

TRANSPORT MANAGEMENT PLAN FOR THE WORLD ECOMOBILITY FESTIVAL HELD IN SANDTON, OCTOBER 2015: A DISCUSSION PAPER

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ABSTRACT

MPA Consulting Engineers compiled and implemented the Transport Management Plan for the EcoMobility Festival for the City of Johannesburg. This gave transport users the opportunity to change their travel behaviour during the period of the festival and to use the existing road-space to increase travel efficiency for the majority of people (by addressing many of the environmental challenges associated with predominantly private car based travel communities). Commuters saved time through reduced private car travel during the festival, there were associated positive environmental benefits achieved and the festival provided valuable information for the city's future planning. One of the catchphrases for the event encapsulated the spirit of the EcoMobility festival: **'You are not in traffic, you are traffic. Change the way you move'**. Many South Africans are captive to using private cars as a preferred mode of travel with many new vehicles being added to our road network each day. This trend is unsustainable. The EcoMobility World Festival in Sandton gave commuters and citizens, an opportunity to experience and preview a possible future transport system where sustainable modes of transport such as public transport, walking and cycling become the main modes of transportation choice.

1. PROJECT OVERVIEW

The population and size of South African cities is constantly growing, meaning that ever-expanding mobility requirements need to be addressed. Many South Africans are largely captive to using private cars as a preferred mode of travel with many new vehicles being added to our road network each day. This trend is unsustainable. The EcoMobility World Festival in Sandton gave commuters and citizens an opportunity to experience and preview a possible future transport system where sustainable modes of transport such as public transport, walking and cycling become the main modes of transport choice.

MPA Consulting Engineers compiled and implemented the Transport Management Plan for the EcoMobility Festival for the City of Johannesburg The event was held in Sandton

during October 2015 and provided transport users the opportunity to change their travel behaviour during the period of the festival and to use existing road-space more efficiently. This was achieved by using this road space to promote safe passage of people rather than private cars, thereby addressing many of the environmental challenges associated with predominantly private car based travel in local communities.

In general, commuters saved time through reduced private car travel (as a result of increased public transport usage with consequent reduced levels of road congestion) during the festival. Various associated positive environmental benefits were achieved as a result and the festival provided valuable information for the city's future planning with regard to, in particular, recognising the value of sustainability in the provision of future transport solutions for the city. Furthermore, the lessons learnt from the event can be used nationally as a real example of what can realistically be achieved in a South African transport context with regard to changes in travel behaviour and patterns in an appropriate operational environment.

One of the catchphrases for the event encapsulated the spirit of the EcoMobility festival:

'You are not in traffic, you are traffic. Change the way you move'.

2. PROJECT OBJECTIVES

The purpose of the EcoMobility Festival was to provide travellers in Sandton with an opportunity to utilise different, more sustainable modes of transport for the month of October 2015.

The objectives of the Eco Mobility festival were as follows:

- Plan and implement a month long festival to showcase the use of public transport, cycling and walking as a sustainable eco-friendly alternative to private car use
- Create as much of a car free environment as possible within the Sandton CBD precinct
- To provide the catalyst to facilitate a mind shift change away from the use of the private car and explore the use of environmentally friendly and safe public transport modes
- Show what a car free pedestrian/cyclist friendly environment can look like and how it could operate to illustrate associated lifestyle changing benefits
- Provide viable public transport services that will offer choice to the commuter for their trip to/from Sandton.

- Create discomfort for the private car user (but not dysfunction) so as to maintain business/economic activity and at the same time stimulate and encourage commuters to use alternative transport modes
- Communicate the plan and action events and services to affected travellers

3. PROJECT SUMMARY

The core objective of the project was to promote more environmental friendly and sustainable modes of transport in one of the most congested private car dominated CBD's in South Africa. Given the nature and composition of business in the corporate capital of South Africa, it was imperative that all affected property owners were consulted on all components of the Transport Plan to ensure that business as usual was maintained during the Festival period.

