Innovating knowledge in the City

City of Johannesburg Case Studies
2011 - 2012
It gives me great pleasure to introduce the 2011 – 2012 City of Johannesburg Case Studies. Each year we are impressed by the innovations and insights of our hard-working colleagues in both core departments and municipal-owned entities.

We must avoid the tendency to re-invent the wheel and rather use our previous experiences and those of our colleagues as a basis for more rapid progress and a higher level of achievement. Therefore we must act to preserve and utilise the City's institutional memory, and one way of achieving this is by documenting key achievements as well as lessons from various City initiatives and programmes so that we may learn and share.

This case studies publication cultivates the spirit of learning from one another. This is a step towards becoming a true learning organisation that strives to be a world class African city.

We therefore challenge our colleagues and all readers of this publication to continue using this platform to share better practices and City knowledge assets, as well as generating new knowledge for improved service delivery.

Pakiso Harvey Phalatse
Director: Joburg Innovation and Knowledge Exchange
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Introduction

The City of Johannesburg has realised the importance of being a learning organisation through knowledge sharing in an environment of scarce resources and limited capacity to share experiences and practices.

As part of this learning culture within the City of Johannesburg, knowledge is shared freely and very often proactively among its departments and with other municipalities in South Africa, as well as with the rest of the world – with a particular bias towards Africa. This enables accelerated learning and prevents recurrent mistakes.

Why Case Studies?

The City of Johannesburg, through the Joburg Innovation and Knowledge Exchange (JIKE), documented case studies over the years on selected City initiatives. This measure is geared towards a citywide recognition of innovation, better practice and lessons learnt, by focusing on the successes, challenges and opportunities unearthed during the implementation of these initiatives. This has gone a long way towards the establishment and advocacy of a learning culture, while expanding the City's institutional memory.

These case studies are written up using first-hand experiences and insights from diverse sets of key project participants and stakeholders. They will help ensure that key lessons and insights about various innovative approaches implemented in the City of Johannesburg are shared with an array of relevant individuals, departments and organisations.

Case study findings, optimally packaged to have positive impact on the City of Johannesburg, are also proving to be unique and influential to other cities, government departments and institutions.

The projects showcased in this publication are aimed at sharing lessons that could positively impact Johannesburg's residents.

The projects documented in the 2011/2012 term are:

1. Halala Joburg Awards – Joburg Development Agency
2. Landfill Gas to Energy Clean Development Mechanism project
3. Outdoor Green Gym – Johannesburg City Parks
4. The Rea Vaya Johannesburg Bus Rapid Transit System

Expand your horizons and take in the learnings as you take this journey, a step at a time, towards progress.
Case study 1
The Halala Joburg Awards
Johannesburg Development Agency
Celebrating regeneration in the Inner City

Project Summary

The Halala Joburg Awards were created by the Johannesburg Development Agency to celebrate and acknowledge the role of private-sector investment in revitalising and regenerating Johannesburg Inner City. Since 2008 more than 33 recipients have received Halala Joburg Awards and since the start of the regeneration drive, investment in the Inner City has exceeded R7.5 billion.

Background & Introduction

The story of the decline of Johannesburg’s Inner City is one that is matched by many inner cities throughout the world. Crime, grime and flight by businesses and residents to safer, suburban areas, have all marked the decline of the Inner City since the late 1970s. This was compounded by apartheid-regime limitations and the myriad laws that further complicated the situation and created an environment conducive to the decay of buildings, overcrowding, and stress on services into the 90s.

As property developer Gerald Olitzki comments, “Decay is progressive. One building gets rotten; it’s the proverbial apple that eventually rots all the apples in the barrel. Revival is also progressive.” Over time the City took action with the creation of the Johannesburg Development Agency (JDA) in 2001 to focus on underperforming areas and the launch of the Inner City Regeneration Charter in 2007 to focus efforts on the Inner City.

Integral to the plan was JDA and its mandate. JDA was created to initiate, stimulate and support development projects and rejuvenate economic activity throughout the Johannesburg metropolitan area. The Inner City was identified as a key strategic area for regeneration, and JDA’s job was to facilitate and manage investment in critical commercial and cultural infrastructure.

JDA began an active campaign to bring private investment back into the Inner City, which, combined with the impetus from the Inner City Regeneration Charter, grew in impact. As JDA’s public-sector investments worked together with pioneering large and small investors focusing on buildings, blocks, sidewalks and areas, the City began realising the effect of the role of private investment on the Inner City’s revival.

The Halala Joburg Awards were created by then CEO Lael Bethlem to “showcase and market regeneration and to appreciate and provide encouragement to the private sector” and to acknowledge the sector’s contribution to Inner City regeneration. Hundreds have applied for Halala Awards since 2008 and more than R7.5 billion in investment has been spent in the Inner City. Even more important than these specific investments is their progressive effect – the snowballing effect of Inner City property investment.
For every R1 million that the City of Joburg invests in regeneration and revitalising the Inner City, the private sector has put in R19 million.

Thanduxolo Mendrew, CEO, Johannesburg Development Agency (JDA)
Halala Joburg Award • Objectives

1. The Halala Joburg Awards recognise and honour people, projects and places that have made extraordinary efforts to ensure the development and regeneration of Joburg’s Inner City and continue to strive to improve the quality of life in the Inner City of Johannesburg.

2. The Halala Joburg Awards assist in marketing the City’s efforts in regeneration, highlight success stories and encourage more property investors to consider the Inner City for investments.

Halala Award • Key Accomplishments

While it can be difficult to track the exact effect of the awards themselves, there can be no doubt about the success of the focus on Inner City regeneration, beyond which the Halala Joburg Awards provide a multiplier effect. Results from the Executive Summary Report on Impacts and Results on the 10th Anniversary of the JDA indicate the success of Inner City regeneration through three measures: investment in the Inner City, vacancy rates and office rental rate improvement.

Table 1: Investment in Inner City JDA ABIs 2001 - 2008

<table>
<thead>
<tr>
<th>Source: Rhizome Management Services (2009)</th>
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</thead>
<tbody>
<tr>
<td>From 2001 – 2008 JDA invested R393 million in the Inner City and this, together with the private sector R7.5 billion, was spent in transactions. The result is that for every R1 spent by JDA, the private sector responded with R195 in private investments and R161 in refurbishments and conversions.</td>
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<tr>
<td>As seen in the following two graphs, there were significant shifts in both vacancy rates and office rental rates. Vacancy rates improved by 40 – 70% and office rentals improved by 150 – 200%.</td>
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<thead>
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<th>Table 1: Investment in Inner City JDA ABIs, 2001 – 2008</th>
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<tr>
<td><strong>Braamfontein</strong></td>
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<td><strong>Value (Rm)</strong>: 2 •</td>
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<tr>
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<tr>
<td><strong>JDA investment (Rm)</strong>: 42</td>
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<tr>
<td><strong>Leverage factor</strong> : 71</td>
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<tr>
<td><strong>Greater Ellis Park</strong></td>
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<tr>
<td><strong>Value (Rm)</strong>: 90 •</td>
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<td><strong>Number</strong> 48</td>
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<td><strong>Refurbishments / Conversions (Rm)</strong>: 82</td>
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<td><strong>Leverage factor</strong> : 10</td>
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<td><strong>Greater Newtown</strong></td>
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<tr>
<td><strong>Refurbishments / Conversions (Rm)</strong>: 11 2</td>
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<td><strong>JDA investment (Rm)</strong>: 189</td>
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<td><strong>Leverage factor</strong> : 14</td>
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<tr>
<td><strong>Fashion District &amp; Jewel City</strong></td>
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<td><strong>JDA investment (Rm)</strong>: 8</td>
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<td><strong>High Court Precinct</strong></td>
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<td><strong>Number</strong> 191</td>
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<td><strong>Total</strong></td>
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<td><strong>Refurbishments / Conversions (Rm)</strong>: 1 •</td>
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<td><strong>JDA investment (Rm)</strong>: 19</td>
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<tr>
<td><strong>Leverage factor</strong> : 19</td>
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Source: Rhizome Management Services
While the success of Inner City regeneration cannot be attributed to the Halala Joburg Awards alone, the awards have played and continue to play an important role in both attracting and rewarding private investors who are prepared to make Inner City investments.

**About JDA & Key Strategic Drivers**

When JDA was created in 2001 its primary job was to ‘normalise’ property investment by focusing on regenerating underperforming areas. At that time, the private sector had stopped investing in the Inner City because they no longer believed it would generate a return, which in turn became a self-fulfilling prophecy.
Vision:
The Johannesburg Development Agency will be a world class, area-based, economic development agency for the City of Johannesburg, constantly striving towards developing best practice in its developments and operations.

Mission:
JDA is an agency of the City of Johannesburg which stimulates and supports area-based economic development initiatives throughout the Johannesburg metropolitan area in support of the Growth and Development Strategy. As development manager of these initiatives, JDA coordinates and manages capital investment and other programmes involving both public and private sector stakeholders.

Objectives:
1. To promote economic growth through the development and promotion of efficient business environments in defined geographic areas.
2. To regenerate decaying areas of the city so as to enhance their ability to contribute to the economic development of the city and the quality of life of its residents.
3. To promote economic empowerment through the structuring and procurement of JDA developments.
4. To promote productive partnerships and cooperation between all relevant stakeholders on area-based initiatives.

Source: Johannesburg Development Agency website www.jda.org.za
Two strategic thrusts were seen as necessary to create the change needed in these underperforming areas:

1. To undertake capital projects that would revitalise public space

2. For the City to take on large-scale infrastructure projects, e.g., Rea Vaya, that would bring in the private sector

JDA created an Urban Development Zone within the Inner City and focused on initiatives to help drive investment in the area. Bordered by Beïdenhout avenue to the east, Fordsburg to the west, Berea to the north and Ferreirasdorp to the south, this area became the focus for JDA and the City, and private investors in the area could receive special tax incentives.

In addition to JDA’s focus on the Inner City, the City embarked on an extensive plan for regeneration by bringing in all affected parties to an intensive dialogue starting in November 2006 and ending in June 2007.

The end result of this dialogue was the Inner City Regeneration Charter which focused on nine areas: structures and systems of urban management; an integrated approach to the management of bad buildings; the roll-out of CCTV; visible policing; residential development incentives; arts and culture; institutional development; public space development; and development and management of informal trading.

The Charter provided a vision and strategies with a holistic approach to regenerating the Inner City. It stated the desired outcomes of regeneration and specified the actions, commitments and timetables. Areas that came to be recognised in the Halala Joburg Awards included the Better Building Programme, the creation of the visual city landscape; walkable streets; public environment upgrading; a supportive built environment; support for vulnerable groups; and safe, affordable housing.

Source: Johannesburg Inner City Regeneration Charter

The vision represented in the Inner City Charter continues with the focus of the Joburg 2040: Growth and Development Strategy across all areas of governance, human and social development, resilience ‘sustainability’ liveability, environment and services, and economic growth.
About the Halala Awards

The word ‘halala’ in Zulu and Xhosa means ‘to celebrate’ or ‘to congratulate’ and became part of an unofficial World Cup anthem, singing ‘Halala South Africa’. The sound of women trilling ‘halala’ is a common celebratory sound in ceremonies throughout South Africa.

When the awards were conceptualised at JDA and launched in 2008, there were five categories: Living Joburg, Working & Buying Joburg, Relaxing & Playing Joburg, Caring Joburg and Believing Joburg.

The original spirit of the Halala Joburg Awards is towards:

• Encouraging Extraordinary Effort: recognising exceptional effort that breaks new ground in urban regeneration, advancing sustainable economic growth, promoting investment, community well-being and the quality of life of Inner City residents

• Fostering Originality: recognising pioneering programmes and innovative projects by audacious thinkers whose vision and work has opened new horizons in decaying areas

• Encouraging Participation, Equality and Inclusivity: recognising commitment and dedication to fostering partnerships, initiating joint programmes, and catalysing sustainable developments that promote social harmony

Scope & Impact & Timelines of the Halala Joburg Awards

Scope

In the spirit of inclusiveness, the Halala Joburg Awards recognise impacts both large and small in the Inner City. After some minor adjustments over the past five years, there are now seven awards categories, as follows:

1. Living Joburg – Not Houses But Homes, which recognises residential projects that provide innovative, progressive and inclusive housing that addresses the needs of Inner City residents and supports community development

2. Working and Buying Joburg – Creating a business destination, which recognises innovative, exciting and striking commercial and retail developments that attract people to the City

3. Relaxing and Playing Joburg – Helping to make the City the recreation destination for impact and sustainability

4. Sustaining Joburg – Highlighting original and exciting use of public space, and projects that support the regeneration of the Inner City

5. Conserving Joburg – Joburg Past, Present and Future, acknowledging outstanding achievements in conserving buildings, groups of buildings or any other urban heritage element valued for its historical, social scientific and/or architectural importance

6. Caring Joburg – An award that includes a cash donation of R10 000 for the winning nominees in support of their work, recognising selflessness and community-minded individuals, volunteer groups and organisations which create the caring heart of the City

7. Believing Joburg – The Stan Nkosi Achievement Award, which is awarded for being an urban generation leader and a role model
impact

Over time the Halala Joburg Awards have become prestigious: the must-have mark of an Inner City property developer. Hundreds of individuals, organisations and companies have applied for the awards, but only those a cut above the rest and the extraordinary are recognised.

The greatest effect of the Halala Joburg Awards is in recognising sustainability; without the impact of the private individuals, companies and organisations that make investments and renovations in the Inner City, the City’s own efforts would be minimal. As Susan Monyai, marketing manager of JDA says, “it’s a catalytic effect – we put a drop in the ocean and wait for the ripple effect.” And the Halala Joburg Awards recognise the ripple effect – all R7.5 billion of it.

While the Halala Joburg Awards strive to recognise large investments and the risk that these investors take, it is also recognised that smaller interventions can have significant impacts in the community. An example of this is the story of Josephine Tshaboeng, a one-time domestic worker who now owns a dormitory building in the suburb of Hillbrow and provides affordable housing to female students from the nearby universities.

Helping Female University Students in the Inner City

The story of Josephine Tshaboeng began at a bus stop. While taking the bus home one day after losing her job as a domestic worker, she met an older African-American woman she knew only as Mrs Johnson. They began speaking and at the end of the conversation, Mrs Johnson asked her to co-sign to buy an abandoned old-age home in Hillbrow and manage the building. She took the job, did a major clean-up, found tenants and looked after the building. Five years later the owner called and said she wished to sell the building, and she wanted Josephine to own it.

With some help from the Trust for Urban Housing Finance (TUHF), which finances properties in redlined areas and assists individuals who live in and manage properties to buy their own buildings, Tshaboeng was able to secure funding and purchased the building in 2007. Today she looks after her own building, now called Harmony Galz, which houses 128 young female students from the nearby University of Johannesburg. Harmony Galz rentals are subsidised by the UJ Students Representative Council. Tshaboeng’s building provides housing and security for young women who would otherwise not be able to live close to their campuses, thus helping them study to become the next generation of leaders. Josephine Tshaboeng was awarded the 2010 Living Joburg Individual Award.


It is the stories of Josephine Tshaboeng and many others like her that continue to inspire JDA and maintain the momentum of the Halala Joburg Awards.
Timelines
There are two timelines for the Halala Joburg Awards; one illustrating the development of the awards over time, and the second illustrating how the process unfolds.

The Development of the Awards

<table>
<thead>
<tr>
<th>Year</th>
<th>Event</th>
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<tbody>
<tr>
<td>2007</td>
<td>Conceptualisation of the Awards</td>
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<tr>
<td>2009</td>
<td>Introduction of the Colosseum Award or Stan Nkosi Award, to recognise individuals who have made exceptional contributions Introduction of the Sustaining Joburg Award to recognise those with outstanding green principles and initiatives No Colosseum Award given</td>
</tr>
<tr>
<td>2010</td>
<td>No Sustaining Joburg Award given</td>
</tr>
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The Halala Joburg Awards Process
The awards process itself evolved over time and is relatively simple. Over a five-month period it takes place in five stages. First, the awards are opened for nomination; second, the nomination trigger forms are posted online; third, the support team assists with any nominations that require assistance, and all nominations go through a verification process; fourth, once the verification process is complete, the support team, together with the adjudicators, selects a short list which is then formally compiled and presented to the adjudicators, who comprise a team of six experts from various related fields. In a further process, the fifth of the sequence, the adjudicators assess the final applications, go through any further verification, such as site visits, and then the final list is selected. Once this process is complete, the awards are presented to all Halala Joburg Award recipients in June.

Halala Joburg Nomination & Awards Process

Critical Success Factors
As described above, the efforts at multiple levels to regenerate and revitalise the Inner City have shown a degree of success. The key factors for the Halala Joburg Awards are as follows:

1. **Linkages to the strategic mandate.** The Halala Joburg Awards are not stand-alone, in that they are integrally linked to JDA's mandate, the Inner City Regeneration Charter and the Joburg 2040: Growth and Development Strategy. The Halala Awards represent the successful implementation and adoption of these strategies by both the City and its investment partners.

