

THE JOHANNESBURG MOTORWAYS SCHEME  
AND OTHER ASPECTS OF THE TRAFFIC PLAN.

The Rand Daily Mail in January 1965 published a series of articles on the Johannesburg Motorways Scheme. Caustic comments were made in these on the length of time that elapsed before the scheme was initiated after the Reid Report; on the time taken over land acquisition; and on the progress of the work being carried out. It is appropriate therefore that a brief outline of the history of the Motorways Scheme should be given, and of the progress being made.

The Reid Report:

During the immediate post-war years the Council adopted and executed, in conjunction with the South African Railways Administration, a scheme of improved access to the north. At the same time it was appreciated that major plans had to be contemplated for the future and accordingly a traffic plan was formulated in 1948. This plan included major road improvements, proposed new bus terminals, parking meters and the building of certain parking garages. The implications of the preliminary appraisal were such that the Council subsequently appointed an American traffic consultant, Mr. Lloyd B. Reid, to examine and comment on this plan. This he did in 1954, and in September 1955 the Reid Report was presented to the Works and Traffic Committee. This report substantially confirmed the previous schemes of the Council's officials, and recommended in addition a system of urban motorways with control of access, and a modern robot control system.

The urban motorways system recommended consists basically of an east-west motorway running south of the Main Reef Road, and a north-south motorway running through the whole Municipal Area. The east-west motorway will run from the Main Reef Road at Church Street Extension in the west to the Germiston boundary on the east. The north-south motorway will run from

the Kimberley/...



the Kimberley Road in the south, through Westgate and Braamfontein, to the northern boundary near Bramley. After consideration by various Council committees and interested outside bodies, including the Johannesburg Traffic Plan Committee, the Council on the 4th October 1956 approved in principle the construction of a portion of the present motorway scheme at an estimated cost of R20,802,000 and recommended that negotiations should be undertaken with the Union Government and Provincial Administration for their participation, financial and otherwise, to determine what contribution they were prepared to make in the building of the proposed motorway system.

The Period 1956 - 1962:

This period was marked:-

- (a) by a lengthy negotiation over the proposed motorways scheme, and
- (b) by active measures to implement other aspects of the Reid Report and of the 1948 Traffic Plan.

Concerning the motorways, the need for expenditure of a very large amount of money was a source of worry to the Council, this being shown by the fact that in 1956 the construction of only a portion of the present motorways scheme was approved in principle. It was felt that the City could not afford to meet the full cost of the motorways alone, particularly as costly programmes for the improvements of major roads, and other aspects of the overall traffic plan were also imperative. The question of the amount of the subsidy to be received from the National Transport Commission and the Transvaal Province was therefore an issue of great importance to Johannesburg, especially as the Council was informed that no subsidy would be given for the cost of the acquisition of the right-of-way which formed a very large percentage of the total cost of the portion of the scheme in question. This financial aspect became even more important as gradually it was realised that the whole of the present motorways scheme should be put in hand, and not only a portion as decided in 1956.

Other/...



Other matters had also to be dealt with during these negotiations. For example, the matter of policy in respect of urban motorways had to be resolved by the National Transport Commission for the country as a whole. No authority existed for subsidising local authorities in this matter, so that special parliamentary legislation had to be obtained to enable the National Transport Commission to contribute to the cost of the motorways, as well as special Provincial legislation.

On the 27th March 1962 the Council approved the present Motorways Scheme. The estimated cost of this Motorways Scheme is R45,558,000, of which a total of R21,000,000 will be paid as subsidies by the National Transport Commission and the Transvaal Province. The subsidy receivable by Johannesburg will be about 46% of the total cost, the remaining R24,558,000 having to be found from its own resources. The Motorways are scheduled to be built over a ten year period.

In dealing with the Motorways Scheme, it must be borne in mind that motorways, being roads of the highest standards that are built, with complete control of access, still form only part of the whole road system. Accordingly, the Johannesburg Traffic Plan covers all aspects of traffic. This includes improvements to the city's major roads, including improvements to the main arterial roads, the construction of new link roads and the formation of one-way pairs, etc. Works of this nature have been carried out as part of the Major Road Programmes.

