EXECUTIVE SUMMARY

Background

The existing Borcherds Quarry interchange on the N2 is located to the southwest of Cape Town International Airport (CTIA), between Airport Approach Road interchange and Swartklip (R300) systems interchange (Refer to Figure 1.1: Locality Sketch). It has a direct link via Borcherds Quarry Road to Robert Sobukwe (Modderdam) Road and Airport Approach Road to the north, and serves the commercial/industrial areas of Airport Industria, Airport City and the CTIA itself on the northern side of the N2. To the south of the N2, it links with Klipfontein Road, which give indirect access to the Philippi East Industrial area further to the east, and to the residential areas of Crossroads and Nyanga via New Eisleben Road directly to the south.

In the planning and development of Airport Industria and Airport City in particular, as well as the commercial/industrial areas surrounding the CTIA, a realignment of Borcherds Quarry Road was envisaged and planned for. The realigned road linked directly with the New Eisleben Road corridor to form a major Class 2 Arterial route between Robert Sobukwe (Modderdam) Road in the north and Govan Mbeki (Landsdowne) Road in the south, where Eisleben Road already existed as a major Arterial route through Mitchell’s Plain. The route was planned to have direct access to the N2 via a new interchange, and the existing Borcherds Quarry interchange (± 450m to the west) was to be closed.

Early in 2013, an approach was made by the Philippi Economic Development Initiative (PEDI) group to the MEC for Transport to investigate the possibility of creating improved access to Philippi East Industrial area which, due to a number of reasons including access and security issues, was not developing as had previously been expected in the context of metropolitan planning and development projections.

HHO were appointed by the Western Cape Government in May 2013, to carry out the planning and design of the N2/ New Borcherds Quarry interchange, which included the realignment of Borcherds Quarry Road and New Eisleben Road. Included in the brief was the investigation of the possibility of improved access from the N2 to the Philippi East Industrial area as well as the extension of the Bus/Minibus-Taxi lanes along the N2 up to the R300.

The Borcherds Quarry Road/ New Eisleben Road route has been identified in the City of Cape Town’s Integrated Public Transport Network Plan (IPTN) (May 2014), as one of the major north/south IRT public transport corridors in the metropolitan area. The route has also been identified as an important Non-Motorised Transport (NMT) corridor in the Metropolitan NMT Master Plan.

Study Purpose/Objectives

The following study objectives were formulated with the Client as the outset of the study:

- To develop an understanding of the future medium and long term land use and transport planning proposals for the study area.
- To develop transport proposals which would improve metropolitan access and security from the N2 to the Philippi East Industrial area (and other areas) to the south of the N2.
- To allow for the future expansion of the CTIA and surrounding Airport Industrial area.

- To accommodate public transport planning proposals, in particular:
  - A proposed north-south Integrated Rapid Transit (IRT) route and associated NMT facility along the New Borcherds Quarry / New Eisleben Road corridor.
  - The proposed extension of the Bus/Minibus-Taxi (BMT) lanes along the N2 up to the R300 (with a possible further eastward extension to Mew Way).
- To accommodate previous planning for the future Airport Beltway concept in the transport infrastructure planning for the study area.
- To ensure that the proposed infrastructure improvements support a consistent road network hierarchy in the study area.
- To ensure that all major stakeholders in the study area are informed of the ongoing study and are presented with the alternatives being assessed, and the process through which a preferred alternative would be selected.

Study Area

The study area extends from Airport Approach Road interchange on the N2 in the west to the R300 (Swartklip) interchange in the east; and from Robert Sobukwe (Modderdam) Road in the north to the R300 extension in the south. It includes the CTIA and surrounding commercial/industrial areas, Airport Industrial area and Airport City on the northern side of the N2, and Philippi East Industrial area, Crossroads and Nyanga to the south of the N2.

