

# TOWARDS TOOLS AND MEASURES FOR THE CREATION AND SUSTENANCE OF A LAND-USE REGIME IN SUPPORT OF THE HPPTN

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In this paper an overview and motivation of the methodology that was followed in the development of appropriate, viable and sustainable tools and measures for the creation and sustenance of a land-use regime in support of the HPPTN is provided.

Starting off with a narration of the aim of the project and a description of the required land-use regime, the paper traces, describes and motivates the various steps that were followed in the production of the tools and measures. These steps are:

- the development of a corridor typology for land-use transport corridors;
- a description of the corridor-segments of the HPPTN in terms of land-use and transport movements;
- a classification and benchmarking of the corridor-segments of the HPPTN in terms of the typology, culminating in a gap-analysis of what each corridor-segment *is* and *should be*;
- the formulation of **ideal strategies** to intervene in the location, type, density, intensity and design aspects of land-use in the HPPTN area, the non-HPPTN areas and the corridor-segments in accordance with the gap-analysis;
- the evaluation of the ideal strategies in terms of two separate sets of information, a "Spatial Economic Scenario" and a "Public Investment and IDP-Reality Study";
- the production and prioritization of **realistic strategies** in support of the required land-use regime in accordance with the evaluation;
- the development of tools and measures to operationalize the realistic strategies; and
- the formulation of a set of procedures to monitor and evaluate the performance of the mechanisms (tools and measures).

The paper is concluded with an indication of the anticipated impacts/benefits and costs of the various tools and measures, and a proposed time frame for implementation.

## 1. Introduction

This paper is the result of its author's involvement in Task 8, of the Fundamental Restructuring Project in the Durban Metropolitan Area (DMA). Their specific area of involvement, as part of a bigger group of five, was that of producing a regulatory framework and set of incentives that could produce a land-use regime that could support and sustain the High Priority Public Transport Network (HPPTN) in the DMA.

As this paper is a record of a process still under way it will hopefully have value as a case study. In addition to that it is believed that the method and the products will also be of use to others struggling with the dilemma of making our cities more efficient through interventions aimed at ensuring better integration between land-use and transport.

## 2. Contextualisation

During the last two decades there has been a growing realization among those concerned with the development of sustainable human settlements in both the developed and the developing world that the planning for land-use and transport requires far greater integration than had been the case in the past. A key driver of this development has been the ideal of sustainable development<sup>1</sup> that has come to play a dominant role in spatial planning since the Earth Summit in Rio de Janeiro in 1992<sup>2</sup>. Within this environmentalist paradigm the logic of pursuing integrated land-use and transport planning has been that more efficient and more compact urban forms will result in less sprawl, less private motor car travel, increased utilisation of public transport and less dangerous emissions<sup>3</sup>. In addition to the environmental logic, governments have also taken a keen interest in improving the integration between land-use and transport [planning] in an effort to reduce the enormous fiscal losses at which public transport is being run<sup>4</sup>.

Internationally some indications of this concern are to be found in the UK in:

- the recently published White Paper on Transport, 1998<sup>5</sup>;
- the revised Planning Policy Guidance (PPG) 12 on Development Plans, which specifies that a “transport and land-use strategy” must be included in local transport and development plans<sup>6</sup>; and
- Planning Policy Guidance (PPG) 13 on Transport, which is devoted to ensuring integration between land-use and transport planning at local level<sup>7</sup>.

Similar trends are prevalent in the USA<sup>8</sup>, Germany (Pucher, 1998) and a number of Asian and South American cities<sup>9</sup>. In the Netherlands a good example of this tendency is the so-called “ABC-policy” whereby a concerted effort is made to match the mobility profiles (requirements) of businesses and services with the accessibility profiles of locations/sites<sup>10</sup>. In this way a definite attempt is made to ensure that land-uses that are mass trip generators are located in the most accessible locations with the result being a cost-effective and efficient public transport system<sup>11</sup>.

Locally this concern has found expression in the White Paper on a National Transport Policy published in September 1996 in which Government committed itself to the provision of transport services that support “... *government strategies for economical and social development whilst being environmentally and economically sustainable*”<sup>12</sup>. One way in which it was proposed that this be done was by bringing focus to the transport system through the concentration of private and public investments on high volume routes and in major nodes. In so doing a primary network, the backbone of the transport system, and a secondary supporting feeder network, would be established. Essentially this is also the vision and driving force of the Fundamental Restructuring Project.

Further support for this notion is to be found in the Moving South Africa (MSA) strategy, 1997-1999, which identifies sub-optimal spatial planning as the biggest driver of public transport costs and also the most difficult determining factor to “turn around”. The Strategy also sets out a number

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<sup>1</sup> The Bruntland Report “Our Common Future” defines “sustainable development” as “... *development that meets the needs of the present without compromising the ability of future generations to meet their own needs*” (Rowan-Robinson *et al*, 1995: 269-70).

<sup>2</sup> Newman and Kenworthy (1996: 6) and Banister *et al* (1997) and see UK Government (1999) in which this link and a variety of ways by which sustainable development can be achieved, are discussed.

<sup>3</sup> See Andersen and Burnett (1998); Del Mistro (1999); Cameron (1998a) and UK Government (1999) for a more detailed discussion of this logic and its associated benefits.

<sup>4</sup> See NDoT (1999).

<sup>5</sup> Department of the Environment, Transport and the Regions (1998) and see also Pharaoh (1995)

<sup>6</sup> UK Government (1998)

<sup>7</sup> Department of the Environment, Transport and the Regions (1999) and Fyson (1999)

<sup>8</sup> see Atash (1996); Minter (1997) and Boarnet and Crane (1997)

<sup>9</sup> see Newman and Kenworthy (1996) and Minter (1997)

<sup>10</sup> See Oranje (1999) and Kraay (1996).

<sup>11</sup> Davies (1993: 244)

<sup>12</sup> NDoT (1996).

of Key Strategic Actions aimed at overcoming these strategic challenges and fulfilling the set objectives for urban public transport, such as corridor-densification and the optimal deployment of modes to meet customer service requirements. With regard to the latter it is argued in the document that commuter rail, as it is currently operated, only becomes viable in corridors of more than 30 000 passengers per direction per day. Dedicated investment to ensure such numbers are hence required in corridors that have, or show potential to reach such numbers. In corridors where the number of passengers is between 10 000 and 30 000 per direction per day, road-based transport with dedicated infrastructure or priority measures at least over parts of the corridor is proposed. In the case of low ridership corridors of less than 10 000 passengers per direction per day, the policy position is that such corridors do not warrant dedicated infrastructure investment.

