in Umhlanga. What was previously lush agricultural land is lost under the hardened areas and building. North of the Gateway shopping centre roads are being constructed into the sugarcane field in anticipation of further demand for residential and commercial sites. Low density commercial development with private frontage gardens have mushroomed in La Lucia Ridge Business Park.

3.5 Noise Pollution

As traffic increases, so does the noise level, adding to the stress of modern city life. The increasing noise and congestion causes people to move to the country for peace and serenity, which adds to the

number of long distance commuters who create traffic congestion.

Many residents move further from the suburbs of Durban to escape the noise. However, as time goes by these areas also become noisy as the city expands.

3.6 Increase in Property Rates and Taxes

Much land is used for the creation of transportation corridors and thus a loss in taxable area, thus other property rates must be increased to compensate for the loss. The construction costs of major roads and interchanges is phenomenal.

A major portion of property rates and taxes are used for upgrading and widening roads, new roads, maintenance of roads and associated infrastructure, additional traffic law enforcement officials (Jackson, 1985).

Owing to crime, grime and lack of easy access parking, in the central business district, many medium size businesses have relocated to suburbs within a radius of 3 km of the central business district in Durban. This has resulted in the property values escalating in the surrounding residential properties, as demand for properties increases, and thereby an increase in municipal rates.

4. RECOMMENDATIONS

Urban sprawl cannot be totally reversed in the Ethekewini Municipality area but a few measures to achieve compaction is outlined below.

- Densification in existing brownfield land in urban areas to promote higher residential densities.
- Infill development where large tracts of vacant land (greenfield land) within urban areas are developed.
- To define an urban edge which restricts outward expansion of urban areas.
- If a property owner submits an application, to the Ethekewini Municipality for rezoning then a minimum density for new development should be prescribed.
- Provisions should be made to construct more than one dwelling without subdividing the property. The minimum size of properties should be decreased.
- The introduction of property taxes which penalizes the underutilisation of land and thereby encouraging higher densities.
- The review of building regulation, which restrict building height, coverage, and off street parking requirement.

5. CONCLUSION

The search for an ideal city structure in Durban is on going process with no immediate solutions. Sprawl has resulted in significantly higher concentration of poor families, in townships such as Kwa Mashu and Inanda, being increasingly isolated from opportunities as they move further from the city core. Communities have become more polarised between the “have and have-nots” which resulted in an increasing level of socio-economic and racial segregation in the Ethekewini Metropolitan area.

As more companies are relocating in nodes such as Umhlanga and various industrial parks and suburbs, it is becoming more difficult for especially the low income earners to obtain employment owing to the poorly coordinated public transportation that does not link them to those dispersed job opportunities. Without a motor vehicle it is becoming more difficult for a city resident from seeking employment.

There is a need to dramatically reduce the lateral spread of cities by imploding growth onto under utilised land. Higher densities are necessary to maximize economic opportunities. Compact intense local markets are an important factor for vibrant, small scale economic activity. Compaction

encourages economic diversification and there is an increased threshold of support for varied forms of social and commercial services. The unit cost of services to the consumer tends to be lower. Inhabitants of a city must be able to fulfill their needs and undertake most of their basic activities on foot. Compaction maximizes the use of existing infrastructure and enables viable and efficient public transportation system and thus can discourage car dependence with enormous cost savings. Compact cities make more efficient use of resources such as land, energy and finance and can significantly reduce the current rate of environmental destruction.

Despite traffic congestion and long community distances to work, moving to the suburbs remain a goal for many city residents who perceive quality of life in the suburbs better. Unless this perception changes and the conditions of urban life improve, sprawl development will continue as the flight from the cities to the suburbs continues.

6. REFERENCES

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Durban, 4000. Tel: (031) 204-2352/204-2310. Fax: (031) 204-2020.

E-mail: yusuf@dit.ac.za and allop@dit.ac.za

BIOGRAPHY

Mahomed Pheroze Yusuf

I have been employed by the Durban City Council from 1984 in the Roads Department. Involved in the designing of roads and stormwater in the south of Durban, compilation of contract documents and contract management. I have been a member of a design team and have designed Bellair Arterial, in Cato Manor, which is an important activity corridor for the previously disadvantaged people who have been provided with low cost housing and business opportunities in close proximity to the Durban Central Business District.

Presently studying towards the Masters Degree in Technology at the Durban Institute of Technology.