3. APPROACH TO FEASIBILITY ANALYSIS

3.1 INTRODUCTION
This section describes the criteria and the approach used by the Gautrain Project Team to assess feasibility, and the requirements that have to be met before the project can be implemented successfully. After the feasibility criteria and requirements have been described, a short description of the feasibility approach is given.

The Project Team used the feasibility criteria and requirements both in planning the project and as part of this Feasibility Analysis.

The following questions are typically asked when considering whether or not a project is feasible:

- Is the project possible?
- Is it affordable?
- Is it needed?
- Will it be acceptable?
- Is it beneficial?
- Will it be worthwhile considering the input needed to implement it?
- Is this project appropriate for funding from Government investment funds?
- What is the best way to implement the project?

As many role-players will be involved in this project and many stakeholders will be affected, the Feasibility Analysis had to be considered from a number of perspectives, namely:

- The users (passengers on this system once commissioned)
- Other passengers travelling in the corridor
- The broad community, i.e. residents of the Province of Gauteng (South Africa)
- Government (all three spheres, but more specifically the Gauteng Provincial Government)
- The private sector, and more specifically, the successful bidding company or consortium (including construction, financing, suppliers and the operating company responsible for operations and maintenance).

In the final instance, the project must be acceptable to the Gauteng Provincial Cabinet in its capacity as owner of the project.

Feasibility (and more specifically, financial viability and bankability) was a goal both in the Feasibility Analysis, as well as the planning of the project.

This is important for the following reasons:
• To ensure the interests of the private sector, business entrepreneurs, funding institutions, financiers and bankers.
• To ensure that competitive tenders, and hence financial implications acceptable to government, are achieved, with the role-players being well informed about the potential benefits, costs and risks involved.
• To ensure that the project does not fail after construction has commenced and especially after operations have commenced (the implications will be difficult to handle).

To summarise, the main aim is to determine what conditions should be met:

• for Government and private sector companies to support and implement the project
• to avoid implementing a project that is not feasible or viable, with major consequences in the long term
• to avoid incorrect decisions, which could result in major problems
• to cover all crucial aspects and undertake an in-depth study to minimise the probability of default in the project

The criteria had to take into account the main goals of the Gautrain project. These goals include:

• Stimulating development, growing the economy and creating job opportunities
• Changing the urban structure
• Bringing about socio-economic improvements for the population of the Province
• Changing the economic base of Gauteng
• Focusing on public rather than private transport
• Stimulating tourism development and assisting the promotion of tourism
• Assisting the development of Small and Medium Enterprises (SMEs)
• Contributing towards Black Economic Empowerment.

In addition, the guidelines and requirements of the PPP-Unit of the National Treasury for the acceptance and implementation of Public Private Partnerships (PPPs) are important goals, particularly where private sector and international funding is involved.

3.2 WHAT CONSTITUTES FEASIBILITY?
Feasibility can be considered firstly as the general factors that should be present to make the project possible (in terms of the broad description of feasibility) and, secondly, as those criteria that have to be met for Government to accept the project as feasible. For a PPP-type project of this nature, it also includes those pre-conditions that should apply in order to interest the private sector in investing in this project, as well as those which the PPP-Unit of the National Treasury may lay down.
From an analysis of the input and the characteristics of this particular project, it is considered that the requirements of feasibility are:

- Technically possible
- Political will to undertake the project exists
- Environmentally feasible
- Socio-politically acceptable (including acceptable to the community)
- Legal and institutional powers exist
- Affordable to Government, users and investors (financial feasibility)
- Will involve the private sector, with acceptable risks in relation to profits.

A number of additional aspects are covered in the Feasibility Analysis. These are mainly those determining whether it is worthwhile to undertake the project or the best solution for the problem, rather than determining whether it is possible, although the latter are usually also included in the Feasibility Analysis. This is measured as the relationship between the benefits and costs of the project for the community affected.

### 3.3 BROAD DESCRIPTION OF FEASIBILITY

Feasibility implies that the project can be done. This is judged in terms of:

#### 3.3.1 Technical Feasibility

Technical Feasibility means that all the criteria are met which will indicate that it is technically possible to implement the project. These are mainly the physical elements, but also include the use of appropriate technology, acceptable reliability and technical risks, the possibility of maintaining or replacing parts and components, etc. Some practitioners even include an assessment of whether it is technically possible within the stated budget constraints.

