JRA has a total road length of 9,247 km
1,040km gravel roads in townships

Upgrade cost R2.4 bil
R1.0bil for major roads and
R1.4bil for gravel roads.

Maintenance demand
R1.7 bil
R400m for roads rehab
R800m for stormwater rehab,
R500m for traffic
THE GRAVEL ROADS CHALLENGE
THE PROBLEM
THE PROBLEMS
HISTORY OF THE PROJECT

- 349 km of gravel roads in Greater Soweto
- Excluding informal settlement areas
- Health & environmental
- Transportation problems in wet or dry conditions
- Quality of life – heavily impacted upon
Three priority blocks:

1. South of Kliptown Railway line
   • Block 1: June 2003/04 completion

2. Between the Kliptown and Naledi Rail Lines
   • Block 2: June 2004/5 completion

3. North of Naledi Rail line
   • Block 3: December 2005 completion
1. Local road standard 5.5 to 7.2 m width
   *depending of property setbacks/road reserve)
2. Crusher or stabilized layers
3. Double kerbs and stormwater piping
4. Asphalt surfacing
5. Standard road signage
6. Sidewalks attended to by residents: grassing
## AGE ANALYSIS

**Soweto Township establishment:**

<table>
<thead>
<tr>
<th>Township</th>
<th>Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Klipspruitvale</td>
<td>1904</td>
</tr>
<tr>
<td>Pimville</td>
<td>1917</td>
</tr>
<tr>
<td>Orlando East</td>
<td>1932</td>
</tr>
<tr>
<td>Jabavu</td>
<td>1944</td>
</tr>
<tr>
<td>Moroka</td>
<td>1948</td>
</tr>
<tr>
<td>Mofolo</td>
<td>1954</td>
</tr>
<tr>
<td>Dube</td>
<td>1954</td>
</tr>
<tr>
<td>Mzimhlophe</td>
<td>1954</td>
</tr>
<tr>
<td>CWJ</td>
<td>1954</td>
</tr>
<tr>
<td>Diepkloof</td>
<td>1955</td>
</tr>
<tr>
<td>Chiawelo</td>
<td>1956</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Township</th>
<th>Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dlamini</td>
<td>1956</td>
</tr>
<tr>
<td>Jabulane</td>
<td>1956</td>
</tr>
<tr>
<td>Molapo</td>
<td>1956</td>
</tr>
<tr>
<td>Moletsane</td>
<td>1956</td>
</tr>
<tr>
<td>Mapetla</td>
<td>1956</td>
</tr>
<tr>
<td>Phiri</td>
<td>1956</td>
</tr>
<tr>
<td>Naledi</td>
<td>1956</td>
</tr>
<tr>
<td>Tladi</td>
<td>1956</td>
</tr>
<tr>
<td>Zondi</td>
<td>1956</td>
</tr>
<tr>
<td>Emdeni</td>
<td>1958</td>
</tr>
<tr>
<td>Senaoane</td>
<td>1958</td>
</tr>
<tr>
<td>Zola</td>
<td>1958</td>
</tr>
</tbody>
</table>
In these areas the appropriate technical hierarchy to be used would be:

- Road classification (primary, secondary, main, tertiary)
- Public transport facility
- Housing & Population density
- Access route to schools, crèches, businesses, and other community facilities
- Logical link with surfaced network

In addition the establishment age of the township has been included as a determinant

"The easiest thing to do is everything; the difficulty is in deciding what not to do!!!"
Process followed during the 2002/2003 Financial Year

- Obtained Budget Approval
- Combined Budget Items
  - E.g. Soweto/Bram Fischerville
  - Ennerdale/Orange Farm
  - Midrand/Ivory Park
- Requested permission from board to Call for Expression of Interest
Process followed during the 2002/2003 Financial Year

Innovative Project Manager

12 Submission

4 Short listed

1 Appointed

Innovative Design and Construct Consortia

42 Submissions

12 Short listed

5 Appointed
Process followed during the 2002/2003 Financial Year

<table>
<thead>
<tr>
<th>Approach</th>
<th>Understanding of Project</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Understanding of Project Objectives</td>
</tr>
<tr>
<td></td>
<td>Completeness of Proposal</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Expertise</th>
<th>Relevant Experience</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Ability to undertake the work</td>
</tr>
<tr>
<td></td>
<td>Staffing Level/Affirmative Profile</td>
</tr>
</tbody>
</table>
Process followed during the 2002/2003 Financial Year

