

ROAD ACCESS MANAGEMENT: CLASSIFICATION OF ACTIVITY ROUTES

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1. INTRODUCTION

1.1 General

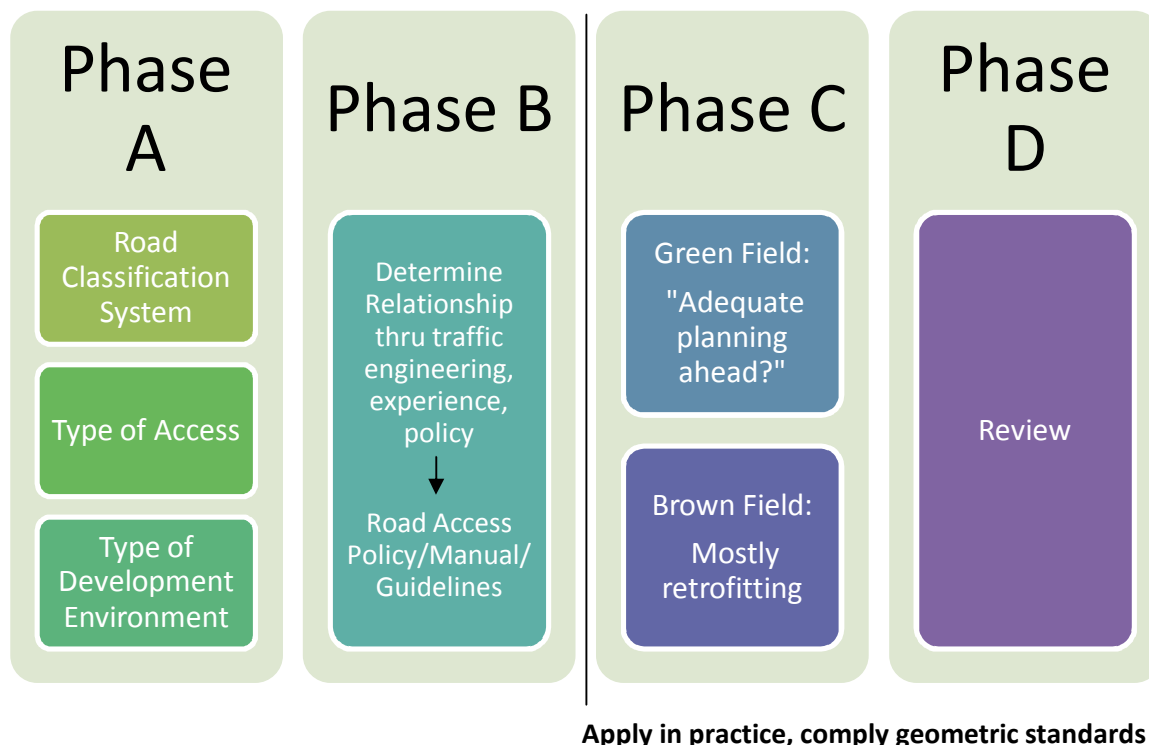
Road Access Manuals and Guidelines have been developed on national, provincial and local level in South Africa. Some of the present documentation pertaining to the subject is undergoing a review, taking into account past experiences and international best practice.

The road classification system has formed an integral part of the management of the road network. The traditional approach has been to allow for a continuum of mobility and activity functions, i.e. whereas some routes are largely providing mobility and others largely access, there are also routes providing a mixture of mobility and accessibility. In contrast to this approach, the work of Ray Brindle^{2,7} in Australia has suggested a clear distinction between "movement" routes and local roads providing the access function.

This approach, indicating a quantum jump between mobility and access routes has now been suggested for local application. The object of this paper is to investigate this new approach through the investigation of practical examples in Cape Town, taking into account roadside development, traffic control, access provision, etc.

1.2 Background

The RAM process, as applied in South Africa, can be summarised as shown below:



In Phase A best practices are followed, but agreement on all aspects is not necessarily achieved between transportation professionals. The public, land owners and developers are largely excluded from this phase. The selected road classification system and the application thereof in practice, have serious implications for land owners adjacent to major routes, as it determines the ease/directness of access for many parcels of land. It becomes the subject of bitter disagreements and even court cases. Differences with the approach to the road classification portion of Phase A are the subject of this paper (see Section 1.3 below).

In Phase B best practice is also applied, but eventually it comes down to **policy** decisions, in line with the statements of the TRB's Access Management Manual¹, which acknowledges (p3) that the relationship between roadway type, access and movement type is not always uniform. In the case of the Western Cape's Provincial guidelines, the impression is almost created that the relationship has a scientific backbone (see Appendix A), but the authors acknowledge that selection of the operational criteria has been based on engineering judgement.

