

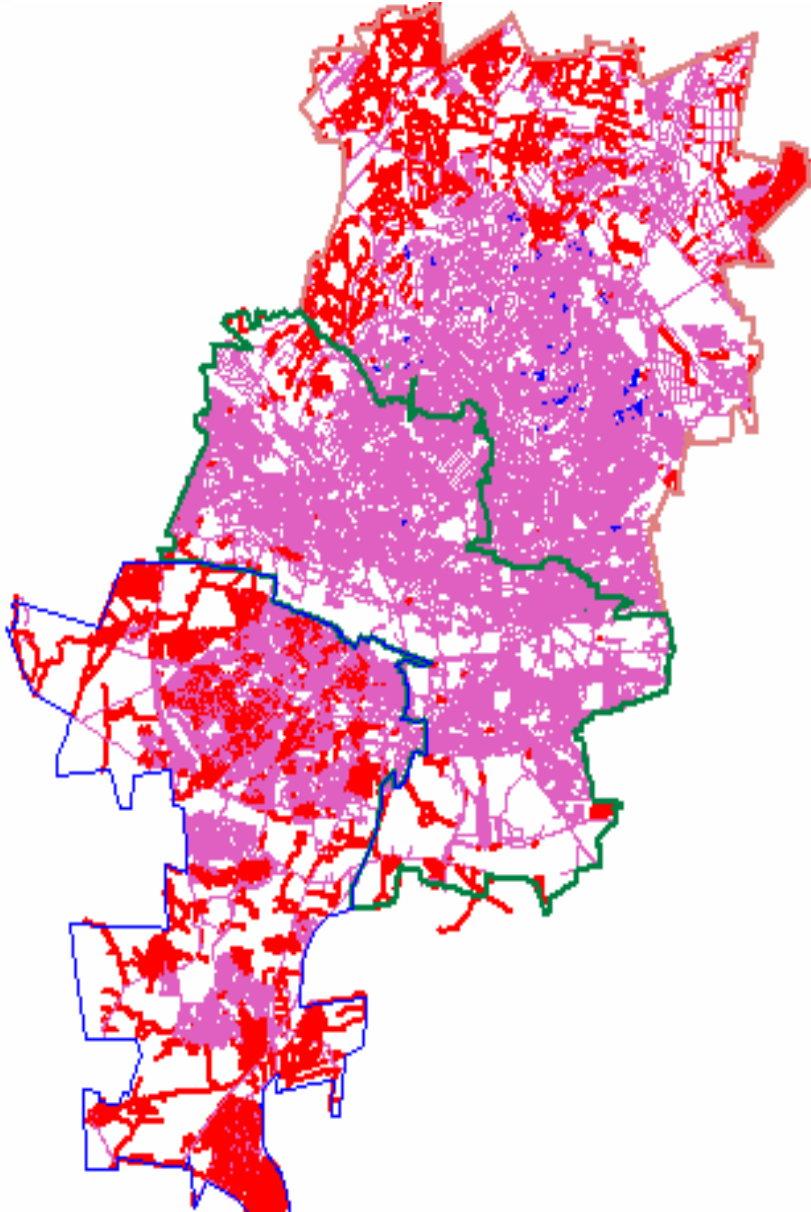


***UPGRADING OF GRAVEL
ROADS TO SURFACED
ROADS 2002-2005***

City of Johannesburg

*JH van der Schyff
21 September 2005*

Greater Johannesburg



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.