Study Process

During the inception phase of the project, a study process was formulated consisting of three phases as follows (Refer to Figure 1.2: Study Process):

- Phase 1: Definition of Planning Tasks, Study Objectives, Data Collection and Evaluation of Existing Network (2 Months)
  This phase consists of the following steps:
  - Definition and Scope of Planning Tasks
  - Preliminary Developments of Alternatives
  - Review of Previous Studies
  - Development of Study Objectives and Evaluation Approach
  - Data Collection and Evaluation of Existing Network.
  During this phase, selected stakeholders and IAAP’s were informed of the process, and issues, concerns and constraints were identified and documented.

- Phase 2: Future Transport Network Design and Evaluation at a Conceptual Level of Planning (4 Months)
  This phase consists of the following steps:
  - Determination of Future Land Use and Traffic Scenarios
  - Development of Alternative Road and Interchange Layouts
ROBERT SOBUKWE (MODDERDAM) ROAD
AIRPORT APPROACH ROAD
CTIA PERIMETER ROAD
CTIA TERMINAL
KLIPFONTEIN ROAD
OLD KLIPFONTEIN ROAD
NEW EISLEBEN ROAD
NYANGA
AIRPORT INDUSTRIA
CTIA MAIN RUNWAY
BROWNS FARM
N2 FREEWAY
GOVAN MBEKI (LANSDOWNE) ROAD
EISLEBEN ROAD
STOCK ROAD
DELFT SOUTH
SYMPHONY WAY
NEW BORCHERDS QUARRY ROAD
NEW CROSSROADS
BORCHERDS QUARRY ROAD
R300 FREEWAY
TO SOMERSET WEST
SWARTKLIP INTERCHANGE
MICHIGAN ST
MONTREAL DR
AVIATION CRESCENT
AIRPORT CITY
CAPE TOWN INTERNATIONAL AIRPORT (CTIA)
AIRPORT INTERCHANGE
EXISTING BORCHERDS QUARRY INTERCHANGE
PHILIPPI EAST INDUSTRIAL AREA
LANDMARKS
N2/BORCHERDS QUARRY INTERCHANGE AND RELATED WORKS
CONCEPTUAL DESIGN REPORT
FIGURE 1.1
FIGURE 1: MILESTONES

1. DEFINITION OF SCOPE OF PLANNING TASKS
   - Assembly of project team
   - Transport authorities
   - Planning authorities
   - Consultants team
   - Definition & agreement of study area, planning tasks & process
   - Identification of existing studies

2. PRELIMINARY DEVELOPMENT OF ALTERNATIVES
   - Check against planning objectives
   - Check for “No Go / Red Flag” issues
   - Preliminary screening of preferred alternatives for further investigation.

3. REVIEW OF PREVIOUS STUDIES
   - Land Use
   - Road Infrastructure
   - Traffic
   - Public Transport
   - Other Studies

4. DEVELOPMENT OF STUDY OBJECTIVES & EVALUATION APPROACH
   - Primary Planning Objectives
     - Understanding the probable medium & long term land use scenarios for study area
     - Improved access to adjoining areas and public transport
     - Develop a more consistent road network for the study area
   - Evaluation Approach
     - A multi-criteria approach will be adopted to measure advantages & trade-offs associated with each infrastructure alternative in the context of establishing cost effective network interventions that address the study objectives.
     - Balanced strategic environmental assessment to identify red flag issues.
     - High level economic analysis to determine economic performance
     - Evaluation summary will show cost effectiveness and trade-offs of alternative infrastructure interventions

5. DATA COLLECTION & EVALUATION OF EXISTING NETWORK
   - Data Collection (traffic, landuse & bulk services)
   - Orthophoto base plans showing existing land use & existing road network (incl. road hierarchy) in study area
   - Set-up road network model (VISMU)
   - Initial traffic modelling and calibration
   - Summary of areas of congestion/ delay / network deficiencies
   - Highlight key findings of existing network performance and bulk services investigation

