CHAPTER 2. ROAD MANAGEMENT

2.1 MANAGEMENT DUTIES AND INSPECTIONS

The Site Management Team on a routine road maintenance contract can be considered the local representatives of SANRAL, providing assistance in the management of the national road network by monitoring the performance of the roads and alerting SANRAL to matters like illegal practices, road safety issues, road performance and encroachments.

The Team is required to inspect the site frequently so that problems are identified, the causes investigated and assessed and the actions required identified and carried out timeously. The inspections are to be carried out at night as well to view potentially hazardous locations, signs and markings, and in adverse weather conditions (rain and snow) to assess drainage and the performance of the road elements, like signs and roadmarkings, under these conditions.

Obvious problems should be noted as soon as they become evident and serious situations should be reacted to and reported immediately. A list containing the various aspects to be checked, the frequency of the inspections, previous inspection date and due date of next inspection should be drawn up. The items to be inspected and the frequency of inspection are likely to vary from contract to contract depending on climate, road condition, traffic, terrain and season. The following requirements contained in the engineering services contract must be taken into account in drawing up the check list:

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<tr>
<th>Road Elements</th>
<th>Frequency</th>
<th>Road Elements</th>
<th>Frequency</th>
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<tbody>
<tr>
<td>Signs</td>
<td>Yearly</td>
<td>Instabilities</td>
<td>Dependent on degree of problems</td>
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<td>Road marking</td>
<td>Yearly</td>
<td>Informal Settlements</td>
<td>Weekly</td>
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<td>Guardrails</td>
<td>Weekly</td>
<td>Illegal Access</td>
<td>Weekly</td>
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<tr>
<td>Structures</td>
<td>Yearly</td>
<td>Fencing</td>
<td>Monthly</td>
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<tr>
<td>Flexible road condition</td>
<td>Yearly</td>
<td>Illegal signage</td>
<td>Weekly</td>
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<tr>
<td>Rigid road condition</td>
<td>Yearly</td>
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<td>Drainage</td>
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2.2 PAVEMENT INFORMATION

Pavement Structure
A basic knowledge of the pavement structures along the route is essential. Where "as built" plans are available the Route Manager should have a copy. The type of surfacing (and any reseals/overlays), base and subbase together with the age of the pavement should all be known. This information is usually available on SANRAL’s pavement management system (PMS) summary sheet. Where a failure extends into the base it is vital to know what this layer consists of before patching starts (for example, one would not place crushed stone in a bituminous base). Where a pavement has been successfully carrying traffic for an extended period without major failures this indicates that there is little wrong with the pavement structure.

Pavement Condition
The Route Manager should know the overall condition of the various sections of the route and rates of deterioration. This information assists in the decision on what actions need to be taken particularly with regard to the extent and prioritisation of repairs. If the incidence of pavement failures is increasing rapidly in an area, SANRAL should be made aware of the situation. With this knowledge, SANRAL may then need to alter its network strategies to give priority to a special maintenance project on this particular section. Information such as pavement deflections can also give indications of potential weak areas.

2.3 SANRAL’S MANAGEMENT STRATEGY

SANRAL has various strategies for sections of the route based on its PMS. These will include planned reseal, rehabilitation or new construction projects. This must be known as it strongly influences possible routine maintenance measures. For example, where a road has widespread crocodile cracks together with some rutting, but is due for rehabilitation in the short term, a minimum action such as maintaining the road surface so that it is safe for public traffic (i.e. a holding operation) may be the right approach. Extensive patching and repairs would be wasted effort and money.

2.4 CONTRACT RATES AND QUANTITIES

Familiarity with the rates and quantities is needed not only to control expenditure on the project but also to test the cost implications of various repair methods. Frequently more than one repair method is possible and cost should be a key factor to be weighed against other issues such as materials availability, weather, traffic and constructability, in making the right choice. Accurate estimates and the payment items to be used must be specified in the Job Instructions (JI) where the required work is set out.
2.5 AVAILABILITY OF MATERIALS

The Route Manager should have a good idea of which materials are available, their costs and their source locations. Calling for minor hot asphalt repairs for example in an area remote from an asphalt plant is not practical unless the Contractor has the capability for on-site manufacture of hot asphalt. Before considering the use of material from a borrowpit or quarry, the status of the material source must be clarified in terms of approval by the Department of Minerals and Energy (DME). Advance laboratory testing also needs to be done as part of quality control.

2.6 MAINTENANCE PROBLEMS

Inability to correctly identify problems and understand the cause, can and has resulted in unnecessary or wrong repair methods being used. This manual provides information to help the Route Manager to recognise the common problem areas and have an appreciation of possible causes. A common theme throughout the pavement section of the manual will be the effects of the age of the pavement (e.g. binder condition), heavy traffic and the environment on the performance of the pavement.

2.7 METHODS FOR ADDRESSING PROBLEM AREAS

Having correctly identified the problem it is equally important to select an appropriate treatment. Because situations are not always the same, more than one treatment should be considered. The manual provides guidance on treatments for various problems including proven repair methods. As far as possible the intention would be to use recognised and tried methods and new methods must be evaluated and agreed with SANRAL. Obviously there is a place for the latter but this should be in special situations only where the recommended methods prove unsuccessful.

2.8 SPECIAL CIRCUMSTANCES

The Route Manager will likely be a general practitioner in the roads field. An understanding is required of technical limitations and recognition that in some situations the cause of the problem or how to repair it will not be known. Under these circumstances specialist assistance should be sought.

2.9 CAPACITY BUILDING

Pavement maintenance is a specialist field requiring appropriate knowledge and years of experience to accurately identify and remedy pavement defects. Unfortunately there is a significant shortage of these skills in South Africa, and every effort should be made to develop this field. In the interest of maintaining a high standard of work, and building sufficient capacity within the industry, the Route Manager and Main Contractor should be on the look out for subcontractors and/or their employees who demonstrate potential and interest in this field. Such individuals once evaluated may be trained and developed further.