EMPr APPENDIX F

SOUTH AFRICAN NATIONAL ROADS AGENCY SOC LIMITED (SANRAL)

TRAFFIC MANAGEMENT PLAN

FOR THE

STRATEGIC INFRASTRUCTURE PROJECT (SIP2)

PROPOSED CAPACITY UPGRADES TO THE N2 AND N3 FROM DURBAN TO PIETERMARITZBURG, KWAZULU-NATAL

DEA REF NO: *TO BE ASSIGNED*

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September 2018

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1. SCOPE OF THIS DOCUMENT

This Traffic Management Plan (TMP) is an overarching document covering proposals to be adopted for accommodation of traffic and the management of construction transport/traffic during construction work on the N2 and N3 national roads between the Port of Durban and Pietermaritzburg, KwaZulu-Natal.

The purpose of this management plan is to ensure the safety of employees, contractors, the general public, pedestrians and traffic by undertaking the following:

- Provide, maintain and update an effective TMP.
- Meet the requirements of the client and project site.
- Ensure traffic is accommodated for optimal flow and safety during construction.
- Achieve zero incidents.
- Achieve zero environmental incidents.
- Define clear tasks, authorities and responsibilities with regard to the control of hazards.
- Ensure compliance with legal and other project site requirements.
- Keep traffic delays to a minimum.
- Maintain satisfactory property access.
- Minimise disruption to businesses.
- Minimise disturbance to the environment.
- Provide accessibility to Emergency Rescue Vehicles

The overall objectives of the plan are to ensure that optimal and safe flow of traffic is maintained during construction, and to reduce road accidents during all the phases of the project and to minimize personal exposure and property damage. It must be noted that this plan is a living document and will be updated when necessary and in particular during construction to reflect new developments on the project.

This document should be read in conjunction with the South African Road Safety Manual.

Note that the Contractor(s) for the construction contracts associated with the upgrades will be requested to submit a final traffic accommodation plan, taking into account the contents of this TMP, to the Engineer for approval.

2. ACCOMMODATION OF TRAFFIC DURING CONSTRUCTION

2.1 Scope

Due to the large volumes of traffic, the N2 and N3 upgrades between Durban and Pietermaritzburg will result in substantial delays to the travelling public. The busiest section is are on the N2 between uMgeni and EB Cloete Interchanges, which carries more than 160,000 vehicles per day. Traffic in general will travel on a reduced number of lanes while construction takes place under traffic on each of the carriageways on both the N2 and N3. Motorists will be encouraged to consider various alternative routes during construction. SANRAL is in discussion with both KwaZulu Natal Department of Transport and the eThekwini Municipality to ensure that their plans for any road upgrades do not occur during the same period as the N2/N3 upgrade projects.

2.2 Specifications for Traffic Accommodation

The Contractor is to submit a detailed Traffic Accommodation Plan to the Engineer for approval, for his road sections of responsibility.

Specifications will be strictly in accordance with the South African Road Traffic Signs Manual Volume 2, Chapter 13 and in accordance with the relevant specifications of the project documents, specifically section B1500 of the contract document relating to Traffic Accommodation.

The Contractor must ensure that provision is made for access by emergency vehicles, where required.

2.3 Pedestrian Access

The Contractor must ensure that provision is made for the management and required signage for temporary closure and/or deviations of any formal pedestrian access affected by the works.

3. TRAFFIC MANAGEMENT

Traffic management measures are to be adopted at road works. In order to have efficient and safe site operations, a systematic break-down of a site into standardised sub-components is necessary. This will allow the project manager to understand the traffic operation on the site. These sub-components could be hundreds of metres in length at major sites, or a few metres in length at localised sites. These standardised sub-components are discussed in detail below.

3.1 Warning Area

An area of the construction site, in this case a portion of the road, which is utilised to alert motorists of any impending temporary conditions that will require particular care other than what would normally be expected.

When the construction site is on or directly adjacent to a road, a stepped reduction in speed will inevitably be required within this area. This stepped reduction should occur in 20 km/hr decrements and at reasonable intervals (minimum 200 metres) until the speed for which the traffic control is designed is indicated. This final speed limit should be repeated at least once within the area of the traffic accommodation as good practice.

The length of the advance warning area should relate directly to measured approach speeds, and a reasonable distance must be allowed for speed reduction. In situations of high traffic volumes, a generous length will be required as more time is needed to take in the sign message and to react accordingly. The advance warning area will become longer in the event of a combination of higher approach speeds and high traffic volumes.

3.2 Transition Area

This is the area in which the motorist is required to take an action.