6. DETERMINATION OF FUTURE LAND USE & TRAFFIC SCENARIOS
   - Agree future land use in study area in a future metropolitan context
   - Identification of new areas of development / upgrading / regeneration
   - Agree time horizon, e.g. 20 years: 2013 – 2033
   - Development of macro future traffic & public transport demand scenarios in study area

7. DEVELOPMENT OF ALTERNATIVE ROAD & INTERCHANGE LAYOUTS
   - Existing N2 / Borcherds Quarry Interchange
   - N2 / New Borcherds Quarry Interchange
   - N2 / Stock Road Interchange
   - N2 / Symphony Way (partial) Interchange

8. DEVELOPMENT OF A PREFERRED ROAD NETWORK / HIERARCHY
   - Principles of road network planning
   - Interfaces between interchange location and road network
   - Development of alternative road networks with a consistent road hierarchy

9. EVALUATION OF ALTERNATIVE ROAD NETWORK / INTERCHANGE INTERVENTIONS
   - Preliminary screening/evaluation of alternatives
   - Detailed multi criterion evaluation of alternatives including traffic modelling and economic evaluation findings
   - Determination of preferred alternative
   - Determination of priorities for phased implementation
   - Presentation of findings to PTA for approval

10. DESIGN AND TENDER PHASE FOR FAST TRACK PROJECT(S)
    - Identify project(s)
    - Preliminary design & preparation of tender documentation
    - Tender process & award
    - Detail design on “Just in Time” basis and construction phase

11. PRELIMINARY DESIGN PHASE OF PREFERRED NETWORK
    - Preliminary Design of preferred network infrastructure
    - Environmental Basic Assessment of priority infrastructure
    - Approval of Preliminary Design & Environmental Authorisation of priority infrastructure

12. DETAILED DESIGN & CONSTRUCTION PHASE OF PRIORITY INFRASTRUCTURE
    - Detailed Design of priority infrastructure
    - Preparation of tender documentation & tender process & award
    - Construction phase(s)

MONTHLY PROGRESS MEETINGS WITH PROJECT MANAGEMENT TEAM (PMT)

KEY MILESTONES

FIGURE 1.2: STUDY PROCESS
The findings of the report can be summarised as follows:

- HHO Africa were appointed in May 2013 to carry out the planning and design of the N2/ New Borcherds Quarry interchange on the N2 which included the realignment of Borcherds Quarry Road to link with New Eisleben Road. Also included in the brief was the investigation of the possibility of improved access from the N2 to the Philippi East Industrial area, as well as the extension of the Bus/ Minibus-Taxi lanes along the N2 up to the R300. The investigation also included a possible east to north directional ramp from the N2 to the realigned Borcherds Quarry Road.

A study process was formulated which consisted of the following phases:

- Phase 1: Definition of planning tasks, formulation of study objectives, data collection and evaluation of existing network.
- Phase 2: Future transport network design and evaluation at conceptual level of planning.
- Phase 3: Implementation of priority infrastructure.

The study area extends from Airport Approach Road interchange on the N2 in the west to the R300 (Swartklip) interchange in the east; and from Robert Sobukwe (Modderdam) Road in the north to the R300 extension in the south. It includes the Cape Town International Airport (CTIA) and surrounding commercial/industrial areas, Airport Industria and Airport City on the north side of the N2, and Philippi East Industrial area, Crossroads and Nyanga to the south of the N2.

Regular Project Management Team (PMT) meetings were held during the conceptual design process which included key representatives from the client: PGWC (Transport and Public Works) and various City of Cape Town Departments. ACSA joined the PMT meetings midway through the process, and PRASA attended the final meeting. Stakeholder meetings were held with a number of key stakeholders through the course of the study in order to gain critical information on the study area and to obtain feedback on the proposals as they evolved.