In a follow-up publication launched in May 1999, the National Department of Transport unveiled the “*Action Agenda*” to give effect to the objectives set out in its Moving South Africa strategy. In this “*strategic framework*” the Department not only spelled out how it would endeavour to meet the transport needs of the nation in a sustainable way, but also expressed the view that transport is “... *an enabling industry, one which exists not only to meet goals inherent to transport, but also to meet other pressing national and social objectives*”<sup>13</sup>. Included in this list of objectives were:

- “*economic growth, creating a high and rising standard of living for all citizens as set out in GEAR and the RDP;*
- *increased trade, especially with neighbouring SADC countries;*
- *improved access to employment opportunities; and*
- *increased social integration*”<sup>14</sup>.

In its vision for reaching these goals in urban areas the Department opts for a very definite concept comprising two components:

- A “*Strategic Network*” that forms the backbone of the system and consists of densely developed nodes and inter-connecting linear corridors, which, as it concentrates travel demand in a focussed area, leads to more riders/freight per vehicle and subsequent lower unit costs<sup>15</sup>; and
- A “*Supporting Network*” that will not only feed into and distribute customers from the Strategic Network, but also connect it to areas outside the core network<sup>16</sup>.

To give effect to this conceptual vision, the Department proposes the focussing of investment, resources and high-density land-uses in these linear corridors and nodes, in so doing providing the necessary thresholds for public transport<sup>17</sup>. This, they argue, will be a 10-20 year exercise and will require very targeted interventions in the form of controls and incentives<sup>18</sup>.

The most recent indication of government’s commitment to the integration of land-use and transport is the National Land Transport Transition Act, 2000, which has as its aim ensuring that:

- land-use and transport planning is done in an integrated way;
- public transport that serves the needs and quality requirements of its users is promoted and provided in an efficient and cost-effective way;
- integration between public transport modes is pursued;
- public transport is provided in such a way that it leads to the better utilisation of scarce resources; and
- involvement of all stakeholders takes place in all transport planning initiatives.

Provision is also made in the Act for the establishment of Transport Authorities that are inter alia instructed to prepare policy for their areas of jurisdiction which has to include “*spatial development policies on matters such as densification and infilling as well as development corridors*”<sup>19</sup>. The Act

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<sup>13</sup> NDoT (1999: 6, 17 and 18).

<sup>14</sup> NDoT (1999: 18).

<sup>15</sup> NDoT (1999: 21).

<sup>16</sup> Ibid.

<sup>17</sup> NDoT (1999: 28).

<sup>18</sup> Ibid.

<sup>19</sup> From Section 10. (13) of the Act.

also requires that Transport Authorities prepare transport plans that “... *must form the transport component of the integrated development plan of the municipality*”<sup>20</sup>. In terms of the Act these transport plans must inter alia:

- “direct employment opportunities and activities, mixed land-uses and high density residential development into high utilisation public transport corridors interconnected through development nodes within the corridors, and discourage urban sprawl where public transport services are inadequate;
- give priority to infilling and densification along public transport corridors; and
- minimise adverse impacts on the environment”<sup>21</sup>.

While there are differences between the responses in the various countries to the land-use and transport integration-issue, they all share the modernist belief in the power of human reason, supported by regulatory [legal] frameworks and incentives to manipulate city-building processes. This they believe will create a land-use regime that will support and sustain more economically viable public transport systems. It was this modernist belief that also drove the work that will be discussed in this paper, viz. the production of a viable regulatory framework and set of incentives that can create and sustain a land-use regime that can in turn support and sustain the HPPTN in the Durban Metropolitan Area.

### **3. Product Deliverables and Progress to Date**

In order to come up with the required component of the fundamental restructuring project, i.e. the production of a land-use regime that can support and sustain the HPPTN, the task at hand was divided up into five subtasks, viz.:

- *Subtask 1*: The production of a set of ideal land-use strategies that could support and sustain the HPPTN, i.e. strategies that have not been informed by the economic scenario for the DMA;
- *Subtask 2*: The production of a set of spatial economic scenarios for the DMA;
- *Subtask 3*: An identification and interpretation of the various housing and public infrastructure investment projects under way in the DMA, by inter alia making use of the Integrated Development Plans (IDPs) that had been prepared for the DMA;
- *Subtask 4*: The transformation of the ideal strategies into realistic, viable strategies by bringing the outcomes of Subtasks 2 and 3 to bear on the ideal strategies; and
- *Subtask 5*: The production of a set of appropriate tools and measures that could support the realistic viable strategies.

At this stage Subtasks 1 to 3 have been finalised, Subtask 4, the production of realistic, viable strategies has begun, but is not yet completed, and the desktop component of Subtask 5, the production of appropriate tools and measures has been done. Tools and measures for implementation are however, not in place, hence the “towards” in the title of the paper.

In this paper two of the subtasks are dealt with, viz. Subtask 1, the production of ‘ideal’ strategies, and the desktop part of Subtask 5, the production of a set of appropriate tools and measures to support the realistic, viable strategies, the eagerly awaited output of Subtask 4. The major part of the paper is, however, devoted to Subtask 1, and more specifically, the process/method by which the ideal strategies were produced and the products/outputs of the process. The tools and measures are also touched upon, but only insofar as certain possibilities have been identified via the desktop study.

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<sup>20</sup> From Section 18. (1) of the Act.

<sup>21</sup> From Section 18. (3) of the Act.

## 4. Producing the Ideal Strategies

### 4.1 Objectives

The two objectives of the Subtask were to:

- generate a “working typology” of ideal land-use transport corridor types; and
- make use of the typology to produce strategies to manipulate land-use type, location and intensity/density and design in:
  - the HPPTN-area (i.e. the parts of the DMA in which the HPPTN was located);
  - specific corridor-segments of the HPPTN); and
  - the non-HPPTN-area (i.e. the rest of the HPPTN).

### 4.2 Process/Methodology

In order to produce the two deliverables a process consisting of the following steps was followed (see Figure 1):

*Step 1:* The development of a corridor typology by using the dynamic forces at work between land-uses and transport movements in a corridor. This typology not only described the conceptual format of each type, but also the detail regarding the required traffic movements and land-use type, density and intensity.

*Step 2:* The breakdown of the HPPTN in corridor-segments and the description of these segments in terms of land-use and transport movements.

*Step 3:* A classification and benchmarking of the corridor-segments in terms of the typology, culminating in a gap-analysis between what *is* and what *should be* for each of the segments.

*Step 4:* The formulation of ideal strategies for intervention in the location, type, density, intensity and design aspects in the HPPTN-area, the non-HPPTN-area and the corridor segments in terms of the gap-analysis. As indicated earlier this is not the end, as these ideal strategies will now be evaluated by making use of the spatial economic scenarios and the public investment and housing provision data and adapted in order to come up with realistic, viable strategies. These strategies will then be followed by a prioritization process as it will not be possible to implement all of the strategies at once, and tools and measures formulated that could assist in the implementation of the strategies. Lastly, a set of procedures will be developed to monitor and evaluate the performance of the mechanisms.