One of the major challenges on the project was providing alternative transport to car users and ensuring that this transport was viable from an operational point of view. This was achieved largely through the provision of Park and Ride services and dedicated lanes for public transport to ensure that public transport was prioritised over private transport on major corridors into and out of Sandton for the duration of the event.

These corridors were identified based on prior knowledge of major entry and exit points to and from Sandton and opportunities were identified for public transport to be prioritised through the introduction of measures such as contra-flow lanes where deemed viable. These measures were designed to ensure a supporting environment for public transport that would result in a meaningful passenger travel time saving when compared to a private car trip on the same route.

3.1 Interventions Adopted

After extensive planning, investigation and evaluation, it was decided to implement the following specific interventions in support of the EcoMobility event:

- Contra-flow lanes for public transport use which required the removal of one off-peak direction lane of a roadway and dedicating it for the use of peak direction traffic (public transport). This was introduced on Republic Road east of View Road, along William Nicol Drive between Republic Road and Sandton Drive and along Sandton Drive from William Nicol to Grayston Drive.
- A with-flow lane along Katherine Street between Grayston Drive and West Street using the already constructed BRT lane on this route.
- A hop-on, hop-off gyratory service within the Sandton CBD area was provided. The public transport loop for the EcoMobility Festival was the precursor for the planned

Rea Vaya Sandton Loop which will be implemented in 2017. MPA was responsible for the conceptual design of operations on the lane, deciding on the stop positions, ensuring the lane was properly monitored by volunteers and co-ordinating the services using the lane.

A further requirement from the client was that a pool of volunteers sourced specifically to assist in operationalizing the event and working on a 2-shift basis, be managed by the MPA team. These volunteers were sourced mainly from the area of Alexandra and the daily management of logistics to ensure that volunteers were appropriately located to manage various facets of the event was key to the operations of the event. Approximately 160 individuals were involved in this volunteer initiative. This Volunteer initiative was targeted at ensuring that some level of skills transfer was achieved to unemployed individuals based primarily in the above-mentioned Alexandra area.

4. PROJECT PHASES AND COMPONENTS

The following main components were key to the delivery of the project and can be considered as major delivery phases of the project. The components were incremental in nature and demonstrate the evolution of the planning from a strategic to a micro level. This approach was adopted to facilitate the interaction with affected stakeholders and ensure that a full understanding of the reasons for the project were understood by all those affected by the interventions planned for EcoMobility month.

Each of the planning phases had an associated operational component which was rolled out for the period of the event. As such, the plans articulated below were all rolled out concurrently as part of the activation of EcoMobility during October 2015.

In addition to the plans indicated below, associated Safety and Security as well as Emergency plans were formulated for each and every affected plan developed for the event.

4.1 Development of Footprint Operations Plan

The EcoMobility Festival precinct was broadly bounded by the following streets in the Sandton central business district (CBD) area:

- Rivonia Road,
- Fredman Drive
- Fifth Street.