Two future land use scenarios were formulated for the study based on the City’s Pragmatic Densification (PD) Scenario, which includes the 20 Year Development Scenario for the CTIA. The PD Scenario was modified to include an "optimistic" scenario and one including "wildcard" sites for the Philippi East Industrial area, and a passenger throughput of 25 million air passengers/year (MAP) for CTIA. The two future scenarios were called the "Mid Road" and the "High Road" Scenarios.

The High Road Scenario was used to assess the performance of the road network on a system-wide basis for the purpose of the multi criteria evaluation, while the Mid Road Scenario was used for the detailed traffic assessment of critical links and intersections.

The traffic modelling for the study area was carried out using the Visum Traffic Model which was calibrated for existing situation. Current areas of congestion in the system were identified for the major routes in the study area as follows:

Summary of Findings

- Development of a Preferred Road Network/Hierarchy
- Evaluation of Alternative Road Network/Interchange Interventions

At the end of this phase, the evaluation of alternatives and the selection of a preferred alternative would be presented to selected stakeholders.

During the course of Phases 1 and 2, regular project management meetings were held where progress to date was presented and discussed.

Phase 3: Implementation of Priority Infrastructure (36 Months)

This phase of the study consists of the following steps:

- Design and tender for fast track projects identified through the study process
- Preliminary design phase of preferred network elements
- Detailed design and construction phase of priority infrastructure

Scope of the Conceptual Design Report

The report follows closely the steps set out in the Study Process (See Figure 1.2), and includes the following sections:

- Introduction
- Collection of Data and Evaluation of Existing Network
- Future Land Use and Traffic Scenarios
- Generation of Alternative Road and Interchange Layouts
- Traffic Modelling and System Wide Assessments
- Services Investigation
- Stakeholder Engagement
- Multi-criteria Evaluation and Selection of Preferred Alternatives
- Detailed Traffic Assessment of Preferred Alternative
- Economic Evaluation and Finalisation of Preferred Alternative
- Identification of Risks to Implementation
- Project Programmes
- Summary of Findings and Recommendations

Format of the Conceptual Design Report

For ease of reference, the report consists of the following three volumes:

- Volume 1: Conceptual Design Report
- Volume 2: Appendices
- Volume 3: Book of Plans

Volumes 1 and 2 are in A4 format, while Volume 3 is in A3 format.
A full investigation of all services has been carried out and those which will be affected by the road network proposals have been identified. Of particular concern is the impact the N2/ New Borcherds Quarry Interchange will have on bulk watermains along the southern boundary of the N2 road reserve. A meeting has been held with the relevant authority regarding the relocation and protection of these watermains.

A multi-criteria evaluation of the alternatives was carried out and each of the alternatives was scored (on a scale of 1 to 5) for selected evaluation criteria. The weightings given to each of the criteria were based on input provided by members of the PMT. Through the evaluation process, two of the alternatives i.e. Alternatives 3A and 8 received very similar scores and were selected as the preferred alternatives to be investigated further as shown in Table 5.7.

| TABLE 5.7: MULTI-CRITERIA EVALUATION: SUMMARY OF OVERALL SCORES FOR EACH ALTERNATIVE |
| ALTERNATIVES | 1 | 2 | 3a | 3b | 4c | 5 | 7 | 8 |
| HHO Africa (Original Weighting) | 373 | 373 | 412 | 405 | 331 | 351 | 318 | 412 |
| Coct IRT Planning | 372 | 369 | 410 | 400 | 323 | 367 | 325 | 407 |
| Coct Spatial Planning | 375 | 371 | 410 | 402 | 318 | 371 | 345 | 405 |
| HHO Africa (Equal Weighting) | 365 | 360 | 399 | 389 | 323 | 348 | 319 | 397 |
| Total | 1453 | 1473 | 1631 | 1596 | 1295 | 1295 | 1307 | 1621 |

Conceptual layout plans for the New Borcherds Quarry Road/ New Eisleben Road Corridor have been drawn up. The proposals include the accommodation of the proposed IRT Route and associated NMT facilities along the corridor. Conceptual layout plans have also been drawn up for the two preferred alternatives (i.e. Alternatives 3A & 8 - Refer to Figures 6.2 and 6.3). Alternative 3A consists of the New N2/Borcherds Quarry Road interchange with the existing Borcherds Quarry Road interchange being decommissioned. Alternative 8 is the same as Alternative 3A, but with the west facing ramps at the existing interchange being retained.