This area of the construction site can be defined as where there is a shift of position on the roadway without a reduction in the number of lanes (diversion), the merge of two lanes into one

(lane drop), crossing of the central median (crossover), or entering a detour that is completely separate from the construction works.

The transition area must be clearly demarcated using delineator plates and should confirm to the layout, if any, depicted on the guidance signs preceding it. In more complex road works, these should be broken down into a number of standard transition areas. Care should be taken that no signage for subsequent transition conditions is included within a specific transition area. The length of a transition area will depend on the approach speed of traffic and the amount of shift in alignment involved by the transition.

3.3 Stabilising Area

The purpose of a stabilising area is to allow traffic flow to stabilise after negotiating a transition area, and before reaching another change of condition. In the instance of where more than one transition area is required to achieve the final traffic configuration, the signing of subsequent transitions should be located within the stabilising area(s). The stabilising area is normally defined by delineator plates.

3.4 Buffer Zone

The buffer zone is normally located between a transition area and the actual work area. In a situation involving more than one transition area, the buffer zone will occur after the transition area closest to the work area. The buffer zone can be relatively short, but should be a minimum of 50 metres.

The principal function of a buffer zone is to separate traffic from the workers at the site in the interests of worker safety. The provision of a longitudinal buffer zone, together with a lateral buffer zone, should be considered as fundamental to effective worker safety.

3.5 Work Area

The work area can be adequately defined by delineators in less complex conditions. However, where there is a risk to traffic or workers for vehicles entering the work area, temporary barriers of a standard sufficient to prevent vehicle penetration should be put in place. In the event that traffic is located well away from the work area, then little action is required along the length of the work area other than to protect the workers and construction vehicles. All work directly adjacent to the N3 shall be barricaded off by precast concrete barriers to provide full protection to the contractor's personnel.

3.6 Termination Area

This area involves the return of traffic to normal flow conditions. For simple cases, a relatively short taper or delineator signs will suffice. In more complex situations, a reverse crossover may be required. This should follow the same principles given for such conditions at the commencement of the construction works.

4. RESPONSIBILITIES ON SITE

Construction will involve significant quantities of materials, all of which are moved by vehicles. The presence of heavy construction traffic, which is usually slow-moving and involves wider loads than normal, may result in an increased frequency of accidents, particularly those involving overtaking traffic.

The construction manager shall appoint a competent person as being responsible for the control of vehicles and plant on site. This person shall complete and distribute risk assessments for plant used on site, or delegate that responsibility to a competent person. In addition, the construction manager is responsible for ensuring that all plant operators are suitably trained and hold a current operators license. The construction manager is responsible for checking that only trained and competent persons operate or drive vehicles and plant on site. The construction manager is responsible for ensuring the following:

- That all plant operators hold a current and valid drivers license.
- That all defective items of plant and vehicles are removed from site.
- That all vehicles and plant are maintained and serviced regularly, and are examined and tested in accordance with statutory requirements.
- That all certificates of statutory inspection and testing are kept on file on site.
- That drivers and operators shall be competent and operate plant in accordance with operating instructions and site rules.
- That all defects are reported immediately by the drivers to their supervisor. Defective vehicles and plant must not be used under any circumstances.
- That plant operators must not carry unauthorized passengers or materials at any time and must ensure, where possible, that personnel are not in an area that may be dangerous to them by way of the plant working.
- That no person under the age of eighteen is allowed to operate vehicles, plant or equipment on site.
- That vehicles and plant must not be taken onto public roads without the appropriate consents and licenses being in place.

5. RECOMMENDED MITIGATION MEASURES

5.1 General safety measures

Traffic management during construction and operation is essential. To address potential risks, the following measures are recommended:

- Impose and enforce speed limits on all haulage vehicles operating on haul routes.
- All employees and contractors are required to wear the appropriate Personal Protective Equipment (PPE) for their areas of operation.
- Establishment of safe sight distances, including within construction areas and construction camp sites.
- Prepare a detailed plan for signage around the construction areas to facilitate traffic movement, provide directions to various components of the works, and provide safety advice and warnings.
- Provide details regarding maximum permissible vehicular speeds on each section of the site.
- Plan to move as far as possible heavy, wide or slow-moving loads at times when traffic volume on the roads concerned is at its lowest.
- Employ haulage vehicles, which are suitable in all respects for the intended purpose, and are not overloaded.
- Regularly inspect the access roads conditions and, whenever necessary, repair damages related to construction traffic.
- Personnel authorised to the construction areas shall be briefed on traffic regulations applicable to the construction areas.
- Provide training and undertake testing of heavy equipment operators and drivers, including vision tests, with records kept of all training.