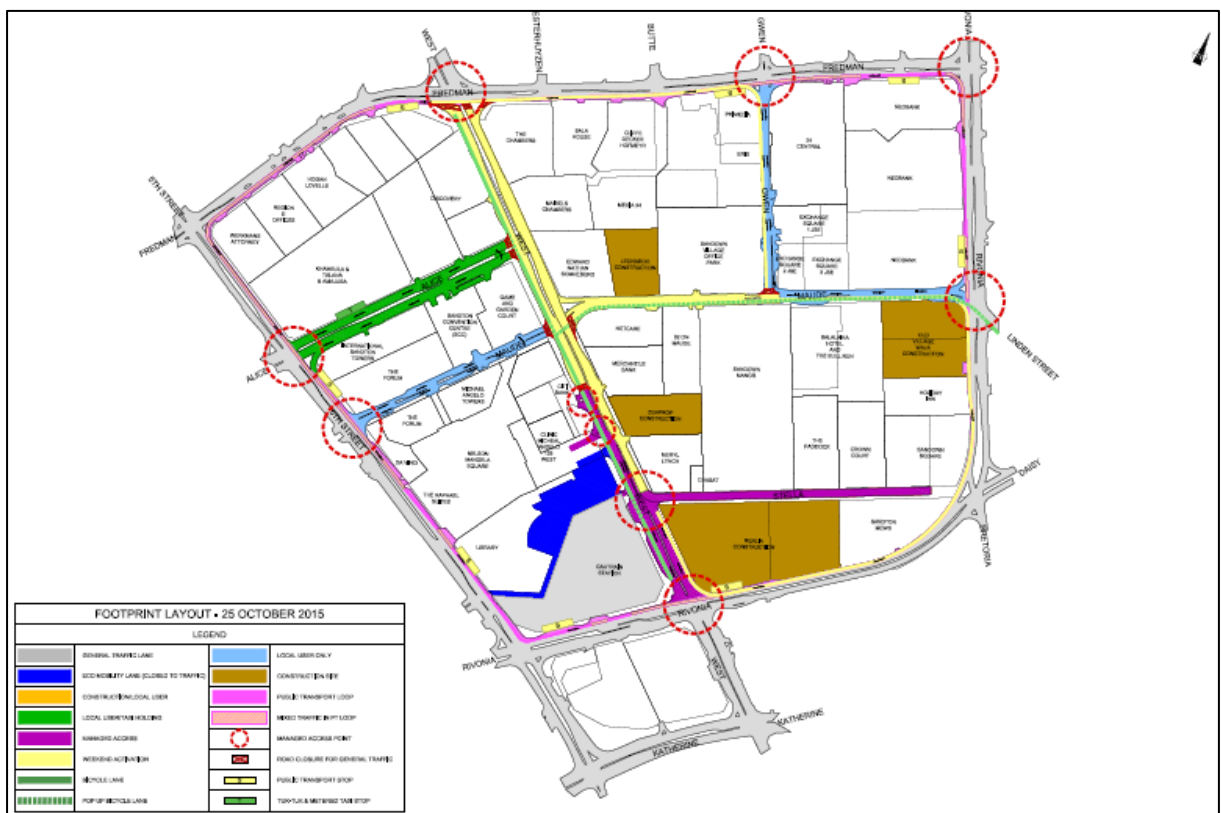
Within the EcoMobility Festival precinct, vehicle movement was managed or limited to create a pedestrian and cycling friendly environment. MPA was responsible for finalising

and designing the footprint layout based on consultation with affected businesses and property owners.

The Transport Plan comprised various elements from improving road verges to facilitating pedestrian walking, providing bicycle routes from outlying areas to the core CBD zone, designing appropriate signage, implementing public transport priority lanes and managing volunteers. In many cases, limited funding was available for operations and interventions were prioritised with a view to maximising return on investment in terms of transport impact during the period of the event.

Due to the need to ensure that regular business activities were not detrimentally affected by transport interventions for the month, MPA had to ensure, as far as possible, that access was retained to every property affected by the transport interventions proposed, particularly in the core area of the event. This also applied to construction access provision to four Construction sites within the 'Footprint' area (the area shown below).

This access retention process was a component of the overarching Sandton CBD Operations Plan which included access management to properties, physical implementation and operational strategies within the central precinct as well as variable interventions in response to various events that occurred during the month long event. Some larger scale events such as the Discovery Duathlon, Sports Weekend and Jozi Cycle Race required alternative operations plans over the weekends during the



EcoMobility event.

Figure 1: Footprint Plan for Weekdays

4.2 Public Transport and Park and Ride

The Public Transport and Park and Ride Plan ensured the integration of the Footprint area with the outside world. It was developed to ensure that alternative means of accessing the central CBD area were available to those choosing to change their mode of travel for the month of October 2015. The trip origin distribution was obtained from employee interviews obtained via the Employers in the Sandton CBD in an exercise preceding the event. This was used to determine what commuting desire lines needed to be served by the Park and Ride and Public Transport Plan and the potential passenger demand for each.