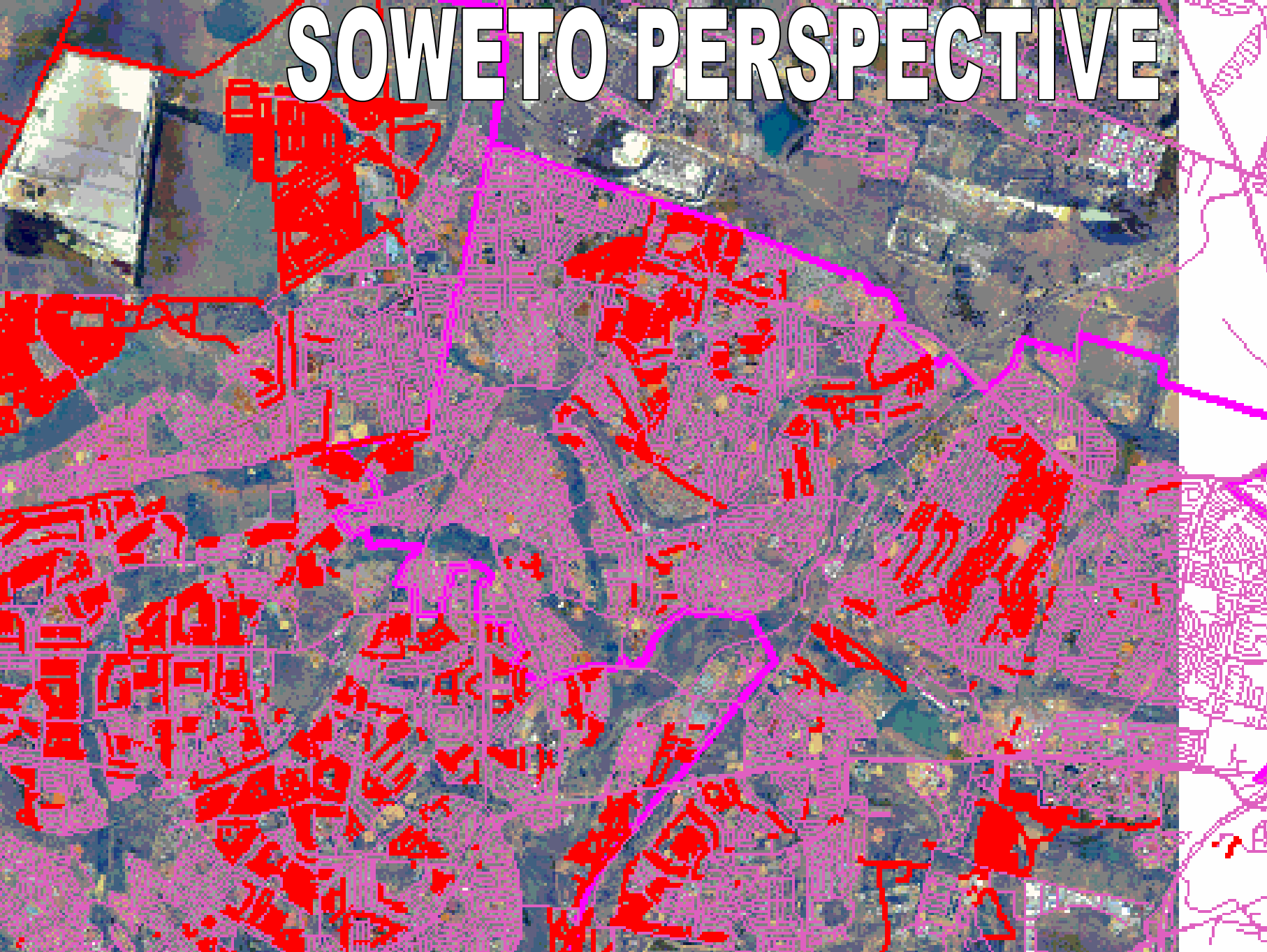
Maintenance demand R1.7 bil
R400m for roads rehab
R800m for stormwater rehab,
R500m for traffic



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*THE
GRAVEL ROADS
CHALLENGE*