- Create traffic awareness to the local people and inform parents to keep children from exposing themselves to traffic in the construction area.
- Maintain records of all accidents involving project vehicles and implement a traffic complaint and corrective action procedure.

5.2 Construction Vehicle Maintenance and Safety

The following mitigation measures are recommended in terms of vehicle safety standards:

- Vehicles shall be subject to annual inspection by the competent local authority.
- The name of the company employing the workers should be visibly placed on the vehicle.
- Smoking inside the vehicle is prohibited as clearly stated by “No Smoking” signs.
- A contact number should be clearly placed on the vehicle for remarks and complaints.
- Vehicles should be driven according to the speed signs on the road.
- All the seats should have belts.
- All vehicles are to be fitted with a first aid kit with easy access. The kit should be placed in a visible place.
- All vehicles are to be fitted with one fire extinguisher of at least 5 kg each, placed at the back of the vehicle.
- All other requirements for construction vehicles shall be complied with in terms of the project specifications under section B1500 of the contract document.

5.3 Tyre Selection and Replacement

The life of tyres depends to a large extent on the manner in which the vehicle is driven. Excessive speed, braking or acceleration will cause tyres to deteriorate. If tyres are repeatedly driven against kerbs or large stones the walls of these tyres gradually weaken. Similarly, if tyres are not maintained at the manufacturer’s recommended pressures, accelerated wear will occur. All tyres should be regularly checked and evidence of inspections available if requested.

All tyres should be maintained as per the manufacturer’s specifications/recommendations. Each driver is responsible for daily checks of tyre conditions. Daily check sheets are to be completed and recorded, and worn tyres to be reported immediately following inspection.

5.4 Monitoring

The following guidelines are to be followed for completing daily/weekly checks.

Daily

- Check tyres visually.
- Ensure that all lights as operating correctly. It is an offence to drive if vehicle lights are not functioning properly.
- Ensure that the vehicle has sufficient fuel.
- Clean the windscreen, all windows, mirrors, headlamps and all other light lenses.
- Check the engine oil level daily and before setting out on a long journey.

Weekly

- Check and correct the tyre pressure and tread wear including the spare wheel. Keep to the pressures recommended in the manufacturer’s handbook.
- Check the battery. Keep the terminals clean and ensure that all connections are secure.

- Check the radiator water - anti-freeze mixture level weekly and/or before setting out on a long journey.
- Top up the windscreen washer reservoir at least once a week. Check the action of the windscreen wipers and the condition of the wiper blades at the same time.
- Check the clutch fluid and brake fluid reservoirs (where fitted).

General Service and Maintenance

- Preventative maintenance through inspection and regular servicing can reduce the defect rate and help improve reliability. It is, therefore, important that all vehicles are properly maintained.
- Vehicles must be serviced in line with the manufacturer's recommendations. These are outlined in the service book, which accompanies each vehicle.

Seat Belts

- The wearing of seat belts is compulsory and is the responsibility of the driver.

Drivers

- All escort and light vehicle drivers must meet the national driving requirements and hold a valid driving license for the type and class of vehicle being driven or operated.
- The heavy duty drivers must meet the national driving requirements and hold a valid driving license for the heavy duty vehicles being driven or operated.
- Each driver is responsible for the condition of their own vehicle (fines/penalties and bans will be administered internally).
- Drivers must meet the minimum national driving standards and any additional project or site requirements must be followed and adhered to.

5.5 Violations and Accidents

The aim of reporting and investigating incidents is to determine the cause and prevent reoccurrence. It is the responsibility of all employees and contractors to report accidents, incidents and near misses at any place of work to their immediate Site Manager/Supervisor or Foreman. It is then the duty of that Manager/Supervisor or Foreman to ensure that appropriate entries are made in the Accident Book and, at the earliest opportunity, to inform the construction manager of the incident and, where applicable, the client's representative. It is the responsibility of the construction manager to initially investigate incidents or delegate the responsibility for such investigation to another competent person. If the incident is major or there is a fatality, then the Regional HSQE Department shall also be involved. It is the responsibility of the construction manager to ensure that recommendations arising from investigations are implemented.

6. REVIEW OF THIS PLAN

SANRAL's appointed Contractor must, on a regular basis, monitor the effectiveness of traffic management during the contract against the specifications in the approved traffic management plan, and initiate appropriate amendments/corrective measures should they be required. To this end, the Road Traffic Inspectorate (RTI) will be involved in regular discussion with the Engineer and Contractor to continuously improve on the Traffic Management Plan, so as to minimise travel delays to the public, maintain a safe traffic way and minimise the risk of pedestrian/motor vehicle accidents.