## 5. The Products/Outputs

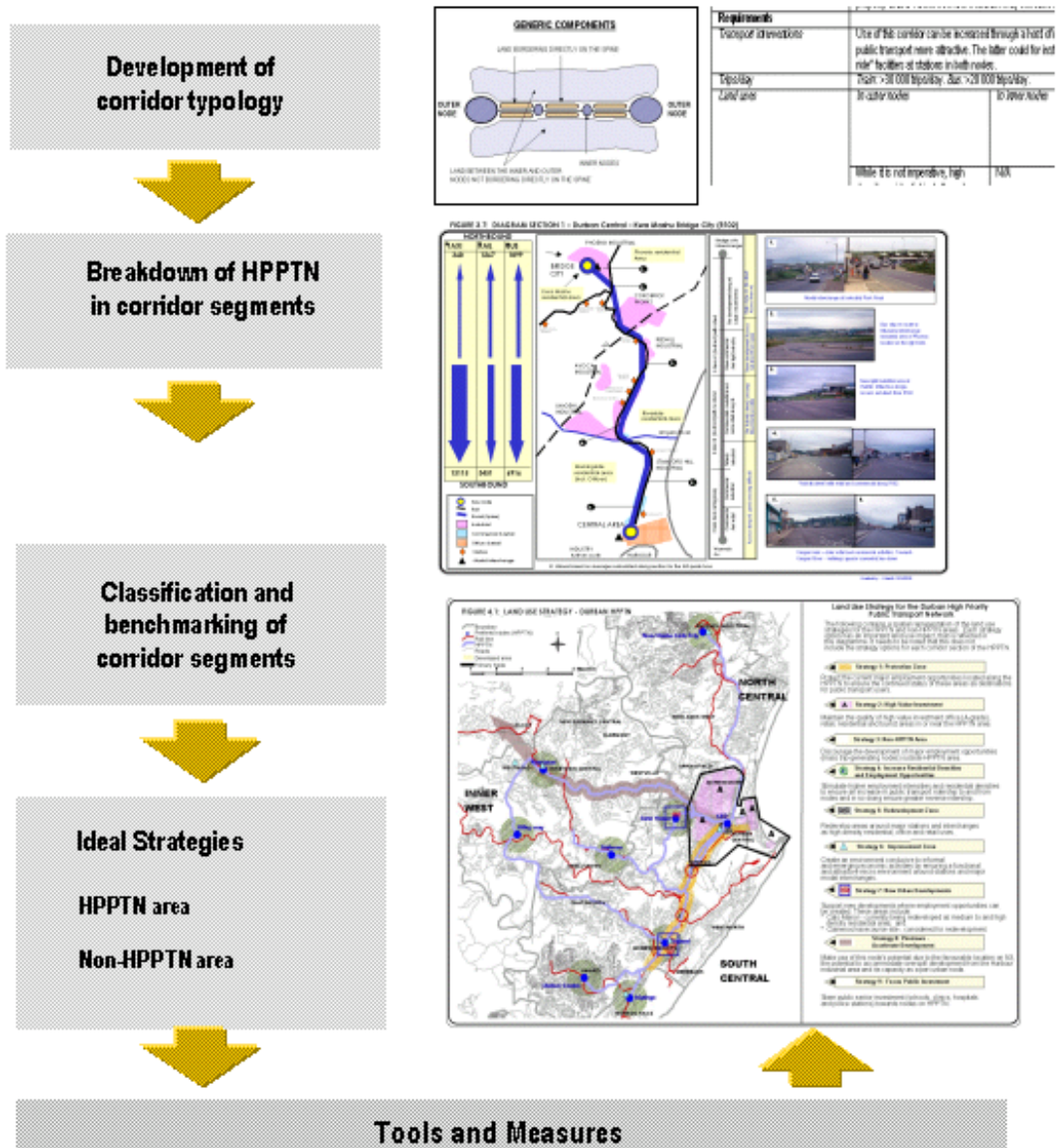
### 5.1 The Typology

In producing this typology we went out from the premise that one should not become fixated on the spatial form/expression of a corridor and in the process forget or neglect the crucial underlying dynamics – the “forces of attraction” – that determine this form<sup>22</sup>. In terms of this conceptualisation a corridor is regarded as a “conceptual frame” in which a certain desired relationship between land-use, economic activity and traffic movement/flow is articulated/postulated. This desired land-use-transport relationship is dependent on the existence or establishment of certain “forces of attraction” on a micro-scale in the corridor, but also on a more macro-scale, between a corridor and the rest of the urban area in which it is located. Public interventions in corridors can only have an impact if they impact on these “forces of attraction”.

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<sup>22</sup> See Naude and Clark (1986: 18) and Cameron (1998b) for a similar perspective.

Figure 1: Process followed in the production of the project deliverables



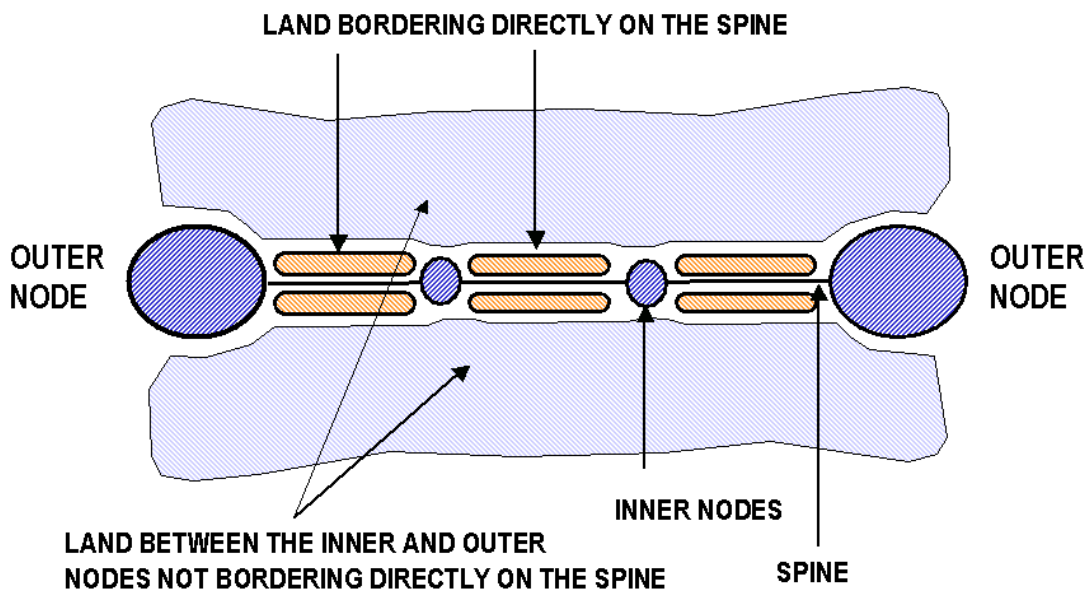
In more detail, what is being argued, is the following:

- On a micro-scale a corridor is dependent on the existence of forces of attraction drawing people from one point in a corridor to another. Without such interaction there can be no corridor. The more forces of attraction there are at work in a corridor the more successful it will in all likelihood be.
- On a macro-scale a corridor is dependent on the existence of forces of attraction drawing land-uses into the corridor that can ensure that it becomes a magnet for activities in the wider urban area. These land-uses create/set in motion forces of attraction on a wider level, leading to movement of people and freight via feeder routes into the corridor. If land-uses that can set in motion forces of attraction do not settle in a corridor there can be no corridor. The more forces of attraction at work in a corridor vis-à-vis the wider urban area, the more successful it will in all likelihood be.