SOWETO PERSPECTIVE



THE PROBLEM



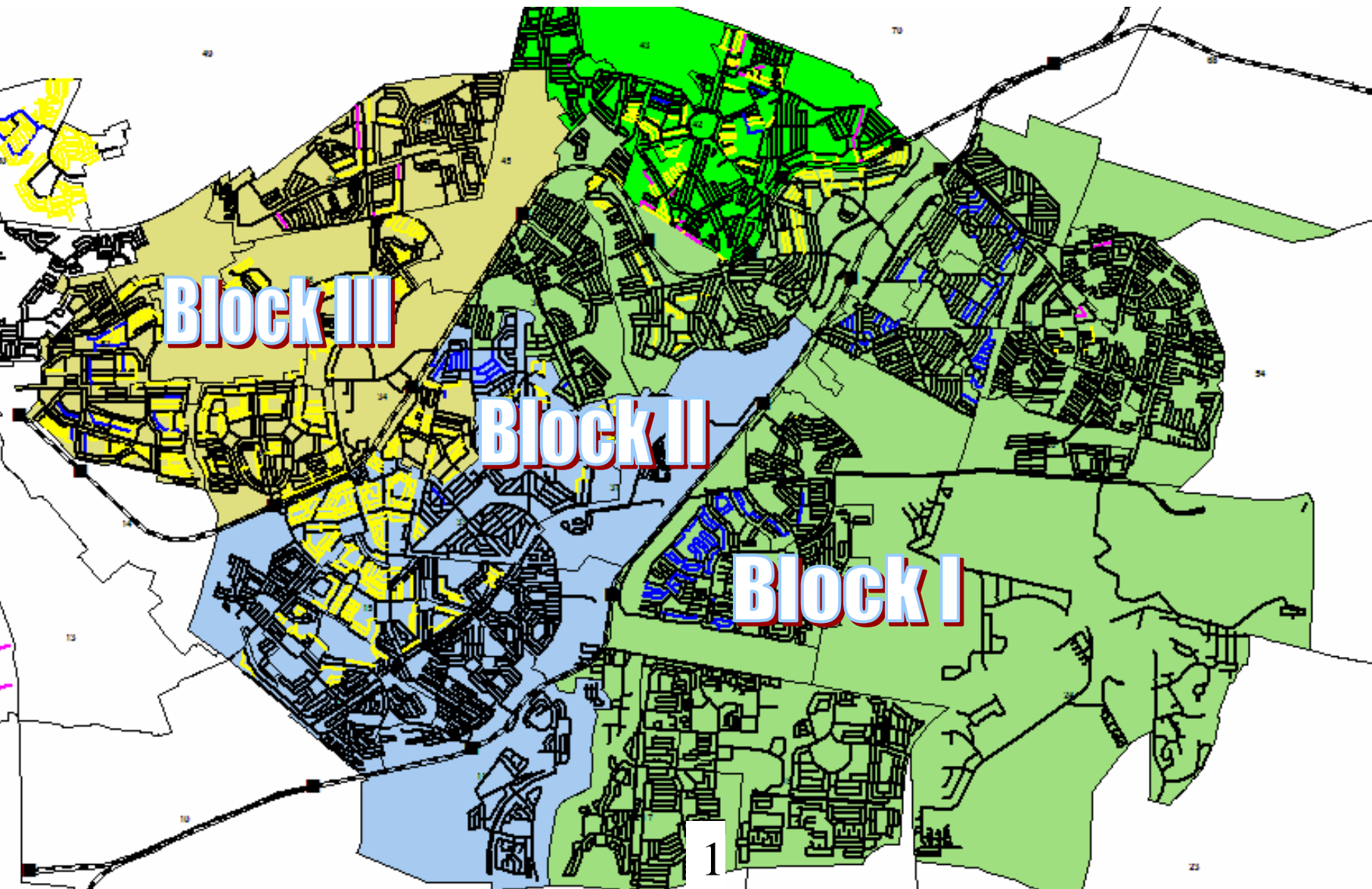
THE PROBLEMS



- 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



SOWETO GRAVEL ROADS DEVELOPMENT SUB DISTRICTS



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:

- Klipspruitvale 1904
- Pimville 1917
- Orlando East 1932
- Jabavu 1944
- Moroka 1948
- Mofolo 1954
- Dube 1954
- Mzimhlophe 1954
- CWJ 1954
- Diepkloof 1955
- Chiawelo 1956

- Dlamini 1956
- Jabulane 1956
- Molapo 1956
- Moletsane 1956
- Mapetla 1956
- Phiri 1956
- Naledi 1956
- Tladi 1956
- Zondi 1956
- Emdeni 1958
- Senaoane 1958
- Zola 1958

UPGRADE CRITERIA:

