25-YEAR INTEGRATED TRANSPORT MASTER PLAN (ITMP25)

South African Road Federation AGM
27 October 2015
Transport Planning

13 (GTIP5) & 10 (ITMP25) Major Interventions* or “do nothing”*

- Population Growth – (Number of workers)
- Economic Growth – (type, location, labour requirements)
- Land-use Patterns – (Where will the People live)

External Factors**

Current – Status Quo

2012

Predicted – Future State

2037

Enablers*** or “do nothing”
Transport Planning – Interventions*

**GTIP5**
- Transport Authority
- PRASA Super corridor
- Subsidised Road-based transport
- Taxi industry
- Green Vehicle technology
- TDM
- Access to Freight nodes
- Airports
- NMT
- Provincial wide mobility
- Management of existing infrastructure
- Law enforcement
- Universal access

**ITMP25**
- Subsidised housing policy
- Local economic nodes
- Land-use densification
- Mainstreaming NMT
- Passenger Rail as PT backbone
- Extend Integrated rapid & road-based PT networks
- Capacity building
- Freight Hubs
- TDM
- Provincial wide mobility
Transport Planning – External Factors**

• **Environmental**
  – Pollution
  – Availability of fossil fuels
  – New propulsion technologies
  – Focus on renewable energy

• **Policy & Legislation**
  – Shift to PT
  – User-pay principle
  – Increased congestion
Transport Planning – Enablers***

• Government
  – Long term vision
    • NDP, Gauteng Vision 2055
  – Legislation
  – Regulations
  – Guidelines
  – Norms & Standards
  – Funding
  – “Seed” Capital
  – Departmental priorities
  – PPP’s

• Private Sector
  – Long term appetite to invest in infrastructure
  – Feasible Business case
  – Attracting capital (foreign & local funding)
  – Enabling environment
    • Long term stability
    • Governance
    • Perception on Corruption
    • “Red-Tape”
  – PPP’s
ITMP25 Vision

“An integrated and efficient transport system in Gauteng that promotes sustainable economic growth, skills development and job creation, fosters quality of life, socially includes all communities and preserves the environment.”
Key focus areas:

- Priority public transport corridors
- Strategic modal transfer nodes and interchanges
- Freight routes and logistics centres
- Rail as the backbone of an integrated public transport system
- Protection of future priority corridors, future road networks, passenger and freight rail networks, and airports.

The plan further includes a vision to support and strengthen the Gauteng Global City Region. Geographical Information Systems and Intelligent Transport Systems form a practical basis for the plan.
Sustainable Transport

• **Reduce travel:**
  • Change travel patterns
    • Regularity & extent of travel in peak periods, trip lengths, etc.

• **Shift in modes:**
  • Shift from: Motorised  ➔  Non-motorised transport
  • Shift from: Private  ➔  Public transport
  • Shift from Road  ➔  Rail

• **Technology:**
  • Environmentally friendly technologies
  • Intelligent Transport Solutions (ITS)
“The Cost of Doing Nothing”

Analysis of the transport situation in 25 years’ time, shows that the consequences or “cost of doing nothing” will be severe, i.e. if current trends continue:

- Vehicle population predicted to grow from 3.65 mil. to 6.57 mil.
- Peak hour person trips to grow from 2.2 mil. to 3.9 mil.
- Weighted average peak hour road network speed will reduce from 48km/h to below 10km/h
- Weighted public transport travel speed decline from 38km/h to below 14km/h
- Congestion nightmare, with the transport network, the economy and the natural environment eventually choking
- Major interventions and management of travel choices and demand will be required to avoid this scenario

<table>
<thead>
<tr>
<th>Year</th>
<th>0 - 20 km/h</th>
<th>20 - 40 km/h</th>
<th>40 - 60 km/h</th>
<th>&gt; 60 km/h</th>
</tr>
</thead>
<tbody>
<tr>
<td>Base Year</td>
<td>53%</td>
<td>30%</td>
<td>7%</td>
<td>9%</td>
</tr>
<tr>
<td>2025 Demand on Base Year Network</td>
<td>48%</td>
<td>31%</td>
<td>9%</td>
<td>11%</td>
</tr>
<tr>
<td>2037 Demand on Base Year Network</td>
<td>23%</td>
<td>22%</td>
<td>17%</td>
<td>39%</td>
</tr>
</tbody>
</table>
Economic Growth, Population & Land-use
Economic Forecast

• Gauteng Base Scenario* was used for the Economic Growth Forecast, where growth is less than 6%
• Likelihood is estimated at <1 0% that growth would be > 6%