- The “forces of attraction” are set in motion by activities in one, more of one, or all of the following generic components of a corridor connected by a/the spine/s:
  - the two outer nodes at the boundaries of the corridor;
  - inner nodes in-between the two outer nodes;
  - the stretch of land bordering directly on the spine/s connecting the inner and outer nodes; and
  - the land in-between the inner and outer nodes and not bordering directly on the spine/s (see Figure 2).

Each of these components of a corridor acts at a given point in time as either an “Attractor” or “Sender” of people, or both. The key objective of public investment in corridors is to transform “Senders” into “Attractors”, or to further increase the attractiveness of existing “Attractors”. These acts of “making [more] attractive” require substantial, sustained and often very costly public intervention in the form of infrastructure investment and incentives in corridors for a prolonged period of time. At the same time they may necessitate the imposition of tight controls/regulations on the location of activities in non-corridor areas of a particular settlement to ensure that enough development takes place in the identified corridors.

Figure 2: Generic Components of a Corridor

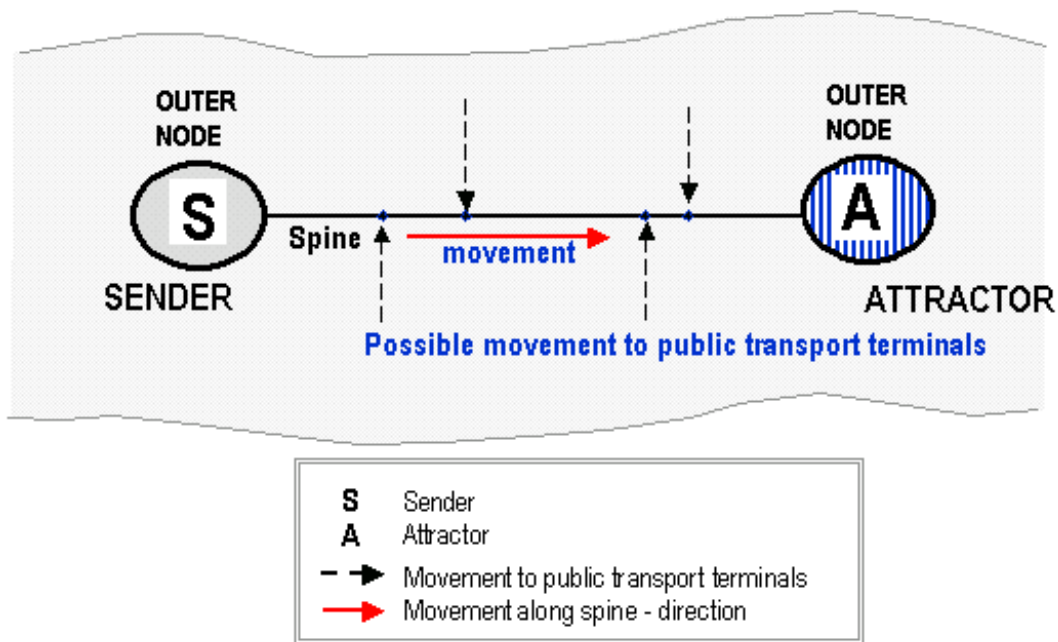


- Finally it is argued that various combinations of Senders and Attractors create the following types of corridors:

*The Single Attractor (see Figure 3)*

As the name suggests, in this corridor a single component acts as an Attractor. Movement in the corridor is of a one-way nature from one of the outer nodes (the Sender) to the other (the Attractor). While this movement is of course at some point reversed, the trip back from the Attractor is one of necessity (from work to home) and not because of an attraction in the destination.

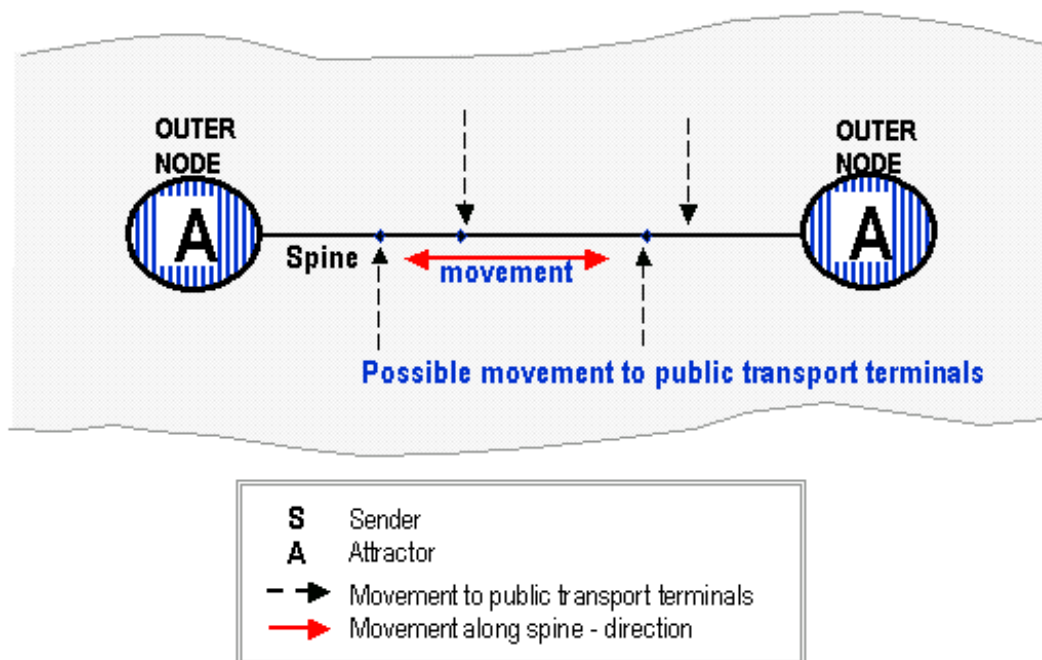
Figure 3: The Single Attractor



*The Dual Attractor (see Figure 4)*

In the case of this type of corridor both the outer nodes act as Attractors. While movement in the corridor is of a two-way nature the two streams need not, and will in all likelihood not, be of equal magnitude.