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

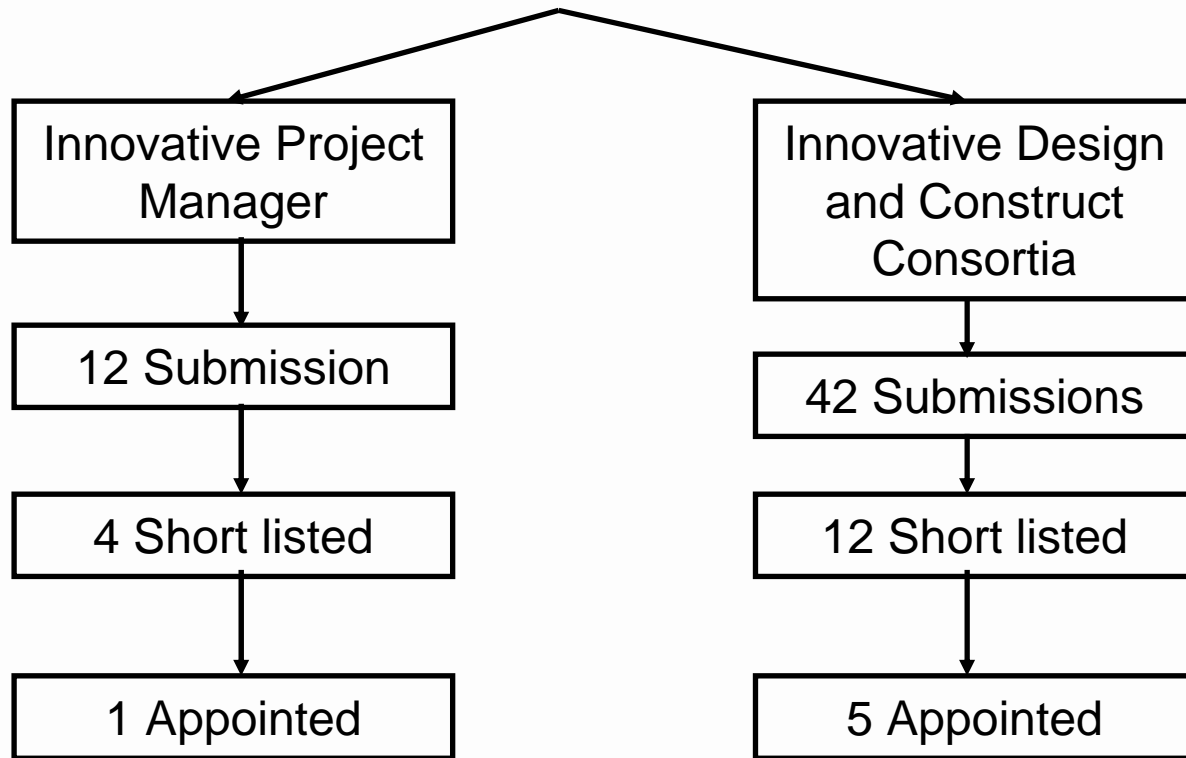
In addition the establishment age of the township has been included as a determinant

**"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



Process followed during the 2002/2003 Financial Year

Approach

Understanding of Project
Understanding of Project
Objectives
Completeness of Proposal

Expertise

Relevant Experience
Ability to undertake the work
Staffing Level/Affirmative Profile

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)

Evaluation sheet

Points category	Criteria applied
0	No previous design or construction experience in area
10	Design and construction limited to one applicable event in area
20	Design and construction limited to two applicable events in area
30	Design and construction limited to three applicable events in area
45	Design and construction of more than three applicable events in area

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 **JRA**
- Parent company guarantee **ABC Consortium**
- 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

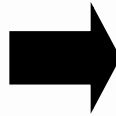
We convert this...



Into this !!!



Delivery Outcomes 2003



DELIVERY OUTCOMES 2003



17



18



16

Photo 16: Moroka: Practical Completion.

Photo 17: Moroka: Practical Completion.

Photo 18: Moroka; Practical Completion.