2. **Focus on the multiplier effect of private investments.** According to Lael Bethlem, former CEO of JDA and now Director of Real Estate Investments at Standard Bank, “*Property investors have a herd mentality. Success breeds success.*” Once investors see the stories of success in the Inner City, read stories of those award winners who are making a difference and earning on their investments, the effect snowballs and creates a multiplier effect that breeds greater investment.
3. **Acknowledgement of the role of communication and recognition in Inner City regeneration.** As much as investment is about property and buildings, it is also about human beings, and public recognition is a powerful communication tool. Property investment is strongly driven by perceptions; the effort to change the perceptions of the Inner City is assisted by driving the communication about the Halala Joburg Awards.

4. **Acknowledging both large and small impacts.** One of the features of the Halala Joburg Awards is that the categories create the space to acknowledge both large and small developments. While investors make business decisions, many are guided by the social contribution they can make and this is often not widely recognised.

5. **Understanding different aspects of development – not just buildings, but where people live, work and play.** Regeneration is more than just taking over bad buildings and cleaning them up. It also requires an understanding that residents and businesses need clean, safe spaces where people can work, live and play in the Inner City. Today he owns numerous buildings, and has negotiated with squatters, hawkers and others to turn previously ‘bad buildings’ into viable commercial real estate with liveable surrounding public spaces. He remains immensely passionate about the Inner City and is now working on his latest project to assist others by transferring ownership to black owners in the City.

6. **Strength of the awards process and adjudicators.** Refined over a period of five years, the awards have evolved into a functioning annual marketing event for JDA. The adjudication team comprises six individuals from various public, private and academic positions whose combined expertise in property investment and development provides a rounded view of impact in the Inner City. To maintain continuity, three or four adjudicators are maintained each year, with at least two JDA members among them, and the other two or three positions are rotated to bring fresh perspectives to the group. The adjudicators become actively involved from the short-list process onwards and intensively interrogate the final applications to ensure that they select the candidates with the greatest impact.

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**A Pioneer in Inner City regeneration**

Gerald Olitzki of OPH Properties was one of the first to make substantial investments in the Inner City. In 2011 he added to his collection of Halala Joburg Awards with the Colosseum Award for Lifetime Contribution, the Stan Nkosi Award. A property developer and Inner City building owner since 1989, Gerald started by developing what is now Gandhi Square, continuing to Fox Street—all, with the vision of creating a spine across the Inner City to link the Carlton Hotel to the courts. He employs a unique yet simple approach to the formula by creating safe spaces where people can work, live and play in the Inner City. Today he owns numerous buildings, and has negotiated with squatters, hawkers and others to turn previously ‘bad buildings’ into viable commercial real estate with liveable surrounding public spaces. He remains immensely passionate about the Inner City and is now working on his latest project to assist others by transferring ownership to black owners in the City.
As with any process lessons have been learned by the JDA in implementing the Halala Joburg Awards. These include:

1. **The drop in the ocean is relevant.**

   While many might see the JDA’s spend of R\textdollar{}393 million as insignificant, the ability of the organisation to strategically select nodes of investment that would in turn generate further private investment has assisted in turning the tide against decay in the Inner City. The JDA has positioned itself as the public face of capital infrastructure and Inner City regeneration investment, and this gives it the appropriate expertise and weight to create prestige around the Halala Joburg Awards.

2. **Recognition is critical.**

   As mentioned before, recognition plays a key role in acknowledging that these private investors have made sometimes quite large and risky decisions by investing in the Inner City. Public recognition for these contributions creates legitimacy for what were previously regarded as extremely high-risk projects in no-go areas.

3. **Awards must be managed.**

   Early in the Halala Joburg Awards history one of the winners was criticised and JDA quickly realised it needed to improve its verification processes. A new process was created, and with the added verification, many applicants needed assistance to complete the trigger nomination forms. Since 2009, an outside company has been assisting with the verification process and helping those who struggle with the forms. A database is now kept of all applicants and recipients so that JDA has a record of projects taking place in the Inner City.

   Part of the management process was the decision in some years not to present specific awards. It was considered important to emphasise the prestige of the awards themselves and maintain the calibre of winners, so conscious decisions were made in 2009 and 2010 not to present certain awards.

   The ceremonies themselves were also important. After an initial Oscar-style award ceremony, the shift moved to having one-day workshops which allowed all those who applied to the Halala Joburg Awards to receive some recognition for their efforts.

4. **Marketing is a critical part of regeneration’s success.**

   One of the key components of the Halala Joburg Awards is to create media excitement and interest in the awards and the actions in the Inner City. JDA purchases advertisements to publicise the awards and awards themselves generate publicity in radio, TV and newspapers, and in getting DJs and other public figures to talk about them.

   By positioning the awards as examples of good-news success stories, JDA showcases the best private investment and social entrepreneurs to build public confidence in the regeneration and revitalisation of the Inner City.
Next Phase Conclusions

In the five years since their launch, the Halala Joburg Awards have become one of the most prestigious forms of recognition for private investment in the City of Johannesburg. JDA will continue on its drive to increase investment, using the Halala Joburg Awards to galvanise further interest. It is anticipated that residential investment will continue at a strong pace, but the economy could affect the pace of office-space investments.

Over time the continuation of the awards will allow JDA to identify and support more smaller players in the market, while continuing to drive projects around more recent developments such as the Rea Vaya BRT stations and routes. The Halala Awards will continue to celebrate and honour people who strive to improve the quality of life in the Inner City of Johannesburg.
Interviews

Susan Monyai, Marketing Manager, JDA, 16 March 2012

Gerald Olitzki, OPH Properties, 22 March 2012

Lael Bethlem, former CEO of JDA, Director: Real Estate Investments, Standard Bank, 4 April 2012

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Inner City Regeneration Charter 2007

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Financial Mail, “Josephine Tshaboeng – Property investor”, 20 May 2010

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<tr>
<th>Year</th>
<th>Category</th>
<th>Project Name/Description</th>
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<td>Ashanti &amp; Dogon Buildings</td>
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Case study 2
City of Johannesburg
andfill  as to Energy Clean Development Mechanism •rjekt
- arvesting and  aring landff gas to produce green electricity to shift towards a low-carbon, green City

The City of Johannesburg  andfill  as to Energy Clean Development Mechanism •rjekt was initiated by the City's Environment Infrastructure and Services Department EISD in 200  to mitigate harmful greenhouse gases emitted from landfills  to extract and eliminate those gases that cause problems with odours, and environmental and safety ha ards. In addition, the project uses the landfill gases to meet yoto •rotocol commitments on Clean Development Mechanisms CDMs to generate revenue streams through carbon credits and generate electricity to sell through the local grid.

Background & Introduction
Landfill gases LFGs are an unknown factor to most citi ens, but the odours coming from landfills, which are caused by these gases, are an apparent sign of their presence. The gases and their management are not complicated, but the legislation, the myriad re“uirements arising from the yoto •rotocol 2002, other legislative re“uirements and legal processes make the landfill gas to energy clean development mechanism project complex.

This project has two key components. The first is a general method to manage landfill gases emitted as a result of the decomposition of waste at the landfill, which impact on the environment with health and safety ha ards at the landfill sites and in surrounding areas, more effectively. Compliance with national and provincial legislation is important to these issues. The second component is the development of a CDM to comply with the yoto •rotocol re“uirements and allow for additional revenue streams for the City, as well as meeting the City's long-term strategic goal of shifting to a low-carbon economy as detailed in the Joburg 20”0•  owth and Development Strategy.

Since 2001 City of Johannesburg had been making efforts to start a landfill gas project, but due to financial constraints found it difficult. In 200 Themba Camane, the former Executive Director of the Infrastructure and Services Department ISD, started a process of seeking out a private partner that would be awarded a long-term contract to design, develop and implement the system. A feasibility study was done, a tender issued, and a contractor was appointed in 200 .

ver time, there were intense negotiations with the service provider, Ener Systems Consortium, while the project managers and team members engaged in due diligence, and putting the legislative and financial re“uirements in place to get the project off the ground. In February 2011 construction of the first project began at the Robinson Deep landfill site, where pipelines were laid and the aring or burning off of methane gases commenced in May 2011.
The landfill gas project relates to new, innovative technologies which allow us the ability to develop green projects out of what is generally considered waste nuisance—landfills, and new income streams through the sale of carbon credits, and generating new energy and selling that electricity through the grid.

Neville Smith, Disposal Executive, Pikitup Johannesburg
Landfill gas is created when organic waste in solid waste landfill decomposes. Most landfill gas is composed of roughly 50% methane, 50% carbon dioxide and a very small amount of other organic compounds, some of which are hazardous. Both methane and carbon dioxide are greenhouse gases. Methane is 21 times more harmful to the environment than carbon dioxide. This means reducing landfill gas is important to help reduce greenhouse gases that impact on the environment.

Managing landfill gases has additional implications in terms of environmental pollution, compliance with operating licence conditions, and health and safety factors. Odours caused by high gas concentration are unpleasant for neighbouring areas. Methane is highly combustible, making high concentrations a fire hazard. Keeping these gases under control and well managed is part of the operational issues faced by all landfills.

Currently the process of registering the project with the United Nations Framework Climate Change Conference UNFCCC for it to be recognised as a CDM project, which will allow the City to sell carbon credits, is under way. Negotiations with potential buyers of the electricity from the grid are ongoing. These include the application to the Department of Energy’s procurement process for independent power producers, known as RE ID, which will allow the City to be recognised as such, to enable the City to sell electricity to Eskom and other possible buyers. Engagements are continuing to sell energy to City Power, although the price of renewable energy is higher than that of the electricity City Power is buying from Eskom.
Objectives and Key Accomplishments

The main aim of the City of Johannesburg LFG to Energy CDM Project is to mitigate the harmful greenhouse gases emitted from the landfills. The key benefits of this are as follows:

1. To extract and eliminate harmful gases that are currently causing bad odours, especially to communities surrounding the landfill sites; improve the environment; and reduce health and safety risks

2. To extract and destroy these gases in such a way that provides the City with an opportunity to receive revenue from the generation of Certified Emission Reduction certificates (CERs) through the United Nations Framework Convention on Climate Change (UNFCCC) CDM process, and from the generation of renewable energy

3. To ensure environmental compliance with national and provincial regulations and move towards the Joburg 20°Objective: growth and Development Strategy through shifting to a low-carbon economy

While the dialogue for this project started as early as 2004, the actual construction of the equipment took place in 2011. The norm in the LFG industry for service provider partnerships around the world is five to eight years, which adds further complexity to projects. Over time, the changing legislative framework and shifting energy dynamics become critical variables which impact on the viability of LFG projects. Against this scenario, the project has seen several key accomplishments, which include:

1. The construction of the gas wells, 68 gas extraction wells and flare systems at Robinson Deep Landfill site has been completed, with gas extraction operational since May 2011.

2. Application is under way with the UNFCCC for registration of the CDM project for carbon credits under the Kyoto Protocol. Gas extraction since start-up can be accumulated as credits that can be sold on the open market once registered, so the City has accumulated a balance sheet of future revenue.

3. The contract with Ener Systems was signed in 2009 to design, build and implement the LFG to Energy CDM with the service provider, bringing in the required expertise, capital and maintenance costs of the project.

4. Tenders have been submitted to the Department of Energy (DOE) by partner Ener Systems as an Independent Power Producer (IPP) for sale of the electricity to meet their bid for 19MW of landfill gas energy. Nedbank has indicated its willingness to finance the project, pending the signing of a Power Purchasing Agreement (PPA). Wheeling agreements are under discussion with City Power for gas extraction pipes to connect their electrical grid for wheel transport electricity to the possible buyer.

5. Construction began at Marie Louise Landfill site in February 2012, where 28 gas extraction pipes were installed and the site was commissioned in April 2012.

6. There has been measurable reduction in landfill odours and methane gas concentration as measured by the University of Witwatersrand team from the Department of Geography, Archaeology and Environmental Sciences.

7. Compliance has been improved with regard to the National Environmental Management Waste Act, Provincial Waste Management strategies and municipal Development of Integrated Waste Management plans strategies for Integrated Development plans.
Investors [including banks and hedge funds] buy and sell credits in an attempt to make profits.

If carbon allowances are exceeded, the First World companies can buy credits from the market, or if they have reduced their carbon, they can sell them on.

Alternatively, Western companies can simply buy carbon credits from Third World companies for hard cash.

Third World companies can sell on carbon credits through traders. As these countries do not have carbon caps, they don’t need to buy extra credits.

THE EU calls its programme the Emissions Trading Scheme...

THE UN calls its programme the Clean Development Mechanism...

...and issues EU Allowances - otherwise known as carbon credits - to Western factories.

...and issues Emission Reductions (carbon credits) to Western companies which invest in world carbon reduction schemes.

...and issues Emission Reductions (carbon credits) to Third World companies which install technology to reduce emissions.

Meanwhile, Western companies can choose to invest in Third World projects aimed at reducing carbon, in return for their technology and money, they are given CERs by the UN. This helps to effect their own obligations to reduce pollution.

Since 1997, the protocol has placed a rolling programme of conditions on the 183 signatory states to improve our global environment. In terms of carbon credits, the EU and UN have slightly different schemes.

THE EU calls its programme the Emissions Trading Scheme...

THE UN calls its programme the Clean Development Mechanism...

The EU and the UN have slightly different schemes.

Kyoto Protocol

Western Factory

Third World Factory

Carbon credit

Technology

Money
In 2002 the South African government signed its accession to the Kyoto Protocol on World Climate Change, a legally binding commitment by developed countries to reduce greenhouse gas emissions and for the implementation of supportive CDM projects in Third World countries. The adoption of the UNFCCC convention, which leads to member countries adopting the Kyoto Protocol for the commitment period 2008 – 2012, was a major step in tackling the problem of global warming.

The process shown in the graphic left illustrates how both developed and developing countries can transact using carbon credits as currency to be compliant under the UNFCCC obligations. When a developing country initiates a CDM project the credits for reducing carbon emissions are first known as Value Emission Reductions (VERs). The flaring of methane at landfills is an example of a CDM project. The project must undergo an intensive process to be registered as a CDM project, from which time the VERs, which have accumulated from start-up, become CERs, or Certified Emission Reductions, which are commonly known as carbon credits. Carbon credits may be purchased on the open market. They are a source of revenue for developing countries, while at the same time serving as ways to offset the carbon requirements for developed countries under the Kyoto Protocol.

Source: Palesa Mathibeli, EISD, City of Johannesburg

The mandate of the City of Johannesburg's EISD is to create favourable surroundings for living, business and recreation by managing air, water, land and noise pollution, and implementing measures to moderate pollutants. The infrastructure and services section is positioned to work together with directorates such as Energy, Water, and Legal Compliance to assist entities such as Pikitup with strategic initiatives.

Pikitup was created in 2001 as a municipal-owned entity to service the City of Johannesburg’s 1 625 km² area, with its 3.8 million people and 787 000 dwellings. It is the biggest waste management company in Africa, handling 1.6 million tonnes of waste annually and overseeing eight landfill sites.

These two departments, along with service provider EnerG Systems and City of Johannesburg’s Environment, Finance, and Legal Compliance, became part of a multi-departmental steering committee that met quarterly to oversee the project. Under the steering committee was a technical team made up of members from EISD, Pikitup’s Landfill Operations Team and EnerG Systems.

EnerG Systems was awarded the tender in 2007 and, after a feasibility study on the landfills, signed a contract with the City in 2009. They brought to the table their expertise on gas extraction from landfills throughout the world, and the capital and funding to purchase the equipment for the wells, gas extraction, gas flaring and the future linkages to the electrical grid.

Initial due diligence into the City of Johannesburg’s landfills indicated that only five of the initial eight originally targeted for the project were viable, as some would have generated less than 1MW. In the early stages of the project, the focus was primarily on generating electricity. These first five were identified as Robinson Deep, Mariehouse, inbrolark, Outkoppies, and Ennerdale. Four of the five were active, with inbrolark closed due to lack of space. The original thinking was to start with inbrolark, but the higher levels of gas, as well as specific issues to do with land usage at inbrolark, led the project team to select Robinson Deep as the first roll-out location.
Case Study 2

Feeding Landfill Gas from Robinson Deep

Robinson Deep is one of Johannesburg’s oldest landfill sites and was built more than 100 years ago. This posed special challenges as records prior to Pikitup’s engagement in 2001 were not available, so what lay beneath the immediate surface was unknown.

Since initial viability studies showed that Robinson Deep landfill had the greatest quantity of methane gases, the decision was made to begin at the site. Unlike Linbro Park, Robinson Deep is still an active site and poses operational challenges as trucks and equipment can damage pipes.

Initial methane mapping was conducted to determine the greatest potential wells of methane gas. As shown in the diagram, the initial pipes were laid out according to the operational conditions and other requirements as per the service provider’s specifications.

The process of extracting landfill gas begins with the drilling for gas wells, using horizontal extraction pipes on the waste. The gas extraction pipes are then laid and connected to the manifold boxes. From there the gas goes through to the flare systems, where it is mixed with oxygen content for cleaning purposes. The final step of the process is that the gas is combusted for release as clean carbon dioxide.

Policy and Strategy Drivers

One of the key strategic drivers for the landfill project is at the core of the Growth And Development Strategy: DS principles for the City under the Joburg 20™ strategy and Development Strategy, as follows:

- City of Johannesburg Case Studies | 2011 - 2012
The City of Johannesburg is committed to transitioning to a low-carbon economy in pursuit of a healthy urban environment and environmental sustainability where this is considered a critical step in ensuring the well-being of all Johannesburg’s residents, and those who work and play in the city.

