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Der Brochen Amendment Project

Traffic Assessment for the Der Brochen
 Amendment Project, situated near
 Steelpoort, Limpopo

15 August 2019

Revision: 1

Reference: 502327

Document control record

Document prepared by:

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1977/003711/07

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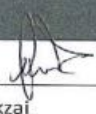

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Document control				aurecon		
Report title		Traffic Assessment for the Der Brochen Amendment Project, situated near Steelpoort, Limpopo				
Document ID			Project number		502327	
File path		P:\Projects\502327 SRK Projects\5 DEL DES\501 Engineering\Reports\Der Brochen\Reports				
Client		SRK	Client contact		Estie Retief	
Rev	Date	Revision details/status	Author	Reviewer	Verifier (if required)	Approver
1	15 August 2019	Final	F Barakzai	F Barakzai	M v Tonder	M v Tonder
Current revision		1				

Approval			
Author signature		Approver signature	
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1 Introduction

SRK Consulting South Africa (Pty) Ltd have appointed Aurecon SA (Pty) Ltd to prepare a Traffic Impact Assessment as part of the EIA for the Der Brochen Amendment Project, situated near Steelpoort, Limpopo.

2 Background

SRK Consulting (SA) (Pty) Ltd (SRK) has been appointed by Anglo American Platinum (AAP) – Rustenburg Platinum Mines Limited (RPM) to undertake the environmental authorisation process for its proposed Der Brochen Amendment Project in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA), National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008) and National Water Act, 1998 (Act No. 36 of 1998) (NWA).

The Der Brochen Mine is a platinum project owned by Rustenburg Platinum Mines Limited (RPM), a wholly owned subsidiary of Anglo American Platinum (AAP). The Der Brochen Project is located approximately 30 km south-southwest of the town of Steelpoort (approximately 40 km by road) and 35 km west of Mashishing (Lydenburg) (approximately 65 km by road). The project area falls within the Greater Tubatse Local Municipality, under the jurisdiction of the Greater Sekhukhune District Municipality. Der Brochen's mining right falls on the following farms:

- Richmond 370 KT;
- St George 2 JT;
- Hermansdal 3 JT;
- Hebron 5 JT;
- Helena 6 JT; and
- Der Brochen 7 JT.

In addition to the above farms, mining related infrastructure and activities are located on the farm Mareesburg 8 JT, such as the Mareesburg tailings storage facility (TSF), associated return water dams and tailings-return water pipeline.

Current approved infrastructure and activities by existing Environmental Management Programmes (EMPrs)) and Water Use Licences (WULs) at the Der Brochen Mine project are as follows:

- Existing facilities and activities:
- Mototolo Concentrator;
- Helena TSF and two associated Return Water Dams (RWDs);
- Raising of the Helena TSF;
- Mine offices (old farm house) and access roads;
- Monitoring weirs (five) with four of the weirs up and downstream of the two authorised wellfields currently monitored;
- Prospecting activities comprising of site preparation, drilling of prospecting boreholes, site rehabilitation and monitoring;
- Trial mining area on the Richmond farm (activity is completed, and the soil stockpile and waste rock dump are well vegetated);
- Abstraction from existing lawful use boreholes,
- Monitoring of surface and groundwater.
- Abstraction from Der Brochen Dam;
- The Helena and Richmond wellfields (only two of the authorised boreholes per well field currently in use);
- Helena and Richmond shafts and associated waste rock dumps;

- Two Open Pits (Northern and Southern Pits) and associated waste rock/overburden dumps and pollution control dam;
- Re-routing of a 132-kV powerline;
- A Co-Disposal Facility (tailings disposal with a rock embankment in the north pit).
- Activities under construction:
- Mareesburg TSF and associated RWD;
- Mareesburg tailings pipeline servitude to Mototolo Concentrator.

3 Proposed Amendment Project Overview

Rustenburg Platinum Mines is considering amending the Der Brochen Mine project to include the following mining related infrastructure and associated activities:

- The South Decline Shaft with associated infrastructure, i.e. water management infrastructure;
- The previously approved North Opencast Pit area with associated infrastructure as previously approved in 2015, i.e. water management infrastructure and waste rock stockpiles;
- Three up-cast ventilation shafts required for the underground workings associated with the South Decline Shaft;
- A Dense Medium Separation (DMS) Plant to be located within the existing footprint area of the Mototolo Concentrator area;
- A DMS Stockpile with associated water management infrastructure;
- The conversion of the existing Mototolo chrome plant from a final tailings' arrangement to an inter-stage arrangement;
- Additional Run of Mine stockpiles and associated silos;
- Change houses and office complex to be located at the proposed South Decline Shaft area;
- An explosive destruction bay area to be located near the proposed South decline shaft;
- Staff accommodation facilities to be located near the Der Brochen Dam; and
- Additional linear infrastructure, i.e.:
 - Two conveyor systems. One conveyor belt system will be constructed to connect the proposed South Decline Shaft with the proposed DMS Plant that will be located in the existing footprint area of the Mototolo Concentrator Plant, for the purpose of transporting ore from the South Decline Shaft to the plant area. Another conveyor belt system will be required to transport DMS material from the proposed DMS Plant to the proposed DMS Stockpile area. It is currently anticipated that the DMS conveyor system will run along the existing Mareesburg tailings pipeline system.
 - Access and haul roads. New access roads to the proposed ventilation shafts will be required for maintenance purposes. Certain existing roads will also be required to be upgraded to provide sufficient access roads to the project related infrastructure such as the North Opencast Pit area, the South Decline Shaft and offices. The mine is also considering including a haul road within the proposed corridor associated with the ore conveyor belt system to transport ore from the proposed South Decline Shaft to the Mototolo Concentrator Plant area as an interim measure, whilst the conveyor belt system is being constructed.

4 Project Location

The Der Brochen project falls within the Greater Tubatse Municipality which forms part of the greater Sekhukhune District Municipality. The project area is surrounded by a good road network with the R577 aligned just to the north and east of the project and the R555 aligned in a north – south direction to the west of the project. The Mine Access Road to the project area, which is approximately 8km long, intersects at a T junction with the R577.

The Mine Access Road is also used by other mines in the vicinity of Der Brochen to transport goods and people to and from these mining activities. The term Mine Access Road as used in this report, refers to that section of road from the R577 to the proposed Der Brochen project security gate. The Der Brochen project access gate is shared with the neighbouring Booyensdal Mine, with each company having a dedicated security control point where visitors and staff enter and exit. Beyond the dedicated security control point however, both streams of traffic merge onto one road and proceed further south until the Der Brochen project access road splits onto a gravel road. Only Der Brochen and Booyensdal mine generated traffic use this section of the Road.

The location of Der Brochen Mine in relation to the surrounding road network is shown in the Figure below.



Figure 1: Locality

5 Overview of Relevant Legislation and Standards

The specialist traffic and transportation study has been undertaken in accordance with the following legislation and standards where applicable:

- Minerals and Petroleum Resources Development Act (MPRDA, Act 28 of 2002)
- National Environmental Management Act (NEMA, Act 107 of 1998) and amendments
- National Water Act (NWA, Act 36 of 1998)
- Conservation of Agricultural Resources Act 43 of 1983
- Environment Conservation Act 73 of 1989
- National Environmental Management: Biodiversity Act 10 of 2004
- National Environmental Management: Air Quality Act 39 of 2004
- National Environmental Management: Waste Act 59 of 2008
- Mine Health and Safety Act 29 of 1996
- National Heritage Resources Act 25 of 1999
- Health Act 63 of 1977
- Local bylaws
- The National Road Traffic Act 93 of 1996

In addition, this specialist traffic and transportation study has also referred to the following guideline documents:

- TMH 16 Volume 1, South African Traffic Impact and Site Traffic Assessment Manual, 2012.
- TMH 16 Volume 2, South African Manual for Traffic Impact and Site Traffic Assessment Standards and Requirements Manual, 2014.
- TMH 17 South African Trip Data Manual
- Southern African Road Safety Manual (National Department of Transport 1999) which gives guidelines and the methodology to undertake a road safety assessment of existing roads.
- Southern African Development Community Road Traffic Signs Manual (South African Department of Transport)
- National Guidelines for Traffic Calming (South African Department of Transport) COD Report CR-96/036

6 Road Description

6.1 Provincial Road R555

Provincial Road R555 is the main road that links the towns of Emalahleni (Witbank) and Middelburg in the south and Burgersfort in the north, to the town of Steelpoort. The R555 is a 2-lane single carriageway road with one lane in each direction. Each lane is approximately 3,7m wide. The R555 forms part of the regional road network linking Gauteng in the east and the Limpopo Province in the west that also serves the vast mining areas of Witbank and Ogies.

The R555 is an asphalt surfaced road with unpaved shoulders and with a 60km/hr speed restriction in the vicinity of the Tubatse Chrome Plant, thereafter it is 80km/hr. The horizontal alignment of the R555 within the study area is fairly straight while the vertical alignment is predominantly flat.

The pavement condition of this road ranges from fair to poor with potholes, rutting, ravelling, cracking and patching is evident in certain sections. There are no formal sidewalks along the R555. Pedestrians were observed walking on the unpaved shoulders and verges. There are no formal public transport facilities along the R555 in the vicinity of the Der Brochen project, however mini bus taxis were observed stopping randomly at numerous locations along this section of road.



Figure 2: R555

6.2 Provincial Road R577

Provincial Road R577 also forms part of the surrounding regional road network that links the town of Lydenburg to the east, with the R555 to the west, passing the mine access road in an east-west direction. It is a two-way two-lane road with 3.7m wide lanes, and local widening at the major intersecting roads, allowing right turning vehicles to turn in the protection of a right-turn lane.

This road is one of the main access routes for mine workers from Lydenburg as well as Steelpoort and Burgersfort. The alignment of the R577 in the vicinity of the access road to the Der Brochen project is fairly straight and the vertical alignment is predominantly flat.

The pavement condition of this road also ranges from fair to poor with potholes, rutting, ravelling, cracking and patching visible in certain sections. There are no formal sidewalks, public transport

facilities, or street lighting. Pedestrians were observed at the mine access road intersection, waiting for public transport or hitch hiking, with minibus taxis and random cars pulling off onto the roadside to pick up passengers.



Figure 3: R577

6.3 District Road D1261

D1261 is a District Road that links the R577 in the south to the R555 in the north. It is a two lane, two-way asphalt surfaced road with 3.7m lanes, gravel shoulders, and a speed limit of 80km/hr, reducing to 60km/hr near the several mine access intersections. The D1261 road also has local widening at each mine access road, allowing through vehicles to safely pass vehicles waiting to turn into the mines.



Figure 4: D1261

6.4 Mine Access Road to the Der Brochen Project & Booyssendal Mine Main Gate

The access road from the R577 to the main entrance gate of the Der Brochen Project & Booyssendal Mine also serves a further 5 mining activity nodes along its length. The road is a two-lane two-way road with 3.5m lanes and gravel shoulders. This road is approximately 8km long and is fairly windy with a relatively flat vertical alignment and a speed limit of 60km/hr.

There are high volumes of heavy vehicles waiting to load at each mine, sometimes to the point where they block the access road for a few minutes with their activity. The road condition is moderate with the occasional pothole and edge breaks. There are no pedestrian facilities or public transport facilities along the road nor is there street lighting



Figure 5: Mine Access Road

6.5 Der Brochen Project Access Gate

The Der Brochen project access gate is shared with the neighbouring Booyssendal Mine, with each organisation having a separate, dedicated security control point where visitors and staff enter and exit. From the dedicated security control point however, both streams of traffic merge onto one road and proceed further south. This road is referred to as the Internal Access Road leading to the Der Brochen Mine and Booyssendal Mine.



Figure 6: Der Brochen and Booyssendal Mines Access Gate

6.6 Internal Access Road leading to Der Brochen and Booyssendal Mine

The internal Access Road that leads to the Der Brochen Mine and Booyssendal Mine commences at the Mine Entrance Gate and is a continuation of the Mine Access Road. The internal Mine Access Road is only utilised by the Der Brochen Mine and Booyssendal Mine.

This is an asphalt surfaced road approximately 11km long. Road widths range between 5m - 6m. It is a two-lane two-way road. The site visit showed low volumes of traffic along this road. The speed limit of this road is 40km/h.



Figure 7: Internal Access Road leading to Der Brochen and Booyssendal Mines

7 Traffic Counts

The road network that is likely to be used by Der Brochen project workers, for the transportation of materials and equipment and for the transportation of the mined ore is expected to be mainly north towards Steelpoort and the surrounding areas, using the mine access road, R577, D1261, and R555.

