

P.W.V. CONSORTIUM.

ROUTE DETERMINATION REPORT :

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Typical Cross-Sections

J/K/Ds

Orthophoto Plans and Long Sections

J/K29/1-3 Ls.

Key Plan

J/K29/1 Sp

JEFFARES AND GREEN.

1. FACTORS INFLUENCING THE SELECTION OF THE ROUTE :

1.1 End points and length :

The route commences at the crossing of the Johannesburg Western Bypass N1-20 by Hans Strydom Road in Randburg. This route has the Provincial Road number P103-1 and is called Main Road and Pelindaba Road as well. This report covers the section from N1-20 to the freeway P158-2, a distance of 12 kilometres.

1.2 Purpose of the route :

This is an important existing Provincial road leading to the Broederstroom area and to Hartebeespoort dam. It serves an area of small farms, recreational developments and, over the first section, residential developments. Until PWV3 is built it will also serve the Lanseria Airport.

1.3 Existing Provincial roads affected :







1.3.1 Road 49 : (also called Honeydew Road) :

This is a bitumen surfaced road which enters on a downgrade at a point on a crest on K29. To bring the existing road K29 up to normal standards will require a cut of some four metres which will make this intersection awkward and dangerous. It is recommended that this access point be closed and that the road 49 be deviated northwards possibly along Montrose Avenue to join Aureole Drive and thus to enter K29 at kilometre 2,95. The Aureole Drive intersection will have to be amended to cross at a less acute angle as it is a major route in Randburg's planning scheme. See plan J/K49/1 Ls.

1.3.2 Route K60 (P70-1 - P139-1) :

At this intersection at kilometre 4,6 the basic planning of P70-1 by Messrs. Hawkins, Hawkins and Osborn joins with the basic planning of P139-1 by Messrs. du Toit, Lindeque and Van den Berg. The angle of crossing is not to the required standards.

LEGEND

-  PWV Freeway Routes
-  PWV Secondary Roads
-  Randburg Main Roads (40m reserve)
-  Randburg Collector Roads
-  Existing Randburg Minor Roads
-  Randburg Municipal Boundary