<table>
<thead>
<tr>
<th>Gauteng</th>
<th>2010</th>
<th>2025</th>
<th>2037</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population</td>
<td>11,2 million</td>
<td>16,3 million</td>
<td>18,7 million</td>
</tr>
<tr>
<td>Formal Workers</td>
<td>3,9 million</td>
<td>6,7 million</td>
<td>8,6 million</td>
</tr>
</tbody>
</table>

* Source: Global Insight 2013
Job Opportunities: Formal Workers
Gauteng SDF Based Approach vs. Core Transit Intervention (2037)
GTIP5 Implementation

**Infrastructure (Optimise)**
- PRASA Super Corridor
- Freight
- Airports
- New Roads
- Universal Access

**Environment (awareness)**
- Non-motorised Transport
- ‘Green’ Transport

**Operations (Integrate)**
- Transport Authority
- Subsidised Bus Services
- Commercialise Taxi Industry
- Travel Demand Management
- Enforcement
- Optimum use of Infrastructure
## 25-Year ITMP Interventions

<table>
<thead>
<tr>
<th>Land Use Development</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Subsidised housing provision within urban core areas</td>
</tr>
<tr>
<td>2. Facilitating local economic development outside the urban core</td>
</tr>
<tr>
<td>3. Land use densification in support of public transport</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Strategic Public Transport Network</th>
</tr>
</thead>
<tbody>
<tr>
<td>4. Mainstreaming non-motorised transport (NMT)</td>
</tr>
<tr>
<td>5. Reinforcing passenger rail network as the backbone of the system</td>
</tr>
<tr>
<td>6. Extending the integrated rapid and road-based PT networks</td>
</tr>
<tr>
<td>7. Capacity building in the transport industry</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Freight Transport</th>
</tr>
</thead>
<tbody>
<tr>
<td>8. Strengthening intermodal freight hubs</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Road Transport</th>
</tr>
</thead>
<tbody>
<tr>
<td>9. Travel demand management</td>
</tr>
<tr>
<td>10. Continued provincial wide mobility</td>
</tr>
</tbody>
</table>
## Intervention 4: Mainstreaming NMT

<table>
<thead>
<tr>
<th>Proposal</th>
</tr>
</thead>
<tbody>
<tr>
<td>• 70% of all travellers Gauteng use NMT daily (by choice or force).</td>
</tr>
<tr>
<td>• The urban development structure has significant deficiencies,</td>
</tr>
<tr>
<td>when considering the lack &amp; the quality of NMT infrastructure &amp;</td>
</tr>
<tr>
<td>facilities. (NMT seen as an “add-on”’)</td>
</tr>
<tr>
<td>• Built environment is inconvenient, insecure and unsafe for</td>
</tr>
<tr>
<td>pedestrians and cyclists.</td>
</tr>
<tr>
<td>• “Universal Design” on needs to be adopted on a wide base.</td>
</tr>
<tr>
<td>• Paradigm shift in the approach to roads design and adopting a</td>
</tr>
<tr>
<td>different “modal hierarchy” from the current.</td>
</tr>
</tbody>
</table>
Intervention 4: Mainstreaming Non-motorised Transport (2)

Revised modal hierarchy
## Intervention 5: Reinforcing the Passenger Rail Network (1)

<table>
<thead>
<tr>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Proposal</strong></td>
</tr>
</tbody>
</table>
| • Rail is a key form giving element of the City Region.  
• Rail most appropriate on high-density corridors.  
• Facilitate and support efforts of PRASA and GMA to Develop Rail Network and Services into a modern system meeting the needs of Gauteng’s passengers.  
• Develop major modal transfer nodes at stations (including NMT) |
Existing Gautrain
Additional Future Commuter & Metro Rail
To be considered
Ultimately four Services:

**RED:** North – South Service
**BLUE:** Naledi – Mamelodi Service
**GREEN:** Honeydew – Boksburg Service
**PURPLE:** Sandton – ORTIA Service
## Intervention 6: Extending Road-based PT Networks (1)

<table>
<thead>
<tr>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Proposal</strong></td>
</tr>
<tr>
<td>• Service networks systems still largely based on planning done by operators in isolation from one-another (except BRTs),</td>
</tr>
<tr>
<td>• PT is mostly only used by travellers with no other alternative or choices available to them.</td>
</tr>
<tr>
<td>• Development of new integrated road-based public transport networks in combination with the expansion of the existing IRPTNs.</td>
</tr>
</tbody>
</table>
# Characteristics of the Road-based PT Network