In order to assess existing traffic conditions, classified (by vehicle type) traffic counts were undertaken on a typical weekday on Tuesday 30th October 2018 by Bala Survey and Research CC at the following three intersections on the surrounding road network which are deemed to be the three intersections that will be impacted the most by the additional mine generated traffic at Der Brochen:

- R577 and the Access Road to the Der Brochen project (this road also serves other mining activity along its length)
- R577 and D1261
- D1261 and R555

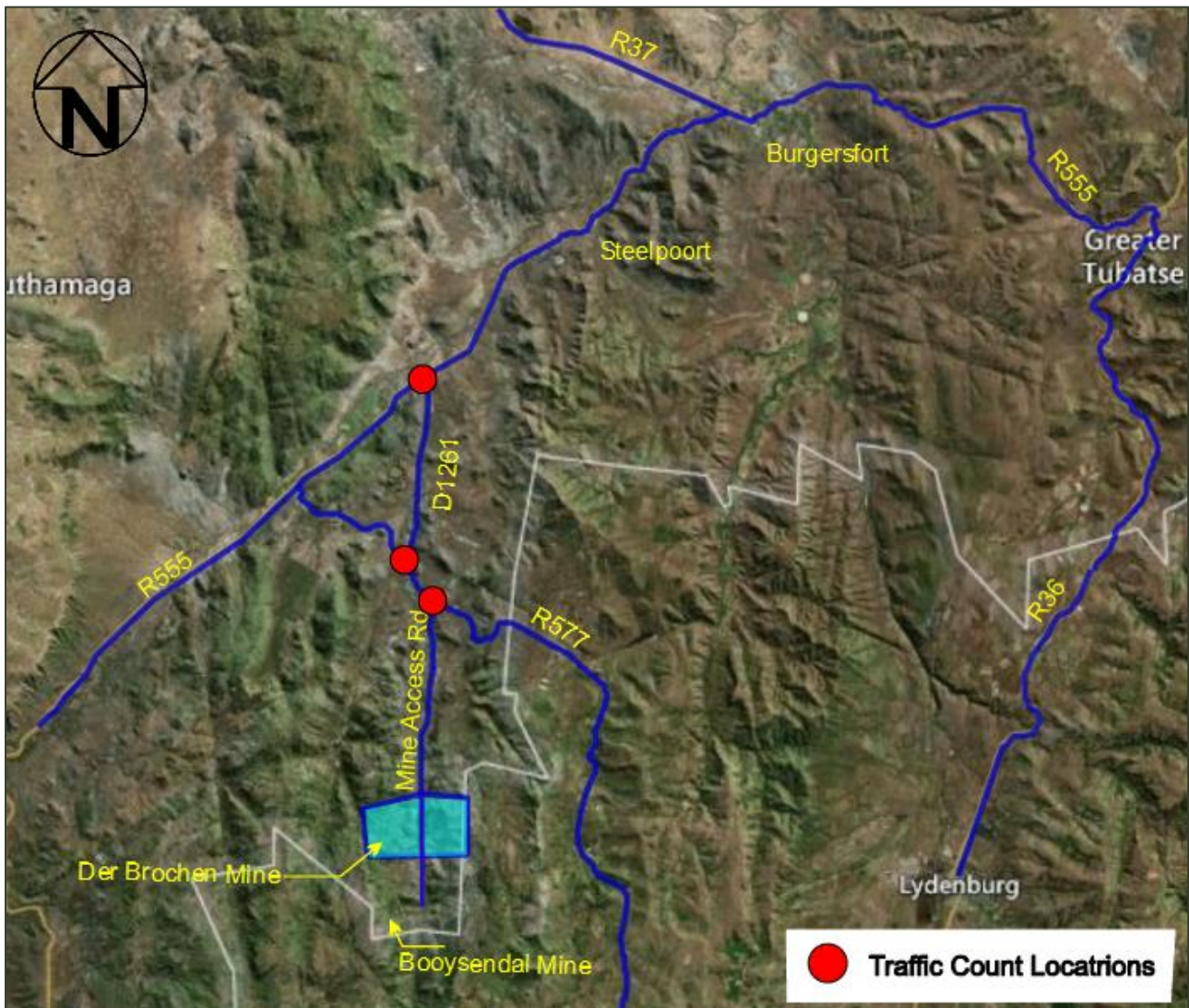
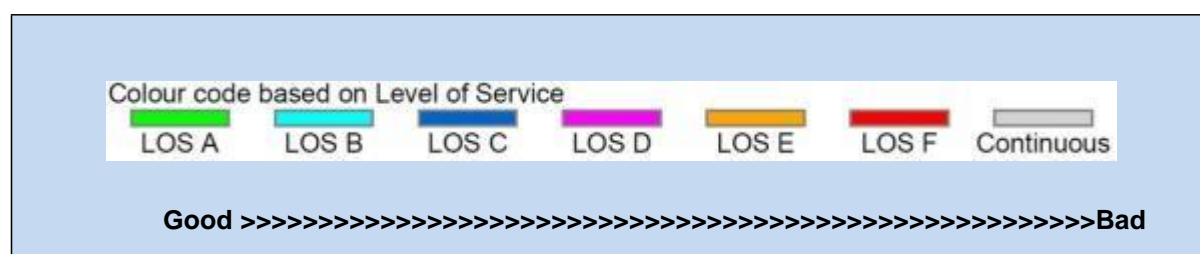


Figure 8: Traffic count locations

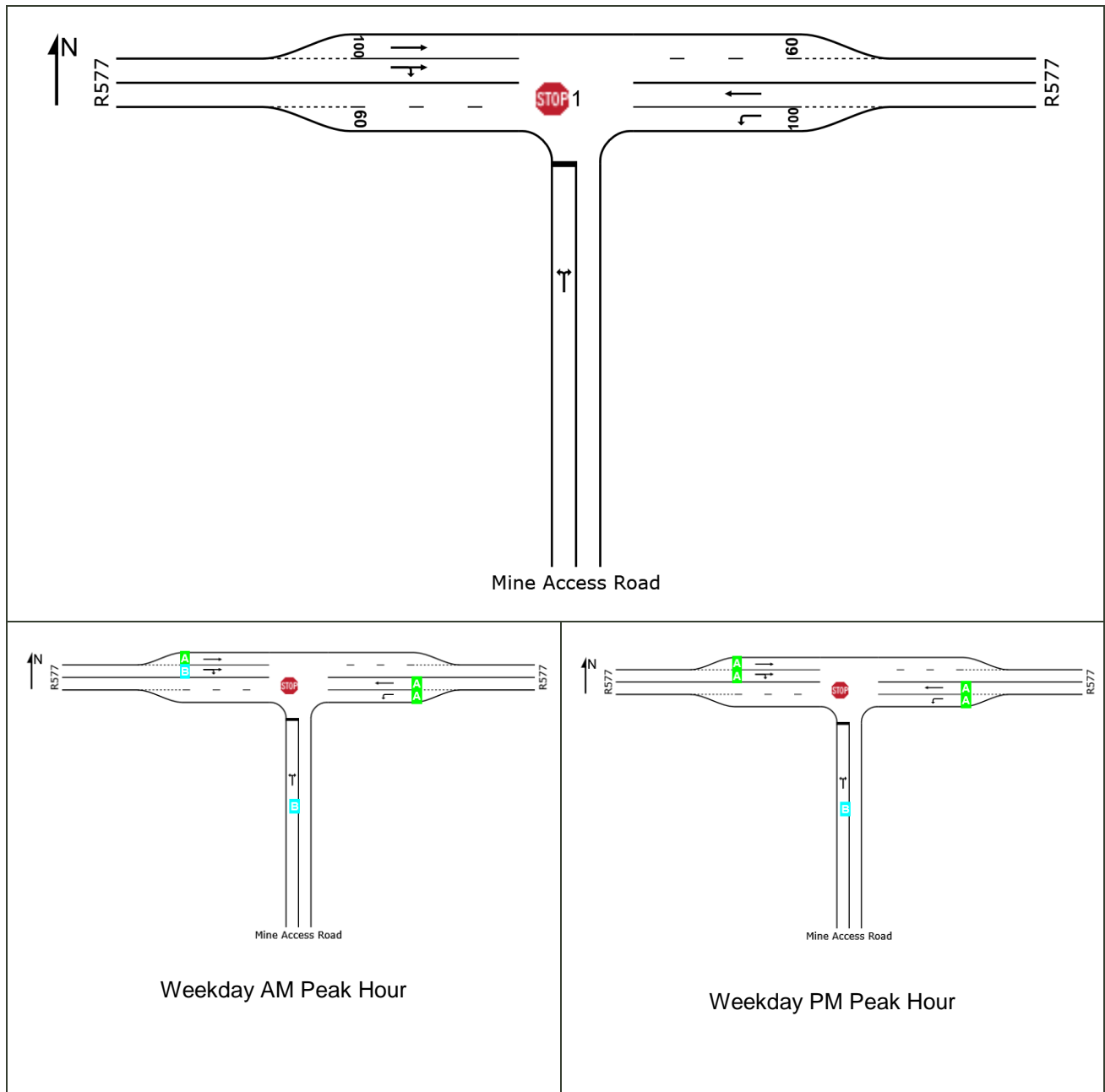
The existing traffic volumes are shown in the figure below.

8.1 Method of Analysis

The road network surrounding the development will be analysed in detail and the current levels of service on the existing road network will be discussed in detail in this Chapter. The levels of service at each intersection will be presented schematically. The following legend will be used to depict the LOS of each movement at the intersections.

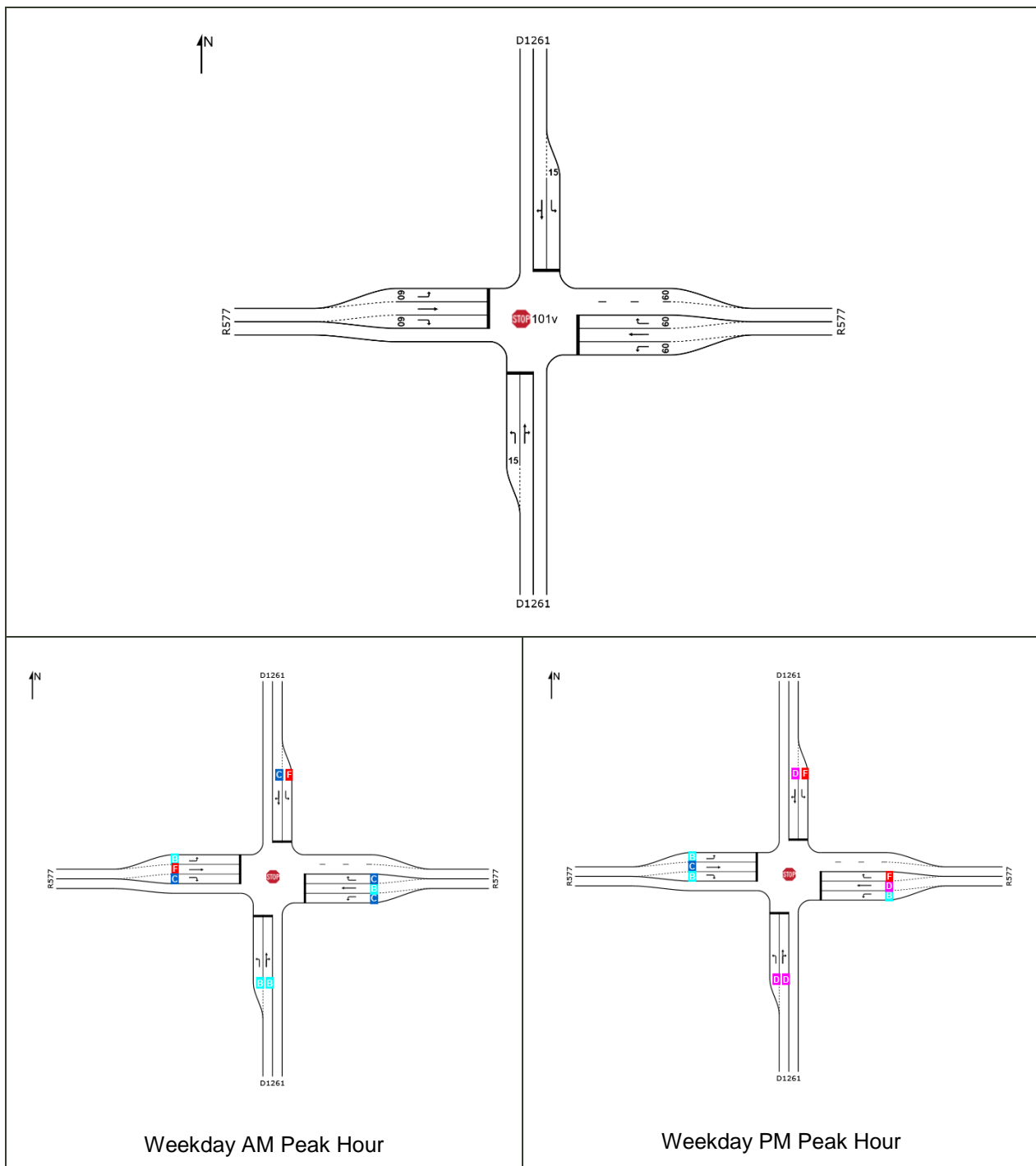


8.2 Intersection of R577 and the Mine Access Road



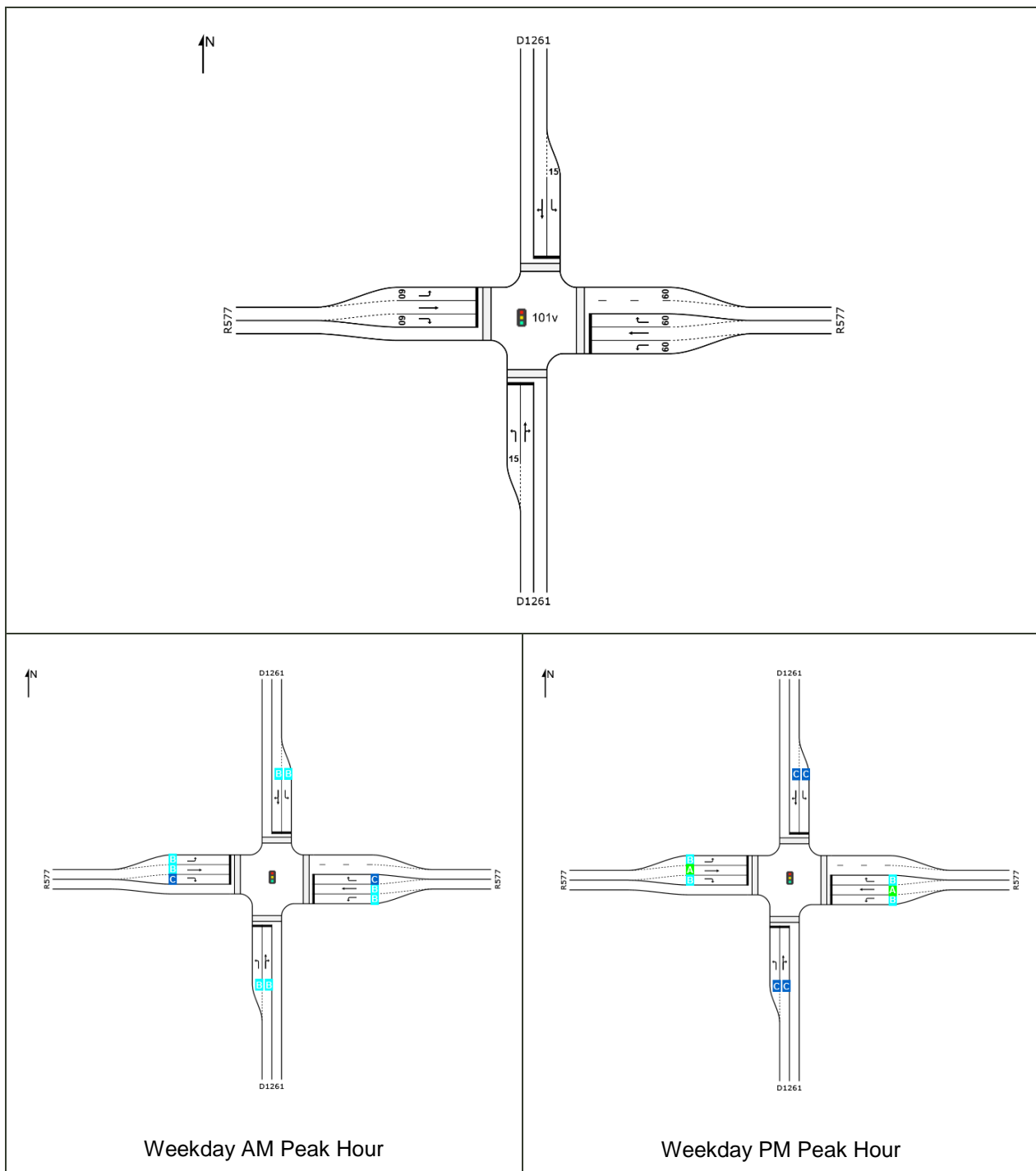
The intersection analysis using SIDRA software indicates that this intersection currently operates at acceptable levels of service.