Phase C is where land owners and developers become involved. It results in extreme dissatisfaction and huge cost implications at times, but court action is still reasonably limited. The trade off between longer distance traffic flow and access to land development remains problematic – how much impact on green bands is acceptable? A similar question as to how much congestion is acceptable.

Phase D is where the road authorities endeavour to react to practical experience. It is taking place in South Africa at present – differences of opinion, even between professionals, are evident.

1.3 Problem Statement

The road classification system is the foundation of any access management program¹ and has been an integral part of access management manuals in view of its importance in distinguishing between different facilities. The traditional approach followed in South Africa is based on Figure A below, which indicates a continuum of mobility and access functions, thereby defining a Class 3 route as a route providing a mixture of mobility and accessibility, or a so-called activity route. In some contrast with this approach is the work of Brindle² in Australia, who indicated freeways, arterials and collectors as "movement" routes and local roads providing the access function. Some allowance for a class of road providing both movement and access was made. The compromise shown in Figure B was suggested.

Building on this, the classification approach shown in Figure C has now been suggested in South Africa³, indicating a quantum jump between mobility and access routes. This is causing quite a division locally in the ranks of the traffic management fraternity. The objective of this paper is to investigate this issue, including a desk top review of the matter, and an analysis of at least one typical local corridor, in an effort to clarify the approach to road classification, and specifically activity routes. The basic question is how the existing and traditional Class 3 road classification (i.e. collectors/routes providing a mixture of mobility and accessibility), must be treated, should the new classification system be accepted.

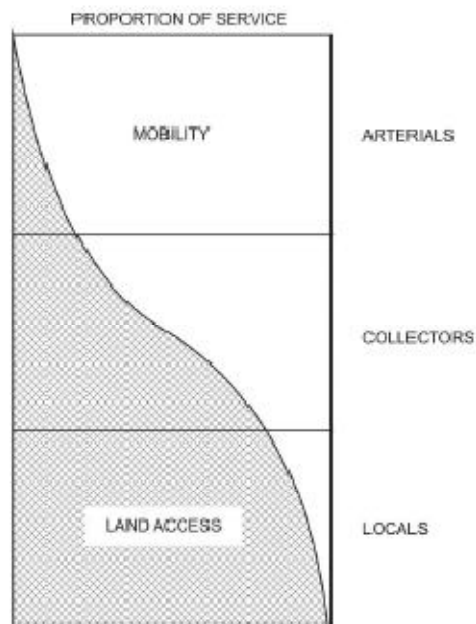


Figure A: Highway Functional Classification [AASHO 1964]

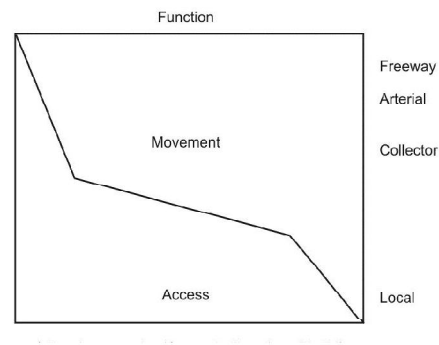


Figure B: Movement versus Access (Brindle 1987, 1996)

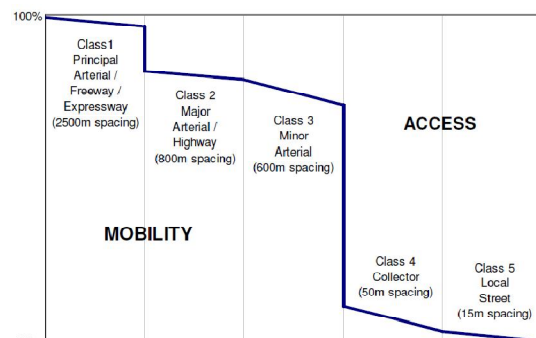


Figure C: Mobility vs Access adjusted

2. LITERATURE REVIEW

A functional road classification system is advocated by most from a traffic engineering perspective, implying that cities will classify their routes and protect them to fulfil their intended function. In many cases retrofitting is required where control might have been lacking for some time or where the function of a route had to be adjusted to fit in with the bigger picture. In South Africa planning for “developing communities” by the Department of Housing⁴, suggested a new approach where “reference to conventional road classification is avoided to prevent preconceptions regarding the functions and cross section of particular rights of way”. It is considered that this approach had no impact on local RAM practices.

By and large literature sources indicate a road classification system which distinguishes between road function as follows:

Mobility – freeways and arterials (major and minor) – typically Class 1 and 2 roads. The mobility function for longer distance traffic is paramount. Freeways spaced approximately 6 to 7 kilometres apart. Arterials spaced 1 to 3.5 kilometres apart.

