



# **RESPONSES TO ISSUES RAISED AT THE AUGUST SANRAL / CCT / PENWAY MEETING WITH RESPECT TO DE BRON INTERCHANGE AND REALIGNMENT OF THE R300 TO MELKBOSSTRAND**

## **1 DE BRON INTERCHANGE**

### **1.1 TRAFFIC PERSPECTIVE**

Based upon the output from the R300 traffic model and assuming the R300 was not to be developed as a toll road facility, it is estimated that in terms of Year 2000 traffic demands, some 3300 vehicles in the a.m. peak hour would access / egress the R300 section located north of the N1, predominantly from / to the Durbanville area.

From a traffic perspective it can be argued that the provision of one Durbanville / R300 interchange could accommodate this demand. However, bearing in mind the need to “build-in” spare capacity to offset the effects of future traffic growth, the provision of two Durbanville / R300 interchanges which can adequately meet both short and longer term access/egress traffic demands, is and has been deemed to be, preferable.

With respect to the scenario where the R300 is tolled, the access / egress volumes outlined above will decrease. Consequently in terms of this scenario, the provision of two Durbanville / R300 interchanges can be viewed as being significantly more than adequate.

In locating the two Durbanville / R300 interchanges, it is important to note that there are four primary east-west orientated routes emanating from the Durbanville area and which in future would cross the R300 north corridor, these routes being De Bron, Langeberg, Wellington and De Villiers. In developing access between the Durbanville area and the R300 north it is therefore appropriate to locate the two Durbanville / R300 interchanges on two of these four routes.

From a traffic perspective it is desirable to ensure that the access demand from/to Durbanville is distributed as much as possible at the local road network level rather than being concentrated or intensified over a smaller area. Simply for this reason, it is preferable that the two Durbanville / R300 interchanges not be developed on any two of the above four east-west routes which lie adjacent to each other.

Based upon this logical need to distribute traffic flows as evenly as possible, three



alternative interchange options can therefore be identified, these being:

- i) One interchange at De Bron the other at Langeberg.
- ii) One interchange at De Bron the other at Wellington.
- iii) One interchange at De Villiers the other at Wellington.

## **1.2 PHYSICAL / GEOMETRICAL REQUIREMENTS / CONSTRAINTS**

In addition to identifying the preferred interchange access arrangement from a traffic point of view, one has to examine implications arising from physical, land-use and geometric related issues. As a consequence of examining the three interchange options in this regard, the following was concluded:

- i) Whilst there are no insurmountable land-take issues at De Bron, De Villiers and Wellington, adjacent development at the location where New Langeberg would cross the R300, rules out the development of an interchange at this location. Naturally one could develop such an interchange if these adjacent properties were expropriated, however this would be a rather implausible and undesirable option to pursue. For this reason it was concluded that Option i) as defined above should not be pursued.
- ii) When locating freeway interchanges and from the viewpoint of ensuring safe operating conditions and minimising potential points of conflict, particularly in regard to merging, converging and weaving movements, one has to give particular attention to interchange spacing. In terms of taking these factors and others (e.g. the distances required between roads signs to give ample advance notice to motorists) into consideration, minimum and desirable standards with respect to interchange spacing are therefore stipulated. If applied to an interchange at De Bron, which would be located relatively close to the existing R300/N1 Stellenberg Systems Interchange, these spacing requirements would not only not be met but would, in the event where the De Bron Interchange was developed, be viewed as falling well short of what would be required. Simply put, the length of R300 available between the northbound on-ramp at Stellenberg and the off-ramp at De Bron (similarly for the southbound direction) to accommodate conflicting movements would be inadequate and would be viewed as being dangerous. For this reason, it was concluded that Option ii, as defined above should not be



pursued.

### **1.3 CONCLUSIONS**

For the reasons outlined in 1.2 above, the development of interchanges at De Villiers and Wellington is concluded as being the preferred option with respect to developing interchanges on the R300 to meet the demands of access/egress traffic to/from the Durbanville area.

## **2 THE REALIGNMENT OF THE R300 TO MELKBOSSTRAND**

### **2.1 INTRODUCTION**

As a result of the extensive field survey work (in particular the roadside interviews surveys conducted within the corridor of the R300) undertaken in the early stages of planning the R300, it was concluded that if the northern section of the R300 was realigned towards Bloubergstrand rather than Melkbosstrand, it would serve the needs of motorists to a far greater extent. Simply put, if aligned towards Bloubergstrand the R300 would attract more traffic, provide improved accessibility for a larger number of motorists and would “off-load” the existing road network to a greater extent.

More recently land-take implications along the northern section of the R300 and specifically on that section of the R300 northern section located east of the N7, necessitated the need to deviate the R300's alignment slightly to the north. Whilst this deviation is somewhat local in nature, the question has been asked whether this deviation could in any way warrant review of the decision to realign the R300 to Bloubergstrand (i.e. is there a case for reverting back to the former Melkbosstrand orientated alignment?). The information presented hereunder has therefore been compiled by way of response to this question.

### **2.2 ASSESSMENT METHODOLOGY / RESULTS**

All of the traffic related survey information collected in the initial planning for the R300 is contained within the data base of the R300 traffic / toll model. Consequently it was deemed appropriate to use this model for the purposes of formulating a response to the above question.

In terms of seeking an answer from the R300 traffic / toll model, it was concluded that the most appropriate test to perform was to analyse the origins and destinations of trips on the



R300 at the point where the local realignment had been necessitated and also the origins and destinations of trips on the alternative or existing network in the vicinity of this local realignment. Furthermore, it was concluded that the outcome regarding whether the R300 should fully be aligned to Bloubergstrand or alternatively to Melkbosstrand, should be based upon which alignment best serves / accommodates these trip origin / destination demands.

The results of the above tests reveal the following origin / destination trip patterns in the a.m. peak hour.

- Trips from / to Bloubergstrand                    634 veh/hr
- Trips from / to Melkbosstrand                    152 vehs/hr
- Trips from / to N7 North Corridor                77 veh/hr
- Trips from / to N7 South Corridor                67 veh/hr

Notforgetting the fact that there is a concern that the R300 traffic / toll model does underestimate trips from the Bloubergstrand area (i.e. based upon the perception that there has been substantial development growth in this area since the R300 traffic / toll model was initially developed – this aspect being under current investigation), it is evident from the above results that Bloubergstrand is the prime origin / destination for trips in the R300 north corridor and surrounds. Consequently it is recommended that the present orientation of the R300, namely that the road be aligned to Bloubergstrand, be retained for it is obviously the optimum alignment from a traffic and transport economic perspective.