DELIVERY OUTCOMES

2003

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20



21



22



23

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...*





The only thing in life achieved
that is worth nothing

Everyone has a photographic mind

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%

- **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

- **2004/2005**

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

- **Combined**

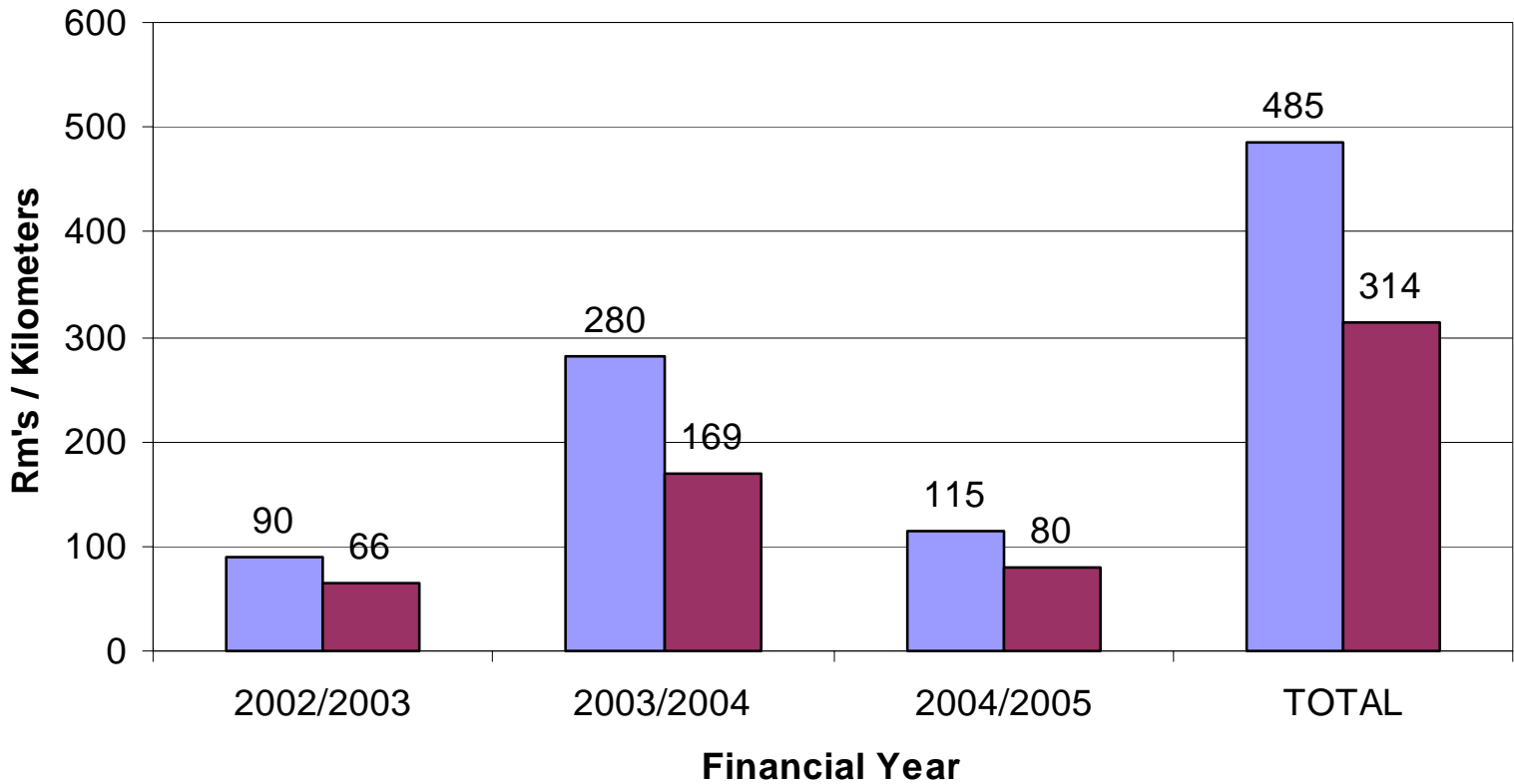
- Budget R485m
 - Upgrading 314 km of roads
 - Approximate rate of R1,55m per km
-

Road Length and Expenditure



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Annual Budget and Roads Constructed