Mobility/Accessibility – Collectors – typically Class 3 roads. The function is twofold: (i) distribute traffic between the arterial system and local roads and (ii) provide access to abutting property. Collectors spaced typically less than 800 metres apart.

Accessibility – local roads and streets – typically Class 4 and 5 - spacing as required.

2.1 Stover and Koepke⁵

The traditional functional (hierarchical) road classification system is described inter alia by Stover and Koepke⁵. They defined four trip stages that a functional circulation system should provide for: primary movement, collection/distribution, access and termination. These trip stages should be provided for by a road element that has specifically been designed for it. They considered a functional road network to provide for a “gradation in function from access to movement”. This gradation is considered a “continuum from unrestricted access (no through traffic) to full control of access (no local traffic)”. Figure A above is a representation of their view on the relationship between

access and movement. The gradation is confirmed to be a continuum and it is concluded that there is "no definable boundaries between one functional class and another". Collectors are defined as providing both land access and movement within residential, commercial and industrial areas.

Stover and Koepke acknowledged that the above model has been criticised by Brindle and others, for creating a broad range of collectors between the major traffic routes. Except for referring to the different view, no clear position is taken about it. It is concluded though that "a hierarchical circulation system is compatible with a walkable city". The interesting point here is the difference in interpretation of Brindle's functional distribution⁷ (referred to as a "separate functions" model), and specifically where the quantum jump in functionality between movement and access occurs:

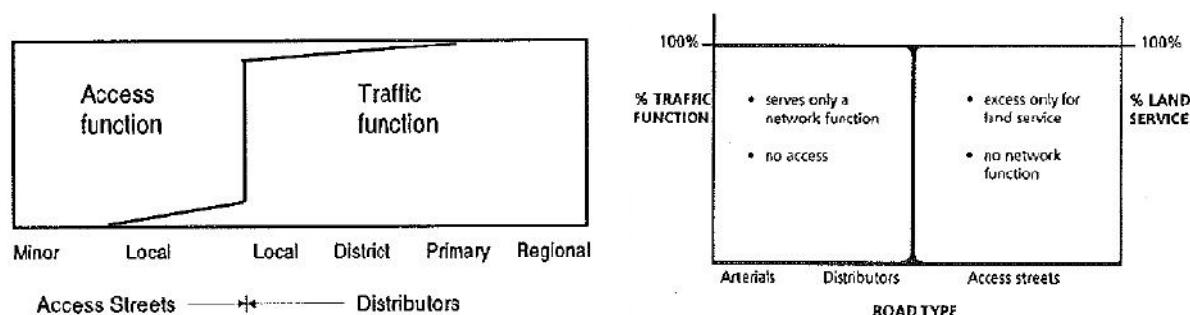
Brindle⁷: Between local distributor (collector) and local street – Figure 9, p91, of Ref 7;

Stover/Koepke⁵ interpretation: Between major and minor collector – Figure 4-5 of Ref 5, although Figure 4-6, labelled an "expansion", shows between minor collector and local street;

Latest South African proposal³: Between arterial and collector – Figure C above.

Closer evaluation of Ref 7 indicates that the Stover/Koepke interpretation of Brindle's proposal might be incorrect – see figures below from Ref 7 (p91 and p118). Brindle's jump between access and mobility is really focussing on the local street level in residential areas. Distributors (or collectors - Class 3 routes generally) are seen as part of the mobility routes and the jump is really proposed between distributors and local streets. The South African proposal that the jump should be between arterials and collectors, is clearly not in accordance with Brindle's suggestions. **To employ the motivation provided by Brindle for the latest South African proposal is considered to be incorrect.**

It is acknowledged that Brindle suggested less of a gradation in the mobility function of arterials and collectors, and a very clear distinction between routes fulfilling a mobility function, versus those fulfilling an access function.



Brindle's⁷ view on the "jump" in traffic function between access provision and mobility

2.2 Access Management Manual (AMM)¹

The AMM was compiled over a seven year period by a committee of the Transportation Research Board. With respect to road classification systems, the following points are made (*inter alia*):

- a) The appropriate degree of access control varies according to:
 - the functions and traffic characteristics of a roadway;
 - the character of abutting land;
 - long term planning objectives.

The second bullet is supporting the concept of "development environments" that was included in the Western Cape provincial access management guidelines⁶ (RAG) in 1996, and which allows for different access spacing on the same class of route, but in different land use environments.

- b) Access management implies trade-offs between competing objectives and therefore the appropriate amount and type of access are ultimately decided on the basis of policy.