#### 3.3.2 Economic Feasibility

A project is considered economically feasible when the benefits that will accrue to the broad community (often measured in monetary terms) are greater than the cost of undertaking the project. This, in other words, implies that consideration be given to whether “it is worth it”.

The benefits concern the welfare of a defined group of people, in this case the residents of the Province of Gauteng. A macro-economic perspective is therefore used. For this case, market prices are often adjusted by means of shadow pricing techniques. This is because market prices are often distorted for political reasons. Taxes and subsidies are ignored (as these entail considering cross-allocations within the community which are not applicable to economic feasibility assessments).

For this purpose, the benefits (even the value of life and savings in travel time) can be quantified and put into monetary terms in order to compare them with the project costs.
3.3.3 Financial Viability
Financial analysis concerns the financial position of a person, firm or organisation, so that both costs and benefits are measured in terms of money spent or received by that party, regardless of whether the prices are a good reflection of true value. This kind of analysis includes taxes and subsidies.

As financial analysis needs to be done from a single perspective only, it usually has to be done for more than one organisation. For a project of this nature, such an analysis had to be done for:

- The Operating Company / BOT Concessionaire, who will invest, maintain, operate and manage the rail transport system.
- Government (Gauteng Provincial Government and the relevant local municipalities), who has to contribute financially to establish the system.
- The potential passengers, who will decide whether or not to use the proposed system; this was addressed in the Modal Choice and the Demand Forecast Models.

3.3.4 Socio-political Acceptability
This measure of feasibility considers the acceptability of whatever the project entails to the communities affected by the project. It also includes aspects such as whether or not the project meets Government objectives and goals, such as job creation, transformation and creating opportunities for SMEs. (This should not be confused with political decision-making as to whether or not to continue with the project.)

3.3.5 Environmental Impact
One of the interesting challenges for the Project Team was to handle environmental feasibility. International research found rapid rail systems to be a superior form of transportation from an environmental impact perspective. In terms of current environmental legislation, a project of this nature requires a comprehensive Environmental Impact Analysis (EIA) undertaken by independent consultants. Despite the official appointment of such consultants, the Planning Team could not ignore this issue and undertook an Environmental Feasibility Analysis. The aims were to identify sensitive areas and to investigate possible fatal flaws. No evidence of fatal flaws was found. However, this project will be subjected to a full EIA during the coming year.

3.4 FEASIBILITY PERSPECTIVES

3.4.1 Feasibility Requirements from Government’s perspective
As previously mentioned, the Gauteng Cabinet accepted the Gautrain Rapid Rail Link (Gautrain) as one of the ten SDI (provincial Spatial Development Initiative) projects to be implemented. The political will to implement this project has thus been illustrated. This is the reason why the current study is not only a feasibility study, but a planning and implementation study leading to a tender process.
However, it is important that, firstly, the project should have the support of the
government and community representatives in Gauteng and, secondly, that the
project does not fail, as this may have a major negative impact on the province
and on Government.

Feasibility from Government’s perspective can therefore be described as ensuring
that the following criteria are met:

- Technical feasibility (the project should not fail technically).
- Social acceptability (the community should provide broad support for the
  project).
- Financial affordability (this includes the ability of Government to afford its
  financial contributions to the project. Government is also interested in
  bankability insofar as there may be a risk that the operator / successful
  concession company may suffer financial problems, with a negative impact
  on the project itself).
- Environmental feasibility (the project should be environmentally
  sustainable and should not have any fatal flaws).
- Economic feasibility (the project must be worthwhile and this should be
  known to the public).

3.4.2 Feasibility Requirements from the Perspective of the Private Sector

The interviews with the potential bidding companies gave a wide range of
information requirements prior to deciding whether or not to invest in this
project. These requirements differ from institution to institution and from person
to person. However, some common requirements have been identified. From this
information, it was found that potential investors would want to know that a
comprehensive feasibility study had been undertaken and what Government’s
official point of view on the feasibility of the project was. They would also require
sufficient information to determine and judge for themselves the feasibility and,
more specifically, the bankability of the project.

The private sector would therefore like to know the following about the project:

- Bankability and financial viability (potential profits vs risks)
- Technical feasibility
- Political will
- Environmental viability
- Social acceptance
- Risks.