During the negotiations over the Motorways the first Major Road Programme was started in July 1957, R13,000,000 being voted for this purpose. It was originally intended that this should be a ten year scheme, but it was decided to expedite it and by June 1963 work to the value of about R11,000,000 had been carried out. A further extension of the Major Road Programme was then voted by the Council, at a cost of R14,000,000 over ten years, commencing in July 1963. These Major Road Programmes have been financed by allocating the product of the rate of 0.3125 cents in the rand upon site values as a basic appropriation. Some of the works carried out since 1957 have included schemes in:-

Barry/...

Barry Hertzog Avenue ... bridges and four lane highway.  
Clarendon Place ..... dual carriageway.  
Jan Smuts Avenue ..... dual carriageway.  
Harrow Road ..... bridges, viaduct and dual  
carriageway.

Market Street -

Bezuidenhout Street .... four lane highway and bridge.  
Heidelberg Road ..... dual carriageway.  
Booysens Road ..... dual carriageway.

Queens Road -

Hospital Street Link ... four lane highway.  
Empire Road ..... dual carriageway.  
Perth Road ..... four lane highway.  
Smit and Wolmarans One Way Streets,

and many others. It will be seen, therefore, that much has been, and is being, achieved by the Council on these major road improvements.

During 1956 - 1962 many parking meters were installed, and two parking garages were built at Kazerne and Vanderbijl Square to give parking for 1,200 cars at a total cost of about R640,000. Subsequent to 1952 two other parking garages were built at Kazerne and the Union Grounds to accommodate 1,860 cars at a cost of over R1 million. Meantime two further garages for 620 cars are being built at Von Brandis and the Hedley Chilvers Gardens at a cost of R770,000, and tenders will be called soon for a garage under the Library Gardens to hold 585 cars at an estimated cost of R837,000. Altogether, therefore, R3¼ million has been spent or allocated to parking garages to accommodate 4,265 cars since 1956.

Priority Section of the Motorway:

The Section of the motorway system of top priority extends from Smit Street, Braamfontein, to Booysens Road, between which there are no interchanges with the normal street system.

This section includes the bridge over the railway line at Braamfontein, the main structure of which is nearly completed. This bridge was assigned to a consulting engineer in 1958, four years before the motorway scheme was settled, because it had been intended for many years to have

a bridge/...



a bridge over the railway at this point irrespective of the Motorways Scheme. Because of this it was possible to start the first contract for the sub-structure of the bridge shortly after the Motorways were approved. In December 1961 it was anticipated that the main structure of the bridge would be completed in December 1963.

The programme for the remainder of this priority section is as follows:-

Goch Street North ... Tenders are due in February 1965.

Goch Street South ... Work is under construction.

Westgate Dump ..... Advertise earthmoving contract in March 1965. Structural and other motorway contracts to follow.

Westgate Dump  
to Booyens Road .... Work to start in April 1965.

Smit Street  
Interchange ..... Advertise contract in May 1965.

#### Special Features of the Motorways:

A special feature of the Johannesburg Motorways Scheme is that the portion that must be constructed first, adjoining the central area, consists of almost continuous structures above ground level. This portion runs from Smit Street, Braamfontein, southwards to the Westgate Dump and then eastwards to the east side of the Kazerne Yards of the South African Railways. In addition, two one-way motorways will run from the Heidelberg Road Interchange to link up with the Harrow Road Scheme, these also being structures above ground level. The total length of these structures is about 4½ miles. In the remaining length of 17 miles, many bridges and large earthmoving works will be built, but compared with the structures referred to these will be easier and quicker to construct.

The viaduct in Goch Street is an unusual one. Because of the restricted land available, this will consist mostly of a double deck structure, with three lanes of traffic travelling southwards on the upper deck, and three lanes travelling northwards on the lower deck. The structural problems arising from this type of construction have been very complex.

The whole of the Johannesburg East-West Motorway will be situated just south of the gold reef outcrops, which have been mined. Accurate records of the original mine workings are generally not available and in many cases it cannot be accurately predicted how much future mining will take place close to the motorway. The

question/...

question of possible mining subsidence has presented many technical problems and in some cases the strengthening of old mine workings near the motorway may be necessary. In turn land ownership in this area is often very complicated and subject to the provisions of the Gold Law.

Comparison has been made with the Cape Town motorways. There are many differences between the Cape Town and Johannesburg schemes. Whereas the Cape Town Motorways are situated mainly outside the City, the priority section of the Johannesburg Motorways is close to the central area. In Cape Town the motorways are situated mostly at ground level whereas  $4\frac{1}{4}$  miles of the Johannesburg Motorways which form the first portion are continuous elevated structures about 30 feet above ground level.