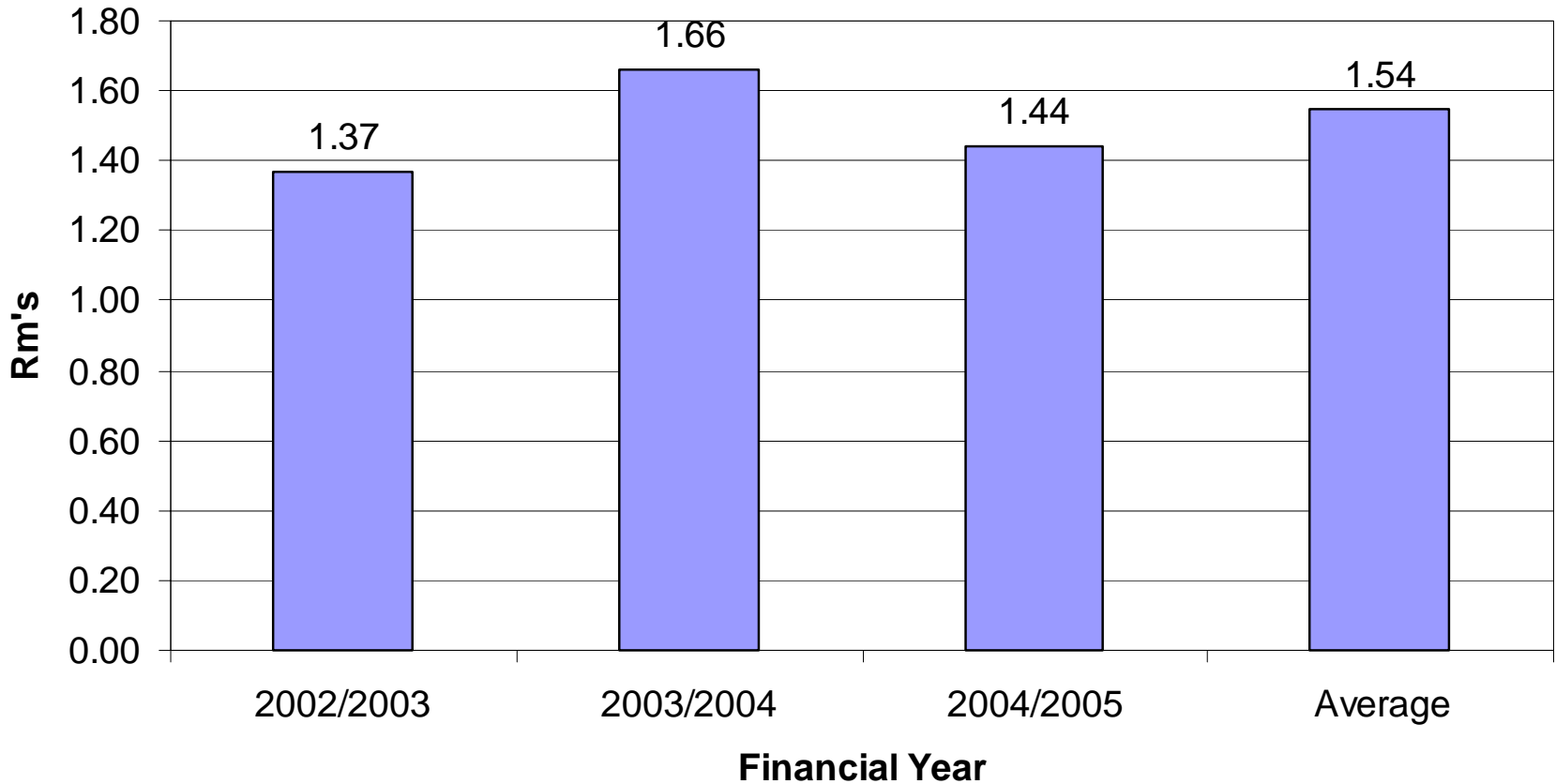


■ Expenditure ■ Road Length Constructed

Annual Cost Comparison



Average Cost per Kilometer (Including all Stormwater Infrastructure)



SUMMARY – Expenditure & Delivery



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ITEM / YEAR	2002/2003	2003/2004	2004/2005	TOTAL
TOTAL EXPENDITURE	89,680,578	280,220,360	115,305,190	485,206,128
TOTAL KILOMETERS CONSTRUCTED	65.53	168.67	79.91	314.11