- c) System wide access management programs should include the following key elements:
- Classifying roadways into a logical hierarchy according to function;
 - Planning, designing and maintaining roadway systems on the basis of functional classification and geometry;
 - Defining acceptable levels of access for each class of roadway to preserve its function, including criteria for spacing of signalised and unsignalised access points;
 - Applying appropriate geometric design and traffic engineering analysis to each access point;
 - Establishing policies, regulations and permitting procedures to carry out and support the program.
- d) The concept of access category is introduced and it is then equalled to a functional road classification when the following relationship is defined (for urban areas):

Access Category	1: Freeway
	2: Major Arterial
	3: Minor Arterial
	4: Major Collector
	5: Minor Collector
	6: Local

It is not clear why the road classes have to be called access categories as well. The important point though is that the AMM also suggests collectors to provide for traffic movement between arterials and local streets, while it may also provide access to abutting properties, i.e. a dual functionality.

2.3 Brindle⁷

There can be little doubt that Brindle introduced fresh thinking on the matter of a gradual gradation of function from mobility to accessibility. Some of his points of departure are not particularly clear, e.g. on p103 it is stated that any really useful road classification system, must acknowledge that: "in most existing networks, very few roads do not also serve a substantial land access function". This is interpreted to mean that in existing networks, most roads do not serve dual functions, i.e. in practice roads have developed such that they are either mobility or access routes. This then leads to his argument for a quantum jump in road function between mobility and access routes. In South Africa, this phenomenon is considered not to be present, as there are in fact many routes with the dual function characteristic – many of them supporting strip development or more positively called activity routes.

It is considered that Brindle by and large focussed on servicing suburban residential areas – see figures on p116 and 131 in Ref 7 for example. He did not really address the full metropolitan road network serving different nodes and environments such as Central Business District, industrial areas, shopping nodes, etc. Mobility routes should be absent inside residential areas and from that viewpoint the notion of no residences fronting onto dual purpose routes, should be supported. The issue of businesses fronting onto dual purpose roads have not been addressed.

2.4 Sampson⁸

Sampson clearly has accepted Brindle's thinking. His point of departure is the determination of whether a road section is to serve the mobility or activity/access function. Thereafter the process of managing the functional road classification system for both rural and urban roads is developed.

The mobility and access activities are considered incompatible. Having routes which equally serve both functions is considered counter-productive and dangerous, hence the need for the road network to be split into one of two groups, according to which a road section's function is to be primarily mobility or access. This approach is in line with that illustrated in Figure C above.

Sampson concludes that road classification and access management are two independent processes which go hand in hand. He further concludes that the implementation of these processes remains a critical responsibility of the road authorities to ensure the safety, efficiency and effectiveness of their road network as well as for the economic, social and environmental wellbeing of the communities they serve.

3. ROAD CLASSIFICATION

Road Access Management consists of a number of steps which can be summarised as follows (see also Section 1.1 above):

- a) Develop a functional road classification system;
- b) Classify city streets according to the selected classification system;
- c) Develop access spacing "rules" for the different classes of routes, types of accesses, city environments, etc;
- d) Continuously apply retrofitting techniques to bring streets in accordance to selected "rules" and apply "rules" to new access applications as diligently as possible.
- e) Review the "rules" after a period of implementation.

A related issue that has been developing locally is the relationship between theoretical guidelines/policies and real life situations, i.e. to what extent can the access standards that have been developed, be achieved in practice. The obvious answer is that any improvement of a poor situation is better than no improvement, and whether there are differences with the selected policies, is not that material. On the other hand, too many exceptions to the rules are difficult to defend and lead to legitimate queries regarding the line between acceptable and not acceptable. Comparisons with real life situations are seldom done. That is one of the motivations for selecting and analysing a practical situation.