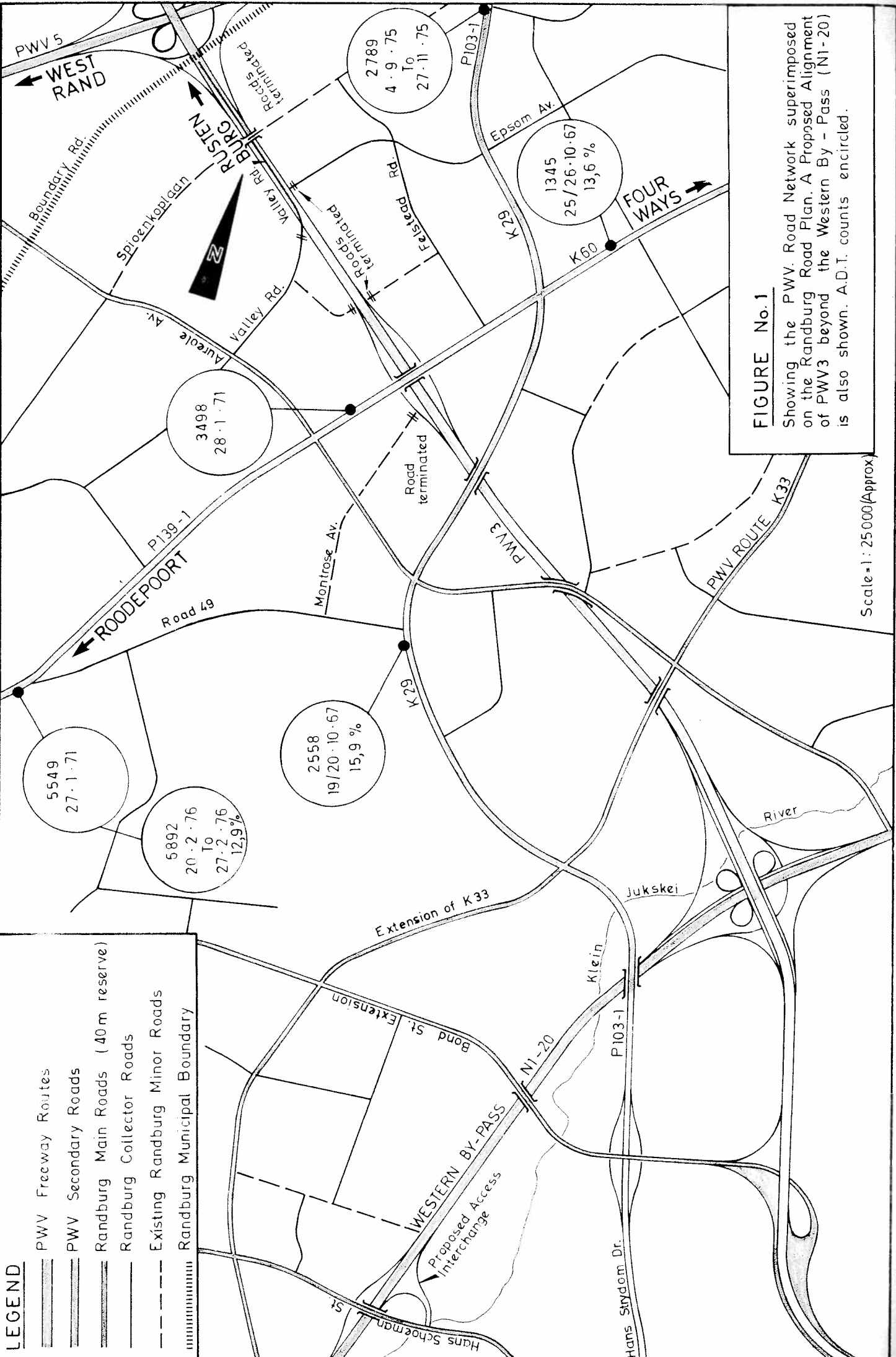


FIGURE No.1

Showing the PWV Road Network superimposed on the Randburg Road Plan. A Proposed Alignment of PWV3 beyond the Western By - Pass (N1-20) is also shown. A.D.T. counts encircled.

Scale = 1 : 25000 (Approx)

It could be improved by a deviation of K29 but because of the effect this would have on adjacent property it would be preferable to install traffic control signals and retain the existing intersection.

1.3.3 Route K52 (P39-1) :

There should be no difficulty with sight distance at this intersection at kilometre 10,75 where a deviation is proposed for K52 as shown in the report for K52 prepared by Messrs. Van Wyk and Louw and on plan K/49/3Ls.

The report also shows a deviation of route K29 to the east to improve the crossing angle with K52. This was a preliminary proposal only. The slight deviation shown on plan J/K29/3 Ls is considered more satisfactory as less farm land is cut through and the crossing is more open.

1.4 Planned major routes affected :

- 1.4.1 N1-20 Johannesburg Western Bypass and PWV3. The effects of the planning of PWV3 on N1-20 and on P103-1 (K29) are set out fully in report DPH 14/9/8-PWV3 (West) of July, 1976. The many alternatives for the PWV3 which were suggested and investigated all affected K29 and these are set out in paragraph 2.2 of the above report.

The final recommendation for PWV3 requires that the interchange between N1-20 and K29 (P103-1) originally planned, should be converted to a straight grade separation crossing, that is, the ramps should not be constructed. Access to N1-20 should be provided at the Hans Schoeman Street crossing to replace the K29 access, as proposed by the Randburg Municipality. Figure 4 of the PWV3 report is included in this report as Figure 1, as it illustrates the proposals in this area.

Access from K29 to the freeway system would be provided firstly from the intersection with K60 (P70-1) at kilometre 4,6, then along K60 for approximately 1 kilometre to the interchange with PWV3, or secondly, from an intersection with a proposed Randburg main road at kilometre 0,94, proceeding along this artery for some two and a half kilometres to Hans Schoeman Street thus obtaining access to N1-20, or thirdly, from the continuation of K29 (P103-1) along Hans Strydom Drive to the proposed interchange with Bond Street Extension and from there to the proposed freeway extension of PWV3 leading into Randburg.

The artery mentioned in the second proposal is one being planned by Randburg Municipality and is an extension of the route K33 into the Randburg area. This is mentioned in paragraph 1.4 and shown in Figures 1 and 4 of the report DPH 14/9/8/K33 of September, 1976.

The two latter proposals for access to the freeway system are dependant on the acceptance and development of the proposals set out in the PWV3 (West) report.

- 1.4.2 Route PWV3 : K29 will have to pass over PWV3 where it crosses at kilometre 3,65.
- 1.4.3 Route PWV5 : At the crossing at kilometre 7,2 the route K29 will also have to pass over the proposed freeway.
- 1.4.4 Randburg Planning : Main arteries proposed in the Randburg planning, cross route K29 at kilometre 0,93 which is the possible extension of K33, and at kilometre 2,9 which is Aureole Drive to which traffic from Road 49 will be diverted if K49 is deviated.