8.3 Intersection of R577 and D1261



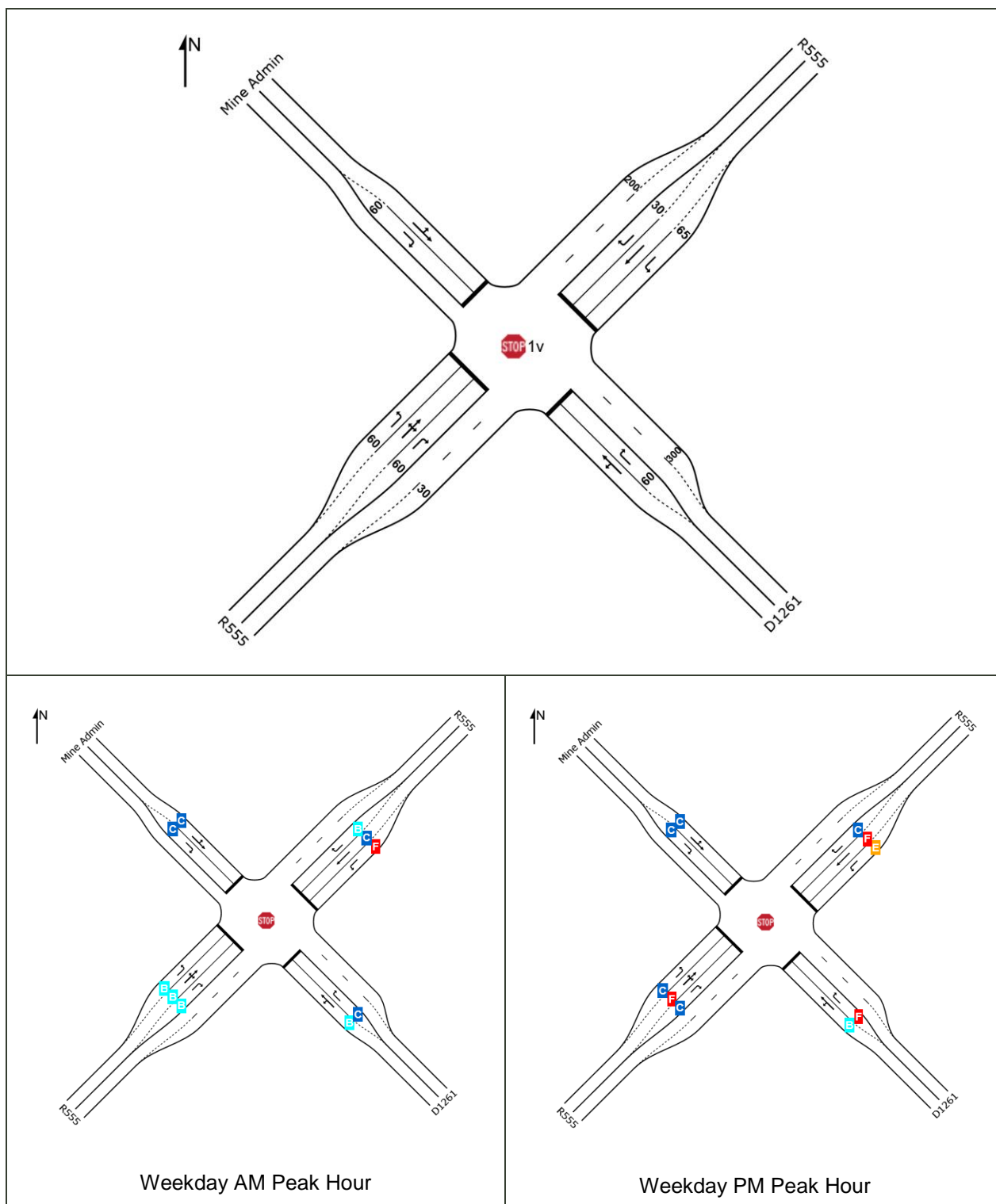
The intersection analysis using SIDRA software indicates that this intersection currently fails during the AM and PM peak hour. This intersection will require upgrading to accommodate background traffic.

8.4 Intersection of R577 and D1261 – Upgrade to Traffic Signals

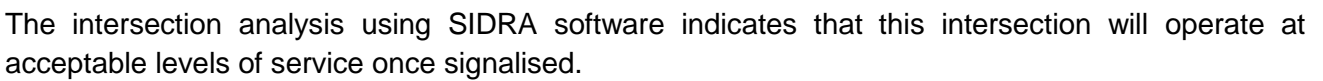


The intersection analysis using SIDRA software indicates that this upgraded intersection will operate at acceptable levels of service once signalised.

8.5 Intersection of D1261 and R555



The intersection analysis using SIDRA software indicates that this intersection currently fails for the north-east approach left-turn movement during the AM peak hour and the north-east, south-east and south-west approaches during the PM peak hour. This intersection will require upgrading to accommodate background traffic.



8.7 Existing Public Transport Infrastructure

The current operations are such that most mines have local private transport service providers for their workers. These are contracted bus or minibus taxi services that pick-up and drop-off workers at the mines. The public transport services pick up and drop off mine workers at the mine gate and therefore there is very little pedestrian activity along the mine access road. There is pedestrian activity at the mine access gates, however there are no pedestrian or public transport facilities at the mine gates.

There are public transport services for the general public on the mine access road. Both buses and minibus taxis operate to and from the locality of Thorncliffe that is situated adjacent to the Mine Access Road. There is a formal bus rank called Thorncliffe Bus Stop and an informal minibus taxi rank called Thorncliffe taxi rank in Thorncliffe. These are located on either side of the mine access road.

Shelters and loading bays are provided in the Thorncliffe Bus Stop. The Thorncliffe minibus taxi rank is informal and has no infrastructure.





8.8 Existing Pedestrian and Bicycle Activity

A few pedestrians and no cyclists were observed on the road network in the immediate vicinity of the Der Brochen project area. A concentration of pedestrian activity was observed to the north, along the R555, in the vicinity of the commercial and residential areas around Steelpoort and Burgersfort. The pedestrians use the wide unpaved shoulders and wide verges of the R555. Pedestrians do not impede the flow of traffic on any of the roads within the study area.

No pedestrians were observed along the R577 except in the immediate vicinity of the mine access road intersection. There is thus very little conflict between pedestrians and traffic along the roads in the vicinity of the mine.

8.9 Existing Road Safety Conditions

Based on observation during the site visit, the road safety conditions along the R555 and R577 are generally acceptable during the day when visibility is good and smaller vehicles are able to overtake the heavy vehicles fairly safely.

The vehicle speeds and driver behaviour within the study area are generally good based on observation during the site visit, with the occasional vehicle exceeding the speed limit. There is signage displaying the maximum permissible speed on the R555 and R577 and advanced warning signs for the presence of slower moving heavy vehicles on these sections of road.

From observation, pedestrian activity did not pose a road safety threat on any of the roads surrounding the project area.

9 Development Infrastructure

Rustenburg Platinum Mines is considering amending the Der Brochen Mine project to include a new decline shaft with associated ventilation shafts to access new underground mining operation areas via on-reef mining namely the South Portal. The following are proposed mining related infrastructure and associated activities:

- The South Decline Shaft with associated infrastructure, i.e. water management infrastructure;
- The previously approved North Opencast Pit area with associated infrastructure as previously approved in 2015, i.e. water management infrastructure and waste rock stockpiles;
- Three up-cast ventilation shafts required for the underground workings associated with the South Decline Shaft;
- A Dense Medium Separation (DMS) Plant to be located within the existing footprint area of the Mototolo Concentrator area;
- A DMS Stockpile with associated water management infrastructure;
- The conversion of the existing Mototolo chrome plant from a final tailings' arrangement to an inter-stage arrangement;
- Additional Run of Mine stockpiles and associated silos;
- Change houses and office complex to be located at the proposed South Decline Shaft area;
- An explosive destruction bay area to be located near the proposed South decline shaft;
- Staff accommodation facilities to be located near the Der Brochen Dam; and
- Additional linear infrastructure, i.e.:
 - Two conveyor systems. One conveyor belt system will be constructed to connect the proposed South Decline Shaft with the proposed DMS Plant that will be located in the existing footprint area of the Mototolo Concentrator Plant, for the purpose of transporting ore from the South Decline Shaft to the plant area. Another conveyor belt system will be required to transport DMS material from the proposed DMS Plant to the proposed DMS Stockpile area. It is currently anticipated that the DMS conveyor system will run along the existing Mareesburg tailings pipeline system.
 - Access and haul roads. New access roads to the proposed ventilation shafts will be required for maintenance purposes. Certain existing roads will also be required to be upgraded to provide sufficient access roads to the project related infrastructure such as the North Opencast Pit area, the South Decline Shaft and offices. The mine is also considering including a haul road within the proposed corridor associated with the ore conveyor belt system to transport ore from the proposed South Decline Shaft to the Mototolo Concentrator Plant area as an interim measure, whilst the conveyor belt system is being constructed.

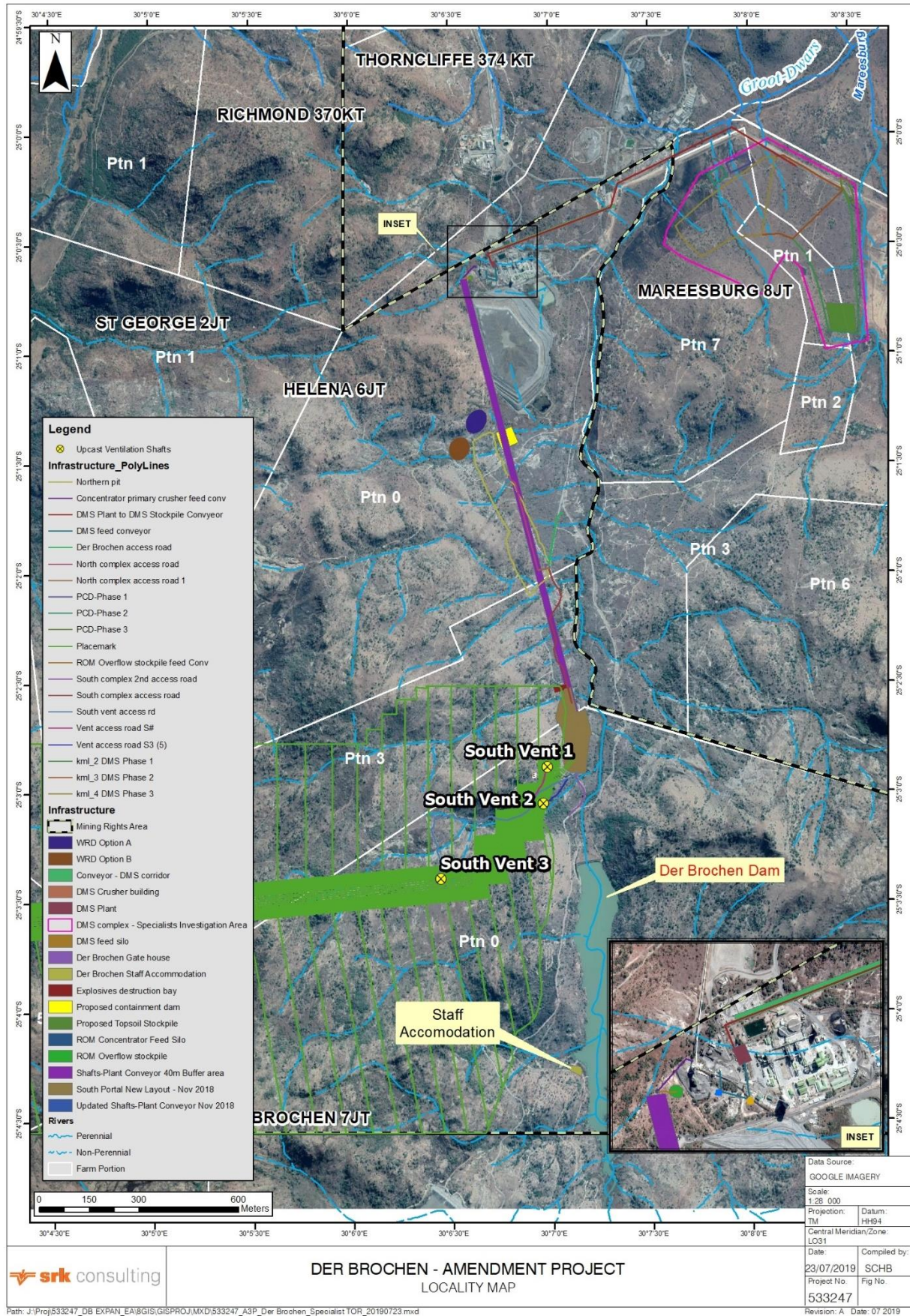


Figure 10: Der Brochen Mine Layout



10 Traffic Demand Estimation

The proposed new mining activity at Der Brochen project will generate additional traffic on the surrounding road network during both the construction phase and during the operational phase. These two phases will occur consecutively and are therefore two different scenarios that will be described and analysed accordingly. The capacity analysis of all existing plus Der Brochen project generated traffic is the assessment of the cumulative impact of the project.