From a town planning perspective, investigations indicated that the road reserve for the New Borcherds Road Corridor to the north of the N2, was already established, with the exception of a portion of a property owned by ACSA. To the south of the N2, portions of the future road reserve are owned by City of Cape Town and PGWC Public Works and would have to be incorporated into the new road reserve. Currently informal settlements occupy portions of the New Eisleben Road and Klipfontein Road road reserves and would have to be relocated (Plan 9.1). The required statutory processes will be undertaken in terms of the Land Use Planning Ordinance, 1985 (Ordinance 15 of 1985), and the Western Cape Transport Infrastructure Act 2013 (Act 1 of 2013).
**RAMP A**
SINGLE LANE EXIT RAMP
DESIGN SPEED: 100 km/h
RAMP LENGTH: 440 m

**RAMP D**
SINGLE LANE ENTRANCE RAMP
DESIGN SPEED: 100 km/h
RAMP LENGTH: 730 m

**EXISTING BORCHERDS QUARRY INTERCHANGE**

**NEW BORCHERDS QUARRY INTERCHANGE**

**ALTERNATIVE 3A**
EXISTING BORCHERDS QUARRY INTERCHANGE

RAMP A
SINGLE LANE EXIT RAMP
DESIGN SPEED: 100 km/h
RAMP LENGTH: 440 m

NEW BORCHERDS QUARRY INTERCHANGE

RAMP D
SINGLE LANE ENTRANCE RAMP
DESIGN SPEED: 100 km/h
RAMP LENGTH: 730 m

ALTERNATIVE 8

FIGURE 6.3
A detailed level of service analysis has been carried out on all major links in the road networks for Alternatives 3A & 8. Links which are operating at close to capacity have been noted, and where required, road widening proposals identified for future traffic flows to be accommodated.

An intersection level of service analysis has also been carried out on the major intersections along New Borcherds Quarry Road including the north and south ramp terminals at the new interchange as shown in Table 10.2. Critical intersections along New Borcherds Quarry Road, including the ramp terminal intersections, can be expected to operate at acceptable performance levels during peak hours.

**TABLE 10.2 : SUMMARY OF RESULTS OF INTERSECTION ANALYSIS**

<table>
<thead>
<tr>
<th>INTERSECTION</th>
<th>PEAK HOUR</th>
<th>ALTERNATIVE 3A</th>
<th>ALTERNATIVE 8</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>V/C Ratio</td>
<td>DELAY</td>
</tr>
<tr>
<td>New Borcherds Quarry Road/N2 North Ramp Terminal</td>
<td>AM</td>
<td>0.72</td>
<td>20.7</td>
</tr>
<tr>
<td></td>
<td>PM</td>
<td>1.00</td>
<td>19.5</td>
</tr>
<tr>
<td>New Borcherds Quarry Road/N2 South Ramp Terminal</td>
<td>AM</td>
<td>0.82</td>
<td>25.3</td>
</tr>
<tr>
<td></td>
<td>PM</td>
<td>0.88</td>
<td>20.7</td>
</tr>
<tr>
<td>New Borcherds Quarry Road/Michigan Street</td>
<td>AM</td>
<td>0.77</td>
<td>27.5</td>
</tr>
<tr>
<td></td>
<td>PM</td>
<td>0.89</td>
<td>29.4</td>
</tr>
<tr>
<td>New Borcherds Quarry Road/Montreal Drive</td>
<td>AM</td>
<td>0.91</td>
<td>26.3</td>
</tr>
<tr>
<td></td>
<td>PM</td>
<td>0.74</td>
<td>28.5</td>
</tr>
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</table>

Note 1: Of the performance measures, “volume/ capacity (v/c) ratio” is given for the worst performing movement only. For “delay” and “level of service” (LOS), aggregate values are given for intersection as a whole.