The Transport Management Plan for the Eco Mobility Festival comprised the following public transport infrastructure and public transport services:

- Existing Gautrain feeder bus and train public transport to/from Sandton including parking provision at stations.
- Existing bus commuter services to/from or via Sandton.
- Existing minibus-taxi commuter services.
- Additional top-up minibus-taxi and bus commuter services from Park and Ride sites.
- New Park and Ride sites and public transport services to operate to/from Sandton.

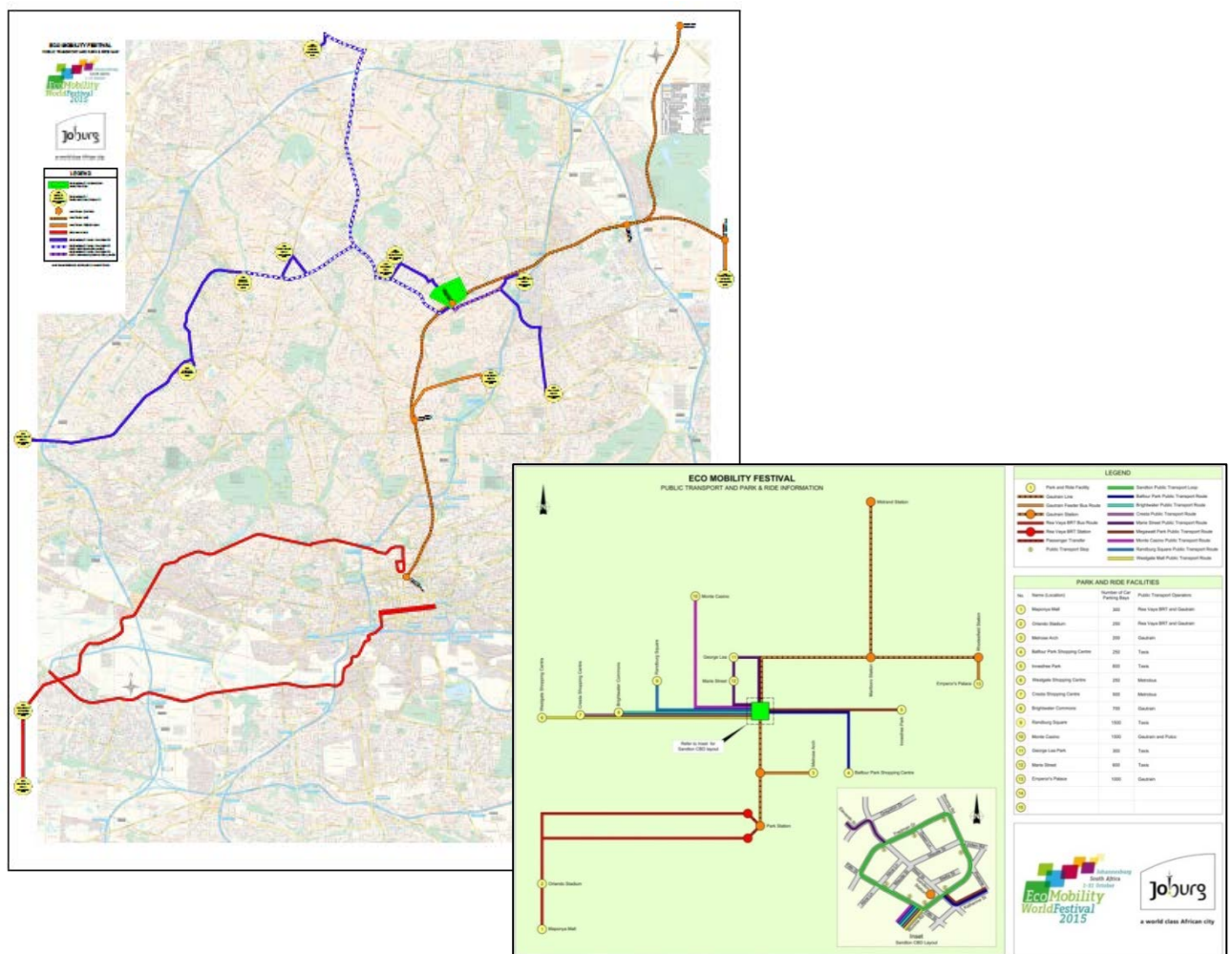


Figure 2: Public Transport routes from Park and Ride sites

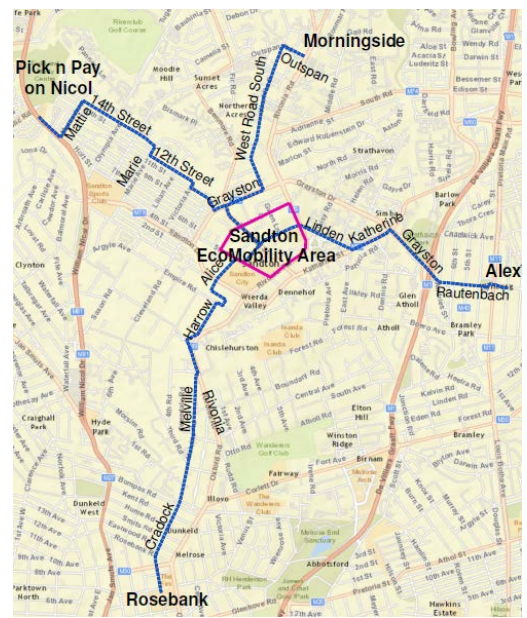
- A section of managed contra-flow lanes on Republic Road, William Nicol Drive and Sandton Drive that could be used by dedicated public transport during the AM peak and PM peak periods.
- A section of managed with flow lanes on Katherine Street that could be used by dedicated public transport during the AM peak and PM peak periods.
- A dedicated reserved public transport loop lane around the border of the EcoMobility precinct to collect and distribute public transport passengers into the Sandton CBD (along Rivonia Road, Fredman Drive and Fifth Street in an anti-clockwise direction).
- A hop-on and hop-off loop service provided by minibus-taxis enabling passengers to travel on the loop distribution service at no cost and access any stop for an onward park and ride journey or walk to their final destination.
- Various last-mile services were also managed and co-ordinated to support the public transport network.

4.3 Non-Motorised Transport Plan

The Non-Motorised Transport Plan provided cyclists and pedestrians an opportunity to travel using these modes of transport for the event within an improved operational environment for these modes of travel. A series of cycling routes connecting to areas outside of the CBD area with appropriate signage and guidance, was provided for users. These routes were manned by volunteers to assist NMT users and is one of the key legacy projects maintained post the event. The routes did not provide exclusive cycling lanes outside the Footprint area but the routes themselves were signed and highlighted with tree wrapping at each decision point along the route, which also increased cyclist visibility and awareness for motorists. Several of the routes were well utilised over weekends, but cycle commuters was muted on most routes during the period of the event.

The objective was to develop infrastructure that would become permanent thereby leaving a legacy for the City beyond the event.

Figure 3:



Sandton Cycling Routes

4.4 Last Mile Service Plan

The Last Mile Service Plan was developed to allow last mile operators an opportunity to participate in rendering of services to link Park and Rides to the central CBD areas as well as to allow accredited last mile operators to operate services within the central Footprint area. These operators included electric bicycles and environmentally friendly tuk-tuks (Figure 4).