10.1 Analysis Scenarios

In order to assess the worst-case scenario, the traffic impact will be analysed as follows:

1. Construction of the South Portal and related infrastructure.
2. Operations of the South Portal and related infrastructure in the 5-year horizon.
3. 10-year horizon analysis.

The estimated employment figures as well as the haulage truck volumes for the construction and operational phases of the Der Brochen project were provided by RPM. These are discussed below.

10.2 Construction Phase

10.2.1 Construction Workforce Traffic

The volume of traffic currently entering and exiting the Der Brochen project will increase during the construction phase as a result of the construction workforce. The construction of the additional infrastructure will require a construction workforce of approximately 125 workers during the peak of the proposed construction. Some of the workforce will be sourced from the local communities in the vicinity of Steelpoort, Burgersfort and possibly Lydenburg. The remainder of the workforce will arrive from other towns and will seek accommodation in close proximity to the project for the sake of convenience.

The managerial, skilled and semi-skilled construction workers ($\pm 20\%$) which equates to 25 workers are expected to use light passenger vehicles to travel to and from work. Assuming a vehicle occupancy rate of 1.5 persons per vehicle, these categories of workers are expected to generate 17 light vehicles entering the facility during the AM peak hour and similarly 17 vehicles exiting the facility during the PM peak period. This will generate an additional 34 two-way trips per day. The remaining 80% of the workforce is expected to travel to the site by company buses. Using an occupancy rate of 60 persons per bus, the unskilled workers are expected to generate 2 additional bus trips during the AM peak hour (1 bus arriving and 1 bus leaving the gate). Similarly, 2 additional bus trips will be generated during the PM peak hour. This equates to 6 equivalent car units. (1 bus = 3 equivalent car units)

The distribution of this construction traffic is expected to be approximately similar to the existing distribution of traffic using the surrounding road network.

Given the estimated low volume of construction traffic daily and during the peak periods, it is not expected that this additional traffic will have any detrimental impact on the level of service (LOS) on the surrounding road network.

10.2.2 Construction Vehicles

The construction activities at the proposed Der Brochen project will generate additional heavy vehicle traffic on the surrounding road network as a result of the construction vehicles travelling to and from the mine transporting equipment and construction materials. Since there are no major suppliers in Steelpoort, raw materials will be sourced from neighbouring or distant commercial sources. It is envisaged that the delivery vehicles will be deployed from their origins in the morning. The expected arrival times of these vehicles will fall outside of the traditional AM peak hour in. Similarly, these vehicles will leave for their origins before the PM peak hour to be back in time. A maximum of 2 delivery trucks will deliver material to site each day. Therefore, the impact of the heavy construction vehicles on the external road network is also expected to be negligible during the peak hours.

In addition, 7 earth moving equipment and approximately 15 light vehicles will travel within the mine on a daily basis, these construction vehicles will not travel on the public road and hence will have little or negligible impact on the surrounding road network.

10.2.3 Summary of Traffic Generated during Construction Phase

The construction phase will thus generate a total of 23 veh/h two-way during the AM and PM peak hours, which is considered to be very low in traffic analysis terms.

		AM PEAK HOUR		PM PEAK HOUR	
	Equivalent Number of Peak Hour Passenger Car Unit Trips				
	Total Two Way	IN	OUT	IN	OUT
Construction Staff	23	20	3	3	20
Construction Vehicles	Negligible				
Total Vehicles per Hour	23	20	3	3	20

Table 1: Total ECU's for the Construction Phase

10.3 Operational Phase

10.3.1 Employees

Employees will be employed to operate the new activities at the proposed Der Brochen project. The operational phase will see the same number of workers as the construction phase described above (125). All management, skilled and semi-skilled labour will travel to work in private cars while the unskilled employees will be transported by mine transport.

Based on vehicle occupancy rates of 1,5 for passenger cars and 60 for buses, the additional workforce that will be employed at the plant will generate 23 veh/h two way in the AM and PM peak hours.

10.3.2 Heavy Delivery Vehicles

The mine is expected to dispatch a maximum of approximately 160 tonnes of concentrate per day being transported north onto the R555 by truck to the Polokwane smelter. The carrying capacities of the trucks is 30 tonnes, and this will then generate 6 trucks per day two-way which equates to a maximum of approximately 1 truck two-way in an hour. This equates to 3 equivalent car units in the peak hour two way which is negligible in terms of traffic impact.

10.3.3 Summary of Traffic Generated during Operational Phase

The operations phase will thus generate a total of 23 equivalent car units during the AM and PM peak hour which is considered to be very low in traffic analysis terms.

		AM PEAK HOUR		PM PEAK HOUR	
	Equivalent Number of Peak Hour Passenger Car Unit Trips				
	Total Two Way	IN	OUT	IN	OUT
Operations Staff	23	20	3	3	20
Operations Vehicles	Negligible				
Total Vehicles per Hour	23	20	3	3	20

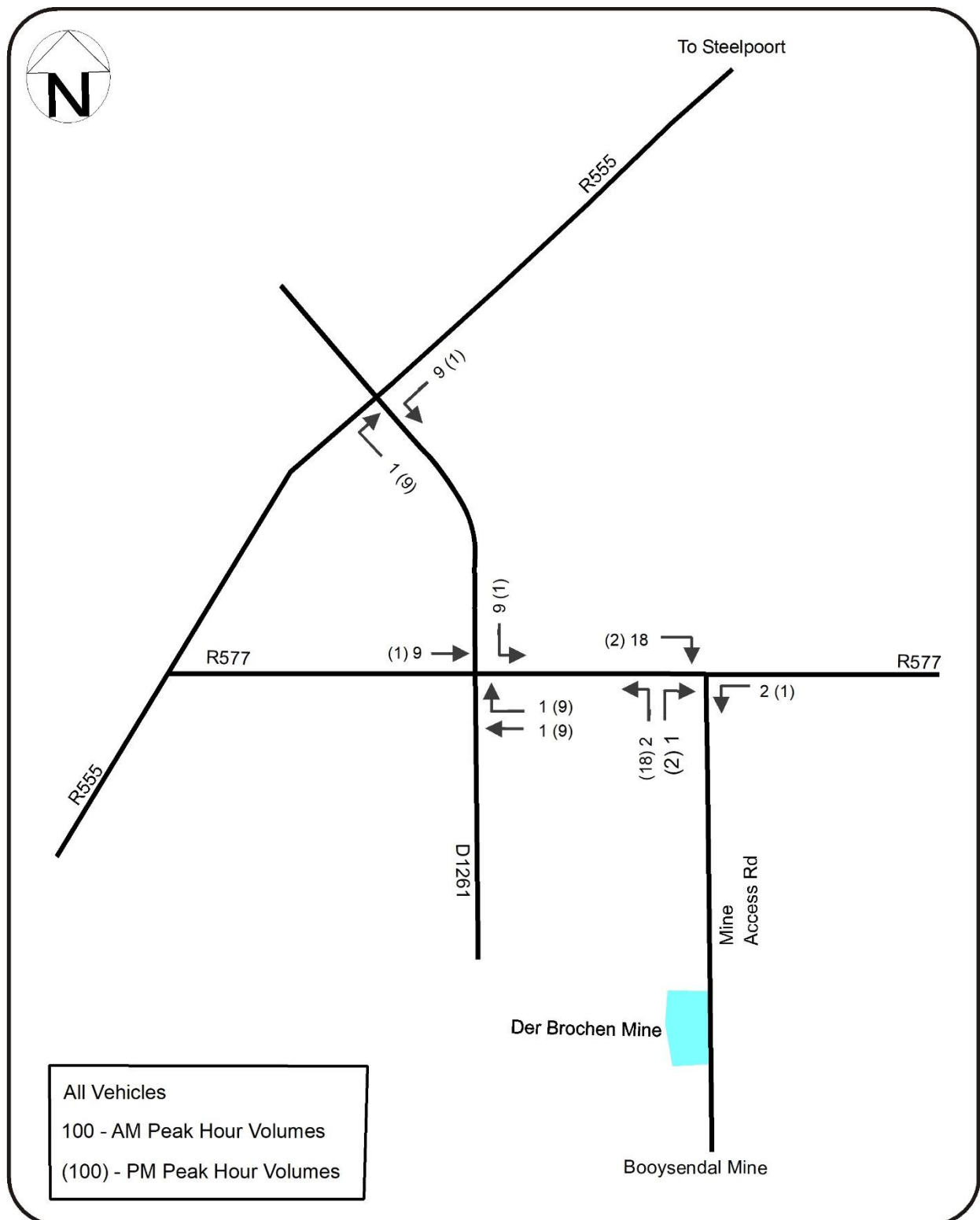
Table 2: Total ECU's for the Operational Phase



11 Trip Distribution and Traffic Assignment

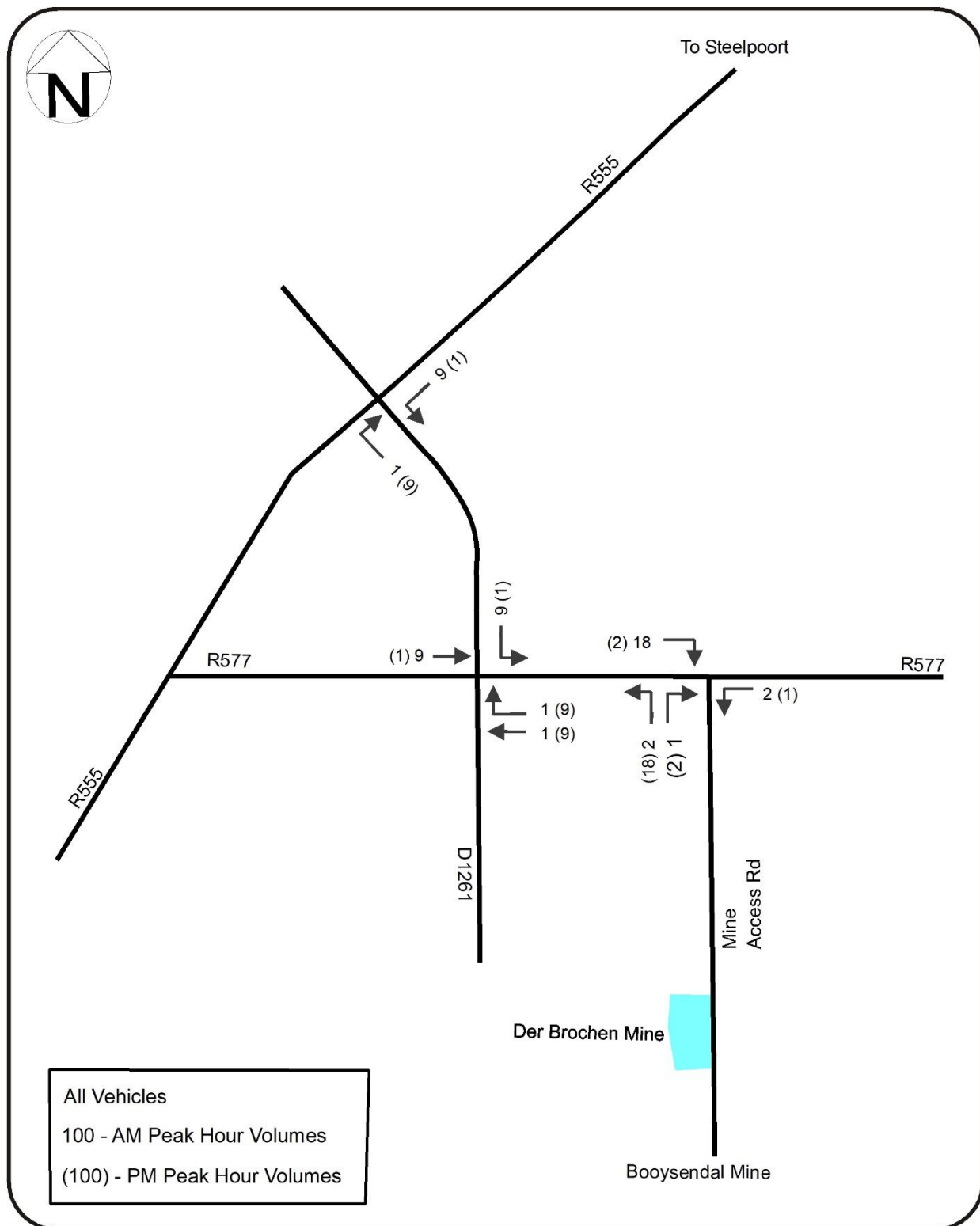
The distribution of the light vehicle traffic generated by the proposed Der Brochen project is expected to be in similar ratios to the distribution of the existing weekday AM and PM peak hour traffic travelling along all the roads and through all of the intersections on the surrounding road network. The traffic generated by the trucks will travel to and from the Polokwane smelter in the north using the R577, D1261 and R555.