The analysis in the report indicates that a future east-to-north directional ramp at the N2/New Borcherds Quarry interchange is not warranted from a traffic perspective for the “Mid Road” traffic scenario. However, the future interchange bridges would be designed to accommodate the possibility of the ramp being constructed at some time in the future if traffic flows warranted this facility.

A further assessment of future ramp flows on the N2/New Borcherds Quarry Interchange, and also the west facing ramps at the existing interchange has been carried out. Alternative 3A could require widening of the existing Borcherds Quarry Bridge, due to the possible need for two lane on and off ramps on the west facing ramps in the future.

An assessment of both ramp spacing and sign spacing for each of the alternatives has also been carried out. The required ramp spacing, and also the directional sign sequence and spacing as recommended by SANRAL & SARTSM respectively, are easily satisfied for Alternative 3A, and are substandard for Alternative 8.

A preliminary assessment of the existing pavement structure of the N2 has been carried out and recommendations given in order to guide future rehabilitation strategies. Similarly preliminary assessments of the existing interchange bridge, and the requirements for the new interchange bridge, has been carried out.

An economic analysis has been carried out for both alternatives by Prof. Christo Bester of University of Stellenbosch. The results indicate that both alternatives are viable with relatively high IRR’s and B/C ratios. However, there is very little difference in the economic benefits between the two alternatives as shown in Table 11.1.

**TABLE 11.1: SUMMARY OF RESULTS OF ECONOMIC ANALYSIS**

<table>
<thead>
<tr>
<th>INDICATORS</th>
<th>ALTERNATIVE 03A</th>
<th>ALTERNATIVE 08</th>
</tr>
</thead>
<tbody>
<tr>
<td>IRR (%)</td>
<td>26.9</td>
<td>17.1</td>
</tr>
<tr>
<td>NPV (Rmill)</td>
<td>336</td>
<td>1197</td>
</tr>
<tr>
<td>B/C Ratio</td>
<td>2.7</td>
<td>2.7</td>
</tr>
<tr>
<td>FYIRR (%)</td>
<td>13.2</td>
<td>27.2</td>
</tr>
</tbody>
</table>

Project programs have been drawn up for the planning and design of priority infrastructure (including “fast track projects”), and a phased implementation programme has been suggested, with construction taking place over a 4 year period i.e. 2015 to 2019. Included in the programs are critical items relating to the relocation of informal settlements out of existing road reserves required for the project, and also the relocation of bulk watermains, both of which have been identified as “risks to implementation”.

Construction cost estimates have been drawn up, and costs have been allocated between the three Authorities involved i.e. PGWC, CoCT and SANRAL.

Summary of Recommendations

The following recommendations emanating from the report should be considered:

- The findings of the conceptual design report as listed in Section 13.1 should be presented to the members of the Project Management Team (PMT), as well as to relevant key stakeholders in order to obtain feedback which will inform the selection of the preferred network alternative.
- The preliminary and detail design of the priority projects identified in Section 12.0 should proceed in accordance with the programmes presented in Figures 12.1 & 12.2. The decision as to which of the Alternatives 3A or 8 is the preferred alternative will be confirmed at the start of the preliminary design process.
- The process which has been established for expediting the relocation of informal settlements out of the affected road reserves on the south side of the N2 in the vicinity of the new interchange, must be actively pursued by the relevant parties in order to minimize the risks to implementation of this important aspect of the study.
- Other risks to implementation identified in the report must be addressed as a matter of priority.