Figure 4: The Dual Attractor





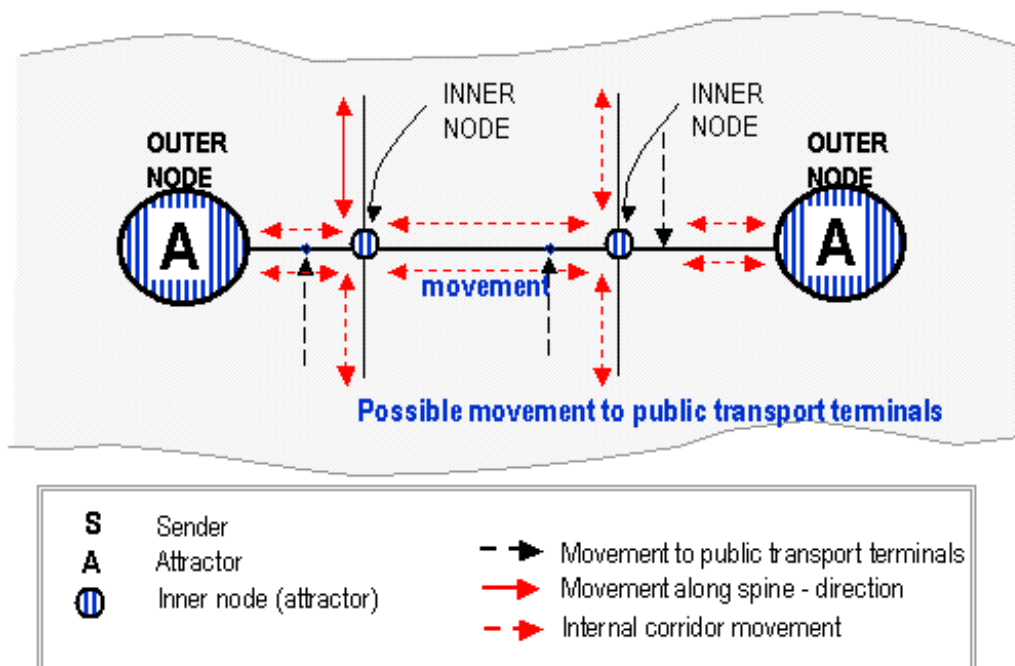
### Multiple Attractors

In this type of corridor other components, in addition to the two outer nodes, act as Attractors. While the three multiple types, as set out in this section, seem to propose a very clear-cut, demarcated description of a very complex reality, these types can of course exist in combinations. It should also be noted that the “Full Corridor Attractor” is in fact a further development on either the “Multi-Nodal” or “Strip Attractor”, implying that the conditions of either or both are also present in this type.

(a) The Multi-Nodal Attractor (see Figure 5)

In this case (an) inner node/s, in addition to one or both of the outer nodes, act as (an) attractor/s.

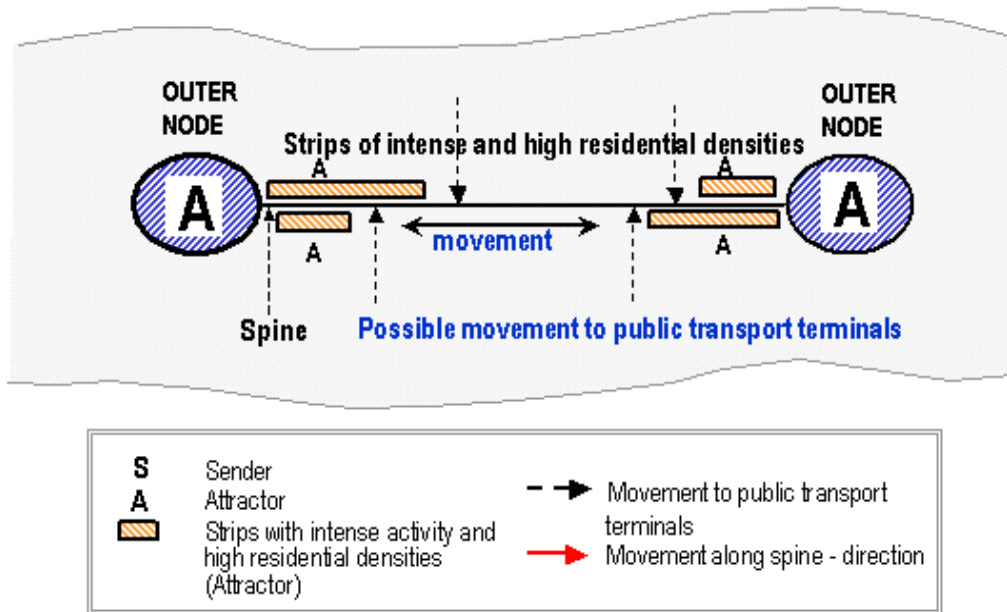
Figure 5: The Multi-Nodal Attractor



(b) The Strip Attractor (see Figure 6)

In this corridor the strip bordering on the spine/s, or portions of the strip between the two outer nodes, act as (an) attractor/s. This strip may be located between two spines, creating a block of intense and diverse activity, or be located on one, or both sides of a single spine.

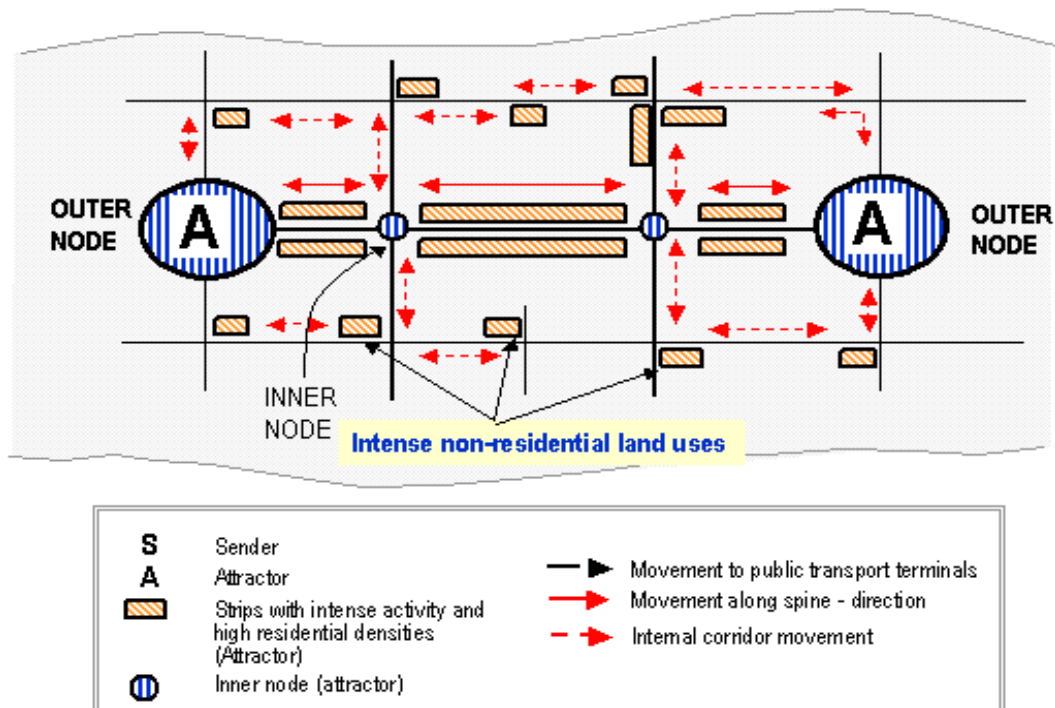
Figure 6: The Strip Attractor



The Total Area Attractor (see Figure 7)

This type of corridor can be seen as what is often referred to as a “mature corridor”<sup>23</sup>. In this case the areas in-between the inner and outer nodes and that are not directly adjacent to a spine, also act as attractors. The result is a corridor with a multiplicity of movements to and from all the components of a corridor.