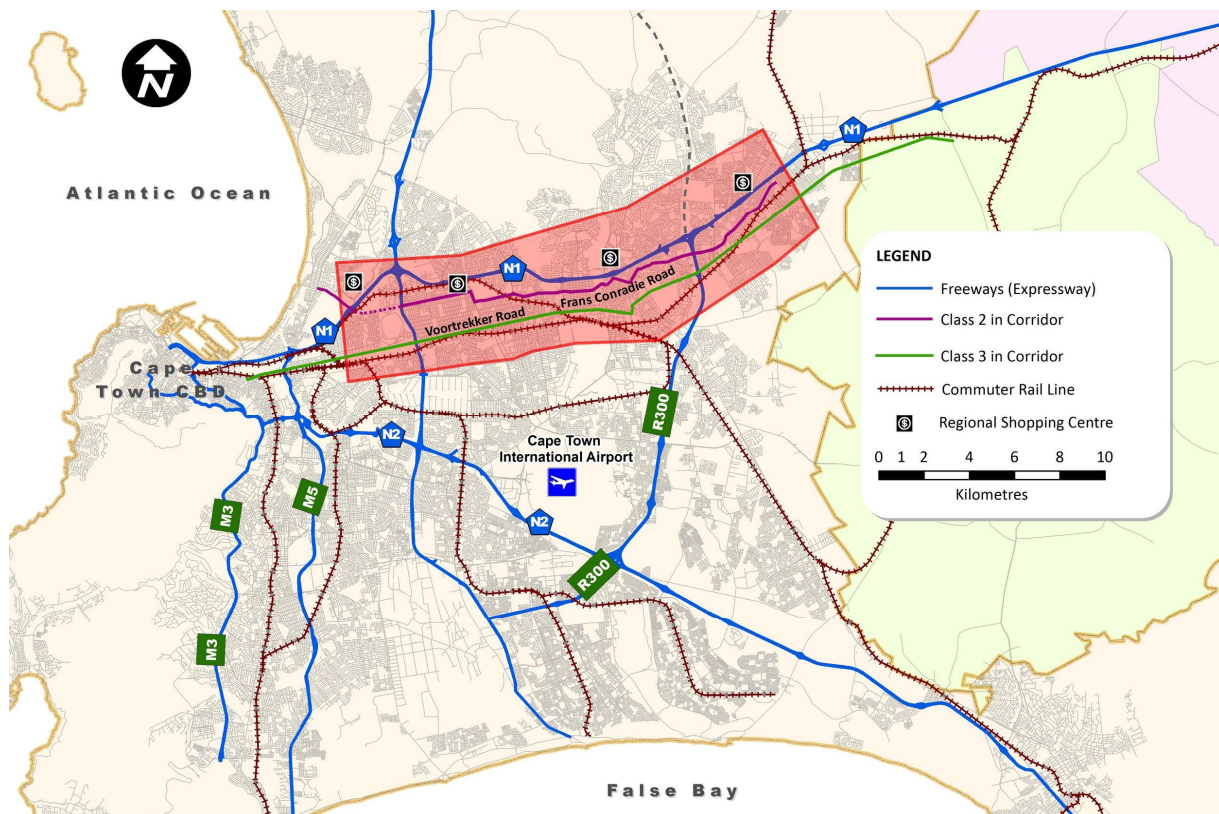
4. CORRIDOR ANALYSIS

4.1 Background

Before analysing any area in South Africa, it has to be acknowledged that being part of the "second world", South Africa should be considered a peculiar mix of first and third world conditions. Whereas land use patterns in many parts of local cities are quite comparable with those in the United States, some neighbourhoods are informal settlements, where the road network has not developed in the traditional way. In an effort to evaluate the impact of the different views on where collectors fit in, a corridor that can in many ways be considered typical of middle to higher income areas in South Africa, and which is often used as an example of a typical urban corridor, has been selected. The location of the east/west corridor relative to the complete Cape Town metropole, is shown on the sketch below. Note that Cape Town is one of the major harbour cities of South Africa with a population of around 3.5 million people in an area of roughly 25 by 30 kilometres, i.e. 750 km².

The selected corridor lies between the present CBD of Cape Town in the west and the eastern and northern suburbs in the east. The boundaries have been selected to be the N7 freeway in the west and Okavango Road in the east. The corridor consists mostly of medium to higher income residential areas – density between 6 and 20 dwellings/hectare. Strip development is evident around the Class 3 route in the corridor and four large shopping centres (two of them regional shopping centres of around 100 000m² gross lettable area) have developed close to the major mobility route, the N1 freeway. See figure below.

A secondary CBD has (and still is being) developed alongside this corridor – almost midway, so the corridor will eventually be a link between the two largest development nodes in Cape Town. The length of the selected corridor is approximately 17 kilometres and the width around 6 kilometres. The corridor is served by three major east/west routes and a commuter rail line (for a portion there is 2 rail lines). The three major routes are:



The **N1 freeway** (largely three lanes/direction) – Class 1 route;
Frans Conradie Avenue (largely two lanes/direction) – Class 2 route;
Voortrekker Road (largely two lanes/direction) – Class 3 route.

It can safely be said that there are no further opportunities for Class 1, 2 or 3 routes in the corridor. A second radial freeway (the N2) is located between 5 and 15 kilometres to the south of the N1. The Class 2 route is generally spaced 600 metres south of the freeway and the Class 3 route is located approximately 2 kilometres to the south of the freeway. Based on the general spacing guidelines for major routes (Section 2 above), the freeway spacing almost complies with the traditional requirement. According to the same guidelines there should have been at least two Class 2 routes in the corridor, which is not the case. Ideally, there should have been a number (at least 4 to 5) of Class 3 routes, but there is only one continuous route and a second discontinuous one. Whilst some general retrofitting of the Class 2 and 3 routes have been done in the past, the only opportunity now is when there is an application for additional (or new) land use rights, when it could be required from the developer – financial constraints basically exclude general retrofitting by road authorities.