3.4.3 Summary

The feasibility information required by the public and private sectors is as
indicated in Table 3.1 (on the understanding that all parties need to be satisfied
that the needs of the other role-players have been met before they can enter into
a public-private partnership):
Table 3-1: Feasibility Information Required by the Public and Private Sectors

<table>
<thead>
<tr>
<th>Feasibility Element</th>
<th>Private Sector</th>
<th>Public Sector</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bankability</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Financial viability</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Technical feasibility</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Political will</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Environmental feasibility</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Social acceptance (project will not be opposed)</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Commercial risks</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Socio-political acceptance</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Economic feasibility (cost vs benefits)</td>
<td>x</td>
<td>x</td>
</tr>
</tbody>
</table>

3.5 REQUIREMENTS OF THE PPP-UNIT OF NATIONAL TREASURY

The Cabinet endorsed the Strategic Framework for Public-Private Partnerships in December 1999. Treasury Regulations were published in April 2000 in terms of the Public Finance Management Act (Act No. 1 of 1999) to govern their implementation. The South African Treasury criteria require that Public-Private Partnership (PPP) arrangements must, among others:

- Demonstrate value for money, for example by enabling departments to achieve more with the same resources or as much with fewer resources
- Be affordable, i.e. fit within a department’s budgetary parameters
- Be procured using transparent and competitive processes
- Show evidence of substantial risk transfer from the department to the private sector
- Be implemented within a sound and suitable project management and administrative structure.

The Treasury Regulations require accounting officers to ensure that a feasibility analysis is conducted to assess whether a proposed PPP agreement will be in the best interests of both the government and the public.

Treasury approval is only required in those stages that affect expenditure control and the prudent use of state resources.

- **Treasury Authorisation I - Demonstrating “Affordability”**. The first Treasury authorisation entails the submission to Treasury by the sponsoring department of a feasibility study, which must demonstrate “affordability”, as well as provide an initial indication of how “value for money” will be achieved, through appropriate risk transfer. Approval by Treasury allows the sponsoring department to proceed with the drafting of the necessary tender documents and draft contracts.

- **Treasury Authorisation II - Demonstrating “Value for Money”**. The second Treasury authorisation entails the submission to Treasury by the sponsoring department of the draft request for proposal (RFP) and draft contract documents, their distribution, the conduct of the "value-for-
money” test, and the selection of a preferred bidder. Approval by Treasury allows for the appointment of the preferred bidder and the negotiation of the PPP contract, leading to financial closure.

- **Treasury Authorisation III - Financial Closure.** The third Treasury authorisation entails the submission to Treasury by the sponsoring department of the proposed final contract for the approval of all budgetary commitments attendant to the agreement. Approval by Treasury allows this to be signed by the parties. The Gautrain documents contain a comprehensive description of the PPP guidelines and requirements.

### 3.6 SUMMARY

By considering the following facets of feasibility, this project was assessed to be feasible:

- Technical feasibility
- Economic feasibility
- Socio-political feasibility (public acceptability and legal / institutional ability)
- Financial feasibility and bankability
- Environmental feasibility
- Compliance with the specific requirements for a PPP
- The Gauteng Provincial Cabinet’s decision to continue with the development of the Gautrain project.

### 3.7 OPTIMISATION

One of the difficulties encountered by the Project Management Team was the large number of inter-dependent project elements that had to be addressed simultaneously. International indications are that a typical modern airport link or rapid rail system takes, on average, 14 years to plan and construct, but this was beyond the acceptable time-frames allowed for the Gautrain project. It was therefore necessary to fast-track the project process, which required simultaneous planning for the various multi-disciplinary elements. This, in turn, made project communication even more important than in other, more conventional projects.

The stations were used as a convenient starting place for most elements, as it was here that there was most interaction since almost all the elements had some factors in common at the stations. Another challenge was to optimise the system design. The optimisation process could only be achieved using an iteration approach.

During the first phase of the project, a number of adjustments were made to move towards optimisation of the design, but the final optimisation will be the responsibility of the successful bidding consortium which will do the detailed design. The opinion of the Project Team is that there is sufficient evidence to
move towards implementation. The next step would be to optimise the life-cycle cost of the project. The challenge will be to optimise the initial construction costs against the ongoing operational and maintenance costs.