<table>
<thead>
<tr>
<th>Network component</th>
<th>Service Type</th>
<th>Typical function</th>
<th>Route characteristics</th>
<th>Station/Stops spacing</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Black</strong></td>
<td>Rapid</td>
<td>Regional Mobility</td>
<td>Own right of way</td>
<td>8 – 10 km</td>
</tr>
<tr>
<td></td>
<td>Metropolitan</td>
<td></td>
<td></td>
<td>3 - 5 km</td>
</tr>
<tr>
<td></td>
<td>Commuter</td>
<td></td>
<td></td>
<td>2 - 3 km</td>
</tr>
<tr>
<td><strong>Red</strong> *</td>
<td>Bus Rapid Transit</td>
<td>Urban Mobility</td>
<td>Own right of way</td>
<td>500 – 800 m</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Continuity</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Blue</strong> *</td>
<td>Bus</td>
<td>Urban Continuity</td>
<td>Largely own right of way</td>
<td>350 – 600 m</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Medium Accessibility</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Green</strong> *</td>
<td>Bus</td>
<td>Urban Continuity</td>
<td>Mixed Traffic</td>
<td>300 – 500 m</td>
</tr>
<tr>
<td></td>
<td>Midi-bus/Mini-bus taxi</td>
<td>Medium Accessibility</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Yellow</strong></td>
<td>Mini-bus taxi</td>
<td>High Accessibility</td>
<td>Mixed traffic</td>
<td>200 – 400 m</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Class 4, 5 roads</td>
<td></td>
</tr>
<tr>
<td><strong>Other</strong></td>
<td>Tuk-tuks, pedicabs</td>
<td>Local Accessibility</td>
<td>Class 5 roads</td>
<td>0-100 m</td>
</tr>
</tbody>
</table>

* Metered taxis to operate across networks
Gauteng North

- Gauteng North
- Mabopane
- Soshanguve South
- Ga-Rankuwa
- Brits
- Hartebeespoort
- Pretoria
- Centurion
- Diepsloot
- Hammanskraal
- Cullinan
- Doornpoort
- Onderstepoort AH
- Karenpark
- Rosslyn
- Silverton
- Hatfield
- Lynnwood
- Waterkloof
- Menlyn
- Woodhill
- Moreletapark
- Elarduspark
- Mookloof
- Olievenhoutbos 24
- Tembisa
- Midrand
- Zwartkop
- Highveld
Gauteng North – Blue Road-based PT Network
Gauteng South
– Red Road-based PT Network
Gauteng South
– Blue Road-based PT Network
Gauteng South
– Green Road-based PT Network
Gauteng – Total PT Network
GFIP

GFIP Phase 1 = 185 km
Future Upgrades = 223 km
Planned new routes = 158 km
Final scheme = 561 km
Proposed Modal Split (2037)
25 Year Projections – AM Peak
**Intervention 8: Strengthening Intermodal Freight Hubs**

<table>
<thead>
<tr>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Proposal</strong></td>
</tr>
<tr>
<td>• Freight is a key component of sustainable economic growth.</td>
</tr>
<tr>
<td>• Strengthen freight logistics</td>
</tr>
<tr>
<td>• Freight logistics constraints can be overcome by strengthening key large freight hub on the periphery of the City Region, ensuring adequate access to these hubs, as well as further developing key freight corridors and routes (rail &amp; road)</td>
</tr>
</tbody>
</table>
Inland Freight Hub
SIP2 has its origins in the 2050 Corridor Vision Project
Proposed New Durban Dug-Out Port
Gauteng Freight Terminals and Road network

<table>
<thead>
<tr>
<th>Location</th>
<th>Terminals</th>
<th>Ops. Of 1st Terminals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tambo Springs</td>
<td>2 x Container 1 x Palletized</td>
<td>2020</td>
</tr>
<tr>
<td>Sentrarand</td>
<td>4 x Container 2 x Palletized 1 x Automotive</td>
<td>2025</td>
</tr>
<tr>
<td>Pyramid</td>
<td>1 x Container 1 x Palletized 1 x Automotive</td>
<td>2022</td>
</tr>
</tbody>
</table>
Existing: Class 1 Road Network
Future: Class 1 Road Network
Funding Arrangements
Funding Arrangements (1)

Conclusions

• Inadequate funds are currently allocated to transportation infrastructure and operations, also to the preservation of assets
• A stable source of funding is required
• Transport budget should be doubled in the short-term and increased to about 4 fold of the current over 25 years
• A financing plan is strongly related to policy
• It is important to introduce focused policy enablers.
Institutional Arrangements
A continuum of institutional options

The Status Quo (enhanced)

A GCR Public Transport Commission
(that advises on how to deal with the functions currently “falling through the cracks”)

A Unitary Transport Authority for the GCR
“Economic Growth is the Oxygen of a Democracy”

- Prof Nick Binedell
“The philosophers have only interpreted the world, the point however is to change it”

Karl Marx

The Future is not for the faint hearted.”

R Reagan

Thank You