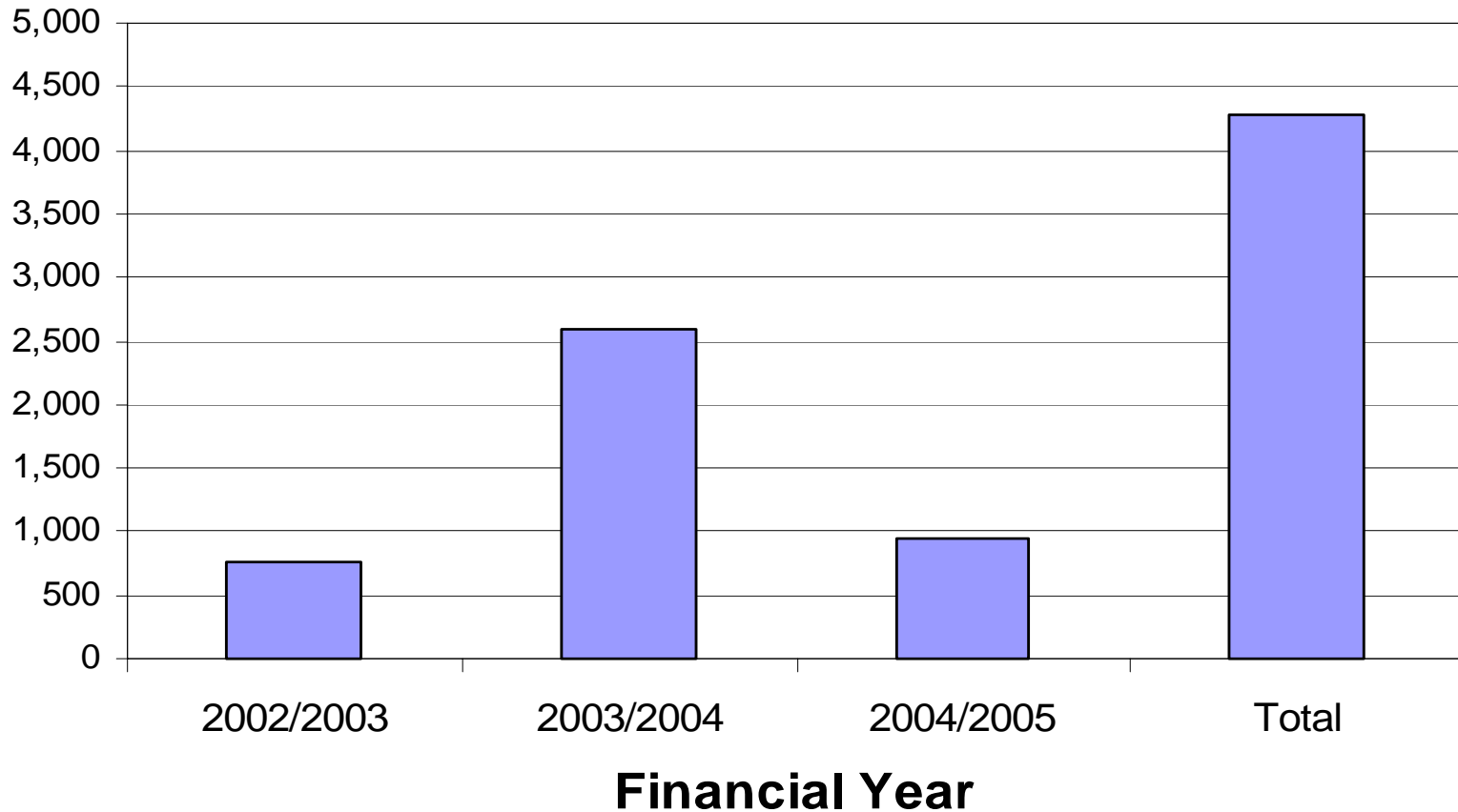
Jobs Created

Labourers employed by main contractor only



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Job Creation (1 job = 55 labour days)