Based on the above distribution pattern, the generated traffic volumes for the construction and operational phases were assigned onto the road network, as shown in the figures below.



aurecon	Construction Phase Traffic Volumes Proposed Der Brochen Project	PROJECT: 502327
August 2019	AURECON (PTY) LTD	SCALE: Not to Scale

Figure 11: Traffic Generated During Construction Phase



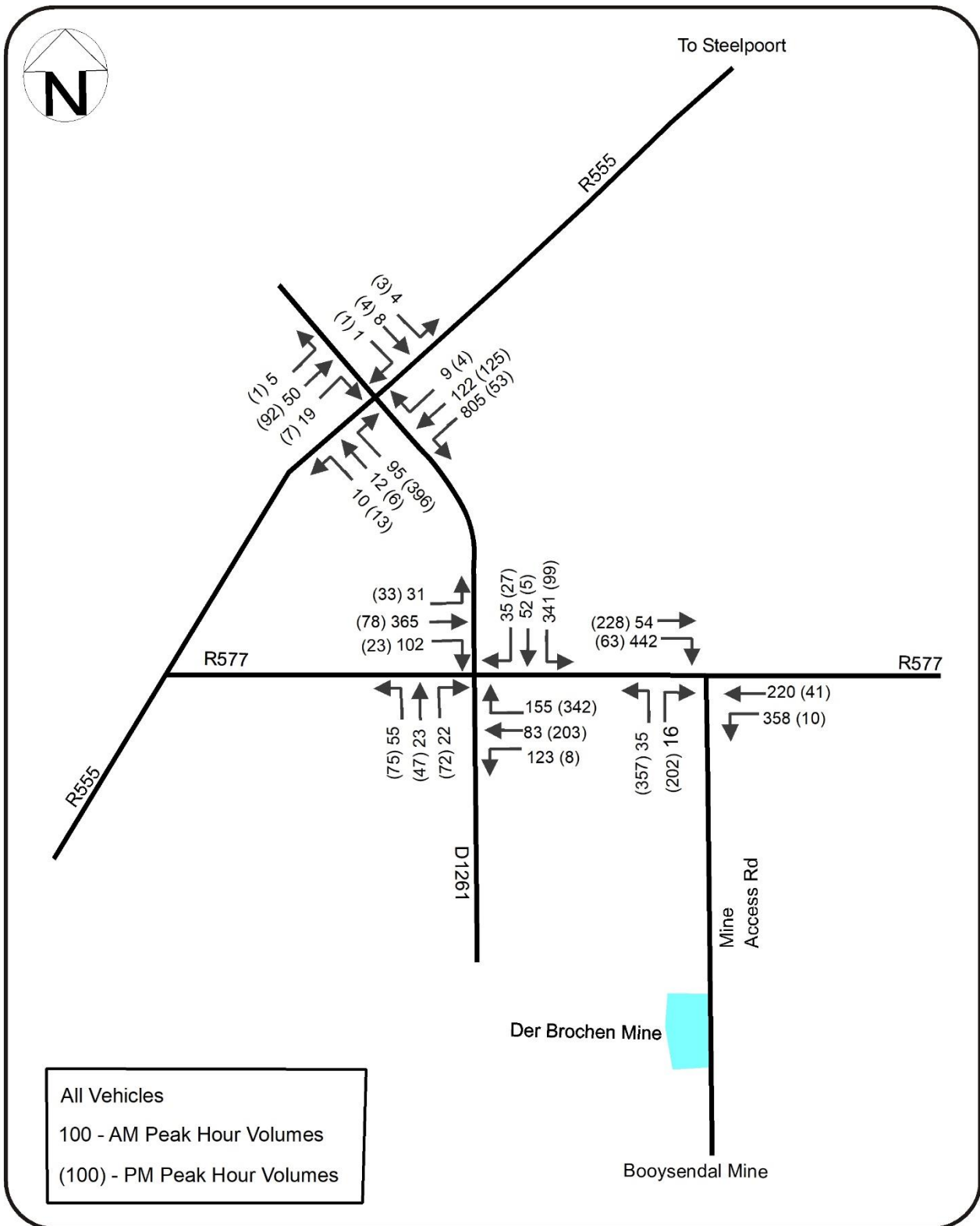
aurecon	Operational Phase Traffic Volumes Proposed Der Brochen Project	PROJECT: 502327
August 2019	AURECON (PTY) LTD	SCALE: Not to Scale

Figure 12: Traffic Generated During Operational Phase



12 Existing Background Traffic plus Construction Phase Analysis

This scenario will analyse the existing background traffic plus the traffic generated due to the construction activities of the proposed mine. The figure below shows the traffic volumes in this scenario.




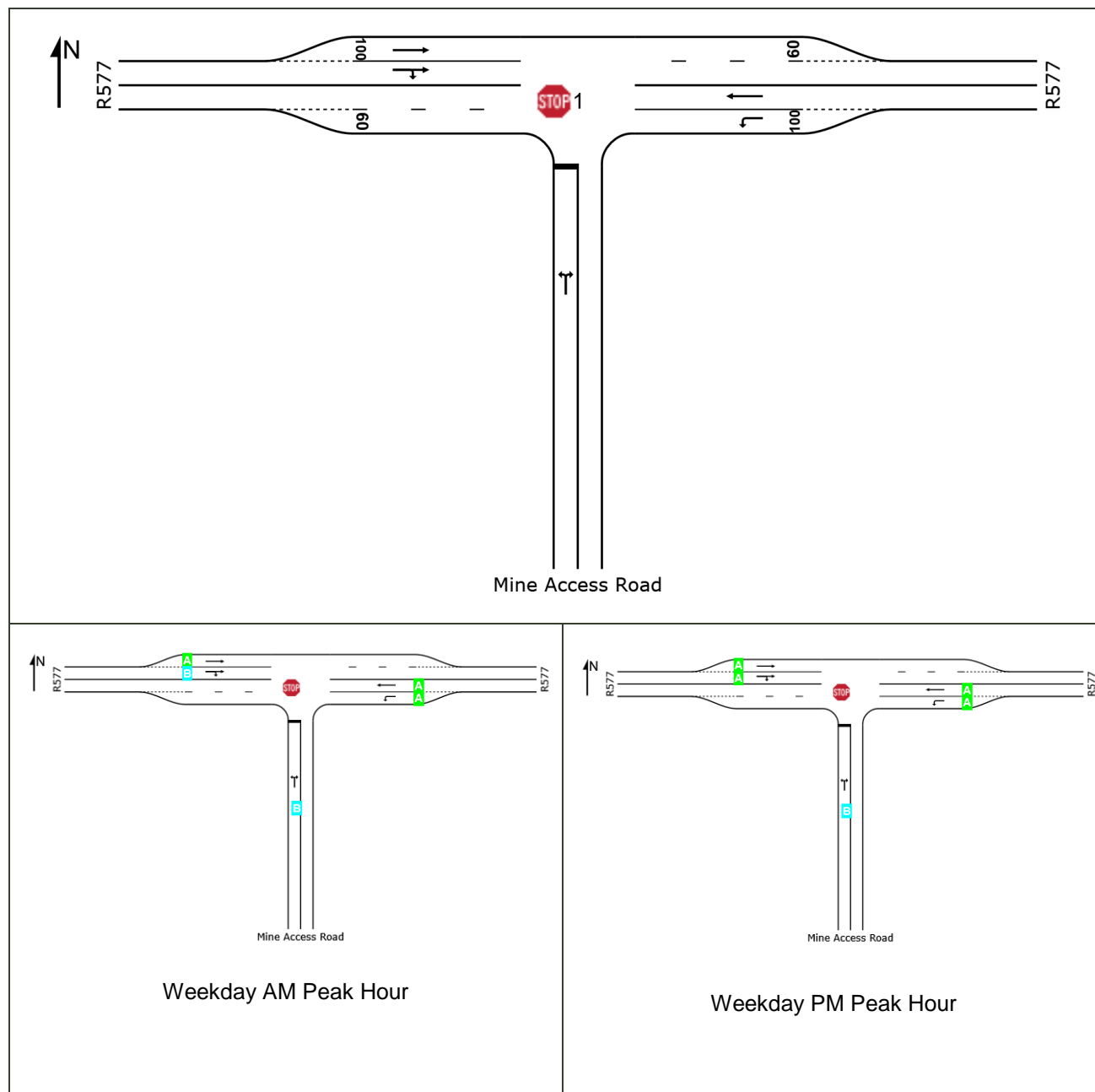
	Existing plus Construction Phase Traffic Volumes Proposed Der Brochen Project	PROJECT: 502327
August 2019	AURECON (PTY) LTD	SCALE: Not to Scale

Figure 13: Existing background plus construction phase traffic volumes

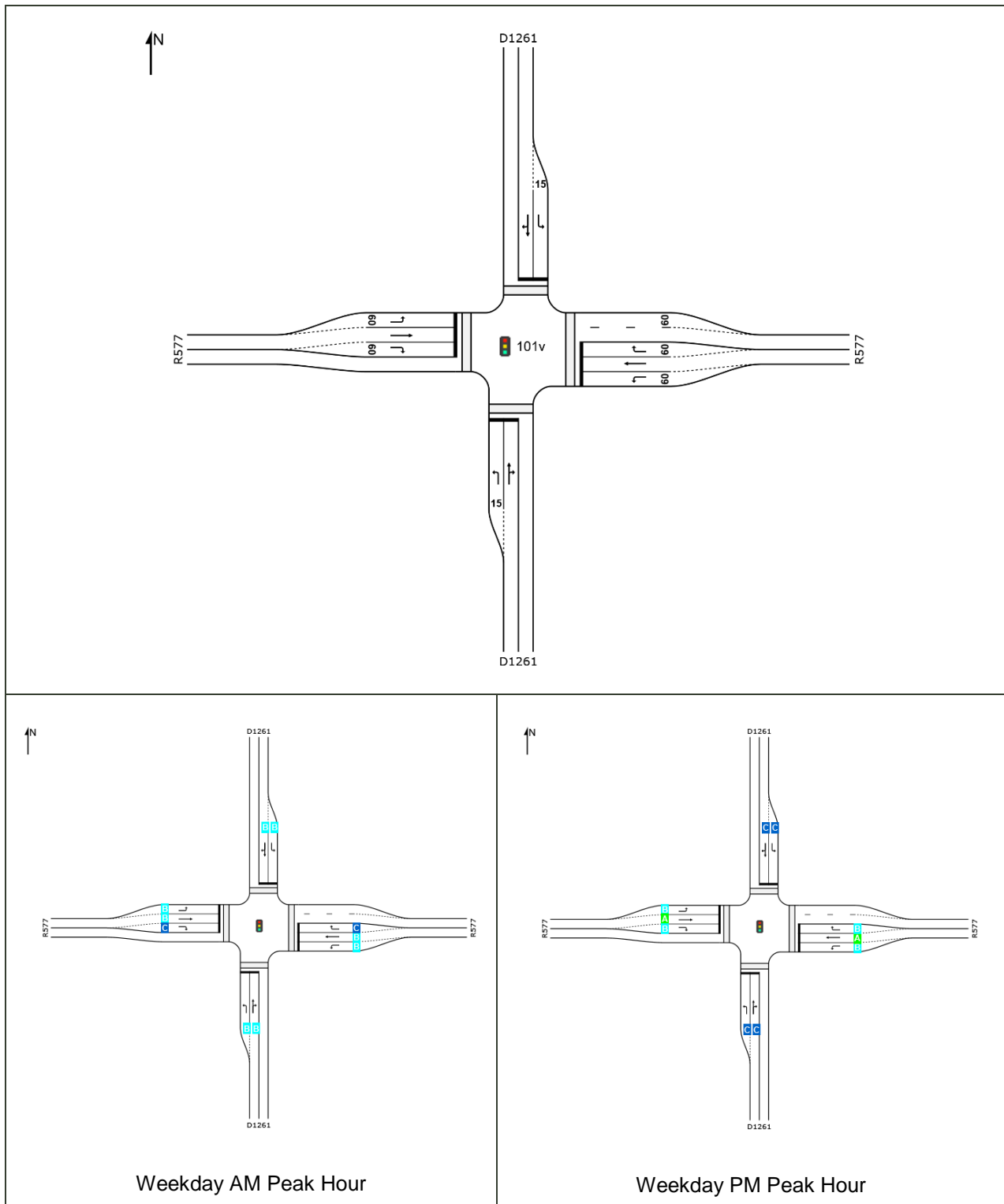
The upgrades recommended in the existing scenario will be considered to have been implemented already.

12.1 Intersection of R577 and the Mine Access Road



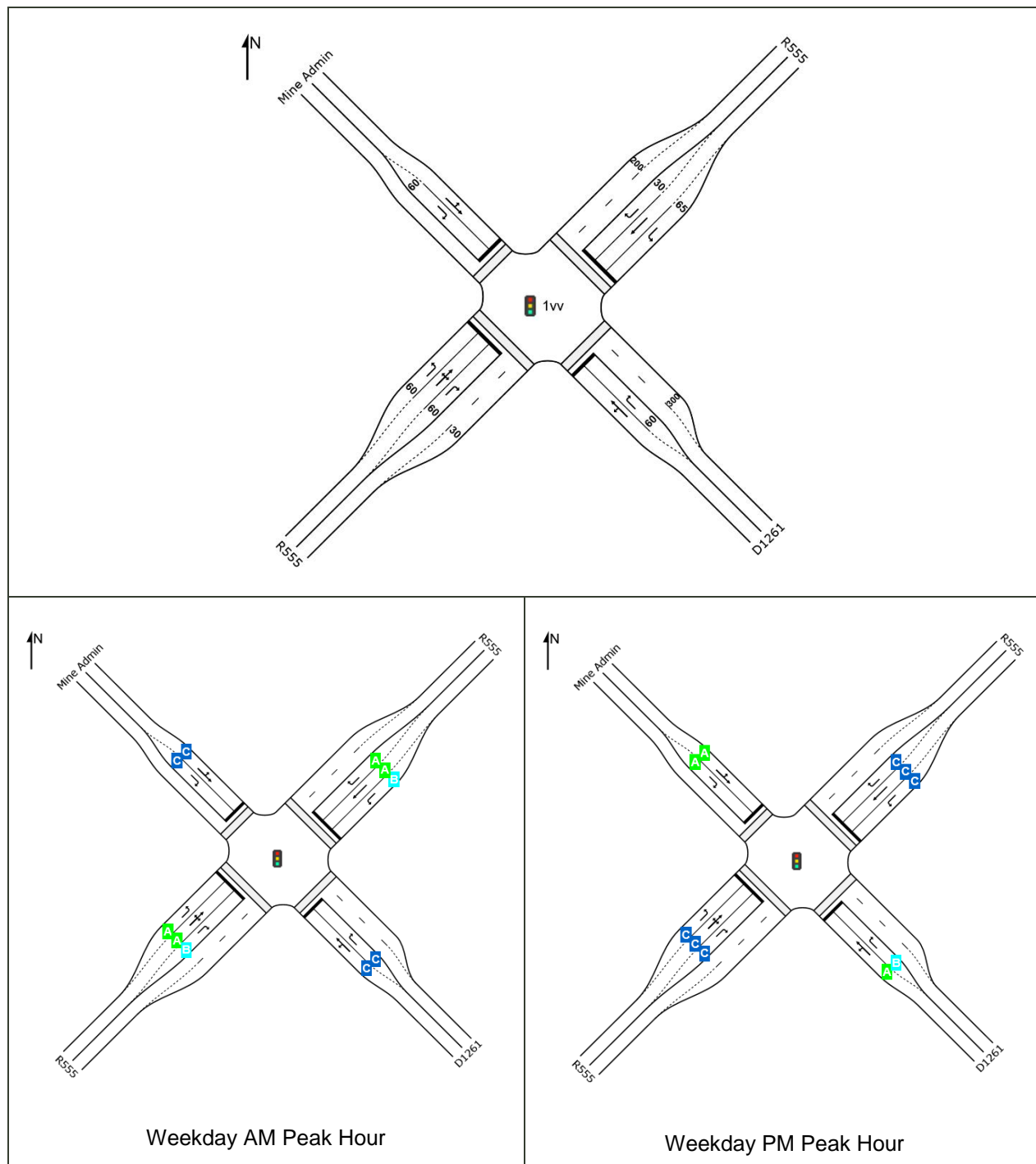
The intersection analysis using SIDRA software indicates that this intersection will operate at acceptable levels of service.