Figure 4: Tuk-tuk in Sandton

4.5 Managed Priority Lanes

The Managed Priority Lane Plan ensured that Public Transport enjoyed priority on major congested arterials into and out of Sandton during the EcoMobility event. This advantage in travel time gain was considered fundamental to ensuring commuters perceived an advantage in changing modes from private car to public transport during the event. This required the conversion of off-peak direction lanes to priority public transport lanes thereby ensuring that peak direction traffic was not unduly prejudiced by public transport during the event. This was introduced on Republic Road east of View Road, along William Nicol Drive between Republic Road and Sandton Drive and along Sandton Drive from William Nicol to Grayston Drive.

A with-flow lane along Katherine Street between Grayston Drive and West Street using the already constructed BRT lane on this route was also introduced to support public transport operators using Katherine Street to access the Sandton CBD.

In order to ensure driver/pedestrian safety, traffic officers had to be deployed at each intersection along the route during the peak time periods of operation. This was the only legal/safe way to enforce the contraflow and with-flow managed lanes. Of particular concern was right-turning vehicles which had to turn across the contraflow lanes.

Although cones were used to demarcate the actual public transport priority lanes and temporary road signage was provided, careful deployment of the cones had to be

undertaken in a specific direction so that the public transport would only enter when the entire contraflow route was in place. Traffic officers had to be placed in the intersections at all times of the operation to ensure compliance by all motorists and to stop illegal / incorrect lane entry which could result in head on collisions.



Figure 5: Managed Priority Lane

The contraflow lane was in operation on weekdays for the AM inbound to Sandton and the PM outbound from Sandton.

5. PROJECT OUTCOMES

The following brief statistics highlight the positive public perception obtained during and post the event:

- Private car usage in Sandton dropped by 22% in the month of the Festival.
- 5 times more pedestrians were surveyed in the streets compared to data available from 2013.
- Commuters using the Park and Ride services reported a 15 min average time saving on pre-event peak hour trips.
- Gautrain's ridership increased from 8.1% to 9.7%.

A survey was conducted at Brightwater Commons, Cresta, George Lea, Randburg, Marie Servitude, Innesfree and Westgate Shopping Centre Park and Rides to obtain feedback on the perceived value of the implemented managed lanes (Figure 6). There was overwhelming positive public support for the managed lanes and selected Park and Ride services with numerous requests being made to retain these facilities operational beyond the event. This is currently being addressed by the City through further planning being undertaken in these areas.

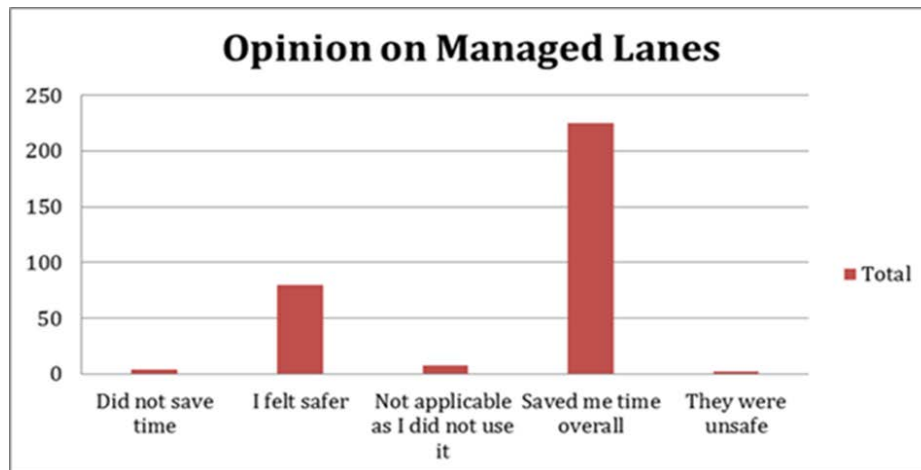


Figure 6: Results of survey on feedback of the perceived value of the implemented managed lanes

Another important aspect of the quality of the design was that those who elected to continue using their private cars to access businesses in the area were still able to do so with minimal impact on interventions introduced on the sustainable transport front.

