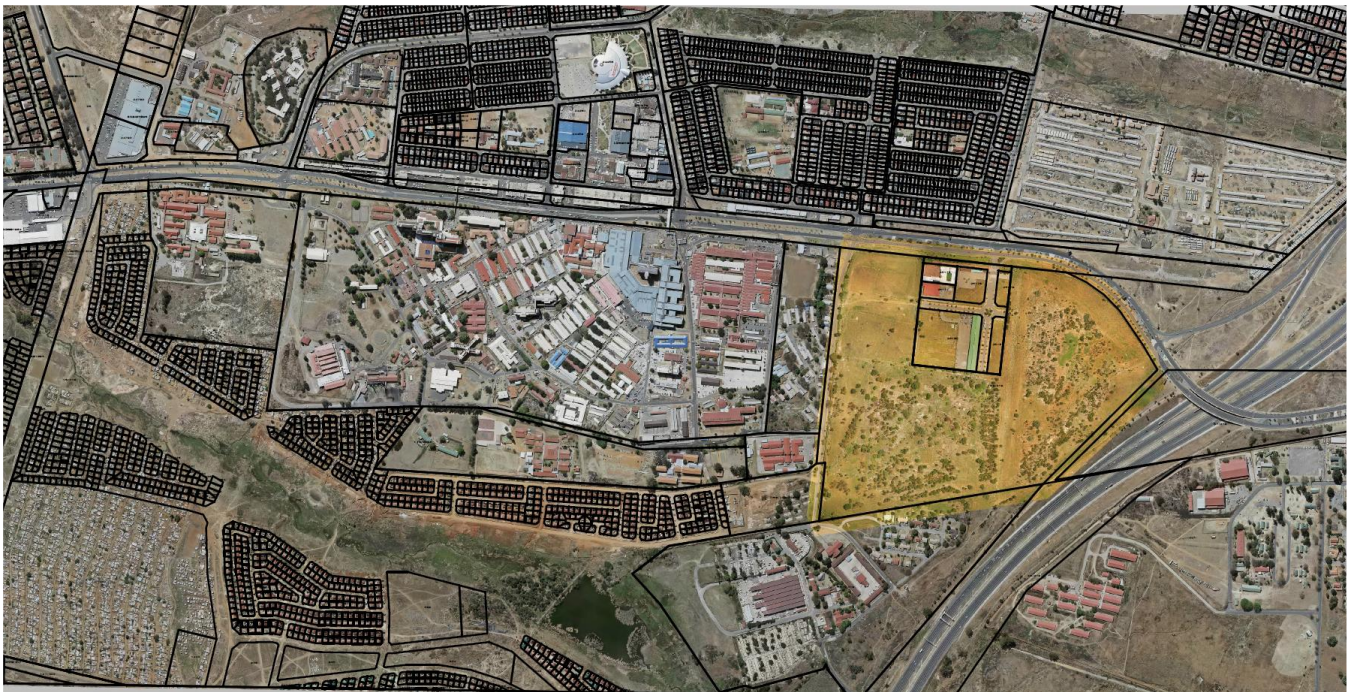




Tshawe Infrastructure Technologies

Civil & Structural Eng, Project Management & Capacity Building

**PORTION 159 OF FARM DIEPKLOOF 319-IQ
GENERAL TRAFFIC SCOPING REPORT
FEBRUARY 2019**



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A traffic impact study or traffic impact assessment is a study which assesses the effect that a particular development has on the transportation network. The study is generally required by roads authorities to evaluate the impact of a change in land use. These studies are a part of the mandatory process to be followed by an application to obtain new land use rights.

A traffic impact study may vary in complexity depending on the size of the development, the current and proposed land use and the location of the development. Various traffic engineering concepts and principles are applied while conducting a traffic impact assessment.

We have conducted traffic impact study for various developments comprising of residential, business, retail, industrial, offices, mixed use developments and also transit oriented developments.

There are several steps within a Traffic Impact Study, including trip generation, trip distribution, mode choice and assignment, which are then followed by capacity analyses and the identification of possible road upgrades. Specific assistance is given to identify road upgrades, to ensure that a realistic first order road upgrade costing is provided which takes into account physical site limitations that might have an impact on the final road upgrades to be recommended.

A traffic impact study is generally used to:

- Assess impact of traffic due to new development (or re-development)
- Support comprehensive plan amendments
- Support rezoning applications
- Support subdivision of land applications
- Obtain site plan approvals
- Obtain driveway or access permits
- As a part of environmental impact assessment
- Prepare traffic mitigation plans
- Determine developer /bulk contribution
- Determine cost apportionment
- Development access/egress and on-site circulation plans

Several important aspects need to be taken into consideration, such as the need for community involvement, the relevant road hierarchy, horizontal and/or vertical deviations required to achieve traffic impact objectives, pedestrian accessibility, existing public transport, schedule and routes of garbage trucks, and the role that decision makers play in the traffic calming process.