12.3 Intersection of R577 and D1261



The intersection analysis using SIDRA software indicates that this intersection will operate at acceptable levels of service.

12.4 Intersection of D1261 and R555



The intersection analysis using SIDRA software indicates that this intersection will operate at acceptable levels of service.



13 5-year Design Horizon Background Traffic Plus Operational Phase Analysis

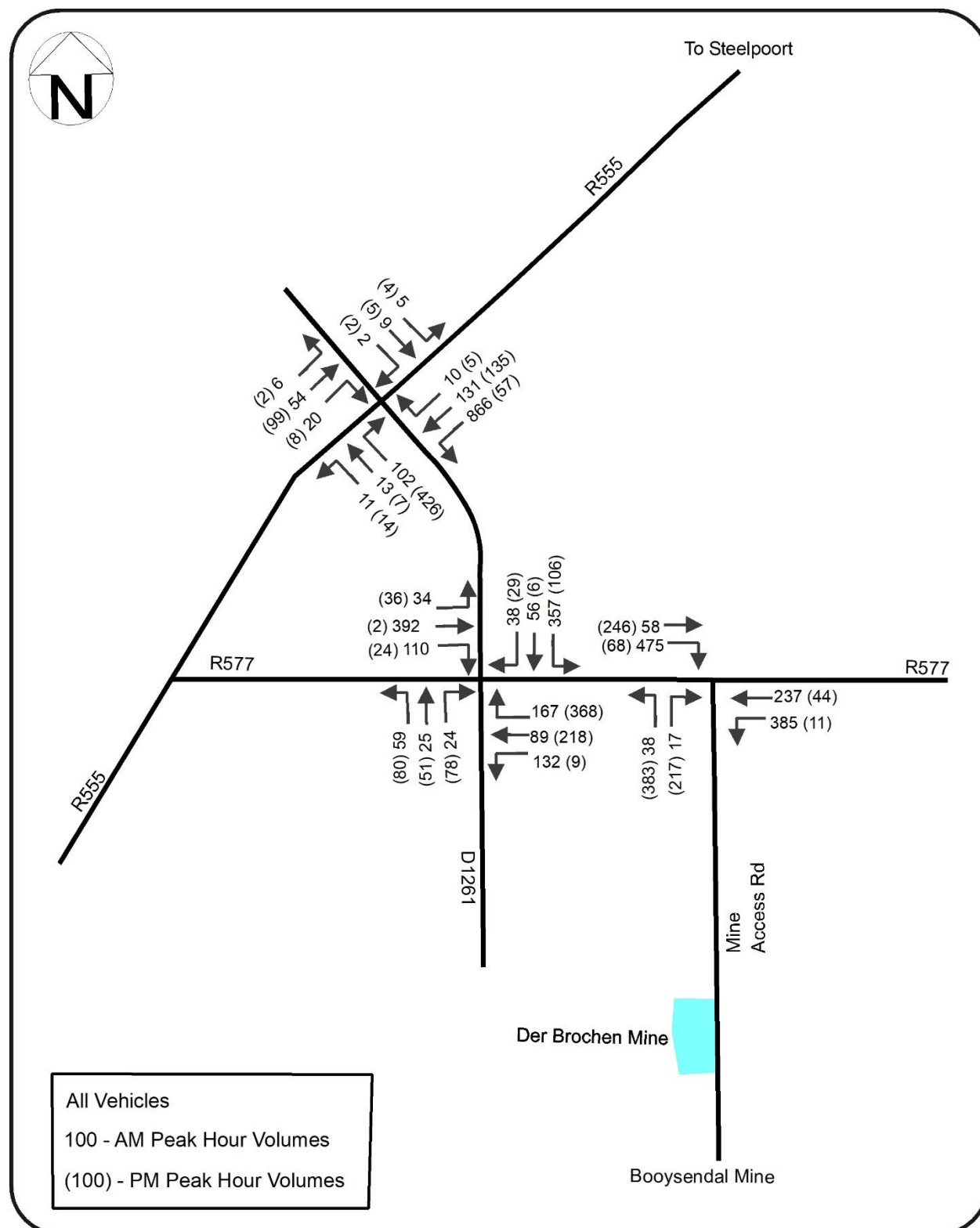
For this scenario the background traffic will be factored up for a 5-year period to a 5-year design horizon and the traffic generated by the operational phase of the Der Brochen Project will then be added to this forecast traffic.

13.1 Traffic Growth Rates

For assessing the 5-year design horizon, the existing background traffic needs to be factored up by a specified growth rate. This rural area is not a fast-growing area with very little development taking place. As such, traffic volumes in this area is unlikely to increase significantly in the future.

Consequently, the surrounding area is deemed to be at the top end of the average growth rate band and a 1.5% per annum growth rate as indicated in the TMH 16 Manual for Traffic Impact Assessments and Site Traffic Assessments is therefore considered reasonable for the roads and intersections expected to be affected by the traffic generated by the proposed development.

The 2019 traffic volumes were thus factored up to the 5-year analysis horizon using a compound growth rate of 1.5% per annum to 2024 shown in the Figure below.

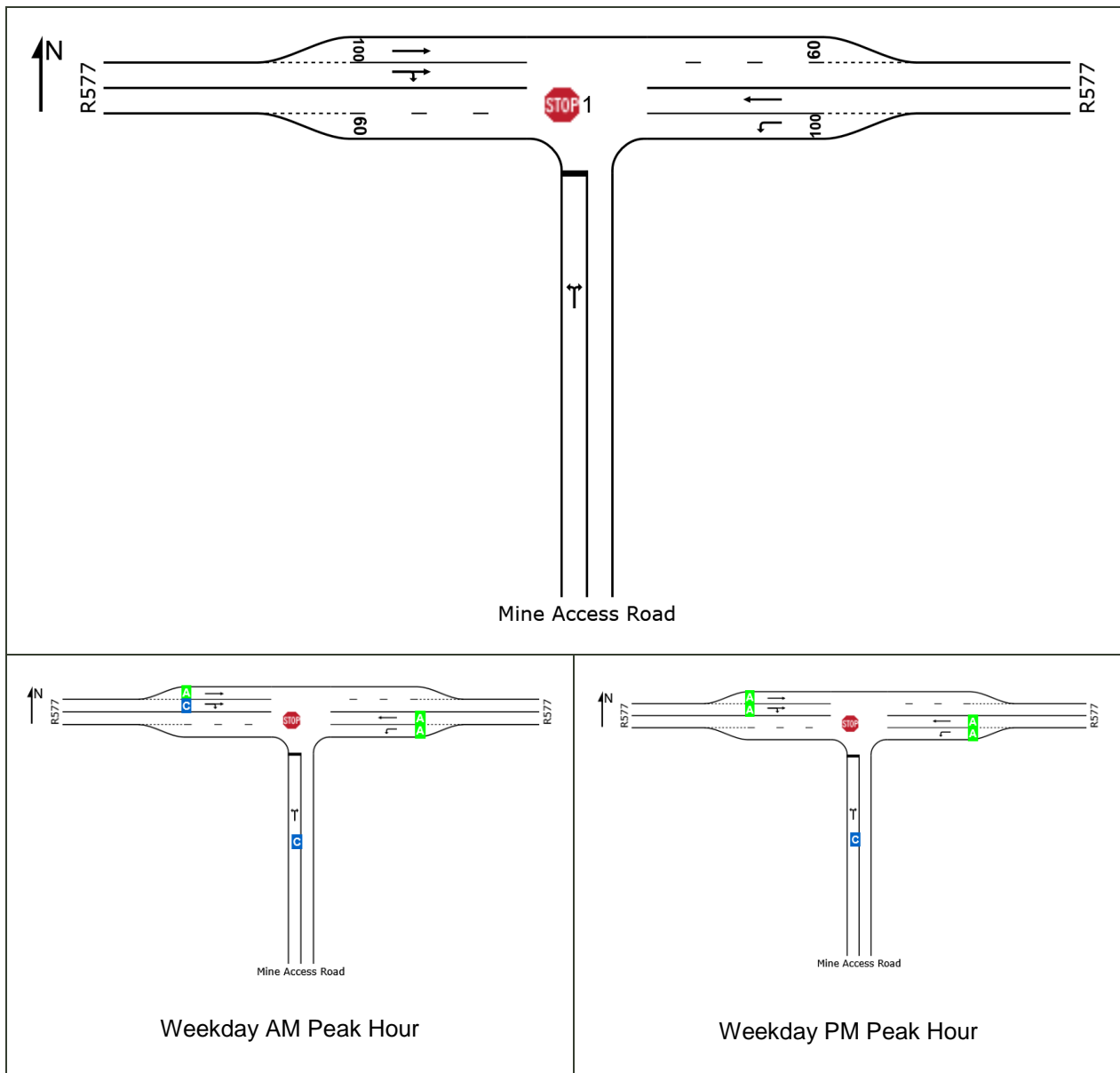


aurecon	5 year Background plus operational phase volumes Proposed Der Brochen Project	PROJECT: 502327
August 2019	AURECON (PTY) LTD	SCALE: Not to Scale

Figure 14: 2024 AM & PM Peak Hour Traffic Volumes with Operational Phase Generated Traffic