It is concluded that higher order routes are underprovided in the corridor and the importance of protecting the mobility function of the three existing higher order routes, should be clear.

4.2 Survey

A survey of the three routes (see next page) reveals the following:

The **N1 freeway (Class 1)** has been built according to “American” standards and has 10 interchanges (two are only half diamonds, i.e. ramps towards only one direction) over the 17 kilometre length (including two systems interchanges, one at the western extremity and the other almost at the eastern end). This implies an average spacing of the linked cross roads of just below two kilometres. The speed limit over the entire length is 120 km/h. Congestion is experienced over most of the length during morning and afternoon peak periods with the average operational speed dropping to 25 to 30 km/h.

When compared with typical geometric design guidelines, it is concluded that interchange spacing on the freeway almost complies, except for one instance (between Bottellary and Okavango Road interchanges) where the distance between yellow line breakpoints is substantially below standard (about 100 metres, geometric standard requires 1300 metres). In general interchange spacing should be 2.4 kilometres between access interchanges, with slightly longer distances between access and systems interchanges. **It is concluded that the freeway almost complies with local access management guidelines.**

Frans Conradie Avenue (Class 2) has 82 street intersections over its 17.4 kilometre length, implying an average street spacing of 215 meters. The spacing of street intersections varies between 50 and 680 metres. Thirty four of these street crossings are signalised, implying an average spacing between signals of 530 metres. Some signals are as close as 200 metres apart. In addition to the street crossings there is a further 152 driveways to properties, implying a total of 234 access points at an average spacing of approximately 75 metres.

When compared with the local provincial access spacing guidelines (suburban environment), the average street spacing should be 270 meters and the signal spacing should be 800 metres. Clearly, there is no compliance on this average comparison, while many of the individual intersections also do not comply. Driveway access onto this class of road is not allowed according to the local guidelines. **It is concluded that the spacing of signals, streets and driveways on the only Class 2 route in the corridor, is not complying with the local guidelines with a substantial margin.**