The information in Figure 7 on trip origin was supplied by Arup, who assisted the city to monitor the efficacy of the interventions incorporated in the MPA Transport Management Plan. The high demand for public transport from the western areas of the city clearly highlight the deficiency of high capacity public transport to and from this region of the city. The high demand for public transport from the western areas of the city clearly highlight the deficiency of high capacity public transport to and from this region of the city.

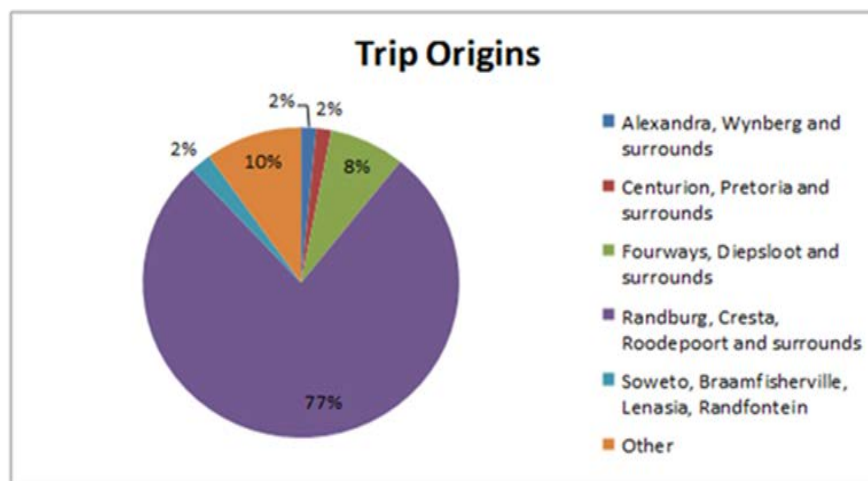


Figure 7: Trip origins during study period

6. CONCLUSIONS

Cities all around the world are growing in population and size and the use of private cars as a response to mobility needs is unsustainable. In Johannesburg, the mobility needs of people in areas such as Sandton are largely dominated by private cars with limited accessibility provided by mini-bus taxis, Gautrain and other bus services. The EcoMobility Festival was an opportunity to prioritise Public Transport and NMT in order to meet the transport needs of most people working and living in the Sandton CBD area.

EcoMobility was able to create awareness of the opportunities to be more environmentally friendly in transport provision with public transport and NMT taking up less physical space and resulting in lower greenhouse emissions per person compared to private vehicles. Social benefits include reduced travel times and reduced long-term travel costs. Economically, promoting public transport and NMT is the most effective way in which ever increasing populations are able to adequately access high density areas without increasing the need for road space for private vehicles. In order for Sandton to develop and grow to its full potential as a key economic hub in the city, alternative modes of transport need to be provided. EcoMobility was an opportunity to assess and test the value such sustainable transport modes imposed on an already highly congested private vehicle orientated road network.

Although the festival only ran for a month, it became clear where the need for public transport services and improved NMT infrastructure would be required. It also showed that South Africans are willing to change their travelling behaviour as long as the alternatives are safe, reliable and effective.

The following selected statistics, amongst others, reflecting outcomes of the EcoMobility festival, are reported on the EcoMobility website:

- Through measures such as dedicated public transport lanes and ten park-and-ride facilities, the Festival successfully reduced the percentage of private cars

usage in Sandton by 22% during the month-long EcoMobility challenge according to the Gauteng City-Region Observatory (GCRO).

- The metropolitan rapid rail network, Gautrain, increased its ridership from 8.1% to 9.7% between July 2015 and October 2015.
- Compared to a survey done in 2013, five times more people walked along West Street, the street adjoining the Gautrain Station, during the Festival.
- People using park-and-ride facilities reported savings of 15 minutes in their regular commute.
- Arising from a partnership with the mini bus taxi industry, 100 taxis provided free mini bus taxi services as feeders in and around Sandton, as well as from four park and ride sites.

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