Figure 7: The Total Area Attractor



<sup>23</sup> See for instance Cape Metropolitan Council (2000: 13-4) and Green et al (2000).

For each of these corridors a table setting out the characteristics/attributes, implications and requirements of this type of corridor was prepared. An example of such a table is the table prepared for the Dual Attractor (Table 1), below.

Table 1: The Dual Attractor

Characteristic/Attribute	Description	
<i>Primary objective of corridor</i>	<p>Like the Single Attractor this type has as one of its objectives high volume, high-speed movement of people between two nodes, but in this case the intention is for both outer nodes to act as attractors. In the South African context this can to a large degree be seen as a way of reducing the subsidies that are annually spent on public transport by increasing reverse-ridership. An additional benefit from this initiative is the creation of economic bases in former "townships" and the provision of employment opportunities in these deprived areas.</p> <p>Like the Single Attractor a key objective of this corridor type is to:</p> <ul style="list-style-type: none"> <li>• prevent private motor car owners from making trips to and from work during peak hours in their cars through the provision of very attractive public transport options; and</li> <li>• delay the need for, and the actual purchase of, private motor cars by existing public transport users.</li> </ul>	
<i>Type of movements</i>	<p>Typically high volume train and bus movements to and from both outer nodes. Even though peak hours will still be times of high volume movement, there will also be movement between the nodes throughout the day. While it would be ideal if the number of trips in opposite directions could be of the same magnitude it is unlikely that this will be the case.</p> <p>In the case of the bus being the transit mode significant movement from "the corridor area between the two outer nodes" to bus stations on the spine may take place.</p> <p>"Off-corridor" movement takes place to and from the bus/train station into the CBD, secondary nodes or to predominantly residential townships via taxi and/or bus. Inter-modal transfers may take place at the two outer nodes as commuters change-over from bus or taxi to train or bus and vice versa.</p>	
<i>Primary function of spine</i>	<p>Line haul, high-speed movement between the two outer nodes. Providing for the access-function compromises this function and leads to longer travelling times and reduces the attractiveness of the public transport option.</p>	
<i>Typical land-use types associated with corridor</i>	<p>This type of corridor could be found in a variety of metropolitan settings in South Africa. One such option could be between two "edge city"-nodes. Another could be between such a node and a CBD or between an emerging node in a former "township" or other peripheral area and an "edge city" node or a CBD.</p> <p>The implication of these diverse types is that, as far as land-uses are concerned, a wide range of land-uses is possible. Some broad types of land-use nodes can, however, be distinguished:</p> <ul style="list-style-type: none"> <li>• two office/services/retail nodes;</li> <li>• a CBD and an office/services/retail node;</li> <li>• a mixed land-use emerging node in a former township and a CBD; and</li> <li>• a mixed land-use light industrial/services/high density residential node and a CBD.</li> </ul>	
<i>Ideal transport modes</i>	<p><i>Public:</i> Train. Bus is also an option, but is not able to transport such high volumes and at such guaranteed high speeds as the train.</p>	<p><i>Private:</i> Other than pedestrian movement it is not applicable in this case. A primary objective of this corridor type is the provision of a viable alternative to private motor car use in peak hours on line haul routes. Bicycle and limited motor car use to and from "park-and-ride" facilities in either of the two nodes may be possible.</p>
<i>Where to be used in urban area</i>	<p>This type is far less common than the Single Attractor-type. It is in fact a more desirable, upgraded version of the Dual Attractor. It can hence be used to link:</p> <ul style="list-style-type: none"> <li>• two "edge city"-nodes;</li> <li>• a CBD and other nodes, especially new "edge city"-nodes; or</li> <li>• an emerging node in a former "township" and/or other peripheral area and/or an "edge city" node and/or a CBD.</li> </ul>	
<b>Implications</b>		
<i>Land-use implications of corridor</i>	<p>This corridor type typically has a very limited positive impact on land-uses other than in the two nodes. In these nodes the high pedestrian flows provide opportunities for a wide variety of formal and informal retailers. These opportunities can of course be threatened by crime if the areas are not well policed.</p> <p>Railway lines (where applicable) tend to divide the areas they traverse. Land directly adjacent to such railway lines is often of low value.</p> <p>Where "edge city" nodes are connected the existence of the public transport route could further increase the value of land in the node and lead to even more investment.</p>	

	In the case of bus and train routes connecting upmarket nodes to each other, or to other nodes, the property that is visible from the bus/train may increase in value as a result of the high exposure it gets.			
<b>Requirements</b>				
<i>Transport interventions</i>	Use of this corridor can be increased through a host of measures to make the use of the car less, and public transport, more attractive. The latter could for instance be facilitated by the provision of "park-and-ride" facilities at stations in both nodes.			
<i>Trips/day</i>	<i>Train:</i> >30 000 trips/day. <i>Bus:</i> >20 000 trips/day.			
<i>Land-uses</i>	<i>In outer nodes</i>	<i>In inner nodes</i>	<i>In strips directly adjacent to spines</i>	<i>In the areas in-between the inner and outer nodes not bordering directly on the spines</i>
	<p>While it is not imperative, high density residential in both nodes would support the use of public transport.</p> <p>The required land-uses depend primarily on the type of node, be it a residential, office and services, retail, manufacturing, etc., or a mixed land-use node.</p> <p>Most nodes could also benefit from a diversification in compatible land-uses.</p> <p>Construction of public buildings in these nodes would add further impetus to the development of the nodes.</p>	N/A	Residential	Residential
<i>Non-residential land-use intensities</i>	High	N/A	N/A	N/A
<i>Residential densities</i>	> 60 du/ha in both the nodes.	N/A	<p>These should preferably be between 40 and 60 du/ha so as to ensure sufficient public transport ridership.</p> <p>In the case of a bus corridor the densities should preferably be &gt; 60 du/ha.</p>	<p>These should preferably be between 40 and 60 du/ha so as to ensure sufficient public transport ridership.</p>
<i>Design requirements</i>	<p>The stations in both the nodes should be made as functional and as aesthetically pleasing to entice private car users into using public transport.</p> <p>Ease of inter-modal transfer should be attended to in the detail design of the stations.</p>	N/A	Where possible and necessary an attempt should be made to eradicate aesthetically unpleasant wayside scenes from train windows.	N/A
<i>Other</i>	<p>Crime-prevention at stations and on trains.</p> <p>An effective marketing campaign to boost public transport use.</p> <p>Through-ticketing systems to increase the ease of public transport use.</p>	N/A	N/A	N/A

## 5.2 The Description of the Corridor Segments

The current land-use status was analysed within the identified HPPTN network corridors, based on the limited available information. Where possible detailed information was used to supplement other existing available sources<sup>24</sup>. The HPPTN corridors were studied in terms of the following components:

- Spatial extent;
- Nodes connected;
- Corridor Type;
- Function of spine;
- Land-use description; and
- Public transport reality.