Because of the open country in which the Cape Town Motorways are mostly located (as observed from the photographs published), undeveloped properties have mostly had to be acquired.

#### Land Acquisitions:

Since 1957 about 500 properties have had to be acquired in whole or part for the Motorways and Major Road Schemes. Where owners are unwilling to part with their properties the land has to be acquired under the Municipalities Powers of Expropriation Ordinance of 1903. Notices of intention to expropriate are sent out and the persons concerned are advised that they have a right to object to the expropriation within a month. If an objection is lodged this has the effect of holding up not only the expropriation of the property to which the objection relates, but the whole scheme or part of a scheme in which the property falls. Objections are dealt with by Commissions of Inquiry under a Commissioner appointed by the Administrator. If the Administrator eventually agrees to the expropriation of the property, experience has shown that it takes from six months to two years to dispose of objections and there is little the Council can do to limit this.

Even when approval to proceed is obtained there is the question of financial settlement and this sometimes gives rise to arbitration proceedings, with further time delays. Arbitrations delay the taking over of properties because it can seriously prejudice the Council's case in arbitration if the buildings have already been demolished. The very high  
cost/...



cost of arbitration makes it imperative for the Council's officials to explore every avenue which might lead to an agreed settlement.

The Section of the Town Clerk's Department handling the Council's property matters consists of the Chief Estates Officer and five qualified legal men. They have much other important and responsible work besides the acquisition of land for the Council's roadway schemes. This other work includes the acquisition of land for parks, the market and housing, servitudes for power lines and other services and the leasing of office accommodation and premises for branch libraries. Further examples are township establishment, disposal of property, registration of conditions attached to town planning consents, etc. One member of the section has to attend to the work of two standing committees as well.

The Estates Section has had to shoulder an ever increasing burden of work - the value of settlements in 1964 totalled almost four times that for 1963. This is likely to continue for several years at least. The response to advertisements for additional qualified staff has been very disappointing.

Apart from the time involved by legal requirements, there are also many practical issues. Several large commercial and industrial firms have had to vacate their premises, find other suitable land and rebuild their offices and factories completely. There are considerable difficulties for industrialists as a result of Government policy concerning the establishment of new industrial stands. The rights of these firms must be observed as fairly as possible and any unfair treatment by the Council would greatly increase the damages for which it is liable, and also lay itself open to severe criticism.

Regarding compensation, officials are obliged to observe the provisions of the appropriate ordinance. Many excessive claims have been received for compensation, and in dealing with these officials have regarded it as their duty to safeguard the moneys of ratepayers as fully as possible. As an example of what has to be dealt with in this connection, one claim received for compensation amounted to R124,500. Complex issues were involved, but after negotiation lasting more than a year the Council's officials succeeded in settling the claim for R17,500.

The cost/...

The cost of settlements in 1964 totalled R3,674,000 compared with claims of R4,410,000 - a difference of R736,000. This demonstrates the necessity for all claims to be carefully scrutinised by experienced officials.

The Country's Economy and the Johannesburg Motorways Scheme:

The Motorways Scheme was approved by Council in March 1962. This date was a little in advance of the start of a very marked increase in the rate of growth of economic development which commenced in 1963. Compared with the tempo of activity in the years 1960 - 1962 inclusive, during part of which the building trade was much less than fully employed, a marked upward trend in activity took place in 1963 throughout the country which has continued ever since and which could not be foreseen.

This was the start of a period of great activity in the spheres of commerce and industry everywhere. Great expansion schemes have been started and this in turn has increased the demand for the limited technical personnel available in the country. The City Engineer's Department has had great difficulty in retaining its engineers, while it has had far more to handle as a consequence of the upturn in economic activity. All this was over and above the considerable effort required to overcome the backlog of works which had arisen from a former period of financial stringency. There has been a great increase in the volume of building plans received and of large building and town planning developments.