While this project has been initiated by PGWC, it will require funding input for implementation from other sources, in particular the City of Cape Town, with respect to the section of New Eisleben Road between the N2 and Lansdowne Road. This section of the route is linked to the planned roll out of the high volume, T17 IRT trunk route which, as indicated during the PMT process, could be operational by 2018.
<table>
<thead>
<tr>
<th>ID</th>
<th>Task Name</th>
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<th>Finish</th>
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<tr>
<td>1</td>
<td><strong>PHASE 1: SCOPE, STUDY OBJECTIVES &amp; DATA COLLECTION</strong></td>
<td>Mon 13/05/13</td>
<td>Fri 19/07/13</td>
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<td>2</td>
<td>Definition of scope of planning tasks</td>
<td>Mon 13/05/13</td>
<td>Fri 17/05/13</td>
</tr>
<tr>
<td>3</td>
<td>Preliminary development of alternatives</td>
<td>Mon 20/05/13</td>
<td>Fri 07/06/13</td>
</tr>
<tr>
<td>4</td>
<td>Review of previous studies</td>
<td>Mon 20/05/13</td>
<td>Fri 07/06/13</td>
</tr>
<tr>
<td>5</td>
<td>Development of study objectives &amp; evaluation approach</td>
<td>Mon 20/05/13</td>
<td>Fri 31/05/13</td>
</tr>
<tr>
<td>6</td>
<td>Data collection &amp; evaluation of existing road network</td>
<td>Mon 20/05/13</td>
<td>Fri 19/07/13</td>
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<td>7</td>
<td><strong>PHASE 2: EVALUATION OF FUTURE ROAD NETWORK</strong></td>
<td>Mon 22/07/13</td>
<td>Wed 17/12/14</td>
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<td>8</td>
<td>Determination of future land use &amp; traffic scenarios</td>
<td>Mon 22/07/13</td>
<td>Fri 28/02/14</td>
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<td>9</td>
<td>Development of alternative road &amp; interchange layouts</td>
<td>Mon 22/07/13</td>
<td>Fri 20/12/13</td>
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<td>10</td>
<td>Development of a preferred road network/hierarchy</td>
<td>Tue 01/10/13</td>
<td>Fri 20/12/13</td>
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<td>11</td>
<td>Evaluation of alternative road network/interchange interventions</td>
<td>Tue 01/10/13</td>
<td>Fri 28/02/14</td>
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<td>12</td>
<td>Selection of preferred alternative(s)</td>
<td>Fri 28/02/14</td>
<td>Fri 28/02/14</td>
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<td>13</td>
<td><strong>Identification of implementation risks</strong></td>
<td>Mon 06/01/14</td>
<td>Mon 31/03/14</td>
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<td>14</td>
<td>Relocation of informal settlements from road reserve</td>
<td>Mon 06/01/14</td>
<td>Mon 31/03/14</td>
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<td>15</td>
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<td>Mon 06/01/14</td>
<td>Mon 31/03/14</td>
</tr>
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<td>16</td>
<td>Possible EIA (Basic Assessment) for relocation of bulk services (Steenbras mains) along south side of N2</td>
<td>Mon 06/01/14</td>
<td>Mon 31/03/14</td>
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<tr>
<td>17</td>
<td>Submission of Conceptual Planning Report (Draft 1)</td>
<td>Wed 09/04/14</td>