- Innovation
  - Methodology and New Ideas
  - Enthusiasm and New Ideas
  - Practicality of Proposal

- Cost
  - Comparison with others
  - Reasonableness
Process followed during the 2002/2003 Financial Year

• Detailed proposals were submitted by 12 shortlisted consortia
• Appointed Project Manager Evaluated Proposals
• Tender awarded to five consortia
  – Nabcat/MBS/Blactop
  – Lefika/UWP/Nyaleti
  – Dicon Africa
  – Siyakha Umgwaco
  – Bophelong JV
Proposals received & Contract awarded (continued)

- Evaluation Process

  – Preferential procurement policy framework act
    - 90 Points   (Price, experience, area knowledge, technical content)
    - 10 Points   (HDI Participation)

<table>
<thead>
<tr>
<th>Points category</th>
<th>Criteria applied</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>No previous design or construction experience in area</td>
</tr>
<tr>
<td>10</td>
<td>Design and construction limited to one applicable event in area</td>
</tr>
<tr>
<td>20</td>
<td>Design and construction limited to two applicable events in area</td>
</tr>
<tr>
<td>30</td>
<td>Design and construction limited to three applicable events in area</td>
</tr>
<tr>
<td>45</td>
<td>Design and construction of more than three applicable events in area</td>
</tr>
</tbody>
</table>
Proposals received & Contract awarded (continued)

- Innovative submissions
  - Deep in-situ recycling
  - Slurry bound macadam
  - Water bound macadam
  - Maintenance contract
  - Narrow roadways
  - Cross sections without kerbs
  - Discount
  - Incentive Fees
Proposals received & Contract awarded (continued)

• Contract documentation

  - Conditions of contract to be confirmed
  - FIDIC proposed & accepted
  - Typical contract structure

  • Requires Performance Guarantee
  • Parent company guarantee
  • Back to Back guarantees to parent company
Proposals received & Contract awarded (continued)

- Performance areas
  - Cash flow (expenditure achieved)
  - Length of roads surfaced
  - Retained community earnings
  - Planning progress
  - Community liaison
  - Variations

Progress sheet
We convert this...
Into this !!!
Delivery Outcomes 2003
DELIVERY OUTCOMES
2003

Photo 16: Moroka: Practical Completion.
Photo 17: Moroka: Practical Completion.
Photo 18: Moroka; Practical Completion.
DELIVERY OUTCOMES
2003

Photo 20: Orange Farm: Road 3, speed bump with markings

Photo 21: Orange Farm: Road 6, Practical Completion.

Photo 22: Vlakfontein Ext 1,2 and 3: Practical Completion.

Photo 23: Vlakfontein Proper: completed vertical curve
The only place where reward comes before work is in the dictionary.

Invest in the future...
Everyone has a photographic mind; some just don’t have a film.

The only thing in life achieved without an effort is failure.
Turnkey experience

• Contents
  – Request stage
  – Identifying partners
  – Tender preparation
  – Contract
  – Construction
  – Quality monitoring
Turnkey experience (continued)

- Request for proposals
  - Design & construct (fixed price ?)
  - Five areas
  - Limited information
Turnkey experience (continued)

• Identifying partners
  – Exclusivity
  – Establish working relationship
    • Joint venture
    • Consortium
    • Private company
  – Risk
    • Quantify
    • Agree on distribution
Turnkey experience (continued)

• Tender preparation
  – Obtain information
    • Prelim road assessment
    • In-situ soil testing
    • Survey
    • Services
  – Prepare design & bill of quantities
  – Price bill of quantities
Turnkey experience (continued)

• Contract
  – Conditions (not available at tender stage)
  – Surety
  – Back to back guarantees
  – Retention in lieu of guarantee
  – Penalties
  – Contingencies
Turnkey experience (continued)

• Construction
  – Survey
  – Design approval
  – Community involvement
  – Labour desk officers
Turnkey experience (continued)

- Performance
  - Limited time
  - Cash flow requirements
  - Community requirements
Feedback on approach

• Content
  – Cash flow
  – Length of road
  – Community earnings
  – Community liaison and safety
  – Project coordination
Feedback on approach (continued)