1.4.5 Route K56 : As proposed in the report DPH 14/9/8/K56 this route will pass over K29 as the grade of K29 is too steep to allow for an at-grade intersection. An interchange with the at-grade intersections on K56 is recommended.

2. ALTERNATIVE ROUTES CONSIDERED :

2.1 Alternative routes investigated by the Consortium member :

No alternative routes to the existing Provincial road were investigated.

2.2 Alternative routes investigated at the request of interested parties :

No alternative routes for the road itself were proposed.

3. COMMENTS RECEIVED REGARDING THE PUBLISHED ROUTE :

3.1 Messrs. Haake Sher and Aab drew attention to the loss of importance that K29 would suffer when PWV3 was constructed and proposed alternative access routes to the Lanseria Airport. These proposals did not affect the portion of the route covered in this report.

4. DISCUSSIONS WITH INTERESTED BODIES REGARDING THE RECOMMENDED ROUTE :

Discussions were held frequently with the officials of the Randburg Municipality regarding the combined planning of PWV3 and K29. The proposals now submitted carry the approval of the Town Council. The Town Clerk's letter DA 7/1/1 of 25th August, 1975 states that the Council is of the opinion that the on and off ramps to the N1-20 should be provided at either the Hans Strydom grade intersection (present P103-1 (K29)) or at the Eben Dönges (Hans Schoeman) grade intersection.

The Randburg major road planning scheme has been referred to and the main recommendations of that report have been incorporated in this route.