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<td>Review of Conceptual Planning Report by client</td>
<td>Thu 10/04/14</td>
<td>Tue 29/07/14</td>
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<tr>
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<td>Tue 02/09/14</td>
<td>Tue 02/09/14</td>
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<td>Wed 03/09/14</td>
<td>Fri 12/12/14</td>
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<td>21</td>
<td>Circulation of Conceptual Design Report</td>
<td>Wed 17/12/14</td>
<td>Wed 17/12/14</td>
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**FIGURE 12.1:** PROGRAMME FOR CONCEPTUAL DESIGN PROCESS
<table>
<thead>
<tr>
<th>ID</th>
<th>Task Name</th>
<th>Start</th>
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</thead>
<tbody>
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<td>28/04/14</td>
<td>29/11/2018</td>
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<td>28/04/14</td>
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<td>4</td>
<td>WP 1: N2 Freeway</td>
<td>28/04/14</td>
<td>30/09/2014</td>
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<tr>
<td>5</td>
<td>WP 2 - WP 5</td>
<td>01/10/14</td>
<td>30/11/2015</td>
</tr>
<tr>
<td>6</td>
<td>EIA (BASIC ASSESSMENT) (IF REQUIRED)</td>
<td>14/10/14</td>
<td>30/03/2015</td>
</tr>
<tr>
<td>7</td>
<td>PROPERTY ACQUISITION FACILITATION &amp; RELOCATION OF INFORMAL SETTLEMENTS FROM ROAD RESERVE</td>
<td>14/10/14</td>
<td>30/01/2017</td>
</tr>
<tr>
<td>8</td>
<td>DETAILED DESIGN AND TENDER PHASE</td>
<td>29/09/14</td>
<td>29/07/2016</td>
</tr>
<tr>
<td>9</td>
<td>Detailed Design and Tender Phase WP 1</td>
<td>29/09/14</td>
<td>01/05/2015</td>
</tr>
<tr>
<td>10</td>
<td>Detailed Design Phase WP 2 - WP 5</td>
<td>01/04/15</td>
<td>29/07/2016</td>
</tr>
<tr>
<td>11</td>
<td>CONSTRUCTION PHASE</td>
<td>05/10/15</td>
<td>29/11/2018</td>
</tr>
<tr>
<td>12</td>
<td>WP 1: N2 FREEWAY</td>
<td>05/10/15</td>
<td>31/05/2017</td>
</tr>
<tr>
<td>13</td>
<td>Extension of W/B BMT lane &amp; E/B traffic lane</td>
<td>05/10/15</td>
<td>31/05/2017</td>
</tr>
<tr>
<td>14</td>
<td>Pavement rehabilitation of N2</td>
<td>05/10/15</td>
<td>31/05/2017</td>
</tr>
<tr>
<td>15</td>
<td>WP 2: BORCHERS QUARRY INTERCHANGE (BRIDGE)</td>
<td>22/02/16</td>
<td>07/07/2017</td>
</tr>
<tr>
<td>16</td>
<td>WP 3: NEW BORCHERS QUARRY ROAD &amp; NORTHERN RAMPS</td>
<td>23/01/17</td>
<td>16/11/2018</td>
</tr>
<tr>
<td>17</td>
<td>North side approach fill and ramps</td>
<td>23/01/17</td>
<td>08/06/2018</td>
</tr>
<tr>
<td>18</td>
<td>New Borcherds Quarry Road: Airport Interchange to N2</td>
<td>23/01/17</td>
<td>16/11/2018</td>
</tr>
<tr>
<td>19</td>
<td>WP 4: KLFONTEIN ROAD &amp; SOUTHERN RAMPS</td>
<td>03/02/17</td>
<td>18/07/2018</td>
</tr>
<tr>
<td>20</td>
<td>South side approach fill and ramps</td>
<td>03/02/17</td>
<td>18/07/2018</td>
</tr>
<tr>
<td>21</td>
<td>Klipfontein Road Realignment incl. Underpass</td>
<td>03/02/17</td>
<td>18/07/2018</td>
</tr>
<tr>
<td>22</td>
<td>WP 5: NEW EISLEBEN ROAD: N2 to Lansdowne Road</td>
<td>03/02/17</td>
<td>29/11/2018</td>
</tr>
<tr>
<td>23</td>
<td>New Eisleben Road: N2 to Lansdowne Road</td>
<td>03/02/17</td>
<td>29/11/2018</td>
</tr>
</tbody>
</table>

**FIGURE 12.2: PROGRAMME FOR PRIORITY PROJECTS: PHASED IMPLEMENTATION**