Source: Joburg 2040: Growth and Development Strategy

Additional key policy documents influencing this landfill gas project include the National Environmental Management•Waste Management Bill 2000, various policies under provincial management pertaining to the maintenance and care of landfill sites and their emissions, and the municipal Development of Integrated Waste Management•lan strategies for Integrated Development•lan.

Scope, Impact and Timelines

Scope

The scope of this project is the five landfill sites targeted for Energy CDM•projects•Robinson Deep 2011, Marie OUT 2012, inbro•park, outkoppies and Ennerdale. The total potential energy generated from the project will be 1 MW, comparable to electricity usage by about 12 00 middle-income households.

Impact

The impact of the project will be seen on the environment, health and safety conditions, financial revenue streams, fulfilment of teams and skills transfer, and meeting of the City’s key strategic objectives.

With regard to the environment, the LFG project has the potential to remove harmful methane and other gases from the landfills and help reduce the impact of odours on surrounding businesses and residents in the area. This also ties in with safety, where the reduced gases will improve the safety of operations because there is less chance of fires due to combustible methane. With the large number of people, trucks and equipment on the site, the ramifications of a fire could be significant.

With health, less gas will contribute to a better environment. Some of the less well-known gases present in small quantities, such as hydrogen sulphide, are known as volatile organic compounds Cs, and are lethal.

Regarding financial revenue streams, the project has not yet generated revenue but it is anticipated that revenue will be generated when electricity is sold to the buyer and when carbon credits are sold. The revenue streams will be shared between Ener Systems as the service provider and the City.

For the fulfilment of the registration of the five landfills’ CDMs before the end of 2012 will assist South Africa with its obligations to maintain a role of environmental stewardship, following the commitments arising out of COP1 in Durban. As the requirement is filled, there is an expected use of tea and tax from the service provider, as per their contract.

Lastly, this project will greatly assist with assisting in shifting to a low-carbon economy and green city for the future.
Case Study 2

Design of a typical LFG-collection, scrubbing, flaring and electricity-generation process

Timelines.

Pikitup began investigating in 2001, and the project was kick-started with discussions in 2005. The first contract was signed in 2009, and the actual equipment was constructed in 2011.

<table>
<thead>
<tr>
<th>Year(s)</th>
<th>Event(s)</th>
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<tbody>
<tr>
<td>2001 – 2005</td>
<td>• Pikitup seeks ways to finance an LFG project</td>
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<td>2005 – 2007</td>
<td>• ISD Executive Director decides to seek service provider for LFG project</td>
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<td>• City of Joburg awards tender to private party in 2007</td>
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<td>2008 – 2009</td>
<td>• Negotiations and due diligence carried out leading to final contract with EnerG Systems being signed in 2009, following viability study that reduces landfill sites from eight to five</td>
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<td>• New Environmental Waste Act comes into effect, resulting in application having to go through new process for submission</td>
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<td>• In 2009 the National Energy Regulator of South Africa (NERSA) invites IPPs to tender for renewable energies</td>
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<tr>
<td>2010 – 2011</td>
<td>• Environmental Impact Assessment (EIA) conducted in 2008; however, authorisation only received in 2010</td>
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<td>• Negotiations initiated for the PPA</td>
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<td>• In 2010 the NERSA process is taken over by the DOE; one category is LFG energy, for what is known as REBID, or renewable energy tariffs, and the tender is issued in 2011</td>
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<tr>
<td></td>
<td>• The process begins in 2010 to register the five landfill CDMs with UNFCCC to allow the sale of carbon credits</td>
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<td></td>
<td>• Construction begins at Robinson Deep in February 2011 and is completed by May 2011, with flaring and gathering of VERs beginning 29 May 2012</td>
</tr>
<tr>
<td>2012</td>
<td>• Final registration under way for five CDMs with UNFCCC by no later then end of 2012, when the protocol expires</td>
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<td></td>
<td>• Discussions under way for the PPA with Eskom and Wheeling Agreement with City to allow gas to be piped to their electrical grid</td>
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<td></td>
<td>• Construction completed at Marie Louise for gas wells and 28 gas extraction pipes, and flaring begins</td>
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Case Study 2

Critical Success Factors

The success of any project lies in understanding the critical success factors that can contribute to its coming into being. The following factors were identified on the LFG to Energy CDM Project:

1. Service Provider Partnership. As seen from the timelines, without the service provider that brought in the funding and expertise, this project would not have taken place. While other municipalities have sponsored their own projects, according to former Project Manager Palesa Mathibeli, “We would rather take a risk-averse process and have a private party come in to develop and invest in the project at no cost to the city.”

The tender process brought several potential service providers, but EnerG Systems had put in systems in various places around the world, including South Africa, and had the capability, expertise and acumen with LFG extraction projects to add value to the City of Johannesburg’s systems.

2. Enablers and Challenges in the Legislative Framework. Several different agreements, legislative issues, tenders and other legal documents have bearing on the success of LFG gas projects. At last count, current Project Manager Simphiwe Mbuli of EISD had identified seven pieces of legislation, documents and agreements that had bearing on the project:

   1. Environmental Impact Assessments on each landfill site
   2. Consent Use to implement the LFG projects at each site
   3. Power Purchase Agreement between the DOE and service provider as an IPP for provision of electricity from the landfill gas
   4. Wheeling Agreement with City Power for the consent to use their infrastructure to connect the electricity grid to the buyer
   5. Connection Application for approval from City Power and Eskom to connect to their grids
   6. Power of Attorney from Johannesburg Property Company for land use at Linbro Park
   7. UNFCCC application for the project registration for permission to sell CERs, which has taken two and a half years to date, and is expected to be approved before end of 2012

An understanding of how each of these will impact timelines, outcomes, costs and results is critical, and can either enable a project team or clarify challenges.

3. Project teams had expertise and mandate. Members of the project teams from EISD, Pikitup and service provider EnerG Systems, and members from the City’s Environment, Legal and Compliance, and Finance departments met quarterly, with detailed minutes captured for follow-up. In turn they presented the Mayoral Committee with regular updates, which ensured senior management was kept abreast of activities.

The technical team, with members from EISD, Pikitup’s and EnerG Systems, in turn met monthly to follow up on timelines, check on progress and identify any issues to address. This tight management process appeared to work well for the project, though it is understandable that there were frustrations with the delays due to legislative or other legal processes.
4. **Experts and resources to deal with complexities.** As can be seen from the list of legislative requirements above, LFG projects involve a high level of complexity. Each legal agreement had to be understood and many contracts had to be negotiated. The City employed an outside legal firm with expertise on LFG project negotiations, Lee International, and it in turn provided financial, legal, and environmental experts to advise on each aspect. The negotiations with the service provider were difficult and protracted and each clause had to be agreed upon.

In addition to international experts, the Project Manager was able to call on the National Treasury, which at the time had an expert assisting with municipal projects. This individual assisted in negotiations when the service provider came back to ask for changes to the contract.

5. **Funding of LFG Projects.** One of the riskier aspects of LFG projects is the funding and income streams. While finding the funding is the service provider’s responsibility, without external capital the service provider might have difficulty in fully executing its contract. Since the project timespan covered several years, the viability of selling carbon credits alone as a revenue source was not enough to make the financing bankable.

With the Kyoto Protocol expiring in 2012, the cost of carbon credits began to decline, and banks required additional revenue sources. While a carbon credit price of €11 was secured and an overseas buyer for the credits was in place, this was also contingent on the registration of the project with the UNFCCC, which was due to be completed only by the end of 2012. The City began to hold the service provider to the agreed-upon timelines to execute the project.

The bank that EnerG Systems was working with, Nedbank, required a PPA to be signed in order to release financing to the project. The PPA is contingent upon EnerG Systems winning the RE ID tender, which will be announced in May 2012. At this time, the project is under way and the service provider had to find its own financing. However, future development might well be contingent on the RE ID tender results, as without the financing from selling electricity, the project will have fewer revenue streams.

When EnerG Systems initially put in its bid for electricity, one of the stumbling blocks was their initial price of 60 cents per kWh, which was well above City Power’s charge of 38 cents per kWh. According to Simphiwe Mbuli, “City Power said legislatively they could not transfer a higher amount to their customers,” so the negotiations continued. However, with the RE ID programme coming online at a prescribed price of 0 cents per kWh, the revenue streams are looking far more positive.

6. **University of Witwatersrand contributions.** One interesting adjunct to this project is the contributions of a team from the University of Witwatersrand Department of Geography, Archaeology and Environmental Sciences. PhD student Shaazia Bhailall was writing a dissertation on modelling of landfill gases and had been working with Pikitup for several years. The end result is that she and her team spent nearly four years doing readings at the site and made significant contributions to the project.
When Shaaizia Bhailall went to present her master’s research results at an LFG conference in Sardinia, Italy, she had no idea that a chance meeting would result in her spending the next four years of her life at Robinson Deep with Pikitup in Johannesburg. The original concept proposed was to help Pikitup and the City of Johannesburg to become more compliant from an air quality perspective, as well as enabling a more healthy landfill where Bhailall and her team could make recommendations to reduce odours at the landfill and reduce gas emissions.

Over a period of four years, Bhailall and her team did just that. They employed three different methodologies: sub-surface probes, a mobile caravan and flux chambers. They planted and monitored probes at Robinson Deep, and also developed an innovative, theft and tamper-proof probe made of PVC piping and concrete to help alleviate issues faced by having metal probes that became easily clogged.

Bhailall did some of the initial methane mapping to find out where the greatest concentrations lay, and identified Robinson Deep as a “goldmine” of methane gas. Some of these findings helped Pikitup with the decision to start mining at Robinson Deep. When the gas-emissions system took too long, she suggested to Neville Smith to put in passive venting systems. The readings from the Wits team and their interpretation came to form a database for the project team over time, and featured in their technical and team reports.

The Wits team credits the close cooperation and assistance from Pikitup with making it possible for them to operate in the active landfill environment. Due to safety and security constraints, they had carefully to locate their caravan with its expensive monitoring equipment first on City Power’s property, and then on the Turffontein Race Course. This also had the unintended consequence of helping Pikitup work with these two organisations on odour issues, as the team’s findings clearly showed how landfill gas management better assisted with reducing odours and other environmental issues.

The contract between Pikitup and the University of Witwatersrand, which was sponsored by private donors and the university, has now come to an end, but the findings from the team’s work continue to assist the project.

The critical success factors tie in closely with key learnings on the project. Many aspects of the project which made it successful or less successful have now become learnings that might assist others looking at similar projects.
1 The CDM Process is complex and expensive. The entire process of conversion of LFG to energy and carbon credits is a complex, expensive project that has a multitude of workstreams happening simultaneously over a number of years. Many workstreams and go no go decisions are based on steps along the way. It is critical that these activities are synchronised and mapped out, and for that synchronisation to form part of the project.

CDM projects of this nature require LFG experience and expertise, which is expensive. While the service provider contract allows for a private contractor to take on the actual capital and maintenance costs, the municipality must still pay for the consultants and experts to assist with the agreements and legal requirements.

Tighter municipal budgets mean competition for scarce resources, and greater coordination is required between directorates such as waste and electricity for execution. However, operating costs are estimated at 10% of capital cost per year and security alone is 3% of the contract value, and these need to feature in future budgets and financial projections for the project.

2 Having the right partners and experts is critical. For the City of Johannesburg, a service provider as partner was seen as the best option at time when the City did not want to invest in the capital costs of the project. This was beneficial due to other, more pressing service-delivery priorities. In addition, having external experts with specialised municipality experience assisted in guiding the City through the complex processes.

In the future, a multi-disciplinary transaction advisory TA might be advisable. Since the project was the first of its kind in Johannesburg there was no internal expertise at that time. When the private party was appointed, it presented the City with a draft contract, which it assured the City had been signed by another municipality. Advice from the Treasury assisted Johannesburg in determining that the contract was one-sided and did not benefit the municipality. It took one year to renegotiate the contract and sign a new, comprehensive one.

3 The right team with strong processes and management ensures participation and buy-in, and a strong contract ensures service-provider management. The project steering committee and technical teams, especially during the earlier stages, were crucial in getting the project moving. Having members across various City departments provided critical input and time-saving to later processes. Team deliverables and communication were tightly managed by the Project Manager with detailed meeting minutes.

When the timelines were drawn out by the banking approvals, the service provider was held to default dates that were built into the contract. It was felt that a strong contract, even if it took a year to negotiate, was indispensable in ensuring that the project stayed on track.

4 Anticipate regulatory and legislative changes. While this is a difficult call, it is important to anticipate that there will be some changes in regulations and legislation when a project extends over a period longer than five years. In addition, the scenario in the energy world for carbon credits and other measures can change, which can have significant impacts on the project. It might be of value to assign one member of the team to follow regulatory and legislative changes.

5 Municipal tenders take time. Since municipal tenders take time, one Project Manager’s advice is to plan for this and ensure that every legal shortcut is employed. In addition, DOE contracts must be managed to include incentives for making deadlines and penalties for failing to do so.
Case Study 2

6. Consultation within the City on tariffs. One of the key learnings was that the appropriate consultation within the City, i.e., with City Power, had not been conducted prior to setting the tariffs. When sales of electricity into the electrical grid are part of the income stream, early dialogue for the execution of this needs to be an important step in the workstream to determine viability. The team got lucky with the RE ID processes, in that the tariffs were raised in excess of the expected pricing, but this might not always be the case. In addition, with the annual energy pricing increases in Johannesburg, in the next few years traditional tariffs may have caught up with renewable energy tariffs. It would assist the process to apply the best science and information against future expected tariffs, even if there is a cost associated upfront to access the studies.

7. Building timelines and budgets to anticipate agreements/tenders. Project Managers in Johannesburg had to deal with the then-mayor of the City, Amos Masondo, calling the LFG programme a "mystery project," as it was initially introduced in 200 and took another five years to implement. To avoid expectations that might not be met, it is better to build timelines that provide both a best-case and worst-case scenario, and anticipate the financial implications of both scenarios.

While the City did not put in funds for the capital expenditure, staffing or maintenance of the project, the delays in themselves are not free. Time and energy that could otherwise be spent on other revenue-generating projects are opportunity costs for the City as a whole. Saying for expert advisers to assist with legal or operational processes is often not taken into consideration in project budgets, especially with delays.

8. Ensure development of matching skills to the service provider, and skills transfer as per contracts. One element that has not happened in this project is the matching of skills development at Pikitup to the service provider. The comment was made, "The people managing our landfills should be qualified engineers, as landfilling is engineering. At Pikitup there are two engineers on the disposal side and they are far stretched. Capacity and skills are a critical issue. If the (service provider) were to get out of the city right now, we would not know where to start." And this is a risky place for a municipality to place itself, as the time and cost for the project to reach this stage are very high.

The project will continue for another 1 to 20 years and needs to ensure skills transfer. Transfer needs to happen not only at City level, but also from the service provider to its EE partners, which is not currently seen to be happening. In addition, the compliance manual that was written specifically for the project by the outside legal consultants needs to be fully implemented to capture the full learnings and ensure that compliance requirements are being upheld.

Next Phase and Conclusions

Innovation is risky and takes commitment, energy and time to be successful. It is important to recognise the City of Johannesburg, EISD and Pikitup for making the decision to take on a relatively high-risk, difficult project that is so critical to meeting the City’s mandate. Even when the risk is mitigated, the decisions can be tough to make and harder to implement.

The right people and the right processes can carry a project much farther, as shown by this case study. There is no reward without risk. For the City of Johannesburg to move forward in its vision and implement a low-carbon, green city through implementation of the F to Energy CDM project, it must be willing to commit resources and people to move into unknown territory and make new decisions.
Interviews

Neville Smith, Disposal Executive, Pikitup Johannesburg, 16 March 2012

Simphiwe Mbuli, Assistant Director for Integrated Waste Management, Environment Infrastructure and Services Department, 26 March 2012

Palesa Mathibeli, Director: Waste Sector, City of Johannesburg Environment Infrastructure and Services Department, 27 March 2012

Shaazia Bhailall, former PhD student at the University of Witwatersrand, Department of Archaeology and Environmental Sciences, 2 April 2012

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Joburg 20°0 Growth and Development Strategy
Auteng Provincial government Waste Management document

Mail and Guardian, Greening the Future Awards, 1–22 March 2012
Various references on www.joburg.org.za and www.pikitup.org.za

Resource papers from Shaazia Bhailall, including:
http://www.sabinet.co.za/abstracts/cleanair/cleanair_v18_n1_a4.html
http://www.sabinet.co.za/abstracts/resource/resource_v13_n1_a10.html
Case study 3
Green outdoor gyms in Joburg
Johannesburg City Parks
Contributing to a healthy city by developing active recreational nodes in public parks

Project Summary
The Green Outdoor Gyms were launched in 2012 in Petrus Molefe Eco-Park in Soweto as a pilot project between Johannesburg City Parks Corporate Projects and young entrepreneur Tim Hogins of Green Outdoor Gyms. The outdoor gyms provide world-class equipment in a secure park setting; the equipment at Petrus Molefe Park can be used by a number of people at a time and is free to the public. While still new, the project has generated high interest and has proved to be overwhelmingly popular with Soweto residents, many of whom might not otherwise have access to gym facilities.