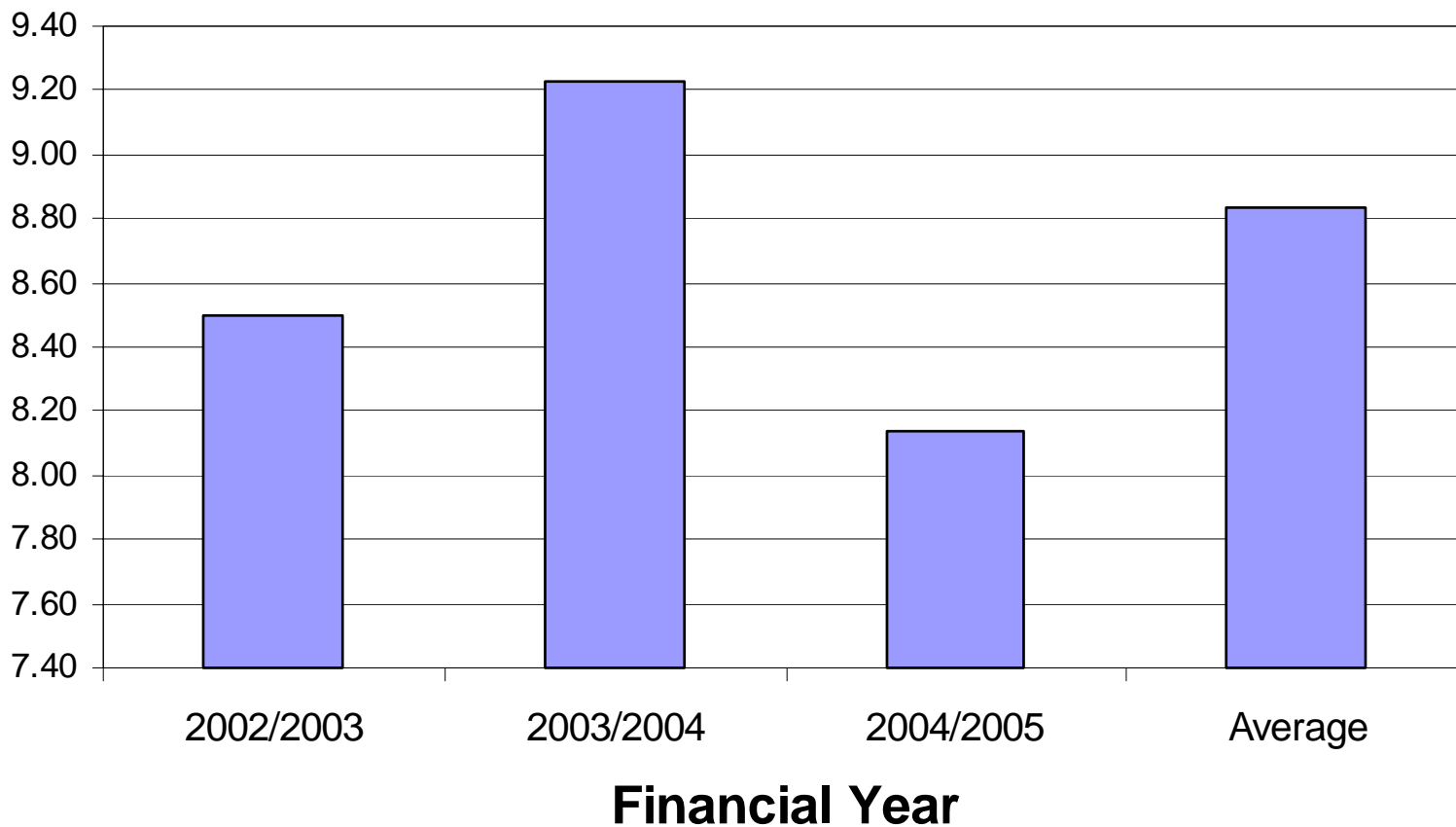
Job Creation Indices

Labourers employed by main contractor only



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No. Jobs per Rm Expenditure



•Typical Training Under Taken

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

Financial Year	Total Number of Persons Trained			
	Male	Female	Youth	Total
2002/2003	187	66	150	403
2003/2004	458	124	579	1,161
2004/2005	317	176	177	670
Total	962	366	906	2,234

Community Retained Earnings



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ITEM / YEAR	2002/2003/2004	2004/2005	TOTAL
Budget	369,900,938	115,305,190	485,206,128
Community Retained Earnings	99,400,000	19,601,882	119,001,882
As a Percentage	27%	17%	25%





Road being Surveyed in Pimville



Pre shaped Base in Pimville



Stabilisation of Base in Pimville



Completed Road in Pimville