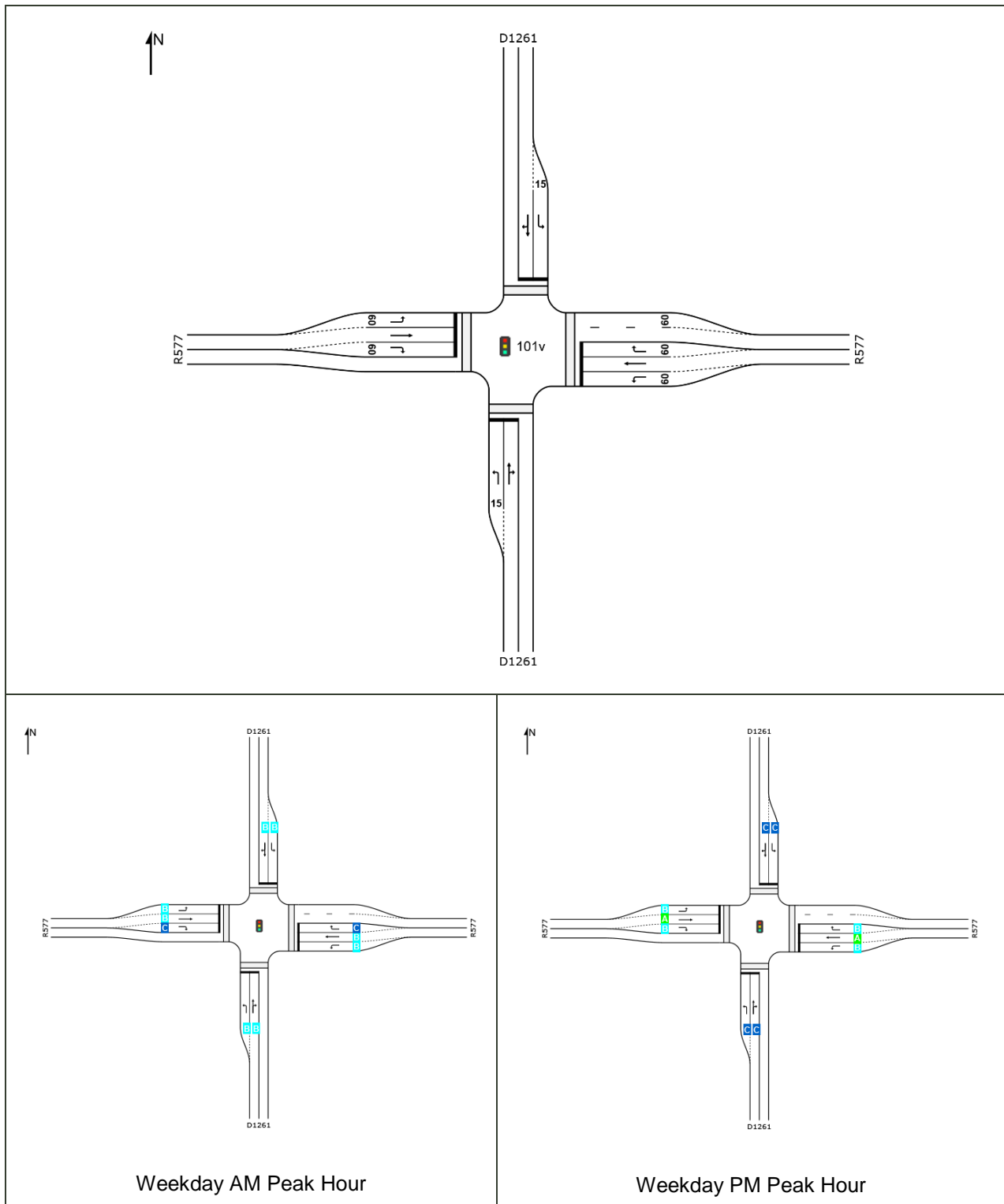
13.2 Traffic Impact Analysis

13.3 Intersection of R577 and the Mine Access Road

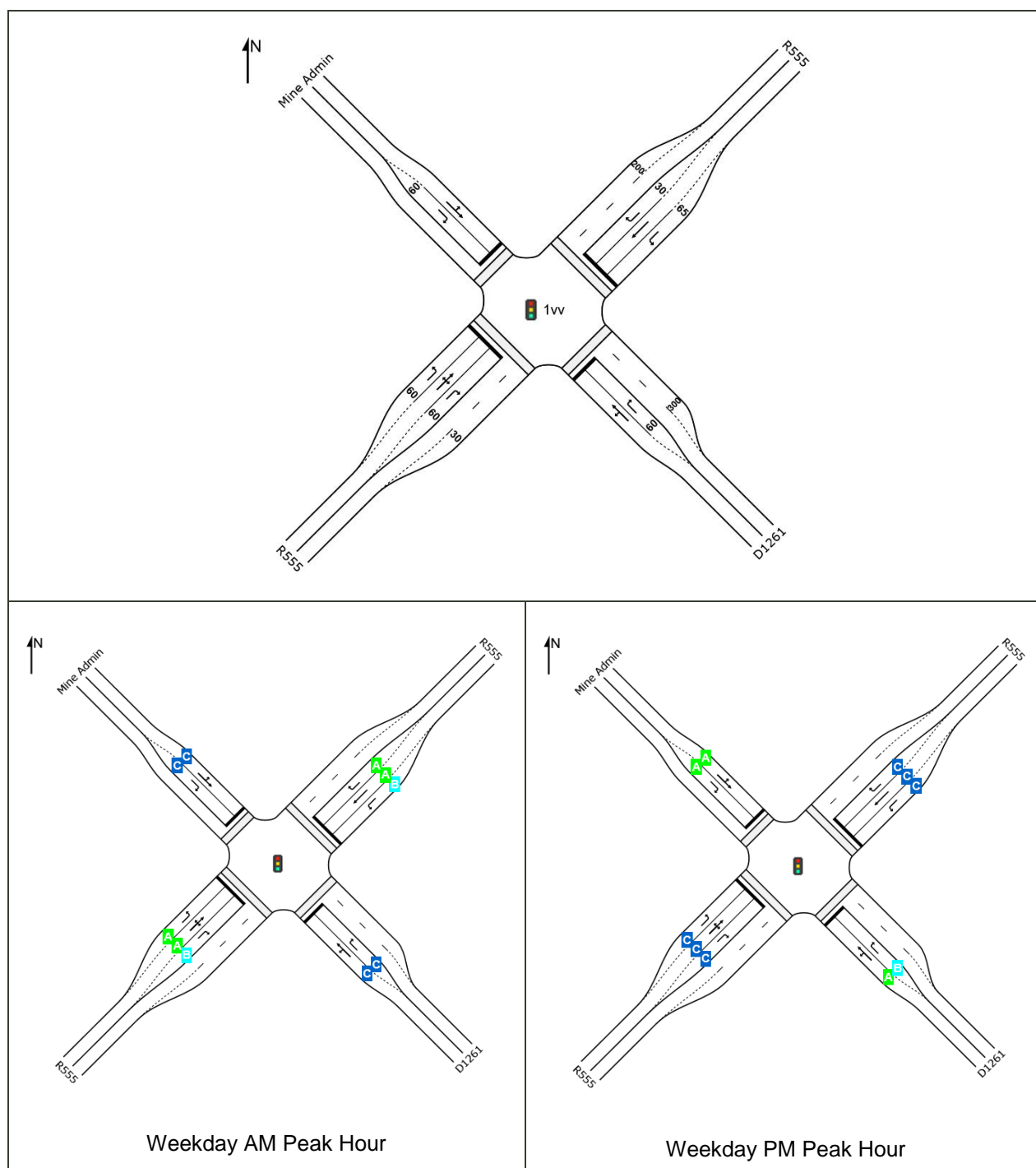


The intersection analysis using SIDRA software indicates that this intersection will operate at acceptable levels of service.

13.5 Intersection of R577 and D1261



The intersection analysis using SIDRA software indicates that this intersection will operate at acceptable levels of service.



The intersection analysis using SIDRA software indicates that this intersection will operate at acceptable levels of service.



14 10-year Design Horizon Background Traffic Plus Operational Phase Analysis

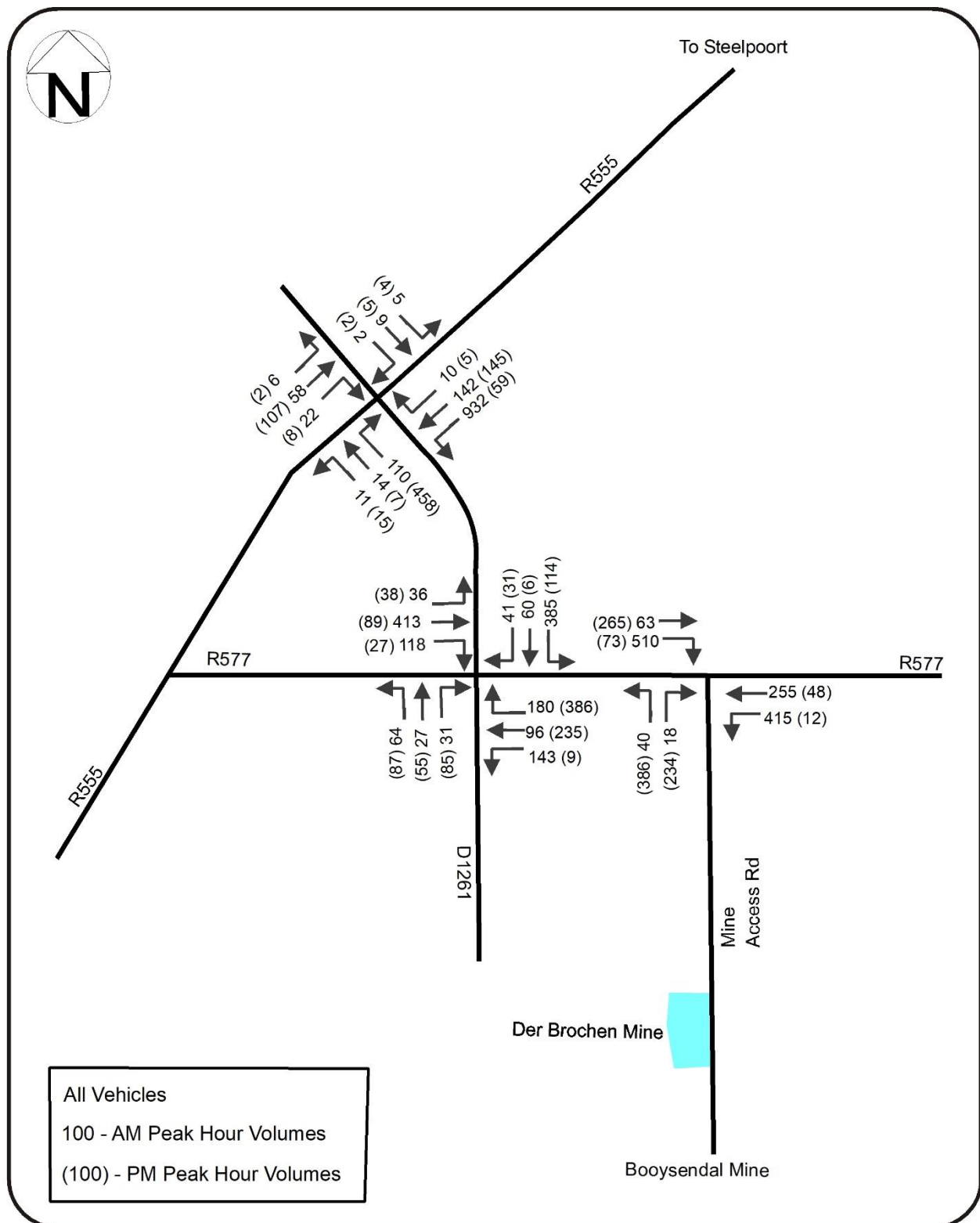
For this scenario the background traffic will be factored up for a 10-year analysis period and the traffic generated by the operational phase of the Der Brochen Project will then be added to this forecast traffic.

14.1 Traffic Growth Rates

For assessing the 10-year design horizon, the existing background traffic needs to be factored up by a specified growth rate. This rural area is not a fast-growing area with very little development taking place. As such, traffic volumes in this area is unlikely to increase significantly in the future.

Consequently, the surrounding area is deemed to be at the top end of the average growth rate band and a 1.5% per annum growth rate as indicated in the TMH 16 Manual for Traffic Impact Assessments and Site Traffic Assessments is therefore considered reasonable for the roads and intersections expected to be affected by the traffic generated by the proposed development.

The 2019 traffic volumes were thus factored up to the 10-year analysis horizon using a compound growth rate of 1.5% per annum to 2029 shown in the Figure below.

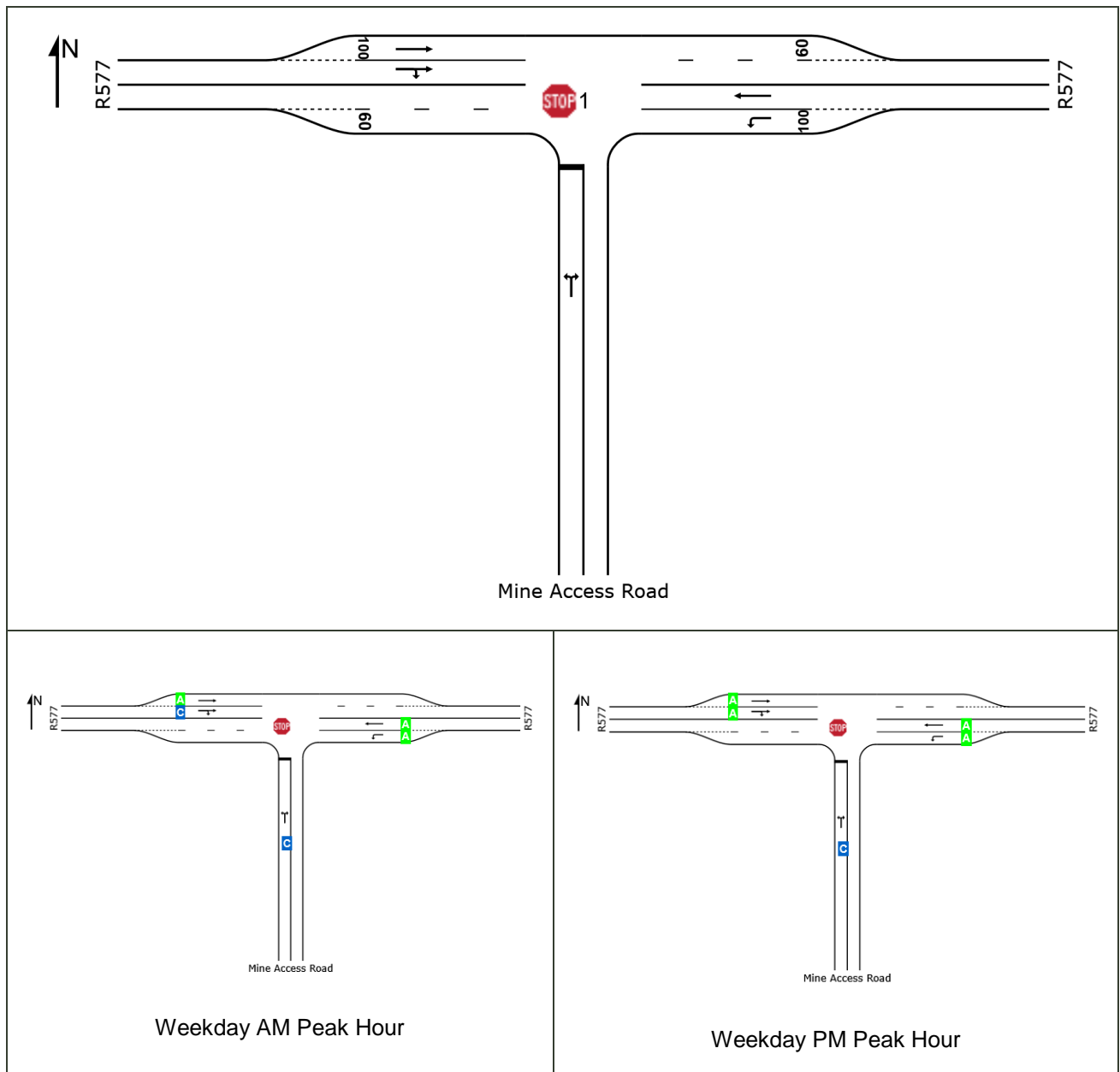


aurecon	10 year Background plus operational phase volumes Proposed Der Brochen Project	PROJECT: 502327
August 2019	AURECON (PTY) LTD	SCALE: Not to Scale

Figure 15: 2029 AM & PM Peak Hour Traffic Volumes with Operational Phase Generated Traffic