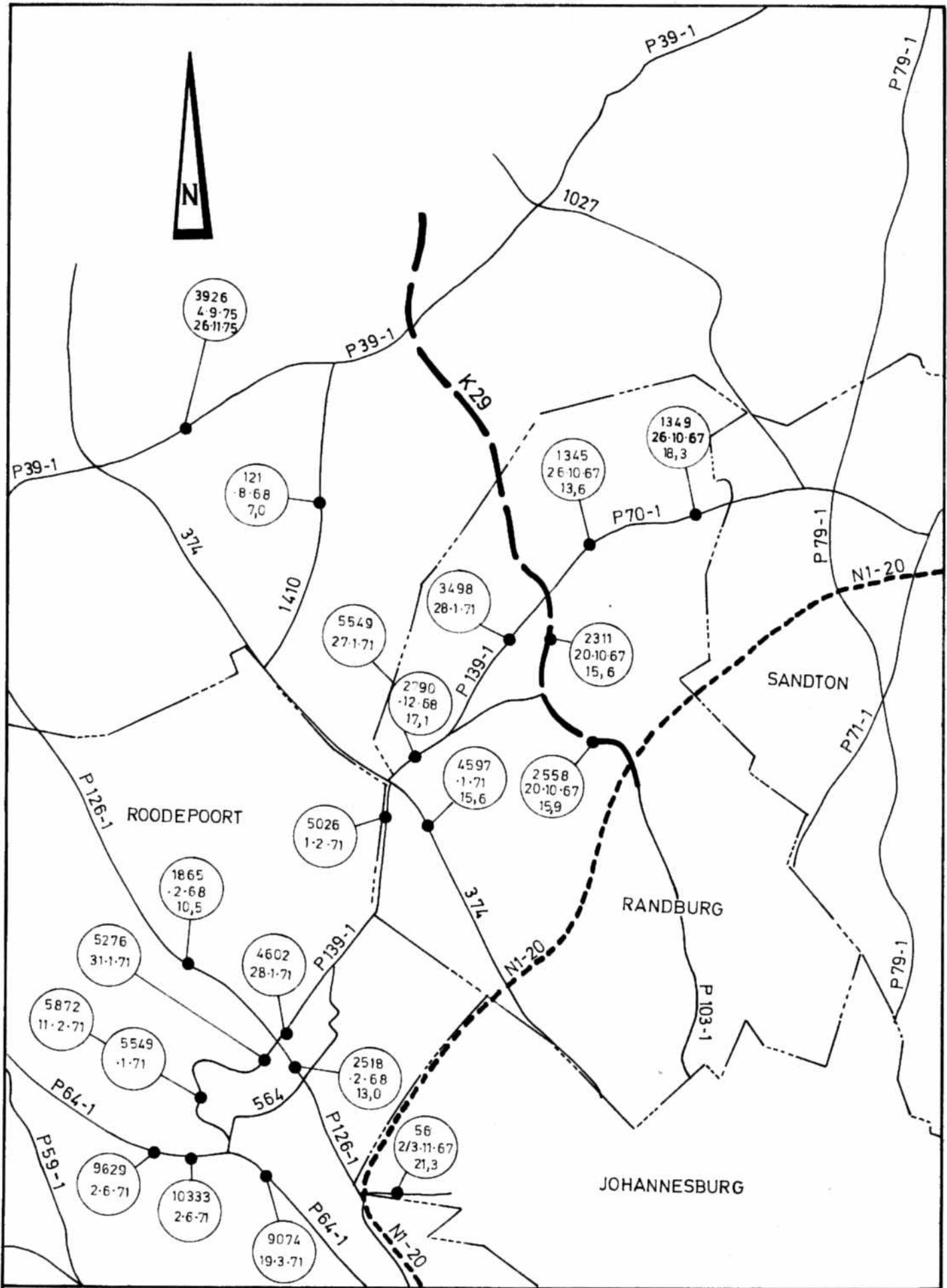


FIGURE 2

Traffic counts (A.D.T.) on existing roads in the vicinity of K29

5. DESCRIPTION OF THE RECOMMENDED ROUTE :

5.1 Topography and land use :

At the crossing of the freeway N1-20 the route has already been built as a double carriageway road to fit in with the national road. From there on the route follows the existing road with minor improvements to curves.

Between kilometre 0, and 3 there are numerous applications for townships and some proclaimed townships exist. Recommendations made previously allowed for reserve limits of 31 metres on each side of the centre line. Beyond this, the area is divided into small farms and it is probable that more residential townships will develop within the area zoned for such development.

The vertical alignment standard of the existing road should be improved and the proposals for this are indicated on the proposed longitudinal sections shown on plans J/K29/1-3 Ls.

From kilometre 0 to kilometre 7 the route lies within the Randburg Municipal area. At kilometre 10,6 near the intersection with P39-1 (K52) the route passes into the "green belt" area.

5.2 Mining rights :

There is no proclaimed mining land along this route.

5.3 Traffic :

The figure 2 shows the traffic counts on the existing road P103-1 and on roads in the area. There is no doubt that the present count of approximately 3000 vehicles per day will increase steadily as townships are developed, until the route PWV3 is built. The freeway will however tend to carry the longer distance traffic from Rustenburg, Brits and the Broederstroom area while the development of local traffic will still demand a good secondary road for connection to the freeway system and for local movement.

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6. MAJOR STRUCTURES AND SERVICES :

The major structure will be the freeway crossings at PWV3 and PWV5, but these will be included in the freeway route estimates. The crossing of K56 and drainage crossings can be considered as normal.

7. INTERCHANGES AND INTERSECTIONS :

The only interchange proposed for this route is the one at the crossing with K56 as described in paragraph 1.4.5. The crossings of freeways N1-20, PWV3 and PWV5 will be normal cross overs.

The intersections with planned and existing roads have been discussed in paragraphs 1.3 and 1.4. These are shown on the plans J/K29/1-3 Ls.

8. ESTIMATE OF COST :

The estimate of cost is based on the normal rate for dual carriageway secondary roads at R250 000 per kilometre.

Over certain lengths the existing road would provide the formation for one of the carriageways. However it is the general experience that when a road requires doubling the existing road has to be rebuilt to the new standards.

There are no structures that require separate estimating of cost.

The estimate of cost for this section of the route is therefore : 12.0 kilometres at R250 000 per kilometre which is R3 000 000.

9. DESIGN STANDARDS :

The design standards proposed for K29 are those normally required for dual carriageway secondary roads. The desirable and implemented standards are given in the table below.

A typical cross section for secondary roads as currently recommended by the Transvaal Roads Department appears on plan J/K/Ds.

ITEM	DESIRABLE.	IMPLEMENTED.
<u>Horizontal Alignment :</u>		
(a) Design speed	120 km/h	120 km/h
(b) Minimum horizontal radius	1000 m	500 m
(c) Road reserve	62 m	62 m
<u>Vertical Alignment :</u>		
(a) Design speed	120 km/h	120 km/h
(b) Maximum grade	6%	5,40 %
(c) Minimum grade (in cut)	0,6%	1,14%
(d) Minimum length of vertical curves	200 m	250 m
(e) Minimum k - values : crest	110	110
sag	50	58

10. CONCLUSION.

This is an important Provincial road both from the long distance and local use point of view. At present it forms the main access to the new Lanseria Airport which must grow in importance.

Any steps taken to increase the traffic capacity of K29 (P103-1) will reduce the demand for the construction of PWV3.

The construction of P29 should not involve any major problems. It would be advantageous to carry out the planning of at least the section between kilometres 0 and 3,65 where PWV3 is crossed as this is where the demand for township development has arisen.