The extent of the study area was determined by identifying the intersections in the vicinity of the development on which the traffic generated by the development may have a significant impact. The target years and peak scenarios to be analyzed were not determined as yet, based on the fact that the land-use and extent of the development plan was not clearly defined.

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The existing traffic flow patterns were observed, where after the functioning of the intersections in the area was analyzed. Recommendations were made on the present need for road upgrading, without the development plan.

For the purposes of this study, the following intersections were investigated: -

<input type="checkbox"/> Collinder Rd and Chris Hani Rd	Signaled Intersection
<input type="checkbox"/> Smael St and Marthinus Smuts Dr	Stop controlled with free flow on Smael St
<input type="checkbox"/> Dhlamini St and Marthinus Smuts Dr	Stop controlled with free flow on Marthinus Smuts Dr
<input type="checkbox"/> Baragwanath Rd and Marthinus Smuts Dr	Stop controlled with free flow on Marthinus Smuts Dr
<input type="checkbox"/> Ben Naude St and Marthinus Smuts Dr	Signaled Intersection
<input type="checkbox"/> Ben Naude St and Immink Dr	Signaled Intersection
<input type="checkbox"/> Immink Dr and Baragwanath Rd	Signaled Intersection
<input type="checkbox"/> Immink Dr and Bara Entrance Rd	Signaled Intersection
<input type="checkbox"/> Bara Entrance Rd and Chris Hani Rd	Signaled Intersection
<input type="checkbox"/> Nicholas St and Elias Motsoaledi Rd	Signaled Intersection
<input type="checkbox"/> East St and Golden Highway	Signaled Intersection
<input type="checkbox"/> Collinder Rd and Golden Highway	Signaled Intersection
<input type="checkbox"/> Collinder Rd and Elias Motsoaledi Rd	un-signalized and uncontrolled
<input type="checkbox"/> East St and Elias Motsoaledi Rd	un-signalized and uncontrolled



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DATA COLLECTION AND DESCRIPTION OF EXISTING SITUATION PEAK HOUR TURNING MOVEMENT VOLUMES AT INTERSECTIONS

A high level traffic observation was carried out at the intersections, during the weekday morning (06:00 – 08:30), weekday afternoon (16:00 – 19:00) and Saturday midday (10:00 – 14:00) peak periods. The peak hour traffic volumes, at the intersections

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CAPACITY ANALYSIS OF INTERSECTIONS

The existing peak hour traffic analysis was used to determine the levels-of-service at which the intersection is presently operating.

The levels-of-service of a traffic light controlled intersection is defined in terms of average total vehicle delay (not average stop delay), where delay is a measure of driver discomfort, frustration, fuel consumption and lost travel time. However, for an un-signalized intersection the average total delay for any particular minor movement is a function of the service rate or capacity of the approach and the degree of saturation.

Chris Hani Rd and Collinder St

The eastbound and westbound approaches on Chris Hani Road, experience a high degree of Saturation, during the week and throughout the day, with midday peak hour dropping a little bit. This is because the road is the entrance and exit route out of Soweto, and also the fact that the hospital entrance is off this road, emergency and visitors to the hospital use this road.

Chris Hani Rd and Bara Entrance

The eastbound and westbound approaches on Chris Hani Road, experience a high degree of Saturation, during the week and throughout the day, with midday peak hour dropping a little bit. Weekends, there's a significant increment of traffic especially during the visiting hours of (14:00 to 16:00) and also between (18:00 and 21:00) This is because the intersection is the entrance and exit route of the hospital.

Chris Hani Rd and Nicholas St

The eastbound and westbound approaches on Chris Hani Road, experience a high degree of Saturation, during the week and throughout the day, with midday peak hour dropping a little bit. There is also a university next to this intersection and some of the students use this intersection for left and right turning movements to avoid the above mentioned intersections, so it also has a significant peak during morning and afternoon peaks.

East St and Golden Highway

The intersection is also experiencing high degree of traffic volumes throughout the day, because it is also an alternative route out of Soweto and Eldorado Park. During morning and afternoon peaks, the road is experiencing high volume of traffics and also during the day because of the number of factories in and around the area, during the weekends, the traffic subsides but not too much. The vehicles from Nicholas St also use this intersection to avoid the bara entrance.

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ASSESSMENT OF THE STATUS QUO

Some of the roads will need to be improved to accommodate the new development plan proposal.

Collinder road will have to be given serious attention to accommodate the anticipated increments of traffic flows, and also the possibility of Environmental requirements when the road is to be widened. The road should be widened until the intersection with golden highway, and a traffic signal installed at the same intersection.

Elias Motsoaledi road will also have to be surfaced until at the Nicholas intersection, this will help in reducing the traffic on Chris Hani Road towards the site, however traffic calming measures will have to be implemented on this road, especially after the intersection with east road, this will reduce rat-racing, but provide an alternative to access the site.

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