Background & Introduction
Johannesburg City Parks (City Parks) is a municipal-owned entity within the City of Johannesburg that is known for supporting innovative projects. With responsibility for more than 2 000 parks throughout the city, its mandate is to create, protect, maintain and develop green open spaces for the recreational use of the citizens of the city.

Since 2000 City Parks has built many more parks in previously disadvantaged areas such as Soweto, Alexandra, Diepsloot, Orange Farm and many other townships. The response to open green spaces was initially smaller than in more developed areas, but as people began incorporating these areas into their daily lives, the demands for more active ways to use the parks expanded. The usage of parks is also unbalanced, with some parks facing heavy over-utilisation and others being underutilised.

City Parks has been engaged in discussions with Tim Hogins of Green Outdoor Gyms since 2008. This project began as a pilot in 2012 and is in line with the organisation’s donation and sponsorship drive. It is a project with the potential to help promote healthy lifestyles in the City of Johannesburg.
“Real quality of life requires that everyone enjoys easy access to a range of services that improves their quality of life and enhances their sense of belonging and patriotism. We will partner with people of this city to constantly find new ways of expressing and celebrating our diversity.”

Councillor Mpho Parks Tau, Executive Mayor of the City of Johannesburg
Objectives & Key Accomplishments

1. To develop active nodes of recreation proactively to help residents of the City of Johannesburg to develop healthy lifestyles that contribute to a strong, growing city.

2. To work with partners whose values contribute to the City of Johannesburg’s commitment to providing innovative, cost-effective solutions to increase the quality of life of its citizens and assist communities that otherwise might not be able to afford or have access to these facilities.

3. To test the Green Outdoor Gyms concept in Petrus Molefe Eco-Park in Soweto to determine the interest, viability and long-term sustainability of rolling out outdoor gyms in Johannesburg’s parks.

According to Bohlale Mohlathe, Manager: Corporate Projects/Funding, project manager since its inception, observations made and recorded since installation reveal that the project is successful. At the time of writing this case study, the Green Outdoor Gyms had received press coverage from various local papers, and local and international television stations. Calls expressing interest have come in from various other areas within Johannesburg, and municipalities and institutions throughout the country. Tim Hogins says that he has counted 103 people at 9pm at Soweto's new outdoor gym, waiting to use equipment that currently can handle only 20 at a time.

From the City’s perspective, the launch of the outdoor gyms has already chalked up some key accomplishments:

1. An innovative new concept has been launched that is free for residents to use, and provides high-quality equipment for them to work out on so that they can enjoy healthy lifestyle benefits that might not otherwise be available due to cost or availability.

2. It has provided an opportunity for partnership with a young City entrepreneur with a social and community focus who is keen to help people in disadvantaged areas gain access to healthy living and who covers the cost of the equipment, maintenance and security in the outdoor gym area.
3. The 24-hour, 7-day-a-week security services provided by Green Outdoor Gyms enhance safety and security for the benefiting parks at no cost to the City.

4. The project has provided job-creation opportunities with the security company employed to guard the gym every day. The guards are trained to double up as instructors, and can also build personal relationships with clients. This provides them with the opportunity to work as personal instructors in their own businesses when off duty.

5. It has enhanced the quality of lives of citizens; several users have reported improved health conditions following the use of the Green Outdoor Gyms equipment. These range from people suffering from obesity to those with high blood pressure and other non-communicable diseases.

6. It links to healthy lifestyle initiatives such as food gardens in previously disadvantaged areas.

About Johannesburg City Parks

Johannesburg City Parks, a section 21 company with the City of Johannesburg as sole stakeholder, was set up in November 2000 to manage the City’s parks, cemeteries, open green areas, street trees and conserved spaces.

As custodian of 22,278 hectares of open space and green areas, City Parks’ aim is for a greener environment for the present community and future generations. It is committed to upholding and maintaining Johannesburg’s ‘green crown’ and it will continue to manage the parks portfolio in a manner that ensures that Johannesburg remains one of the greenest cities in the world.

Johannesburg City Parks is committed to the principles of Joburg’s Growth and Development Strategy. Special focus is given to job creation, skills development and spatial planning as envisaged in the Johannesburg Metropolitan Open Space Strategy. Job creation is addressed through the Expanded Public Works Programme.

Source: www.jhbcityparks.com

City Parks’ involvement in the Green Outdoor Gyms ties in closely with its own strategic mandate as a green organisation. The outdoor gym has increased the number of users visiting the Petrus Molefe Eco-Park, a new park in Dhlamini, Soweto.

The Joburg 2040: Growth and Development Strategy (GDS 2040) explicitly points out the need for a healthy city. It highlights that Johannesburg’s population is at risk from chronic lifestyle diseases such as diabetes, obesity and cardiac diseases. According to Tim Hogins, “South Africa is one of the most obese countries in the world.” GDS 2040 emphasises that the City can build awareness of health risks, coordinate care, and improve the environmental and living conditions that affect residents’ health.

This makes the outdoor gyms a natural fit. Free, high-quality equipment in a park setting offers communities an opportunity to deal more successfully with lifestyle diseases. The setting of the parks in local Johannesburg townships allows residents, who may not be able to afford or have access to private gyms, an opportunity to work out close to home.

From the beginning, Green Outdoor Gyms raised a remarkable level of community involvement. There are stories of older women with their bottles of cleaning fluid and cloths coming to keep the equipment clean.
Scope, Impact and Timelines

Scope

The unprecedented reception and demand for the equipment, as well as observational studies, played key roles in informing the way forward on the project. Based on demand and the success of the project to date, more gyms will be rolled out to other parks throughout the City. Most of the gym pieces are double-sided and can be used by two people at a time. At present, an agreement is in place between City Parks and Green Outdoor Gyms to roll out 20 additional outdoor gyms and additional equipment in the immediate future. The 20 parks are as follows:

<table>
<thead>
<tr>
<th>Name of Park</th>
<th>Suburb</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Diepsloot Park</td>
<td>Diepsloot</td>
</tr>
<tr>
<td>2. Johannesburg Botanical Gardens</td>
<td>Emmarentia</td>
</tr>
<tr>
<td>3. Dorothy Nyembe Park</td>
<td>Soweto</td>
</tr>
<tr>
<td>4. Joubert Park</td>
<td>Johannesburg CBD</td>
</tr>
<tr>
<td>5. Orange Farm Regional Park</td>
<td>Orange Farm</td>
</tr>
<tr>
<td>6. Krematart Park</td>
<td>Eldorado Park</td>
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<tr>
<td>7. Pieter Roos Park</td>
<td>Johannesburg CBD</td>
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<tr>
<td>8. Windsor Park</td>
<td>Randburg</td>
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<tr>
<td>9. Sandhurst Park</td>
<td>Sandton</td>
</tr>
<tr>
<td>10. Orlando West Park</td>
<td>Orlando</td>
</tr>
<tr>
<td>11. Winston Ridge Park</td>
<td>Birnam</td>
</tr>
<tr>
<td>12. Zoo Lake</td>
<td>Parkview</td>
</tr>
<tr>
<td>13. Delta Park</td>
<td>Victory Park</td>
</tr>
<tr>
<td>14. James and Ethel Grey Park</td>
<td>Melrose</td>
</tr>
<tr>
<td>15. Ivory Park</td>
<td>Ivory Park</td>
</tr>
<tr>
<td>16. Petrus Molefe Park</td>
<td>Soweto</td>
</tr>
<tr>
<td>17. Rose Park</td>
<td>Lenasia</td>
</tr>
<tr>
<td>18. Johannesburg Zoo</td>
<td>Forest Town</td>
</tr>
<tr>
<td>19. Protea Park</td>
<td>Soweto</td>
</tr>
<tr>
<td>20. Alexandra Park</td>
<td>Alexandra</td>
</tr>
</tbody>
</table>

Impact

As listed above in the key accomplishments to date, the equipment is providing recreational and health uses for multiple participants at a time in the Petrus Molefe Eco-Park. The outdoor gyms encourage a healthy lifestyle, promote social cohesion in the area, and create a space where communities can safely interact and enjoy the outdoor park area. The security employees/instructors at the site also take part in the job creation provided by Green Outdoor Gyms, whose own locally manufactured gym equipment gives further employment to local South Africans.

Timelines

One noted factor of this project was the length of time between initial discussion and the roll-out. It is found that projects of this nature, depending on their complexity, take three to eight years to roll out.
<table>
<thead>
<tr>
<th>Year</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>2008</td>
<td>Green Outdoor Gyms engages in dialogue with City Parks. Tim Hogins is invited to present his proposal to City Parks’ Project Steering Committee (PSC), its second highest decision-making body, where he receives comments/advice on changes that should be made for the proposal to fit in with City Parks’ open spaces. An In-Principle Approval is granted on condition that recommendations made are actioned by Green Outdoor Gyms.</td>
</tr>
<tr>
<td>2009 – 2010</td>
<td>Green Outdoor Gyms implements the suggested changes. A safety inspection by City Parks’ Safety, Health, Environment and Quality (SHEQ) team takes place at the local manufacturing warehouse. Following the inspection by the safety team a report is tabled to the PSC.</td>
</tr>
<tr>
<td>2011</td>
<td>Approval is given to Green Outdoor Gyms to implement the project on a Pilot Project Basis.</td>
</tr>
<tr>
<td>2012</td>
<td>A Memorandum of Agreement is signed for two pilot locations and the first roll-out pilot opens at Petrus Molefe Eco-Park on 21 March, with a second to be opened on a date to be confirmed. The overwhelming response for the first gym installed at Petrus Molefe enabled City Parks to make immediate observations informing the way forward on the outdoor gyms project.</td>
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</tbody>
</table>
Critical Success Factors

1. **Innovative & Creative Approach.** One of the key factors of success with this pilot in its early stages is the innovative and creative approach to a healthy lifestyle in the parks. Initially, when parks were built in townships where parks had never been built before, people tended to look at them as a pretty space for walks. Over time, however, they began to perceive them as active recreational nodes with playgrounds, basketball courts, and now, outdoor gyms. This brings a new, previously not considered, mode of recreation and enjoyment to people's lives.

2. **Pilot as City Parks Corporate Project with Green Outdoor Gyms.** Green Outdoor Gyms’ Tim Hogins had been in discussions with City Parks from an early stage to reach the point of launching a pilot programme. By bringing in equipment for just one park, which City Parks could not provide – and by handling maintenance and security – Green Outdoor Gyms was able to provide services that brought extra benefits to City Parks’ open spaces. In addition, the security-services employees have also worked as instructors, providing extra job-creation opportunities in the area.

   The equipment itself is state of the art, and provides five different exercise routines. It is tested to be weather resistant, durable and strong enough to handle the volume of usage expected. Since it is locally manufactured in South Africa by Green Outdoor Gyms, changes, alterations and adjustments can be quickly made.

   A challenge for both City Parks and Green Outdoor Gyms is how to make the project viable for the future. At this time, subtle branding solutions, such as branding on the equipment and aerobics pitches, are being explored that would allow Green Outdoor Gyms a method to recoup their investment, but this has not yet been finalised.

3. **Links with the Biokinetics Association of South Africa (BASA).** BASA currently visits the Petrus Molefe Eco-Park once a month to provide services for residents in need of assistance for muscle damage, atrophy or injuries due to incidents such as car accidents. Most of these people, many of them pensioners or physically disabled, could not afford the specialised medical assistance that can be provided by volunteers from BASA and with the use of the outdoor gyms. This programme is under discussion to increase the number of visits in the future.

4. **Spreading usage of the parks.** One of City Parks’ operational issues is preventing over-usage of some parks, while encouraging greater usage of others. This type of project lends itself to encouraging usage of less-known parks.

5. **Technology and local manufacture.** With the service provider bringing in the equipment and technology, the park benefited from the latest in outdoor equipment which went through all necessary SHEQ processes. Having the equipment locally manufactured not only benefits the country by creating employment, but also allows for adjustments, spares and new equipment to be more readily available.

6. **Community buy-in with benefits and additional security.** The park is popular with people of all ages. Groups of pensioners come by bus from throughout Soweto to make use of the innovative gym. The initial project was launched with an event featuring a group of aerobic dancers, all from Soweto, who provided an aerobics exhibition which meant employment and a showcase for them, and entertainment for the community. Though the gym facilities have just opened (in March 2012), indications are that the usage is greater than anticipated. In addition, the 24-hour security at the gym makes the parks a safer space for all residents and users.
7. **Political and organisational support.** The outdoor gyms concept has long been of interest to City Parks, and with the launch, Executive Mayor Parks Tau has become an avid supporter, as has Cllr Chris Vondo, Member of the Mayoral Committee (MMC) for Community Development. Having the necessary support, from operational teams in the parks up to mayoral level, will assist the future success of this project.

**Key Learnings**

Though the introduction of the Green Outdoor Gyms has just begun, already there are key learnings that contribute to the future of this project.

1. **Demand for more outdoor recreation in under-resourced areas is greater then expected.** No one could anticipate that the first outdoor gym would be as wildly successful as it turned out to be. The great interest from the residents, the media and the public indicate that people are keen to become healthier and fitter, and seeking out ways to do so.

2. **Finding local service providers whose values match City Parks in terms of providing benefit to communities is important.** Discussions are under way with potential service providers whose values match those of City Parks to assist communities. With the pilot through Corporate Projects with Green Outdoor Gyms, Tim Hogins brought to the table his vision for outdoor gyms and a healthier South Africa, as well as his passion for assisting less advantaged communities. This project also provides City Parks the opportunity to support and partner with young, developing entrepreneurs to grow economic development in the City and meet GDS requirements for supporting business opportunities for small businesses.
3. **Sustainability of the outdoor gyms is critical going forward.** In addition to meeting City Parks Corporate Projects' requirement to meet community needs at little or no cost to the City, part of the next challenge in working with outdoor gyms is for service providers to find ways to make projects financially viable. The current finding is that corporate donors/sponsors seek partners that can offer the community both passion and sustainability across a broad sector, ie many parks. Corporate sponsors may seek large branding opportunities which are not in line with the use of public space; however, many are open to discussing different approaches.

City Parks is working to identify ways to provide subtle branding that would be suitable for corporate sponsorship yet does not compromise the integrity of the public space. Since City Parks does not control all the space in the area, which is controlled in part by the Johannesburg Property Company, this is also a challenge to coordinate between agencies.

One example of a sponsorship that works well for City Parks is the Simba sponsorship at Zoo Lake, with a character and subtle branding on the mats in the playground area. Similar concepts to this are being explored. The March launch was sponsored by Green Outdoor Gyms without a corporate sponsor, so this is a key priority going forward in terms of sustainability for service providers.

4. **Community buy-in ensures success.** There is no greater success for a community project than when it is endorsed and appreciated by the local community. According to Bohlale Mohlathe, “A sense of community ownership is a huge element.” Working with ward councillors of a community also plays a critical role in the success of the project. The ward councillor is able to garner community support for projects through public consultation and community notices. This in turn ensures community ownership of projects.

Early indications are that the residents in the area of the Petrus Molefe Eco-park, including the previously mentioned older women with their bottles of cleaning fluids, are both keen on the gym and appreciative of the benefits it brings to their area and their health in general. Continuing to find local residents who champion the outdoor gyms through the ward councillor will help ensure their success.

5. **The timing is right.** With Johannesburg's growing middle class, higher levels of obesity and other health issues, the timing is right to introduce outdoor gyms. As the population moves to a more car-based society, people walk less than they did before, and the need for exercise has increased. Greater awareness on healthy lifestyles contributes to a developing need for addressing health issues.

6. **Managing the outdoor gym project for a way forward.** The success and popularity of the pilot outdoor gym has taken the City by surprise. Minor operational innovations, such as rolling out sporting pitches for the entire area, putting in a fence that can be used for stretching purposes, and better signage are being explored to help handle the unexpected numbers of people using the equipment.

To address the interest expressed by other companies operating in the same field of outdoor gym equipment, an innovative method of handling requests was undertaken through the posting of an Expression of Interest (EOI) notice in local newspapers, as well as on City Parks' social network sites. City Parks posted a notice for Donations, Sponsorships and Submissions of Innovative Project Ideas to encourage residents and local citizens to send in ideas for sustainable projects, especially those not requiring funding from the City. As anticipated, the EOI generated many more innovative concepts which City Parks Corporate Projects will look forward to developing in the future.
Next Phase & Conclusions

With requests coming in from residents in other areas around Johannesburg, from various media and television stations, from Mpumalanga, KwaZulu-Natal and other provinces, it is anticipated that the outdoor gyms projects in parks will continue to be an outstanding success.

Interviews

Jenny Moodley, Marketing Manager, Johannesburg City Parks, 29 March 2012
Bohlale Mohlathe, Manager: Corporate Projects/Funding, 29 March 2012
Tim Hogins, Managing Director, Green Outdoor Gyms, 2 April 2012

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Nomaswazi Nkosi, “Getting into the swing of things in Soweto”, The Sowetan, 29 February 2012
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Johannesburg City Parks website: www.jhbcityparks.com
Creating the future for the City’s next generation
Case study 4
The Rea Vaya Johannesburg Bus Rapid Transit System
The creation of an urban transport network in the City of Johannesburg

Project Summary
The Rea Vaya Bus Rapid Transit (BRT) System is a fully integrated system that marks the implementation of integrated public transport systems in the City of Johannesburg. Today it carries one million people per month and is changing the shape of transport and landscape in the City. Implementing the BRT has been a multi-faceted, complex national project that has taken several years of dedication, commitment and effort, providing great rewards and challenges for the City and its citizens.