Visual media (photos, maps and schematic illustrations) were used to illustrate assessments and to visualise the environment of the HPPTN corridors (See an example of such a corridor description in Diagram 1). GIS information was used where possible to analyse the corridors and to develop appropriate strategies and a summary table provided to indicate key results/issues relevant to each corridor.

## 5.3 The Ideal Strategies

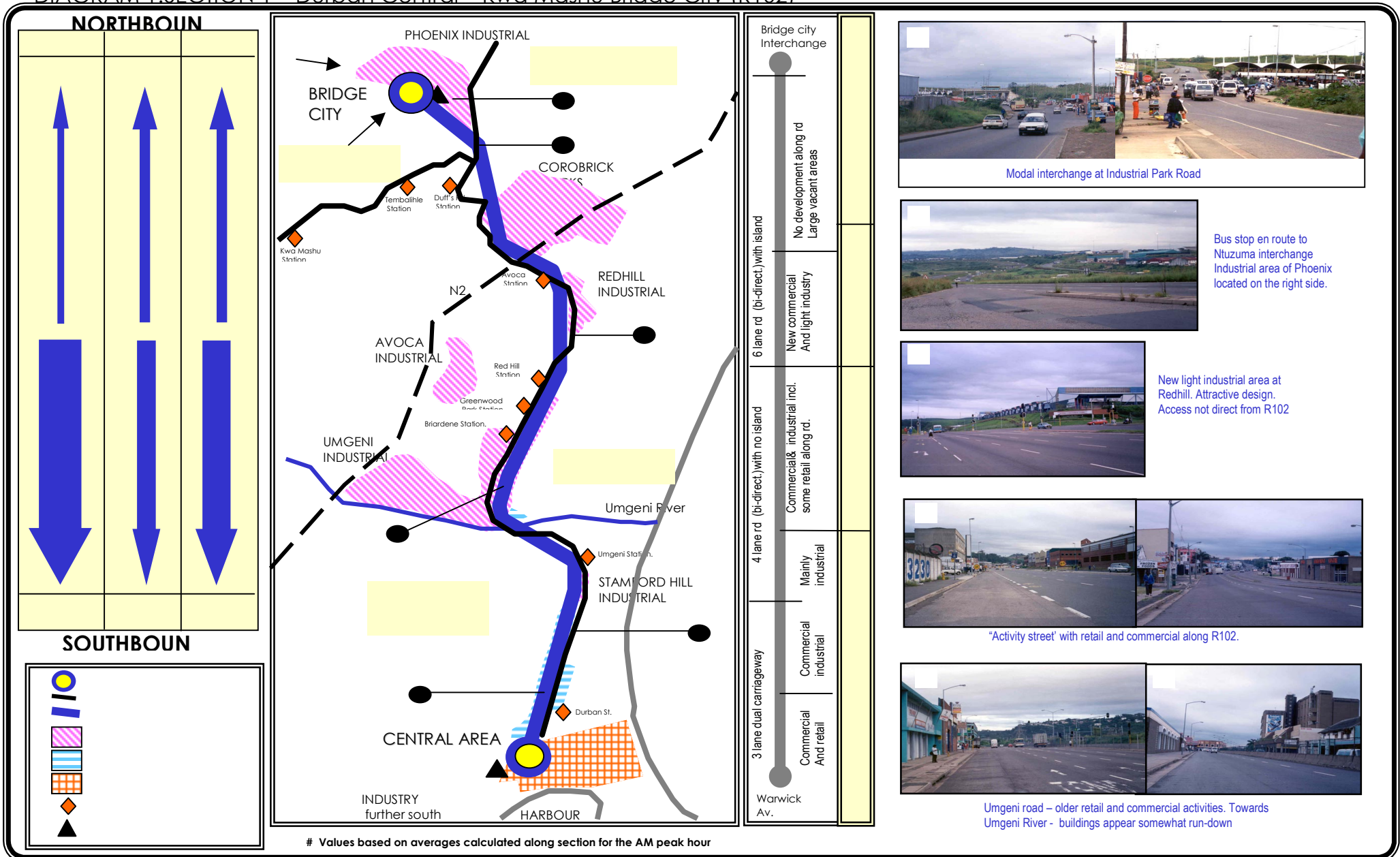
As indicated earlier in this paper the purpose of the ideal strategies was to provide a way in which the gaps as identified between the current and the required land-use regime on a macro, city-wide, and a more micro, individual corridor-segment level, could be addressed. The initial thinking was that it would be possible to do this in a very quantitative way; that it would be possible to determine the floor area for each land-use type that would ensure that the land-uses in the corridor-segment provide the required public transport ridership. This optimum floor area would then be used to weigh the current situation and determine the additional required floor area per land-use type. The strategy for each corridor segment would then be directed at ensuring that the additional floor areas of each required land-use would be provided in the corridor-segment in the shortest possible time. The level of detailed information this required, and the huge gaps between the status quo and the current ridership figures in nearly all of the corridor-segments, made the exercise at this point way too costly and superfluous. It did not require a very complex, [and most probably] very expensive model to tell us what a very basic one did, viz. that huge amounts of new land development were required in nearly all of the various corridor segments. Having said this does, however, not mean that more quantitative data would not have been useful in providing far more accurate indications of the extent of land required development in the corridor-segments, had such data existed.

After the assessments were done, strategies were formulated for the HPPTN and non-HPPTN areas in an attempt to fill the gap between the ideal and the reality. These strategies were selectively applied in each corridor segment in accordance with the gap-analysis based on the ideal corridor-typology. The strategies were most often focussed on ensuring that the corridor segments at least become proper Single or Dual Attractors. The key assumption on which all the strategies were based, was that the Durban CBD and the Southern Industrial Basin, is the only node that has the potential to attract more than 30 000 passengers per day over the short to medium. (In terms of the Fundamental Restructuring concept the minimum number of trips required to make a corridor economically viable is more than 30 000 trips/day in a single direction.)

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24 Nodes and Corridor Study – North and South Central Area (1999/2000); Durban Corridors Study – economic report (1995); Fundamental Restructuring – Sub Task 1a – Identification of a Node structure as part of a High Priority Public Transport System (Sept. 1999); and Spatial Development Plan - Durban Metropolitan Area (Dec 1998).