FRANS CONRADIE (east to west) Class 2 Route	Distance (km)	Property Accesses	FRANS CONRADIE (east to west) Class 2 Route continued	Distance (km)	Property Accesses	VOORTREKKER RD (east to west) Class 3 Route	Distance (km)	Property Accesses	VOORTREKKER RD (east to west) Class 3 Route continued	Distance (km)	Property Accesses	VOORTREKKER RD (east to west) Class 3 Route continued	Distance (km)	Property Accesses
Okavango Rd			Midbrand St			Okavango Rd			Uladitome St			Maras St		
Brink St	0.1	0	St. Georges St	0.03	0	Kristofort Rd	0.5	2	Washington St	0.14	1	Van Reenen St	0.07	0
Boonzaaier St	0.25	0	Lurbaai Rd	0.41	19	Industria St	0.08	0	Duminy St	0.15	1	Van Heideck St	0.08	0
Vygie St	0.45	0	Carl Cronje Dr	0.11	0	Orion	0.23	0	Broadway St	0.18	3	Victoria St	0.07	3
Vivaldi St	0.11	0	12th Ave	0.28	0	Wadmeul St	0.64	0	Mike Pienaar Blvd	0.16	1	Tygerberg St (right)	0.03	0
Goede Hoop Ave	0.38	0	Signalised pedestrian crossing	0.2	0	Sending St	0.19	0	Boonplais St	0.27	5	Tygerberg St (left)	0.05	0
Signalised pedestrian crossing	0.15	0	Boston St	0.26	0	Paradys St	0.2	2	George Stank Cr	0.18	6	Botha St(right)	0.06	2
Paradys St	0.41	0	Lincoln St	0.43	0	William Babs St	0.24	0	Duminy St	0.11	2	Botha St(left)	0.02	0
Kerk St	0.34	0	Broadway St	0.56	0	Jeanette St	0.2	1	Hampton Rd	0.04	8	Cambridge St	0.07	2
Brackenfell Blvd	0.23	0	Nike Pienaar Blvd	0.19	0	Brackenfell Blvd	0.29	3	Jankinsson St	0.04	8	De Wit St (right)	0.05	0
H.O. de Villiers St	0.25	0	(Entrance to Hospital)	0.18	0	H.O. de Villiers St	0.2	0	Jones St	0.08	2	De Wit St (left)	0.03	0
Beensdale Rd	0.41	0	George Start Rd	0.55	3	Fernside Rd	0.28	2	Huggenot	0.08	8	Hugo St	0.06	0
Stellenberg Rd	0.6	0	Tenbaag Rd	0.49	0	William Babs St	0.23	1	Toner St South	0.06	2	Oxford St	0.09	1
Mulhu St	0.4	0	Gemeng St North	0.22	0	R300 (on ramp)	0.23	0	West St	0.12	2	Moltino St	0.07	1
Oldi Rd	0.39	0	Signalised pedestrian crossing	0.05	0	R300 (on ramp)	0.2	0	Braverton South	0.16	8	De Villiers St	0.15	0
Meerlust St	0.35	2	Wendland St North	0.15	7	Old Oak	0.25	0	Tierberg Rd	0.21	1	Paarl St	0.08	1
Voorheul Cl	0.17	2	Fourfield St North	0.11	7	Hawley St	0.47	3	Rieshuig South	0.22	1	Wienor St	0.08	3
Poplar St	0.03	0	Ricketts Rd	0.07	3	Meerlust St	0.35	0	Fritz Spilhaus Ave	0.04	8	Joubert St	0.07	3
La Roche Cl	0.04	3	Andrieu Rd	0.08	0	Harrod Dr	0.50	0	Wendland St	0.10	8	Wellington St	0.08	1
Napoleon Cl	0.08	5	Totius St	0.21	15	Stikland Hospital	0.31	0	Norden St	0.08	1	Nelson St	0.07	2
Rochefort Cl	0.09	5	McIntyre Rd	0.1	0	De la Vigne Ave	0.22	0	McCarthy St	0.03	8	Cook St	0.08	0
Holly St	0.02	0	Paul de Groot St	0.18	0	Lini Rd	0.56	0	Scharnberg St	0.11	8	Vasco Blvd	0.07	0
Drakouze Cl	0.05	2	Talbot Rd	0.58	0	Bill Beuskenhaus	0.57	16	Scharnberg St			Murray St	0.08	0
Harrod Dr	0.02	0	Entrance to Golf Course	0.43	0	Jura St	0.2	3	Robinson St	0.08	1	Midbeck	0.07	2
Parys Cl	0.05	1	Balfour Rd	0.29	0	Mazur Rd	0.08	0	McIntyre Rd	0.06	8	Spenser	0.08	1
La Champagner Cl	0.07	6	Giel Basson Dr	0.27	0	QUARRY RD - OLD P44	0.14	2	Smith St	0.14	8	Rhodes	0.07	0
Elm Cl	0.08	6	Frans Conradie	0.48	0	Old Paarl Rd	0	0	Bedford St	0.07	8	Fisher	0.08	1
Boordlaar St	0.08	4	Hermengam St	0.15	0	VLUKKEHOKKER - ULAK	0.09	0	Station St	0.07	8	Hampton St	0.08	0
La Rachelle Rd	0.05	2	Willie Jansen St	0.13	0	Quarry Rd	0	0	Wrench Rd	0.07	8	Gertrude St	0.07	0
Widdrisspoort St	0.29	8	Namus Gerber St	0.25	0	Heibel St	0.1	0	Van Byssche St	0.15	8	Link St	0.08	0
Madlief St	0.07	4	Joe Simon St	0.28	1	Adam tas St	0.12	2	Steenbras St	0.05	1	McDonald St	0.07	0
Aunblom St	0.15	10	Joe Hartingh St	0.18	0	Barnard St	0.1	0	Talbot St	0.1	8	Chunh Rd	0.08	0
Biom St	0.08	3	Vasco Blvd	0.12	0	Hof St	0.15	0	Tygervald St	0.04	8	Alice St	0.07	0
Gousblom St	0.07	3	Riebeck St	0.16	0	Karoo St	0.03	2	Ryar St	0.1	8	Goodwood St	0.08	0
Kamille St	0.06	1	Alice St	0.68	0	Middel St	0.07	0	Canstons	0.04	8	Goulburn St	0.07	0
Bill Beuzidenhoof	0.07	1	Townsend St	0.67	0	Moddendam Weg	0.08	1	Weimar St	0.03	8	Anderson St	0.08	0
Jacarana St	0.21	0	N7	0.49	0	Chorl Malan	0.16	0	Frankfort St	0.08	8	Fitzroy St	0.08	0
Raglan St	0.51	0				Blanchenberg St	0.09	0	Scott Rd	0.07	1	Surrey St	0.07	1
Averdale	0.39	0				Durban Rd	0.25	0	Giel Basson Dr	0.1	1	Beaufort St	0.07	1
Morrison St	0.07	0				Rhes St	0.19	0	Grey St	0.06	1	Kimberley St	0.08	0
Van der Stel	0.07	2				AJ West St	0.15	0	Widit St	0.08	1	Caledon St	0.07	2
Signalised Pedestrian Crossing	0.03	0				Cleveland St	0.13	2	Karpas St	0.07	1	Townsend St	0.08	0
Calvin Rd	0.17	0				Landros St	0.12	3	Zelda St	0.04	8	Emily Hobhouse St	0.08	0
Barnard St	0.13	11				Lincoln St	0.16	2	Marais St	0.04	8	N7	0.11	0
Hilkebrand St	0.14	16				Garthorne St	0.14	4	Marais St					
TOTAL				17.44	152								16.59	113