Background
When most people in South Africa think of bus travel, it is in older, step-up buses paid by coin or token, often late, unreliable and belching with dark smoke. Today’s BRT is a far cry from the bus systems of old; it comes with new, modern buses with the latest in green emissions clean and safe, with special features for the handicapped; electronic doors opening at station level for customers to enter and exit smoothly with no step to negotiate; their own dedicated lanes allowing for faster travel; modern, new stations; highly controlled scheduling, route and bus management; and smooth transition to demarcated feeder and complementary lanes reaching into residential suburbs.

In 2003 the City’s integrated transport plan indicated that 72% of public transport at the time in the City was being provided by minibuses or taxis; 14% by rail and 9% by bus. Sixty-three percent of the population did not own cars. Government had not provided adequately for the mass transit needs of the majority of people. According to Ibrahim Seedat of the Department of Transport, “historically our cities, especially the big ones, they might not like it, but they are glorified roads departments. (The result is) we have good urban roads compared to other developing cities. This is partly a legacy of the apartheid regime.”

Apartheid shaped the City of Johannesburg by creating a spatial framework that controlled how people lived, worked and moved around. Two-thirds of Johannesburg’s residents, black, Indians and coloureds who were among the lowest paid and unable to afford cars, were forced to live in areas furthest from their workplaces and from transport networks. As Johannesburg evolved and became more dispersed, commuting became more difficult and diverse.

Public transport corridors are important in that they offer cities a way to own public space, to shape the course of development and to knit back together spaces that were divided by apartheid. Rea Vaya BRT has become a catalyst for land-use transformation and has begun to change Johannesburg’s apartheid spatial legacy and determine the future landscape and shape of a city.
Rea Vaya is one of the City of Johannesburg’s legacy projects that truly represents a new chapter in the history of public transport. The journey that led us to this has been one of tireless commitment and determination by the City, our partners and the residents of Johannesburg.

Councillor Mpho Parks Tau, Executive Mayor of the City of Johannesburg, State of the City Address, 22 March 2012
Even today Johannesburg is separated into a developed, wealthy north and a much-neglected south. Over one million people pass through the Johannesburg CBD daily en route to work, business, schools and universities, or to seek work. For individuals reliant on public transportation, the effectiveness of those systems impacts on their everyday life. A more effective public transport system goes towards equalising rights for those who suffered from the inequalities of apartheid.

For years Johannesburg built on a relatively well-structured car-based system, copying American cities such as Los Angeles and Atlanta, instead of New York or Chicago, which were denser. It was a city built for a relatively wealthy, white, car-owning society. From the 19 Os the City’s strong civil engineering skills lent themselves to building wide roads and freeways for a car-based transport system, without much thought given to how the hundreds of thousands of working-class residents without cars, often black, would be able to move efficiently from A to B, and not in a circuitous way.

With an apartheid government uninterested in how people in townships commuted to work, taxis developed to fill the void in public transport options. For the majority of commuters who lived in racially divided townships far from workplaces or educational institutions, public transport was difficult, often involving multiple taxi transfers, and costly. In 2006, the average time a person spent travelling using one taxi was approximately 0 minutes for a single trip, and the average cost of public transport was R186 per commuter per month. In just five years from 1999 to 1999, road traffic in Johannesburg doubled and many business nodes and suburbs remained unlinked to any kind of public transport. The Johannesburg faced by commuters was one of gridlock, pollution and frustration, with an average trip to work taking some 0 minutes. Source: Rea Vaya/BRT – Transforming the face of public transport, End of Term Report 2006 – 2011

The City had, in essence, absolved itself of responsibility for the bulk of public transport. Inevitably, attempts to move out of the system and equalise the inequities of the past would be difficult and costly.

In terms of what did exist in public transport, such as buses and trains, the system became operator-based,
and operators ran without any major oversight. With this kind of system there tends to be a lack of integration, because each operator has to maximise its profitability. The result was a system ideal for cars, but poorly integrated for public transport. Decades of apartheid left a legacy that did not accommodate the needs of a population dependent on public transport, either through taxis, buses or trains.

To change this scenario is complicated. And yet, according to Councillor Rehana Moosajee, MMC of Transport in the City of Johannesburg, “The issue of the City unapologetically taking space from private cars and dedicating space to public transport is the loudest pro poor statement that any city can make.”

It is against this backdrop of addressing past inequalities that the groundwork was laid for the introduction of the BRT systems. In 2006, the City had developed the Spatial Development Framework to set out new patterns of future development. This framework called for re-densification and nodal development along spines and corridors. The City began to take ownership not only of public transport, but development along the corridors. The City’s Transport department developed the Strategic Public Transport Network (SPTN) which aimed to connect the many different economic nodes and residential areas through an integrated transportation network.

This plan was well underway when Cllr Moosajee, along with other members of the City, was introduced to a new concept for South Africa, the Bus Rapid Transit system, known for the catchphrase, ‘think rail do bus’, a public transport system that brought the efficiencies of rail for far less cost and with fewer requirements through a highly evolved bus system.

**Introduction to Bus Rapid Transit Systems**

It was the screening of a video from Curitaba, Brazil called “Making Things Happen with Bus Rapid Transit”, at a South African Transport Conference in 2006, that excited Cllr Moosajee’s imagination about BRT. Especially important was that the video showed how incumbent operators, known in Bra-Il as traditional operators, could be brought into the system.

The BRT system was particularly attractive to the City, according to Cllr Moosajee “Firstly because it had the potential to be implemented in a short time frame, and when compared to other modes of mass transit for developing countries, cities in particular, it was more affordable – particularly where cities were grappling with many development issues simultaneously, and transit was just one of the many issues we were looking at.”

This discussion on BRT dovetailed with the national Public Transport Strategy in 2007 which strongly supported capable municipal transport departments in implementing, managing and regulating integrated quality networks with dedicated rights of way in their cities.

With South Africa’s winning bid for the World Cup 2010, Treasury set up the Public Transport Infrastructure and Systems Grant (PTIS), which was signed into effect in 2007. The result of this was to map out the fast-tracking implementation plan for the period leading up to the World Cup 2010. The grant provided the funds and supported government’s strategic thrust to assist cities with what had previously been an unfunded mandate to develop public transport.

The strategic impetus and availability of funds made the BRT a viable option for Johannesburg. The potential to implement in short time frames, greater affordability than greenfield projects such as rail, having a system more amenable than most to developing-country issues, and the provision of a potential solution for incumbent operators were important factors in determining Johannesburg’s selection of the BRT as part its municipal transport strategy.
What are the principle characteristics of BRT?

- Segregated busways or bus-only roadways
- Location of busways in the median of the roadway rather than in the kerb lane
- Existence of an integrated network of routes and corridors
- Separate stations that are convenient, comfortable, secure and weather proof
- Stations that provide level access between the platform and the vehicle floor
- Special stations and terminals to facilitate physical integration among trunk routes, feeder services and other public transport systems
- Pre-boarding fare collection and fare verification
- Fare and physical integration among routes, corridors and feeder services
- Restriction of entry to the system to prescribed operators under a reformed business and administrative structure
- Distinctive marketing identity for the system
- Low-emission vehicle technologies
- System management through a centralised control centre, utilising ITS applications such as automatic vehicle location
• Special physical provisions to access for people with disabilities, children, the elderly and the disabled
• Clear route maps, signage and/or real-time information displays that are visibly placed within stations and/or vehicles
• Main routes, known as ‘trunk routes’ ‘feeder services’ where buses can pick up passengers at the kerbside and transport them to the trunk routes and complementary routes that connect passengers from suburbs to the trunk routes

What are the benefits of Rea Vaya?

Short-term benefits
• Efficient, reliable and frequent public transport services
• Affordable fares
• A safe and secure public transport system
• Accessible public transport for people with disability and mothers with children
• A decrease in traffic congestion, energy consumption and vehicle emissions
• An enhanced urban environment
• Recapitalisation of the public transport fleet
• Broad-based black economic empowerment

Medium term benefits
• Containment of urban sprawl (spread of settlements) and promotion of densification
• Promoting social inclusion instead of isolation
• Job creation

Long-term benefits
• Economic development in and around the areas of operation
• Reduction in pollution
• A world class public transport system which the City can be proud of

Source: www.reavaya.org.za

Characteristics of a BRT System What makes it special

The strategic value of BRT systems, and Rea Vaya in particular, lies in that it employs many technical aspects of a centralised, rail-based mass-transit system. By working with buses on dedicated exclusive roadways, BRT is designed to feed into a high-volume trunk service. Using state-of-the-art stations designed to enhance easy access and quick boarding, commuters receive the benefits of rail in a BRT system.

The system offers specific technical aspects, which together make it a unique and highly efficient mode of transport. All Rea Vaya buses are of a high-floor (900 mm from road surface) design with access to stations level with the floor height of the bus. The 18 m articulated buses have three boarding doors and 1 m feeder buses two, which allows for a larger number of passengers to get on and off more quickly. Feeder buses also load passengers at street level and are equipped with wheelchair lifts and wheelchair parking areas in the bus, and equipped for people with disabilities. All buses have CCTV cameras, communication with a central control room, and message screens for travel information. Buses are fitted with Euro-4-compliant, environmentally friendly propulsion systems.
The BRT stations also contribute to the uniqueness of the system. All stations are fitted with electrically operated doors which are opened by the bus drivers when they dock at the station. Stations are designed to make use of natural light and ventilation. Their modular design means that modules, which are built offsite and assembled onsite, can be erected in six weeks, allowing for rapid expansion of BRT. Stations are accessible from both sides to accommodate the two-way flow of passengers. Access to stations is controlled by access gates opened when a passengers swipes his EMV-based smart card at the gates. Fare top-ups are available at all stations.

Stations are staffed by an ambassador, cashiers and marshalls to assist passengers, and security and cleaning personnel. Passengers are advised of bus arrival times on variable message screens. Not only the buses, but the many operating elements of the BRT are part of a sophisticated system.

The operation of the system is managed and controlled with the support of an Advanced Passenger Transport Management System (APTMS). This is made up of various components and functions:

- Service levels and frequencies are determined by the Rea Vaya Business Unit. The operation of the services is contracted out to companies owned by previous taxi operators affected by the introduction of the Rea Vaya services.
- Buses are tracked in real time with a global positioning facility from a central control room to determine whether they are on schedule and on the correct routes.
- Communication is available between the control room and buses, the bus operating company and stations. A bus driver can get instructions from the control room regarding his schedule and other salient information.
- The control room has an online view of the stations via CCTV cameras to allow for greater security and control. Visuals on buses are recorded and downloaded to the system every night to follow up on possible incidents.
- Bus arrivals are displayed in stations and buses on variable message screens.
- CCTV cameras are also strategically placed in station precincts and along the trunk routes to enhance security and to monitor illegal use of the exclusive roadways.
- The flow of buses through the traffic is enhanced by a system by which the buses can communicate with traffic signals to allow small interventions in traffic-light functioning to support priority for Rea Vaya uses.

A distance-based fare collection system, operating on a bank-card platform, is being introduced that will control access to stations and buses. This allows passengers to load funds on to the card for easy use when travelling.

All these components work together to provide a highly efficient, world-class computerised operating management system. These individual systems in turn allow for a seamless and comfortable ride for passengers, while at the same time providing a high level of operating efficiency for the City and the bus operator.
Laying the Groundwork for BRT

Today there are more than 18 BRT systems either built, being built or being planned around the world. Usage of public transport systems in developing countries is often challenged by a general lack of pedestrian facilities. A key component of BRT station planning and design is not just the system itself but taking into the account the entire areas surrounding the stations and routes. The City cannot just consider the system in isolation, but must take into account how to 'own' the public space around it.

Challenges for passengers reaching stations often contribute to high injury rates and fatalities when not managed properly. They include issues such as a lack of pedestrian pavements, poor quality of pavements, no physical separation from high levels of traffic and from high-speed traffic, extreme levels of noise and air pollution, intersection designs aimed at facilitating high vehicular turning speeds at the expense of safe pedestrian crossing, obstructed pavements due to parked cars, poor design, utility poles and signs, uncollected rubbish, vendors and the like, no protection from harsh climatic conditions, lack of sufficient lighting, pedestrian overcrowding due to narrow or below-capacity pavements and high levels of robbery, assault, and other crime befalling pedestrians.

Though Johannesburg has a relatively sophisticated transport infrastructure for a developing city, it is an infrastructure built for a car-based society. Moving from this infrastructure, entrenched over years of apartheid planning, to an integrated public transport-driven system, brings special challenges and requires commitment.

In 2003 the City received approvals on its strategy—the Integrated Transport Plan (ITP) with the Strategic Public Transport Network (SPTN) as its key proposal—from its own council, the Gauteng province and the National Minister of Transport. The formation of an integrated transport plan was under way. Switching modes of transport from curbside priorities for buses and taxis to BRT was made easier by both national government’s own strategic initiatives and the fact that some existing strategic-corridor work had been completed. The combination of the strategic impetus, the linkages to the City’s own requirements in terms of lower costs than greenfield public transport, a more rapid implementation that could meet some 2010 World Cup deadlines, and a way to bring existing operators into the system, as well as the merits of a BRT system on its own, were important in laying the groundwork for Rea Vaya.

**Rea Vaya BRT Objectives**

Rea Vaya, which means ‘we are going’, is the City’s first dedicated BRT system and will play a key role in the development of the City’s public transport systems. Its objectives include:

1. To provide a fully integrated BRT system to assist in creating an integrated public transport modes in the City of Johannesburg that offer residents a modern, safe, efficient, reliable, clean and affordable transport option.

2. To create an efficient transport system working towards a greener city as an alternative to a car-based society, that also takes into account the importance transport plays in determining the planning, shape and landscape of the City.

3. To take into account the City’s need to address inequalities of infrastructure and the transport system built during the apartheid years, linking North-South and bringing together a City divided by historic inequalities.

4. To incorporate incumbent operators that have invested in these routes over the years as partners in a long-term, sustainable system that provides benefits to all parties involved.

5. To meet obligations as the host city for the 2010 World Cup as per the FIFA contracts to provide clean, safe and working transport during the 23 matches played in Johannesburg.

6. To work towards a future with a highly efficient, effective Rea Vaya BRT business system that provides benefits to users and beyond in a manner that is sustainable over the long term for the City and its citizens and partners.

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Case Study 4

City of Johannesburg Case Studies | 2011 - 2012
**Key Accomplishments**

With the tight deadlines of the 2010 World Cup, and the protracted taxi negotiations with their corresponding violence, many questioned whether the BRT would ever get off the ground. But behind the scenes highly dedicated individuals were working to make sure that it came into being. The key accomplishments of the Rea Vaya BRT to date are as follows:

1. **Phase IA Rea Vaya BRT system is in full operation.** Today the BRT carries one million passengers a month in a safe, clean, affordable, efficient and reliable transport system. It may have just 0 of the original 90 stations planned in 2006, and 25.5 km of the original 100 km of routes planned, but the system is up and operational.

   Phase IA was implemented in August 2009 and became fully operational in February 2011. It handles 1 articulated buses and 102 standard buses, 25.5 km of dedicated routes, 7.8 km of feeder and complementary routes, and 30 stations in operation. This phase comprises one trunk route between Thokoza Park in Moroka, Soweto and Ellis Park, east of the city centre in Johannesburg. The route is supported by an Inner City distribution route, five feeder routes inside Soweto, a route inside Soweto, and a route between Meadowlands and Ellis Park.

   Ridership began at about 600,000 and now reaches 1.1 million passengers per month. Ticket revenue ranges from R4.3 to R6.5 million per month, and is anticipated to improve when the card system comes into operation.

2. **Passengers are satisfied with the service.** With the focus on getting the BRT off the ground, the negotiations with the taxi industry, strikes, violence and other challenges did not detract from the fact that this is a service for the passengers. The passengers’ trust and their usage of the system is the greatest measure of its success.
The Satisfaction Rating graph, right, with 3 as satisfied and 2 as dissatisfied, shows high passenger satisfaction with safety from crime, travel time, safety from accidents, fares, station staff, drivers, stations and walking distances. Future challenges for the BRT lie with frequency at peak, frequency off peak and service information.

Source: Colleen cCaul, “Inside Rea Vaya: Characteristics and Indicators”, SAB A Conference, 2–February 2012

It will be seen later that current underutilisation of the system influences frequencies, and this will improve as ridership increases with new phases.

. Creation of the first Rea Vaya Bus Operating Company from incumbent taxi operators. This is probably one of the most critical milestones in the implementation of BRT, as it involved five years of intensive negotiations between taxi operators and the City. As a result, 8 minibus taxis were removed from the road and replaced with 1 energy-efficient and green buses. The resulting company, Piotrans, is a private company made up of 12 taxi operators, all of whom are shareholders. There were no job losses from this transition, as 22 former taxi drivers became bus drivers, while 280 former drivers moved into other BRT-related positions. This was both the City’s biggest challenge and biggest accomplishment, a fact recognised by Ibrahim Seedat: “If you have money it is easy to do the civil engineering (and build a system). But to create a company out of informal operators, which hasn’t been done anywhere in the economy (is an accomplishment).”