# DIAGRAM 1: SECTION 1 – Durban Central – Kwa Mashu Bridge City (R102)



The nine strategies that were developed in this process are as follows:

- Strategy 1:** *Protect existing employment opportunities.* (The ridership in the GDMA is primarily a function of home-work trips and hence the employment opportunities need to be protected.)
- Strategy 2:** *Maintain the quality of high value investment office (A-grade), retail, residential and tourist areas.* (High value areas should be protected and retained as major contributors to employment in the GDMA.)
- Strategy 3:** *Discourage the development of major employment opportunities outside the HPPTN area to avoid the establishment of new mass trip-generating nodes outside this area (local services excluded).*
- Strategy 4:** *Stimulate higher employment intensities and residential densities to ensure an increase in public transport ridership to and from nodes and in so doing ensure greater reverse ridership.*
- Strategy 5:** *Renew areas around major stations and modal interchanges so as to become high density residential, office and retail precincts to increase the number of potential public transport users.*
- Strategy 6:** *Ensure a functional and attractive micro-environment around stations and major modal interchanges to provide an environment conducive to economic activity in these areas and to ensure a smooth, safe and more enticing public transport service.*
- Strategy 7:** *Support new urban developments where employment opportunities can be created to strengthen the public transport ridership to and from these nodes.*
- Strategy 8:** *Support development in identified outer nodes to ensure the development of outer nodes that show the potential to develop into "Attractors".*
- Strategy 9:** *Steer public sector investment (schools, clinics, hospitals and police stations) towards nodes on HPPTN to establish activity nodes with resultant agglomeration advantages and thereby increase the attractiveness of specific locations for private sector investment.*

## 5.4 The Tools and Measures

In order to operationalise the strategies a set of instruments (i.e. tools and measures) for implementation by the appropriate authorities (municipal and/or provincial) had to be prepared. Even though the strategies have not been finalised, a desktop study was done of potential tools and measures from which will later be selected and/or developed, a set of instruments appropriate to the Durban-context.

It should be noted that while the task at hand is that of bringing about a certain land-use regime, the potential tools and measures do not all reside in the traditional "land-use planning camp". What they all, however, do, is provide potential ways of intervening in the location, type, density and intensity of land-uses.

From the desktop survey three broad sets of tools and measures were developed that the Durban Metropolitan Council could use to ensure that the desired land-uses at the desired density/intensity, are attracted to, and/or kept in, the HPPTN. The three sets are:

1. instruments that prevent/limit the approval of new rights for land-uses desired in the HPPTN, in the non-HPPTN area;
2. instruments that ease/remove restrictions, streamline application procedures and/or provide incentives for the location of desired land-uses in the HPPTN; and
3. instruments that allow for the approval of new rights for land-uses desired in the HPPTN, in the non-HPPTN area, but exact some or other "levy/toll" for this consent, for deployment by the Durban Metropolitan Council in the HPPTN.

The potential tools and measures that fall in each of these groups, and that have been dealt with in detail in the report to the client, have been summarised in the following table. Included in the table are also limitations, issues and concerns regarding their use and usefulness of the tools and measures.

Table 3 A Summary of Potential Tools and Measures

Tool/Measure	Area of Intervention		Limitations, Issues and Concerns	
	Non-HPPTN	HPPTN		
Moratorium on new rights	X		<p>Could create a negative perception of the HPPTN. Requires commitment and co-operation from provincial government.</p> <p>Entails massive interventions in the urban space economy that may be very costly.</p> <p>Could lead to higher land prices, as supply of land is restricted.</p> <p>The existence of symbiotic relationships/networks between firms and communities in localities creates an economic spatial web/structure that is hard to change.</p> <p>Habit and inertia are very strong forces that could frustrate interventions aimed at bringing about new location-patterns.</p>	
Urban growth management/containment	X			
Parking control	X			
Tolling of roads	X			
"Area Licensing Schemes"	X			
Withholding infrastructure provision	X			
Fast-tracking land development applications		X	<p>The metropolitan population is very heterogeneous. A standardised set of tools/measures will not do.</p> <p>Knowledge of investors and the way they might respond to specific incentives is imperative.</p> <p>The timing of incentive schemes must be right.</p> <p>Incentives should only be used for a fixed period of time.</p> <p>Incentives are only one of a wide range of criteria that determine location choice.</p> <p>Incentive schemes can get bogged down in red tape. Incentives often only result in the shifting of firms from one locality to another, often within the same metropolitan area.</p> <p>Incentive negotiation requires a unique set of skills that officials and consultants may not have and will hence have to acquire.</p> <p>Matching incentives with desired economic sectors is crucial.</p> <p>Incentives are usually very expensive and could divert money away from the provision of traditional public goods, like education and health.</p> <p>Incentives should also be used to support existing firms and not only to attract new ones.</p> <p>Urban systems are very complex and interventions can often lead to massive unintended negative consequences.</p> <p>Investment in property is on the decline and the global economy is also opening up other avenues for non-property related investment.</p> <p>The perception exists among some that Special Zones, like IDZs, are areas in which workers are exploited.</p> <p>Waiving of regulations in Special Zones has been found to be far less attractive to investors than tax incentives.</p>	
Making provision for informal activities		X		
"Transfer of Development Rights"		X		
Provision of inexpensive, serviced land		X		
Removing restrictive land-use controls		X		
Facilitating higher densities through a restructuring of the housing subsidy system		X		
Facilitating higher densities through tax incentives		X		
"Incentive zoning"		X		
Focused infrastructure provision		X		
Establishment of Special Zones (e.g. IDZs, Enterprise Zones, etc.)		X		
Lower municipal, corporate and personal taxes		X		
Tax credits on jobs created		X		
Property tax-pinning		X		
Waiving bulk service contributions		X		
Reduced municipal charges		X		
Free training of workers		X		
Debt financing		X		
Marketing of the HPPTN		X		
Linkage programs	X			<p>These measures are very controversial and have been contested in terms of their legality.</p>
Planning gain/exactions	X			
Higher municipal taxes and service charges	X			



## 6. Summary

The Fundamental Restructuring Project in Durban provides an ideal opportunity to test our ability to radically transform our highly inefficient South African cities, as well as an arena for putting innovative tools and measures for doing so to the test.

In this paper an overview of one of the Subtasks of the Fundamental Restructuring Project in Durban was provided, viz. that of creating and sustaining a land-use regime in support of the HPPTN. It is hoped that the process that was followed, the typology that was developed and the strategies that were formulated, will be of use to those who are involved in similar processes in other parts of the country, if only to provide others with one way of how not to do it.

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# **TOWARDS TOOLS AND MEASURES FOR THE CREATION AND SUSTENANCE OF A LAND-USE REGIME IN SUPPORT OF THE HPPTN**

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