Name of street: Signalised Intersection
Name of Street: Priority Intersection

Voortrekker Road (Class 1) has 128 street intersections over its 16.6 kilometre length, implying an average street spacing of 130 metres. The spacing of street intersections varies between 30 and 600 metres. Forty five of the street crossings are signalised, implying an average spacing between signals of 380 metres. Some signals are as close as 80 metres apart. In addition to the street crossings there is a further 114 driveways to properties, implying a total of 242 access points at an average spacing of just under 70 metres.

When compared with the local provincial access spacing guidelines ("suburban" environment), the average street spacing should be 180 metres and the signal spacing should be 540 metres. For the "intermediate" environment these spacings are 120 and 375 metres respectively. The area served by Voortrekker Road can be considered a mixture of suburban and intermediate environments. Should the total area be considered intermediate environment, then the average spacing complies. Being a mixture of environments, it has to be concluded that there is no compliance on this average comparison, while many of the individual intersections also do not comply. Driveway access onto this class of road in the suburban environment is not allowed, but for the intermediate environment, spacings of 45 to 75 metres are required for driveways. **It is concluded that the spacing of signals, streets and driveways on the only continuous Class 3 route in the corridor, is not complying with the local guidelines.**

4.3 Current local proposal

The current local proposal shown in Figure C, Section 1.2, would imply the following for the existing Voortrekker Road (Class 3 route). Either the route has to be re-classified as a Class 3 minor arterial, or it has to be de-classified as a Class 4 collector. In the first case, it is considered that it would be virtually impossible to ever comply with the higher access spacing requirements of a Class 3 arterial route. Major retrofitting would be required to bring existing accesses in line with the requirements for a Class 3 minor arterial. New developments could also be difficult to accommodate in view of past practices and the new relatively high standard that would be applicable. While there certainly is a need for more mobility routes in the corridor (in view of world best practice), retrofitting to the proposed Class 3 standard is not considered practically feasible/affordable.

In the second case, de-classification would be the only feasible solution in practice, but it would be quite negative from a mobility viewpoint, as the lack of mobility routes would be worsened.

It is concluded that the current local proposal of denying the existence of dual function routes, does not make sense in the selected corridor. This situation is likely to exist in many other locations and the proposal can therefore not be supported.

5. CONCLUSIONS

Based on the desktop analysis and evaluation of the selected (representative) corridor the following conclusions are made:

- The South African proposal that there should be a "jump" in road function between mobility and access routes, and that it should be between arterials and collectors, is not in accordance with the proposals of Brindle⁷. To employ the motivation provided by the latter for the local proposal is considered to be incorrect.
- The higher order routes are underprovided in the selected corridor and the importance of protecting the mobility function of the three existing higher order routes should be clear.
- The N1 freeway (Class 1) almost complies with local access management guidelines.
- The spacing of signals, streets and driveways on the only Class 2 route in the corridor, is not complying with the local guidelines with a substantial margin.

- The spacing of signals, streets and driveways on the only continuous Class 3 route in the corridor, is not complying with the local guidelines.
- The current local proposal of denying the existence of dual function routes does not make sense in the selected corridor. This situation is likely to exist in many other locations and local situations and the proposal is therefore not supported.
- There clearly is a need to obtain more clarity on road classification, and specifically the matter of a continuum of function versus a quantum jump between mobility and accessibility functions.

6. REFERENCES

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APPENDIX A – TABLE FROM WESTERN CAPE ROAD ACCESS GUIDELINES, SUGGESTING OPERATIONAL CRITERIA FOR DETERMINING MINIMUM ACCESS SPACING⁶

Table: Normal Minimum Operational Criteria for Access Spacing (Assuming permitted Driveways are Low Traffic Generating)

Development Environment	High Order Arterials			Distributors		Access Road
	Freeway	Express-way	Primary	District	Local	
Urban	WD	SIG	SSD	LTC	EC	EC
Intermediate	WD	SIG	SSD	LTC	EC	EC
Suburban	WD	SIG	FBD	FBD	LTC	LTC
Semi-Rural	WD	SIG	FBD	FBD	SSD	SSD
Rural	WD	CC	CC	CC	CC	SSD

WD - Weaving Distance

SIG - Signal progression

CC - Communication criteria (signing)

EC - Egress conflict

SSD - Stopping sight distance

FBD - Functional boundary distance

LTC - Left turn conflict