4. BRT as a system contributes to a green city. When the BRT removed 8 taxis from the City and replaced them with 1 energy-efficient buses, this reduced the City’s carbon consumption by 20 000 tonnes of carbon dioxide a year. Phases 1A and 1B combined are expected to reduce the City’s carbon footprint by 0 000 tonnes of carbon dioxide a year.

. The BRT as in time for the World Cup. A massive push that brought the timing of the BRT into play was meeting the timelines for the 2010 World Cup. Though it was not with all the operational elements that are currently under way with Phase IA, the City of Johannesburg was able to meet its obligations to FIFA as a host city to have a working public transport system in place for the 2010 World Cup. Accomplishing this in that short space of time was a specific challenge of the BRT. It was only with a sense of massive commitment from all the partners that this was made possible, but many of the interim solutions created critical learnings for the project and are having an impact on later stages.
The BRT has transitioned from a project to a business. The strategy, planning and negotiations are the hallmark of any project. The BRT has reached a level where the organisation is now transitioning from a project into a fully fledged business. While there are still Phase 1B and 1C due to be completed by 2015, the focus is now on creating the most effective and efficient operating system to best service the needs of the public. There still remain many challenges with negotiations for other impacted incumbent operators, working with communities for other strategic transport corridors, and ensuring that the business generates sufficient ridership and income to cover operational costs. It is estimated the new routes will begin to provide sufficient ridership volume to assist the BRT with its revenue. However, the system, management team and staffing requirements reflect the changing environment.

Rea Vaya BRT is changing Johannesburg’s land-use policies. BRT is beginning to correct the skewed spatial planning legacies of apartheid; building a vibrant and liveable urban environment; encouraging the creation of pedestrian precincts and offering an alternative to the use of private vehicles on the road. The creation of BRT dedicated lanes is forming a physical link between the City’s economic and residential nodes.

In addition to these key accomplishments to date, the Rea Vaya BRT systems team seeks to uphold a series of guiding principles, as shown below.

The Rea Vaya BRT project maintains its commitment to public transport through its guiding principles:

- All City of Johannesburg policy and planning give priority to public transport and strive to reduce private car use, especially during peak traffic periods. This is included in spatial and development planning as well as programmes of government.

- The City of Johannesburg will strive to maximise public transport integration. This involves ensuring that the mode matches the demand and that the City maintains high levels of cooperation with other spheres of government and providers of public transport.

- The Rea Vaya brand should remain pure, with key Rea Vaya elements of the brand, such as dedicated bus lanes, being environmentally friendly, being disability friendly and customer care being the norm.

- Rea Vaya is to be sustainable. This involves sticking to the clean-fuel promise as well as finding alternative sources of revenue and ensuring that there are adequate funds to continue to invest in high-quality infrastructure and maintenance. At an institutional level, it involves taking time to build strong institutions both inside and outside the City to manage different aspects of Rea Vaya.

- Rea Vaya lives the City of Johannesburg’s Transport Values. This involves a focus on ensuring that all staff embrace the values of accountability, cooperation, honesty, respect and Ubuntu, and that Rea Vaya enables and encourages passengers to embrace and practise the same values.

Policy and Strategy Drivers

The national government and Department of Transport’s (DOT) role with regard to public transport is to set the overall strategic policy framework, with implementation taking place at the city level. A national project like the Rea Vaya Bus Rapid Transit, at a cost of R3.5 billion, requires greater involvement, yet the initiative must still be driven by the City.

In 2000 the *National Land Transport Transition Act* was passed, which became the *National Land Transportation Act (NLTA)* in 2009. The NLTA sets out how planning, implementation, licensing, integration and management of public transport should happen. It aims to transform and restructure the national land transport system; prescribe national principles, requirements, guidelines and frameworks that must be applied in giving effect to national policy and allocate land transport functions to different spheres of government. It also makes provision for overseeing various areas relating to operator engagement and different types of contracts.

In the process of developing the strategy, the DOT realised that South Africa was falling behind other international developing cities, especially as regards breakthroughs in Latin America with public transport networks. It was felt that the South African policy on its public transport network was not as explicit or directive as it should have been.

The Public Transport Strategy was approved in 2007 by Cabinet with the Public Transport Action Plan and supporting Catalytic Integrated Rapid Public Transport Network Projects mapping out a fast-track implementation plan for the period leading up to the 2010 World Cup.

This was followed by the DOT preparing the new NLTA (Act 5 of 2007) in August 2009, which incorporated enabling sections for BRT-type systems and a clear mandate for municipalities to regulate and manage their own transport networks. The contracting chapter made provision in Section 41 for first-phase negotiated contracts with public transport operators in the area. This section also provided for a negotiated contract to be for a 12-year period. Source: Colleen McCaul and Simphiwe Ntuli, “Negotiating the Deal to Enable the First Rea Vaya Bus Operating Company”, Abstract

One of the key enablers in the Johannesburg Rea Vaya BRT project came in 2005/2006 when the Treasury set up the PTIS, which was agreed by Cabinet in 2007. The strategy was to focus on 12 of the bigger cities and use the national grant to encourage the building of public transport networks which would carry on post-World Cup.

In the period from 2000 to 2006, then-Executive Mayor Councillor Amos Maseko chose to separate the transport and environment portfolios and departments from development planning, allowing a greater focus on these functions. South Africa had been granted the rights to hold the FIFA 2010 World Cup and host cities were required to provide transport packs, and the pressure was mounting. The brief at that time was to create systems which, long after the whistle was blown, would become legacy projects for the 2010 World Cup and the City.

The BRT concept, which incorporated incumbent operators, was introduced, and the legislation, the funding and the right concept fell into place with what the City felt was a part of a workable long-term solution to its public transport issues.
Today the Rea Vaya BRT is an integral part of the Joburg 2020 Growth and Development Strategy (GDS). Under this strategy, the Rea Vaya BRT is seen as a key intervention that has “laid the foundation for a new era of mass transport. To mitigate against increasing petrol prices, the cost of maintaining road infrastructure and increasing air pollution, a modal shift change from private to public transport is the only answer for the future city of Johannesburg. The potential of modal shifts presents a number of opportunities for economic development and improved city living.”

In addition, Rea Vaya contributes to overall GDS goals to eradicate poverty by enabling the affordability of municipal services and public transport, building sustainable human settlements that confront the post-apartheid reality of urban exclusion, and transitioning the City to a low-carbon economy.

**Scope and Impact**

**Scope.**

Phase 1A of the Rea Vaya BRT encompasses 1 stations on 0 km of track, with 143 buses and one million passengers per month. It encompasses a route from Thokoza Park in Soweto to Ellis Park in New Doornfontein, an Inner City route and five feeder routes inside Soweto. The service began in August 2009 and became fully operational in February 2011.

Phase 1B is estimated to be completed in 2013 with 17 km of track, 17 stations and 134 buses. Phase 1C is planned for completion in 2015 with 18 km of track, 19 stations and 78 buses. By the time Phases 1A, 1B and 1C are complete, the City will have 65 km of track, 67 stations in use and 253 buses with the BRT.

Initial financial projections were developed on the basis of daily use by 71,000 passengers; however, actual usage is closer to 40,000 passengers per day.

**Impact.**

The impact of the Rea Vaya BRT can be measured in many ways, some that can be substantiated numerically, others not. The BRT has had a direct impact on the lives of those passengers who take the BRT buses each day. Passengers are safer with the better safety records of the buses, while bus drivers and other former taxi drivers are now in formalised employment systems. It has improved commuting time into the Inner City, though this also means buses are more crowded at peak periods. The system is affordable, reliable, and provides a clean, quality transport service for commuters.

The BRT as a business contributes to the City with revenues from fares to offset operational costs. It has improved the environment by reducing carbon dioxide emissions in the City.

Yet the greatest impact of BRT lies in its strategic role in urban transport. The creation of the routes has assisted with the goal of greater social cohesion by bringing Soweto closer to the CBD. It will assist people in avoiding inefficiencies which have often entailed two taxis for one journey. The BRT stations have created a visual impact that improves the City landscape, and allowed the City to guide investment along transport corridors.

Ridership is a key factor in indicating the impact of BRT. The graph opposite shows ridership since the BRT’s inception in May 2009. As of February 2012, growth of 12% was realised over the prior year. At this time it is difficult to assess exact ridership as the BRT currently uses a paper ticket system. A smart-card system is being planned to roll out in 2012.

Phase 1B will assist in bringing economic efficiencies to help BRT reach ridership targets as an overall system, as the expanded routing will provide more options to a wider audience of passengers.
Ridership since inception

Source: Colleen McCaul, “Inside Rea Vaya: Characteristics and Indicators”, SABOA Conference, 23 February 2012

TOTAL TICKETS SOLD

Source: Colleen McCaul, “Inside Rea Vaya: Characteristics and Indicators”, SABOA Conference, 23 February 2012
Regarding **safety**, the current BRT system estimate puts the rate of accidents at four per 100 000 km travelled. The CBD accident level is higher due to traffic and pedestrian densities, at 12 per 100 000 km. During 2011 Piotrans recorded 227 incidences, of which 210 were damage to the bus only (scratches and minor damage) and 17 were accidents; there were two deaths.

In the same period .8 million km were operated, providing a rate of .7 accidents for every 100 000 kilometres. The injury rate was 0. per 100 000 km. These numbers are on par with public transport systems throughout the world and indicate the BRT's status as a world-class public transport system in terms of safety.

In terms of **formal employment creation**, 8 taxi drivers were taken off the road and 22 of them employed as drivers, with the remainder being employed at the stations. The Rea Vaya system comes to a total of 787 employees, in addition to the 1 07 construction jobs to build the infrastructure.

As indicated in the key accomplishments to date, members currently in formal employment have seen a significant improvement in earnings, with a system total of R 8 million. By being part of companies with formal working conditions they receive benefits such as insurance, pensions and medical aid.

Many passengers now enjoy **shorter commuting times to CBD**, especially those on the Soweto to CBD route. The running time on the trunk route between Thoko-a and Ellis Park is 0 minutes. Compared to a car journey, there is a savings of one to four minutes at peak and up to 27 minutes in the late afternoon peak. This shows that Rea Vaya is competitive with car journey times, and is a much quicker option in the afternoon peak.

In addition, many passengers used to take up to three taxis, often stopping and walking between taxi areas to arrive in the CBD. With the integrated bus system, they can stand in sheltered stations waiting for their next bus.

### EMPLOYMENT INREA VAYA SYSTEM

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<thead>
<tr>
<th>Rea Vaya System Employment</th>
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<tbody>
<tr>
<td><strong>Bus Operating Company</strong></td>
<td>220</td>
<td></td>
</tr>
<tr>
<td>• Drivers</td>
<td>220</td>
<td></td>
</tr>
<tr>
<td>• Other staff</td>
<td>17</td>
<td></td>
</tr>
<tr>
<td><strong>Stations</strong></td>
<td>02</td>
<td></td>
</tr>
<tr>
<td>• Ambassadors</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>• Cashiers</td>
<td>98</td>
<td></td>
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<tr>
<td>• Marshalls</td>
<td>90</td>
<td></td>
</tr>
<tr>
<td>• Cleaning staff (contracted)</td>
<td>72</td>
<td></td>
</tr>
<tr>
<td>• Security staff (contracted)</td>
<td>16</td>
<td></td>
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<tr>
<td>• Head office</td>
<td>12</td>
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</tr>
<tr>
<td><strong>Rea Vaya Business Unit (council staff)</strong></td>
<td>8</td>
<td></td>
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</tbody>
</table>

Source: Colleen McCaul, “Inside Rea Vaya: Characteristics and Indicators”, SAB A Conference, 2– February 2012
Source: Colleen McCaul, “Inside Rea Vaya: Characteristics and Indicators”, SABOA Conference, 23 February 2012
The BRT system is built to ensure **reliability** and the penalties for the Bus Operating Company (BOC) are stiff. Since the City takes the responsibility and risk of charging and collecting fares, which are normally an operator’s responsibility with traditional bus services, the onus is on the BOC to deliver **quality service**. There is a penalty schedule to the BOC contract which lists 70 possible infringements in the categories of administration, employment, operational conditions, bus and equipment conditions, and driver conduct and driving. Violations attract penalty points and there is an ‘unacceptable’ category which represents breach of contract. Rea Vaya’s operational team meets weekly with the BOC to review any deviations, and quality control inspectors keep a log of infringements.

The City currently generates **revenues from ticket fares** to help manage the BRT system, but overall fare revenue was based on 71 000 trips per day, while the system as of February 2012 is delivering 0 000 trips per day. This indicates that there is currently a shortfall in expected revenue that needs to be addressed going forward.

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*Source: Colleen McCaul, “Inside Rea Vaya: Characteristics and Indicators”, SAB A Conference, 23 February 2012*
The current estimated environmental benefit of the BRT on completion of Phase 1A and 1B will be an annual savings of 40,000 tonnes of carbon dioxide per year. The original estimate for the full BRT was 70,000 tonnes based on 300 km and 100 stations. The City is currently registered on the Verified Carbon Standard (VCS), an equally stringent measure to the Carbon Development Mechanism (CDM) under the Kyoto Protocol.

The critical importance of the BRT lies in its strategic role in public transport. The last household survey in 2001 showed 30% of the households having access to a car. The idea of integrated public networks is to attract the bottom end of the car users, the 30% single-car households, and those who are environmentally conscious.

In addition, moving to public transport networks allows for city-controlled networks, better control of public space, and inclusiveness of social cohesion, and it emphasises the importance of the developmental state and answers to a population seeking greater public transport options.

Johannesburg took many learnings from Colombia. Enrique Penalosa, the former mayor of Bogotá who introduced BRT there, also introduced public-space restructuring measures in 1998 and 2000. He has said that the public transport system reshapes the look and feel of a city more than anything else.

The modern, clean, attractive design of the stations in Johannesburg and the impact of the infrastructure have added a new dimension to the City’s landscape. The upgrades include aesthetic improvements such as landscaping, pedestrian walkways, street lighting and some street furniture.

The improvements to the cityscape provide the City with a unique opportunity to begin guiding investment along transport corridors. As can already be seen from the Gautrain stations, investment is increasing along major stations’ routes. Discussions are under way in the City’s Transport department on how to integrate walking, cycling and other modes into the public space surrounding the BRT routes and stations.
### ey Milestones and Stages

The BRT is an immense undertaking. The complexity of the negotiations, the creation of partnerships with the taxi industry, working with communities, handling various legislative processes, and getting approvals on the infrastructure were all elements that had to be handled against the immutable deadlines for the 2010 World Cup. The system also had to run operationally and work for the citizens of the City following the event, but the deadline of the World Cup brought urgency to the project and at times creative solutions had to be applied to situations.

### Timelines and ey Milestones

<table>
<thead>
<tr>
<th>Year</th>
<th>Event</th>
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<tbody>
<tr>
<td>2006</td>
<td>The Public Transport Strategy is approved by Cabinet, followed by the Public Transport Action Plan and Catalytic Integrated Rapid Public Transport Network Projects to support fast-track implementation to 2010 World Cup.</td>
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<td></td>
<td>The concept of BRT using incumbent operators is introduced at the annual South African Transport Conference.</td>
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<td></td>
<td>Formal talks begin with taxi industry. The first step is getting the Greater Johannesburg Taxi Council and Top Six Taxi Council to sit at the table together.</td>
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<td></td>
<td>The BRT feasibility study is done and a fact-finding mission to Ecuador and Colombia includes affected incumbent taxi operators, Putco and Metrobus.</td>
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<tr>
<td></td>
<td>Greater Johannesburg Regional Taxi Council’s Eric Motshwane and Top Six’s Sicelo Mabaso shake hands and declare peace at the High Court in Bogotá to unify the affected taxi industry.</td>
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<tr>
<td></td>
<td>City of Johannesburg Executive Director of Transport Bob Stanway submits a request to change the SPTN to BRT, which is approved.</td>
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<tr>
<td></td>
<td>Johannesburg seeks outside funding to assist with the project; the Clinton Foundation agrees to fund the scoping study for BRT.</td>
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<tr>
<td>2007</td>
<td>Bob Stanway assembles a small team of four technical experts to begin the BRT project.</td>
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<tr>
<td></td>
<td>Treasury sets up the PTIS, which is signed in 2007 to focus on 12 key cities with 2010 World Cup matches.</td>
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<td>Construction of the BRT begins in the Inner City.</td>
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<td>A Memorandum of Understanding is formally signed with taxi groups, which had grouped together to form the BRT Taxi Steering Committee (TSC).</td>
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<td>A South American tour for 18 potentially affected taxi associations is undertaken for Phase 1B and 1C.</td>
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<td>Public participation starts.</td>
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<td>2008</td>
<td>Phase IA service design is revised and finalised to include ten affected taxi operators.</td>
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<tr>
<td></td>
<td>German Development Bank through the German Technical Cooperation (GTZ Deutsche Gesellschaft für Technische Zusammenarbeit, now GIZ) provides technical assistance from 2008 to 2011, and the Global Environment Fund agrees to help Johannesburg with studies.</td>
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<tr>
<td></td>
<td>The bus tender is awarded.</td>
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<td>A prototype station opens in Joubert Park.</td>
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### 2009
- The City expands technical support for taxi operators and provides technical advisers, workshops and breakaway sessions to assist with the transformation.
- The Rea Vaya call centre opens with public voting on bus colours and station names.
- Special Purpose Vehicle (SPV) company Clidet No 97 (Pty) Ltd is set up to facilitate loan financing for the Rea Vaya bus fleet purchase. The SPV signs the initial bus operating agreement so services can begin.
- 1 bus is delivered.
- A public viewing of buses is held at Thokoza Park.
- 0 August: Rea Vaya BRT is launched.
- Rea Vaya is discussed at climate talks in Copenhagen.
- Rea Vaya wins a sustainable transport award.