Considerable progress has been made in connection with the new market and abattoirs developments, but these schemes have required staff to handle them. Several major main drainage schemes have had to be undertaken and two large sewage purification works (both larger than any other in Southern Africa) have had to be designed and constructed. The problems of urban renewal have become more pressing and the preparation of a master transportation plan has had

to be/...



to be expedited. These development schemes have come closer to fruition in the period since the Motorways Scheme was approved, so that the loss of technical staff in the department has been in contrast to the needs for a much larger staff. From the above it must be patently clear that the City Engineer's Department in a city the size of Johannesburg is required to plan enormous schemes not only for its own department but also for other departments, a colossal task. To supplement the activities of the department's engineer strength, many assignments have been given to consulting engineers and architects, particularly in respect of the Motorway Schemes and work flowing from it. There are at present nine consulting engineer firms engaged on motorway and road projects, some with more than one assignment. The fees involved have invariably been higher than the departmental design costs, sometimes to a marked degree. There is no doubt that the high rate of the country's economic development, in relation to the manpower available, will be a strong influence on the rate of progress of much of this development.

#### Rising Costs:

In the past two years there has been a severe increase in building costs, of from 20% to 30% in some cases. As Johannesburg has to find such a large amount of the capital for the Motorways Scheme, the problem of rising costs is a very serious one and the position is being watched carefully and will be commented on as each new tender is received.

In the contracting field the severe shortage of personnel is also being felt, and some contractors are being delayed as a result. On the Goch Street South contract a shortage of carpenters was experienced for a time, while on the new retail market building the contractor was without bricklayers for three weeks.

Recent tenders would also suggest that contractors have in general more work than they need. Only two tendered for one motorway job and only four for a second motorway contract despite this second contract being worth more than R2 million.

#### Organisation in the City Engineer's Department:

From the 6th October 1963 a slight re-organisation

was brought/...

was brought about in the City Engineer's Department. From March 1959 till that date the control of the planning of the motorways and major road schemes was in the hands of the Chief Engineer (Major Roads), who was given certain direct responsibilities and direct access to the Works and Traffic Committee. From October 1963 the position of Chief Engineer (Major Roads) was redesignated Assistant City Engineer (Major Roads). The incumbent of the new position is now responsible only to the City Engineer, who heads and directs the whole organisation.

At October 1963 the bridge over the Braamfontein Railway Yard was under construction, the consulting engineer having been given the assignment in 1958. In addition, tenders had been called for the Berea Street - Sivewright Avenue Motorway Link through Doornfontein.

Since October 1963 the following motorway contracts have been advertised:-

1. Bridge over motorway at Showground Road (work in hand).
2. Goch Street North Section.
3. Goch Street South Section (work in hand).
4. Westgate to Booyens Road Section.
5. Kimberley Road from Bangor Road, Crown Gardens, to Brookes Road, Robertsham.

In addition, it is planned to advertise the following contracts during 1965 and 1966:-

1965.

1. Smit Street Interchange.
2. Westgate Dump earthmoving contract.
3. Westgate structural contract.
4. Booyens Road to Eloff Street Extension.
5. Eloff Street Extension to Heidelberg Road Interchange.
6. Southgate Development Scheme at Showgrounds, earthmoving contract.

1966/...



1966.

1. Heidelberg Road Interchange.
2. Bridge over Kazerne Yards. (Proposed design and build contract.)
3. Kazerne Bridge to Germiston Boundary.
4. End Street - Siemert Road Link.
5. Section north of Smit Street Interchange.

The total value of the works and land costs in respect of the sections enumerated up till 1966 is about R27,000,000, about 60% of the total.

Conclusion:

The rate of progress on the Motorways Scheme is increasing steadily. Four contracts are currently under construction and during this year six further contracts will be advertised. This will give further practical proof that despite a severe staff shortage and other problems outlined above, the construction of the Johannesburg Motorways Scheme is being pursued vigorously by the interested and determined members and officials of the Johannesburg City Council.

When one considers the explanations given in the preceding paragraphs one can only come to the conclusion that there is no muddle nor any sign of chaos in respect of the Motorways Scheme of the City.

The ten-year Motorways Scheme was agreed upon by the Council and higher authorities, bearing in mind the need for the work; the rate of progress that might reasonably be expected in view of competition for physical resources; and the extent to which finance could reasonably and soundly be diverted from other priorities. To justify acceleration, all parties would have to re-assess all these factors; and either higher authorities would have to re-arrange their own financial priorities, or the Council would have to postpone some other top priority work so as to divert funds to the Motorways account until subsidies on the presently approved scale caught up with the new surge

in expenditure/...

in expenditure.

For these reasons, to suggest that the work can be speeded up is to tell only part of the story and to neglect the fact that there is much more to Municipal and wider capital deployment than the development of the Motorways Scheme.

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