Project Co-ordination

- Tender evaluation
- Standardised contract documentation
- Design co-ordination
- Regular site meeting
  - Eleven different contracts
  - Councilors involved
  - Depot Managers involved
- Monthly project steering committee meeting
  - All consortia
  - Project Manager
  - Capital Projects Section
- Monthly reporting
- Centralised processing of certificates
- Co-ordinated cash flow monitoring
Level of Service - Surfacing

• Asphalt Surfacing to be used on all roads.
Level of Service - Kerbing

- Different Kerbing
- Extruded
- Precast
  - Higher labour content
  - All kerbing on these contracts is to be precast
Community Issues

• Labour
  • CLO
  • Contractor Responsibility
  • Wage Rates (Government Gazette)

• Training
  • Accredited Training (within first 3 months of project)
  • On the Job Training

• Community Retained Earnings
  • Target of 25%
Programme Overview

• **2002 / 2003**
  – Let 11 contracts
  – Spent R89.6m within 8 months
  – Upgraded 65.5 km of roads
  – Approximate rate of R1.36m per km

• **2003 / 2004**
  – Let 18 Contracts
  – Spent R 280m within 10 months
  – Upgraded 168 km of Roads
  – Approximate rate of R1.66m per km
Programme Overview

- **2004/2005**
  - Let 8 Contracts
  - Budget of R115m
  - Upgrading 79.9 km of roads
  - Approximate rate of R1,44m per km

- **Combined**
  - Budget R485m
  - Upgrading 314 km of roads
  - Approximate rate of R1,55m per km
Annual Budget and Roads Constructed

<table>
<thead>
<tr>
<th>Financial Year</th>
<th>Expenditure</th>
<th>Road Length Constructed</th>
</tr>
</thead>
<tbody>
<tr>
<td>2002/2003</td>
<td>90</td>
<td>66</td>
</tr>
<tr>
<td>2003/2004</td>
<td>280</td>
<td>169</td>
</tr>
<tr>
<td>2004/2005</td>
<td>115</td>
<td>80</td>
</tr>
<tr>
<td>TOTAL</td>
<td>485</td>
<td>314</td>
</tr>
</tbody>
</table>
Annual Cost Comparison

Average Cost per Kilometer (Including all Stormwater Infrastructure)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Rm's</td>
<td>1.37</td>
<td>1.66</td>
<td>1.44</td>
<td>1.54</td>
</tr>
</tbody>
</table>
## SUMMARY – Expenditure & Delivery

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>TOTAL EXPENDITURE</td>
<td>89,680,578</td>
<td>280,220,360</td>
<td>115,305,190</td>
<td>485,206,128</td>
</tr>
<tr>
<td>TOTAL KILOMETERS CONSTRUCTED</td>
<td>65.53</td>
<td>168.67</td>
<td>79.91</td>
<td>314.11</td>
</tr>
</tbody>
</table>
Jobs Created
Labourers employed by main contractor only

Job Creation (1 job = 55 labour days)

Financial Year

Job Creation Indices
Labourers employed by main contractor only

No. Jobs per Rm Expenditure

Financial Year
Training

- Typical Training Under Taken
  - Kerb Laying
  - Stormwater Infrastructure Construction
  - CLO Training
  - Life Skills
  - First Aid
  - Safety
  - Survey Skills
  - Laboratory Skills
  - Flagmen
  - Business Skills
  - Tendering

<table>
<thead>
<tr>
<th>Financial Year</th>
<th>Total Number of Persons Trained</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Male</td>
</tr>
<tr>
<td>2002/2003</td>
<td>187</td>
</tr>
<tr>
<td>2003/2004</td>
<td>458</td>
</tr>
<tr>
<td>2004/2005</td>
<td>317</td>
</tr>
<tr>
<td>Total</td>
<td>962</td>
</tr>
</tbody>
</table>
# Community Retained Earnings

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Budget</td>
<td>369,900,938</td>
<td>115,305,190</td>
<td>485,206,128</td>
</tr>
<tr>
<td>Community Retained Earnings</td>
<td>99,400,000</td>
<td>19,601,882</td>
<td>119,001,882</td>
</tr>
<tr>
<td>As a Percentage</td>
<td>27%</td>
<td>17%</td>
<td>25%</td>
</tr>
</tbody>
</table>
Project Photographs

Road being Surveyed in Pimville
Pre shaped Base in Pimville
Project Photographs

Stabilisation of Base in Pimville
Completed Road in Pimville