### 2010
- Negotiation results in formation of the BOC for Phase 1A after intensive negotiations involving outside facilitators.
- Rea Vaya ferries fans to stadiums for 2010 FIFA World Cup.
- Station art wins a BASA award.
- Work is under way for Phase 1B.
- New routes launched; all other Phase 1A routes are phased in.
- August: Rea Vaya BRT is launched with a starter service on trunk routes.

### 2011
- Taxi holders officially become shareholders in Rea Vaya BOC. 8 taxis are removed to be scrapped, sold or otherwise handled.
- Piotrans (Pty) Ltd is launched on 1 February to take control from temporary SPV Clidet.

### 2012
- Rea Vaya opens new stations and opens an Express Service.
- A Memorandum of Agreement is signed for operators affected by Phase 1B.
Case Study 4

Critical Success Factors

The Rea Vaya BRT in itself was an immensely large project, with the complications of building a public transport system in a short time frame. Complicated negotiations with the incumbent operators changed the time frames, modes of operating and complexity of the project. Several critical success factors were important in enabling or challenging the process of developing the BRT:

1. Linking the City’s strategic needs with a public transport system. The NLTA built the strategic foundation at a national level and further public transport strategies helped distil the strategy to city level. The City's own mandate, expanded with the GDS 2040, further reinforced national strategy. The residents of the City realise benefits through an integrated public transport system in quality of life, affordability and addressing the inequalities of apartheid legacy. On a more operational level, the work done prior to the BRT launch on the SPTN laid the groundwork for a smoother transition towards the integrated rapid bus network.

2. The momentum of the 2010 World Cup. While the BRT in itself was a large-scale project that the City would have undertaken on its own, the momentum of the 2010 World Cup was a key factor in two areas: it firstly ensured that the funding was available at a national level, and secondly put in place an immutable deadline that could not be avoided. For Johannesburg, the 2010 World Cup was described as “both a blessing and a curse”.

The funding allowed what was previously a non-funded mandate to become a financial reality. However, at the time, the PTIS funds were strictly designated for specific purposes and the City had to work closely within restrictions that made paying for items such as buses difficult. These restrictions were later removed. At the time the City had many more steps than other municipalities to negotiate in order to receive allocated funding.

The immutable deadline forced a level of commitment from the City to the point where individuals, teams, service providers and others committed themselves over and above the call of duty to ensure that everything was completed on time and all was in working order. It is a testament to those who went through the process that the 2010 World Cup matches in Johannesburg ran smoothly and the BRT was operational in time for the visitors.

3. Learnings from Bogotá and Curitiba. The trips to Bogotá in the early period of the project became so frequent that the local South African Consul-General requested visitors to slow down the process so they could keep up. On those trips were Top Six Taxi Association, Greater Johannesburg Regional Council, Putco, Metrobus, Transport, Planning and Urban Management and several others. Bogotá and Curitiba were important grounds for learning, particularly on how a public transport system could encompass an informal taxi system. Some of the learnings came with lessons on how not to engage with informal operators or ‘traditional operators’.

In Latin America, as in South Africa, traditional operators engage in what they called the ‘war of the cent’. In other words, they chase passengers they have associations they call cartels, which have carved out geographic areas. The passengers have to move in line with the cartels rather than the transport logic of getting from A to B.

In Bogotá, the city moved forward with its BRT and brought its operators into the system only later. Discussions were so acrimonious at one point that all the traditional operators drove onto the national highway, parked their vehicles to block it, put their keys in a bag and threw the bag into a river. The national highway was shut down for two weeks.
Johannesburg city officials and affected taxi operators agreed that this was not the way to go. They
each took learnings from Bogotá and returned with the knowledge that building a BRT would take
lessons from Colombia and Brazil, but would reflect local needs. On returning from Bogotá, the taxi
associations joined forces to create the BRT TSC.

Eric Motshwane, then head of the Greater Johannesburg Taxi Council, said of the TSC at that time
“...we had to speak with one voice, call for peace and approach the City as a team.” Up to
that point the two taxi associations would not meet with the City in one room. After Bogotá, they
pledged peace, which also brought the unintended consequence of moving towards creating peace
between these informal operators in Johannesburg, who were once notorious for violence and taxi
wars.

4. The importance of political will, political champions and inter-governmental alignment.

Projects of this stature cannot survive without both political will and their own political champions.
Those who studied the BRT said a deciding factor in it getting off the ground lay in the strength of
the political champions, usually at mayoral level, who made sure that the system was put in place.

In Johannesburg the political will across all spheres was ensured by the impetus of the 2010 World
Cup, as well the financing, which paid for approximately 95% of the BRT project. The two political
champions for the Rea Vaya were unquestionably then-Executive Mayor Councillor Amos Masondo
and the MMC of Transport, Councillor Rehana Moosajee.

Cllr Moosajee recognised the Mayor for his foresight in creating transport as a separate portfolio
as early as 2000, as well supporting the BRT when it was presented at Mayoral Committee level for
approvals. The BRT was recognised as a legacy project for the World Cup, and given the attention
and priority it needed to get off the ground. The Mayor himself met with taxi operators and anti-BRT
groups, and encouraged the BRT Project Team to work with the taxi operators as partners and try to
include the disenfranchised members.

On reflection, Lisa Seftel, who took over from Bob Stanway as Executive Director of Transport in
2009, says “It’s really a tribute to the Mayor as (he had to convince the) Cllr Moosajee to make political
decisions about all these really complicated things (ie project financing, direct agreements, hedging).
We were working in an environment where the City was prepared to risk. There is a lesson there
for a BRT project to do what we did you need to have a political appetite for risk. And you need to
have a balance sheet that can manage the risk.” The Executive Mayor was behind the BRT and was
instrumental in bringing cooperation.

There are also many who recognise that behind the Executive Mayor was Cllr Moosajee, pushing
the political dialogue with the taxi operators. While she is modest about her own achievements,
her approach in seeing from an early stage that the affected taxi operators needed to be treated as
partners helped make the system work.

Though national government was highly involved in the BRT, especially during the 2010 World Cup,
providing strategic guidance and financial resources, the alignment among all three spheres was not
entirely smooth. Coordination was not organised, which created inefficiencies in how discussions
were structured and hampered some early discussions.
5. **Project Team formation.** In the beginning, very few could appreciate the scale of implementing the BRT and the resources, knowledge, time, expertise and funding it would require. In 2006, prior to the PTIS funding, Bob Stanway and his team struggled to find budget to pay for the initial scoping study required, operational plans and other elements. With just four technical team members and the assistance of the Clinton Foundation, the GTZ group and the Global Environment Fund, funds were found to initiate the planning. They brought in consultants and experts from around the world to assist with the planning. In addition, the team was assisted by a non-governmental organisation, the Institute for Transportation & Development Policy (ITDP), which works with countries around the world to implement BRT systems, with two extensive Bus Rapid Transit Planning Guides, published in 2007.

In the graphic below can be seen the organisational structure of the initial BRT team. While the team itself was not large, the number of consulting and coordination points made for an intensive process.

Rea Vaya BRT’s Organisational Structure

![Organisational Structure Diagram](image)


Today part of the PTIS funding requirements is for a full-time team of dedicated experts from Day One, which in 2006 Johannesburg did not have. Even without a fully resourced team and budget starting out, the early project team was able to move forward by calling on internal and external expertise.

Many other City departments also assisted the early BRT teams, including Finance, which tested the business models, and Planning, which assisted with knitting the spatial framework together. On reflection, Stanway commented that key to delivering the BRT was by “starting with the end in mind. The overall product ended up as we intended it. Conceptually it was the same as what we started with, even the taxi business model as private company. Depending on who you speak to, people will say it’s a success or not, but it’s a good operating system. (It is) one of the first things in being able to solve some of the transport problems in the cities in South Africa.”

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**CITY WIDE TECHNICAL TEAM**

- Transportation
- Development Planning & Urban Management
- Infrastructure
- City Manager’s Office - 2010 & CSU
- Economic Development
- Community Development
- Environment
- Health
- Finance
- Metropolitan Police
- Emergency Management Services

**MUNICIPAL ENTITIES**

- Johannesburg Development Agency
- Johannesburg Roads Agency
- Metropolitan Trading Company
- Johannesburg Property Company

**EXTERNAL ADVISORY TEAM**

- National Department of Transport
- Provincial Department of Transport
- Inner City Business Coalition
- SATAWU
- Metropolitan Transport Forum
- Metrorail
- PUTCO
- Top Six Taxi Management
- Greater Johannesburg Regional Taxi Council
- Greater Johannesburg Metered Taxi Council
- SANTACO
- SABOA
- SARCC/Metrorail
- Gautrain
- Selected International & Local Experts
- Commuter Organisations
- Organisation for People with Disabilities
- Professions

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**Case Study 4**
Another critical success factor lies in ensuring that the assumptions against which financial models are built have been tested. At the time, Johannesburg was the first city in South Africa to test the BRT and there were no local learnings to work with. Bogotá had 80 000 passengers on its BRT system every day, but has four times Johannesburg’s population. The estimate for Rea Vaya ridership was 71 000 passengers per day, but today’s BRT stands at 40 000.

The current project manager, Jacques van Zyl, who came into the project in 2009 with 30 years of bus management experience, commented: “In the beginning when the models are done – because there’s nothing like this in South Africa, so you put a model on the table – you say there are going to be so many people, so many buses, so many timetables, and it is all smoke and mirrors. And when you operationalise these things then obviously you find out that sometimes the assumptions made at that stage were not 100% correct.”

One element that wasn’t factored into the original financials was the operational compromises for payment negotiated with the taxi operators. These were strategically important to get the operators on board, but the cost was not initially factored into the overall financial projections for the BRT.

Social cohesion is critical, but also comes at a price.
Interim solutions: the Special Purpose Vehicle Company. When it became apparent that the agreement with the taxi industry was not going to be finalised on time for the launch of the BRT, a creative solution had to be found. Getting the financing for the buses, which were to become assets of the newly founded BOC, was proving to be a tricky negotiation that carried on for literally two years. The City did not want to finance the buses, so another method had to be found.

To ensure that timelines were met, the City negotiated with the Hong Kong and Shanghai Banking Corporation (HSBC) to set up a temporary special purpose vehicle company that would facilitate the loan financing for the Rea Vaya bus fleet purchases. Clidet No 97 (Pty) Ltd was formed. Since the taxi industry had not yet formalised itself into a BOC, Clidet signed the initial bus operating agreement with the City so services could start. A temporary management team was appointed, Putco and Metrobus were seconded to manage the temporary depot and handle operations, and affected taxi drivers were trained as the first Rea Vaya bus drivers.

The SPV served its purpose in providing the City of Johannesburg with a way to meet its obligations for the 2010 World Cup, and still allowed time to negotiate with the taxi industry.

Transforming the taxi industry. The transformation of the informal taxi operators into a fully fledged bus operating company is one of the most remarkable critical success factors in Johannesburg. It has now become impossible to imagine the BRT without the incumbent taxi operators.

The shift for the taxi industry took place in three stages. First there were talks about talks, where Cllr Moosajee played a key role in calling on taxi operators and working to bring them into the dialogue. Up to that point, the City had engaged in many discussions with the taxi industry, but it was a tense relationship at best, fraught with violence and a history of acrimony. When Cllr Moosajee first engaged with the taxi industry, the various associations refused to meet in the same room together.

The second stage was engagement, after the associations reformulated themselves into one body, at which point the City and the BRT Taxi Steering Committee moved into the actual negotiations. It was a lengthy and intensive process that took 14 months. Taxi Operator Investment Companies (TOICs) were set up for affected transport owners and the TOICs were able to apply for shares on their behalf.

The third stage was the actual handover of the company, which was contingent on the City accepting and handling the 8 taxis and paying for these assets into a trust account which became the basis for the BOC’s R350 million in assets. Payments were then made by each TOIC to each shareholder. Each share in the new BOC was based on a single taxi handed over to the City for payment. Money for the shares came from the auctioning of vehicles or the recapitalisation grant paid by the National Taxi Scrapping Agency, which scraps vehicles on behalf of the City.

When the process was complete, the City had helped to create a formal bus company out of 315 informal taxi operators, taken 585 taxis off the road and established a 12-year contract with guaranteed income streams to the affected taxi owners for four years. Today Piotrans, as this company is now called, has the operating contract for BRT Phase 1A until 2021.

While Piotrans was a new company with very little expertise and capability in running and managing a complex, multi-million-rand bus operation, they received technical and operational support from the City. A significant contribution was also made by Fanalca, a private BRT operator, with many years of experience managing similar BRT operations in South America. Fanalca assisted Piotrans with managing the operations and in the training of Piotrans staff in the running of the business.
We had to be visionary leaders, because at the end there needs to be good transport in Johannesburg. It’s not a bus system. This is a system that speaks to the lives of South Africans. There’s job creation, there’s empowerment.

Eric Motshwane, Corporate Affairs Director, Piotrans
The Story of Piotrans

The formation of Piotrans (Pty) Ltd was a remarkable journey. Though the two most impacted taxi associations facing the BRT, the Greater Johannesburg Regional Taxi Council and Top Six Council, initially refused to meet, they changed decades of a life of taxi warfare and violence to create a new generation of transport operators, dedicated to bringing safe, clean, reliable and affordable public transport to the residents of Johannesburg.

Today Piotrans is a fully private company, 100% owned by the 315 impacted taxi owners of Rea Vaya BRT Phase 1A, with R350 million in assets and R190 million in contracted turnover with the City of Johannesburg. For Eric Motshwane, now Corporate Affairs Director at Piotrans, it was “real transformation, real empowerment”.

It was the taxi industry’s own experience with the City’s recapitalisation programme that caused them to re-examine the BRT proposal. “Recap was supposed to make it better for us but it backfired on us, because as an industry we did not speak as one voice,” says Motshwane.

Two years after the initial trips to Colombia and Brazil and following negotiations over which routes were impacted, Memorandums of Understanding were signed with both organisations in 2008. Before this the taxi industry had its own structures, organised along federal lines with lifetime leadership. The taxi councils were created when the government made efforts to formalise the industry so that it could have fewer bargaining partners. Santaco, the national taxi council, was established to represent the whole of South Africa. The remaining taxi associations undertook to establish themselves under Santaco. Even with Santaco, however, the relationship with government was very difficult. Some taxi associations did not join Santaco and formed another coordinating body, called Top Six Taxi Management.

A major shift that came through the BRT negotiations was a realisation that the taxi industry needed to meet government proposals with its own, to “engage, share ideas, find a middle line”. Motshwane talks about the change as a paradigm shift from small business to large business, to management teams, technical aspects, shareholders, equipment, staff, labour issues and business management.

One area where drivers had to move away from the old way of thinking was the way in which fares were structured. When exposed to the BRT systems overseas and through their technical advisor, they realised...
success in transport came through fleet management, maintenance, and working out fuel usage and routes—a more scientific process of assessing economies of scale and returns. This was a massive shift.

“Ownership of a taxi and ownership of a fleet are two different kinds of understanding,” says Motshwane. “When some of our members realised they were not going to own the bus as an individual and it will not park at their houses, and they can’t take their family on holiday in it, they said, ‘Eric, you can’t tell us to do this thing if it doesn’t come sleep in my yard.’ It took a lot of convincing.”

Working under formal structures requires governance, laws—a board that must subscribe to a charter, dealing with management, labour and labour laws—it was a whole different ball game. Determined to be visionary leaders in the system, Motshwane and his partners faced issues of leadership, violence, strikes, protests, labour court and much more. During this time there were three physical attacks on BRT and two deaths, and the leadership had to hold their resolve against personal threats to their safety. They called their company Piotrans, for Pioneers in Transportation, and today are on track to providing first-class transport in the City of Johannesburg.

Motshwane’s own learnings from the process have shown him that the taxi industry in its current format is losing its economic sustainability. Fare structures are not scientifically determined, petrol costs are going up, maintenance is high and there are no economies of scale, which is why he sees many taxis being repossessed.

For BRT, going forward he sees his role as “making sure it takes off (in phases 1B and 1C). We want to give as much support as possible to subsequent phases so that we can realise the bigger picture of a proper transport system”.

A key in Piotrans’s early operational success has been their partnership with Fanalca, the South American operator who assists them with operational management. Today cities from the around the world come to visit Piotrans and learn from their five-year process. Regarding other BRT initiatives around Africa, Motshwane relates the learning that “Challenges of transformation are the biggest for the rest of the African cities. To transform present operators to come into the system is the biggest challenge.”

A special tribute must be given to Sicelo Mabaso and Sipho Mtambo from Top Six Taxi Management for their dedication to ensuring that BRT came into being.
Managing the negotiation and implementation process. The negotiations with the affected taxi industries went far beyond the normal service-provider negotiation for a bus operating contract. To take a group of informal operators and translate them into City service providers was an enormous step.

Independent facilitators were brought in, and the negotiation protocol was decided. The protocol determined that only the negotiators spoke, observers did not speak and technical professionals could have caucuses. It was felt to be ‘very empowering’ in that people owned their own recommendations. The facilitators were selected by both teams and were trusted as they did not offer opinions or become involved in the content, only the processes. The structure was tightly managed with schedules and workgroups clearly delineated.

These negotiations covered:

- Compensation for loss of income among operators who have been affected by the rollout of services of Rea Vaya Phase 1A
- A verification process of affected operators in terms of a Participation Framework Agreement
- The drawing up of a Bus Operating Contract
- A fee per kilometre and escalation formula
- Affected operators becoming shareholders of the Bus Operating Company and those shareholders becoming eligible to take over the BOC both from an ownership and management perspective
- Employment of drivers and other employees of affected operators and related matters
- Implementation of the value chain policy framework in respect of Phase 1A


The City set up its negotiations as workstreams with different teams concentrating on fee-per-kilometre, participation and legal processes. They also led the process by putting agreements on the table. In the beginning there were the Participation Framework Agreement, the Compensation for Loss of Income Agreement, the Financial Agreement, the Bus Operating Company Agreement (BOCA), the Employment Framework Agreement, the Value Chain Agreement and the Negotiation Closure Agreement (NCA).

Participants to this process believed the reason for the success of the negotiations lay in the City’s handling the negotiations with a managed process, for bringing in expert facilitators who were trusted by the taxi associations, and accommodating the TSC’s request for technical assistance.

It was an exhausting process for all participants but the end result is that the City has a BOC partner that was fully involved in all factors behind its contract. It cannot be assessed what the damage would have been if the affected taxi operators had not been brought into this process, which actually took five years, to become partners with the City. Anyone familiar with the taxi violence of the past knows the ramifications of not including the taxi industry, as it must be recognised that since apartheid times they were the de facto public transport system.
Taking the BRT from project to business. Today the City owns all the operational infrastructure of Rea Vaya except the buses. This includes all stations, bus depots, road infrastructure, the Automated Public Transport Management System (APTMS) and fare equipment. The BRT would not be complete if it were not for the fact that it had to progress from project to business. While there will still be PTIS funding for future stages Phase 1B and Phase 1C, the BRT Phase 1A has now transitioned to a fully operational business with its own structure, management processes, financials and governance.
ey Learnings

1. Large-scale public transport networks are complex and expensive. In the early stages of the BRT, few envisioned that it would roll out in the way it did, or that it would involve the level of complexities that it encountered. Teams were making do with the information they had on hand, given the best expert advice they could get. Not all factors were known at the time.

One critical cost factor was the that of redoing the roads to meet the specifications for the heavier-axle BRT buses which are in use throughout the world. These buses have their own specifications, some of which cause operational difficulties. For brake testing, for instance, there is only one centre in Gauteng, causing all buses to travel to this location.

Most important early in the cost-factor planning was the need to switch all the roads over to a BRT-specific paving. The cost to convert the roads to this layered tar paving was significant. Some work had already been done according to the SPTN specifications, and all these roadways had to be redone.

Learnings from Santiago showed that not to redo the roads was a mistake. Santiago built the BRT and did not redo the roads, and within two years they started falling apart. In the end they had to close the roads to replace the surface completely, and the system was closed for one year.

In some aspects the BRT is over-engineered for its existing usage, and could probably have started service without the heavier pavements. However, over time as usage expands and numbers riding the BRT buses increase, the City will be prepared. There are other examples of how decisions were made more complex by legislation requirements or unknown financial aspects, which have influenced the complexity and costs of the BRT.

2. Momentum, political will and political champions are critical. The BRT in Johannesburg was both lucky and unlucky with the 2010 World Cup timelines. As Lael Bethlem, former CEO of the Johannesburg Development Agency, which built the BRT infrastructure, has said, “This was a project that should have taken eight years and we did it in two.”

The prestige of the 2010 World Cup involved national ministers in the successful implementation of the BRT, further entrenching it as both a municipal legacy project and a key national initiative. The commitment of then-Executive Mayor Masando and Cllr Moosajee meant that they contributed as both key components of political will and political champions. Where other cities have succeeded or not in the implementation of BRT, the existence of strong political champions or not has proved to be a key factor.

3. A dedicated full-time team from Day One is important. In 2006 the BRT project team had to call on experts and source their own funding. It is critical to start a process with a dedicated full-time team with the relevant expertise in place from the beginning, to ensure the proper building of the correct foundations and smooth implementation.

4. Creative solutions. The 2010 World Cup forced the BRT Project Team to seek other solutions, such as the SPV company. In addition, the team had to find ways to deal with the affected taxi bodies’ requirement for confirmation along the way, to create comfort with the negotiation process. Structuring these agreements and negotiating the fine details requires specific skills on project teams, and the BRT teams were fortunate to have these individuals. The bus financing took two years and involved intensive negotiations with the Bra-ilian Export Credit Agency, where issues such as different time-ones, language and legal requirements impacted on negotiations.
5. Creating a transformation model with the taxi industry will be an important factor of future BRT success. Johannesburg is the first city in South Africa and in Africa to negotiate an agreement with its informal taxi industry. Countries from all over Africa now come to the City to understand how this was negotiated and how it is working. The key learnings from this experience can be captured as follows:

- Treat informal operators as equal partners on the project.
- Understand that this is more than a bus operating contract; the City must sufficiently persuade hundreds of individual businesspeople in the informal sector that the proposed new structure will provide them with livelihoods that are better than their current conditions.
- Invest time, resources, and skills in capacitating the minibus taxi sector and other potential operators to understand both the technical and the holistic aspects of the project.
- Consider the fact that the business model that will work best for the operators will shift the burden of risk away from the BOC and to the City, and contains some kind of element of immediate returns. In Johannesburg the City agreed to pay the BOC shareholders monthly dividends for four years, after which it was believed the BOC should be profitable. This was felt to be an equitable trade in return for asking the taxi operators to give up their existing livelihoods.
- Negotiations have to be led by an independent party and the facilitators must be highly skilled. The City negotiators were highly trusted for their methodology which focused on reaching agreement on the process and not the content.
- Political will and champions are critical on both sides; at times experienced negotiators and champions on both sides will be able to break deadlocks and take negotiations forward.
Taking taxis off the road and transferring assets is a difficult process; understand the ramifications of selling, storing, auctioning off, and otherwise handling informal taxi operators’ vehicles, as these vehicles may be on hire-purchase contracts, have excessive outstanding fines, not be registered or pay fees, and otherwise have liabilities in excess of their value.

Be prepared for longer and more intensive negotiation processes, considerable costs and, at times, requirements for creative solutions. Capacitate and dedicate your teams to take the negotiations to the end.

Well structured negotiations are critical. As important as it is to work with, involve and treat the informal minibus-taxi owners as partners, it is also important to manage the negotiations processes so they do not draw out indefinitely. Timelines need to be drawn up to which both the facilitators and all members are held, or the meetings and lunches can become an endless part of the City’s budget for negotiations.

Test assumptions against which financial models are designed. Ensuring due diligence on financials is key to the long-term sustainability of any BRT project. The project should start with, and regularly return to, testing assumptions against the financial model, a return on assets and return on investments, a rigorous scoping study, a business plan and life-cycle costing, as well as a social impact plan.

When asked about the financial situation, Seftel responded: “The big picture story is that when we had all these international consultants telling us what to do and that this is the right way to go, they said the reason you do this is that you put in the money for capital and the operations pay for themselves. Now that is absolutely not true. And it’s unlikely. It’s possible, but it’s unlikely that even after 12 years we will not require an operational subsidy.”

Most public transport around the world is subsidised, with notable exceptions like Bogotá and Hong Kong, which have high population densities in compacted areas. It is also best to assume operational costs will be higher than normal systems, as BRT buses and stations have specialised equipment such as the doors and rumble strips.

The importance of skills transfer. One area where the BRT project team experienced challenges was in skills transfer. Due to the lack of experience in BRT, many outside consultants were used that provided specialised experience. Since the consultants take their specialised experience with them when they leave, it is essential for a skills-transfer plan to be in place to ensure that local capacity is developed.

This is particularly important for the informal minibus taxi industry. During the negotiations phases the SVT depended heavily on the specialised skills of their technical adviser. It is critical for both parties to build negotiation skills for further transport interventions.

A project-specific probity advisor keeps governance and compliance on track. One of the learnings from Stanway and Cllr Moosajee early in the process was the importance of hiring a probity advisor. Given the size and magnitude of the project and budgets, they did not want the funding to go the way of so-called arms deals. A probity advisor was appointed early in the process, particularly with the funds for the PTIS, and kept all parties in check throughout the process in terms of governance and compliance.

Owning public space is part of the equation. One key component of BRT as a public transport network is taking back public space. When public transport declines and alternatives such as the
taxi industry emerge, the City loses control of public space. By owning corridors, fixing roads and creating stations, the City has a greater responsibility for and opportunity to take control of the routes, the stations and the surrounding spaces. Pedestrian, bicycle and other non-car travel become essential and allow a city the chance to rethink its public space.

With the BRT and the timelines imposed by the 2010 World Cup, there was not sufficient time to link pedestrian lanes and other non-motorised transport, but for the best integrated systems, these should be included as part of the spatial integration for the future.

Public transport networks determine the look and feel of the City. The kind of city and land use that develop around freeways and interchanges is very different to those in a public transport-driven city. Freeways spread the city out further and make the routes from origin to destination more difficult. City land use is determined by transport alternatives. The stronger the public network corridors, the more the city is geared towards non-car users. Integration in Johannesburg is based on the use of private cars, but integrated networks like the BRT will begin to change and re-shape how people look at transport and the city.

Stations were made to celebrate organically formed African townscapes like Alexandra and Sophiatown, with red painted structural pylons thrust diagonally skywards evoking lightning strikes hitting the ground during a highveld thunderstorm. www.reavaya.org. a.
12. Marketing helps. Early in the process the Rea Vaya embarked on an active campaign to brand the vehicles and the stations, and worked closely with schools and in communities to get the word out. As city budgets grow tighter these activities have become weaker, but there is room to build on the early successes by re-engaging with the public to further encourage ridership.

13. Expanding learnings from Phase 1A to Phases 1B and 1C. The BRT team is now looking to codify the learnings from Phase 1A and ensure that they are carried forward into Phases 1B and 1C. Capturing learnings will be vital for further stages, and can assist in reducing time, energy and costs to the City in the future.
Conclusions
The Rea Vaya BRT for Johannesburg is far more than another bus system. It has become a way to transform the informal taxi industry and bring it into the City folds as a partner and service provider. It provides safe, clean, reliable and affordable public transport to a population of which 63% do not own cars. It is a legacy project in the City that will only grow better with time, in operational efficiencies, in financial returns and in encompassing more passengers, communities and other affected transport operators.

In advice to other cities, Rea Vaya political champion Cllr Moosajee says “Each city is unique but I think the biggest issue is that you have to start with the ending, not knowing what obstacles you will face. You might not choose to go there if you know, but if the commitment is about a greater good and a higher outcome, then it is about the citizens of your city. Remember that: every time an obstacle comes, go back to the key values that informed you at the beginning.”

Without the support of the dedicated individuals who gave their time and effort and those passengers who gave their lives during the initial period this project would have not come into being, with the transition from a concept on paper to a fully fledged Rea Vaya Bus Rapid Transit System carrying millions of passengers as part of the City of Johannesburg’s growing public transport networks.

Interviews
Ibrahim Seedat, Department of Transport, 8 March 2012
Cllr Rehana Moosajee, Member for Mayoral Committee of Transport, City of Johannesburg, 9 March 2012
Colleen McCaul, consultant, Colleen McCaul Associates, 16 March 2012
Jacques van Zyl, Rea Vaya BRT, 22 March 2012
Bob Stanway, former Executive Director of Transport, City of Johannesburg, 23 March 2012
Eric Motshwane, Corporate Affairs Director, Piotrans (Pty) Ltd, 23 March 2012
Lisa Seftel, Executive Director of Transport, City of Johannesburg, 30 March 2012
Lael Bethlem, former CEO, Johannesburg Development Agency, 2 April 2012

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Colleen McCaul, Inside Rea Vaya Characteristics and Indicators, SABOA Conference, 2 February 2012
State of the City Address by the Executive Mayor of the City of Johannesburg, Councillor Mpho Parks Tau, 22 March 2012
Colleen McCaul and Simphiwe Ntuli, Negotiating the deal to enable the first Rea Vaya Bus Operating Company Agreements, Experiences and Lessons, Abstract Bus Rapid Transit Planning Guide - Volume 2 of 2, June 2007
Rea Vaya/BRT Transforming the face of public transport, End of Term Report 2006-2011
Various sources from www.oburg.org.a and www.reavaya.org.a
The formation of Piotrans (Pty) Ltd was a remarkable journey. Though the two most impacted taxi associations facing the BRT, the Greater Johannesburg Regional Taxi Council and Top Six Council, initially refused to meet, they changed decades of a life of taxi warfare and violence to create a new generation of transport operators, dedicated to bringing safe, clean, reliable and affordable public transport to the residents of Johannesburg.

Today Piotrans is a fully private company, 100% owned by the 315 impacted taxi owners of Rea Vaya BRT Phase 1A, with R350 million in assets and R190 million in contracted turnover with the City of Johannesburg. For Eric Motshwane, now Corporate Affairs Director at Piotrans, it was “real transformation, real empowerment”.

It was the taxi industry’s own experience with the City’s recapitalisation programme that caused them to re-examine the BRT proposal. “Recap was supposed to make it better for us but it backfired on us, because as an industry we did not speak as one voice,” says Motshwane.

Two years after the initial trips to Colombia and Brazil and following negotiations over which routes were impacted, Memorandums of Understanding were signed with both organisations in 2008. Before this the taxi industry had its own structures, organised along federal lines with lifetime leadership. The taxi councils were created when the government made efforts to formalise the industry so that it could have fewer bargaining partners. Santaco, the national taxi council, was established to represent the whole of South Africa. The remaining taxi associations undertook to establish themselves under Santaco. Even with Santaco, however, the relationship with government was very difficult. Some taxi associations did not join Santaco and formed another coordinating body, called Top Six Taxi Management.

A major shift that came through the BRT negotiations was a realisation that the taxi industry needed to meet government proposals with its own, to “engage, share ideas, find a middle line”. Motshwane talks about the change as a paradigm shift – one from small business to large business, to management teams, technical aspects, shareholders, equipment, staff, labour issues and business management.

One area where drivers had to move away from the old way of thinking was the way in which fares were structured. When exposed to the BRT systems overseas and through their technical advisor, they realised success in transport came through fleet management, maintenance, and working out fuel usage and routes – a more scientific process of assessing economies of scale and returns. This was a massive shift.

“Ownership of a taxi and ownership of a fleet are two different kinds of understanding,” says Motshwane.

“Even some of our members realised they were not going to own the bus as an individual and it will not park at their houses, and they can’t take their family on holiday in it, they said, ‘Eric, you can’t tell us to do this thing if it doesn’t come sleep in my yard.’ It took a lot of convincing.”
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About Joburg Innovation and Knowledge Exchange

We are excited to announce that the Joburg Innovation and Knowledge Exchange is now part of Group Strategy, Policy Coordination and Relations in the Office of the City Manager.

This move has the potential to strengthen the strategic focus and impact of knowledge management and innovation by giving JIKE access to all the City's departments and municipal entities, thereby increasing its mandate and responsibilities. It also gives JIKE an opportunity to review processes and systems with a view to aligning them with the Joburg 2040 vision, aims and objectives. This process should further entrench the culture and the practice of knowledge management and innovation in all City functions. The strategic drive of such programmes in the City’s business units, with the assistance of appointed champions, also provides a platform for systematic knowledge management and innovation across the City of Johannesburg.

We are confident that the documentation of case studies on better practice, lessons learnt and innovations each year will be interesting and useful to many individuals and organisations externally. It will certainly continue to contribute significantly to the enhancement of the culture and practice of innovation in the City. In so doing, fast-tracking the anticipated systemic shift towards a 'business unusual' approach and culture as an ingredient of success, it will help to bring the Joburg 2040 GDS ideals to fruition. We therefore look forward to a mutually beneficial collaboration with our City colleagues and their respective business units.

In the spirit of working as an interrelated City team, we can assemble the pieces of the puzzle that depict the Johannesburg envisioned in the 2040 Growth and Development Strategy.

If you have any questions or enquiries, we invite you to contact the team:

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Johannesburg – a World Class African City of the Future – a vibrant, equitable African city, strengthening through its diversity; a city that provides real quality of life; a city that provides sustainability for all its citizens; a resilient and adaptive society.

Joburg 2040 Growth and Development Strategy