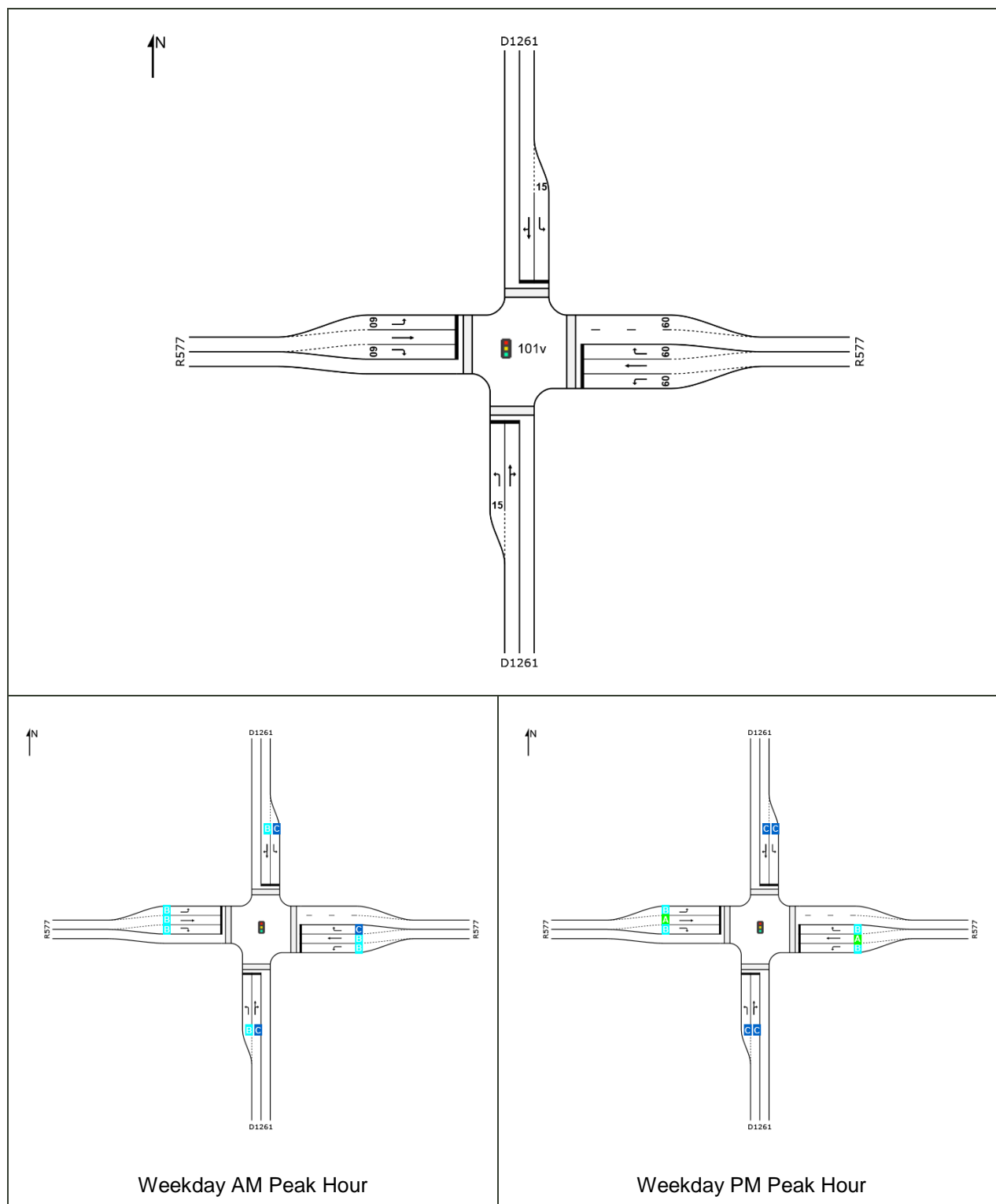
14.2 Traffic Impact Analysis

14.3 Intersection of R577 and the Mine Access Road

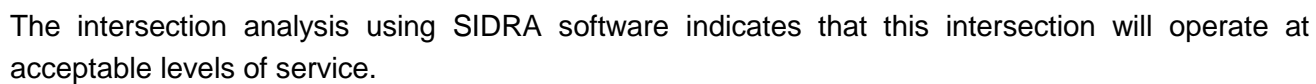


The intersection analysis using SIDRA software indicates that this intersection will operate at acceptable levels of service.

14.4 Intersection of R577 and D1261



The intersection analysis using SIDRA software indicates that this intersection will operate at acceptable levels of service.





14.6 Pedestrians

A few pedestrians and no cyclists were observed on the road network in the immediate vicinity of the Der Brochen project area. A concentration of pedestrian activity was observed to the north, along the R555, in the vicinity of the commercial and residential areas around Steelpoort and Burgersfort. The pedestrians use the wide unpaved shoulders and wide verges of the R555. Pedestrians do not impede the flow of traffic on any of the roads within the study area.

No pedestrians were observed along the R577 except in the immediate vicinity of the mine access road intersection. There is thus very little conflict between pedestrians and traffic along the roads in the vicinity of the mine. There will be negligible pedestrians generated by the Der Brochen Project.

14.7 Road Safety Conditions

Based on observation during the site visit, the road safety conditions along the R555 and R577 are generally acceptable during the day when visibility is good and smaller vehicles are able to overtake the heavy vehicles fairly safely.

The vehicle speeds and driver behaviour within the study area are generally good based on observation during the site visit, with the occasional vehicle exceeding the speed limit. There is signage displaying the maximum permissible speed on the R555 and R577 and advanced warning signs for the presence of slower moving heavy vehicles on these sections of road.

Pedestrian activity will not pose a road safety threat on any of the roads surrounding the project area.

15 Recommendations

1. The following intersection upgrades are required to satisfy existing demand on the road network:
 - Install Traffic Signals at the intersection of R577/D1262.
 - Install Traffic Signals at the intersection D1261/R555.
 - Cost of these upgrades are to be shared by all surrounding mines.
2. It is also recommended that ongoing rehabilitation is carried out of the Mine Access Road by all mines along the road.

16 Conclusions

SRK Consulting South Africa (Pty) Ltd have appointed Aurecon SA (Pty) Ltd to prepare a Traffic Impact Assessment as part of the EIA for the Der Brochen Amendment Project, situated near Steelpoort, Limpopo.

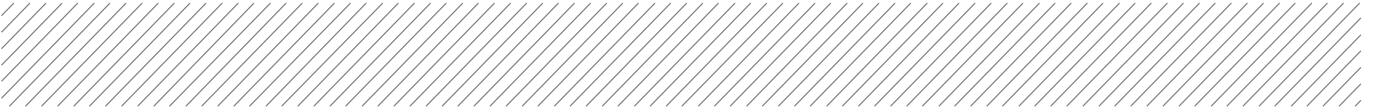
The following can be noted from this Traffic Assessment:

- Existing traffic conditions at the Mine Access Road and the R577 intersection are good.
- Existing traffic conditions at the intersection of R577/D1262 and the intersection of D1261/R555 require both intersections to be upgraded to accommodate existing background traffic.
- Upon analysing the intersections with the recommended upgrades, the intersections both operate well and have additional capacity.
- Base year, 5-year and 10-year traffic analysis shows all intersections operate at a good LOS. No further upgrades will be needed.
- A high percentage of heavy vehicles operate on the road network due to the many mining activities taking place.
- The high number of heavy vehicles turning can at times cause delays specifically at mine accesses and hence block the mine access road.
- Generally, the pavement condition of most roads is moderate and require maintenance.
- Mines use privately contracted public transport companies to transport workers to and from the mine.
- Pedestrian activity is very low.
- Road safety conditions are good during the day however poor at night as there is no street lighting and light passenger vehicles overtake the slower moving heavy vehicles.

From a traffic and transportation perspective, the Der Brochen project can be supported, provided the recommendations above are adhered to.

Appendices





Appendix A

Traffic Counts



TRAFFIC SURVEY																
CLIENT:	AURECON															
SITE:	INTERSECTION OF R555 AND D1261															
DATE:	12 HOUR COUNT ON TUESDAY 30 OCTOBER 2018															
UNITS:	CLASSIFIED															
APPROACH FROM NAME	NORTH UNNAMED ROAD															TOTAL
MOVEMENT	LEFT TURN					STRAIGHT					RIGHT TURN					ALL MOVEMENTS
TIME	C	T	H	B	TOTAL	C	T	H	B	TOTAL	C	T	H	B	TOTAL	
06:00 - 06:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:15 - 06:30	1	0	0	0	1	2	0	0	0	2	0	0	0	0	0	3
06:30 - 06:45	0	0	0	0	0	2	0	0	0	2	0	0	0	0	0	2
06:45 - 07:00	2	0	0	1	3	4	0	0	0	4	0	0	0	0	0	7
07:00 - 07:15	0	0	0	1	1	2	0	0	0	2	1	0	0	0	1	4
07:15 - 07:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 - 07:45	0	1	0	2	3	0	0	0	2	2	0	1	0	0	1	6
07:45 - 08:00	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	1
08:00 - 08:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15 - 08:30	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	1
08:30 - 08:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:45 - 09:00	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
09:00 - 09:15	0	0	2	0	2	0	0	0	0	0	0	0	0	0	0	2
09:15 - 09:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:30 - 09:45	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	1
09:45 - 10:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 - 10:15	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
10:15 - 10:30	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	1
10:30 - 10:45	1	0	0	0	1	2	0	0	0	2	0	0	0	0	0	3
10:45 - 11:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:00 - 11:15	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
11:15 - 11:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30 - 11:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45 - 12:00	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	1
12:00 - 12:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15 - 12:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30 - 12:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 - 13:00	1	0	0	0	1	1	0	0	0	1	0	0	1	0	1	3
13:00 - 13:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13:15 - 13:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13:30 - 13:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13:45 - 14:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:00 - 14:15	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	1
14:15 - 14:30	0	0	0	0	0	0	0	0	0	0	3	0	0	0	3	3
14:30 - 14:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:45 - 15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:00 - 15:15	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	1
15:15 - 15:30	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
15:30 - 15:45	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
15:45 - 16:00	0	0	0	0	0	2	0	0	1	3	0	0	0	0	0	3
16:00 - 16:15	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
16:15 - 16:30	1	0	0	0	1	0	0	0	1	1	0	0	1	0	1	3
16:30 - 16:45	0	0	0	0	0	0	0	0	1	1	1	0	0	2	3	4
16:45 - 17:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:00 - 17:15	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
17:15 - 17:30	1	0	0	0	1	0	0	0	0	0	0	0	0	1	1	2
17:30 - 17:45	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
17:45 - 18:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	13	1	2	5	21	21	0	0	5	26	5	2	2	4	13	60



TRAFFIC SURVEY																
CLIENT:	AURECON															
SITE:	INTERSECTION OF R555 AND D1261															
DATE:	12 HOUR COUNT ON TUESDAY 30 OCTOBER 2018															
UNITS:	CLASSIFIED															
APPROACH FROM	SOUTH															TOTAL
NAME	D1261															
MOVEMENT	LEFT TURN					STRAIGHT					RIGHT TURN					ALL
TIME	C	T	H	B	TOTAL	C	T	H	B	TOTAL	C	T	H	B	TOTAL	MOVEMENTS
06:00 - 06:15	2	0	0	1	3	0	0	0	0	0	18	2	7	0	27	30
06:15 - 06:30	1	0	0	4	5	2	0	0	0	2	15	1	0	4	20	27
06:30 - 06:45	0	0	0	0	0	1	1	0	6	8	9	6	1	7	23	31
06:45 - 07:00	1	1	0	0	2	0	1	1	0	2	14	3	1	6	24	28
07:00 - 07:15	1	1	1	0	3	0	0	0	0	0	22	5	2	7	36	39
07:15 - 07:30	3	1	0	0	4	0	1	0	0	1	10	0	1	0	11	16
07:30 - 07:45	7	0	0	1	8	1	0	0	0	1	23	0	3	2	28	37
07:45 - 08:00	0	0	0	0	0	1	1	0	0	2	23	4	7	0	34	36
08:00 - 08:15	3	1	0	0	4	0	1	0	0	1	15	0	0	2	17	22
08:15 - 08:30	5	0	1	0	6	0	0	0	0	0	12	1	3	5	21	27
08:30 - 08:45	2	0	0	0	2	1	0	0	0	1	10	0	4	1	15	18
08:45 - 09:00	3	0	0	0	3	1	0	0	0	1	14	0	7	0	21	25
09:00 - 09:15	0	0	1	0	1	0	0	0	0	0	30	0	9	0	39	40
09:15 - 09:30	0	1	1	0	2	0	0	0	0	0	5	0	2	0	7	9
09:30 - 09:45	2	0	0	0	2	0	0	0	0	0	7	0	7	1	15	17
09:45 - 10:00	0	0	2	0	2	1	0	0	0	1	10	0	2	0	12	15
10:00 - 10:15	1	0	0	0	1	0	0	0	0	0	11	0	4	1	16	17
10:15 - 10:30	2	0	1	0	3	1	0	0	0	1	24	1	6	0	31	35
10:30 - 10:45	1	1	0	0	2	1	0	0	0	1	23	1	5	0	29	32
10:45 - 11:00	2	0	0	0	2	0	0	0	0	0	20	0	5	0	25	27
11:00 - 11:15	1	0	1	0	2	0	0	0	0	0	20	0	8	0	28	30
11:15 - 11:30	1	0	0	0	1	0	0	0	0	0	17	1	5	2	25	26
11:30 - 11:45	1	0	2	0	3	0	0	0	0	0	25	0	5	0	30	33
11:45 - 12:00	2	0	0	0	2	1	0	0	0	1	25	0	6	0	31	34
12:00 - 12:15	3	0	1	0	4	0	0	0	0	0	22	0	9	0	31	35
12:15 - 12:30	0	0	1	0	1	0	0	0	0	0	34	0	10	0	44	45
12:30 - 12:45	3	0	3	0	6	0	0	0	0	0	23	0	31	0	54	60
12:45 - 13:00	0	0	0	0	0	0	0	0	0	0	30	1	11	0	42	42
13:00 - 13:15	3	0	0	0	3	0	0	0	0	0	25	0	6	0	31	34
13:15 - 13:30	2	0	0	0	2	0	0	0	0	0	14	0	6	0	20	22
13:30 - 13:45	0	0	0	0	0	1	0	0	0	1	8	0	1	0	9	10
13:45 - 14:00	0	0	0	0	0	0	1	0	0	1	25	0	5	0	30	31
14:00 - 14:15	0	0	0	0	0	0	0	0	0	0	26	0	3	0	29	29
14:15 - 14:30	0	0	1	0	1	0	0	0	0	0	37	0	3	0	40	41
14:30 - 14:45	0	0	3	0	3	0	0	0	0	0	33	1	6	1	41	44
14:45 - 15:00	0	0	0	0	0	0	0	0	0	0	30	2	1	1	34	34
15:00 - 15:15	13	1	0	0	14	2	0	0	0	2	59	2	2	0	63	79
15:15 - 15:30	3	0	0	0	3	0	0	0	0	0	50	2	1	6	59	62
15:30 - 15:45	1	0	0	0	1	0	0	0	0	0	37	0	1	0	38	39
15:45 - 16:00	3	0	1	0	4	0	0	0	0	0	78	7	6	0	91	95
16:00 - 16:15	5	0	0	1	6	3	1	0	1	5	115	3	3	2	123	134
16:15 - 16:30	2	0	0	0	2	0	1	0	0	1	118	3	1	13	135	138
16:30 - 16:45	2	0	0	0	2	0	1	0	0	1	126	9	5	6	146	149
16:45 - 17:00	3	0	1	0	4	2	0	0	0	2	81	4	2	5	92	98
17:00 - 17:15	2	0	1	0	3	1	0	0	0	1	61	1	5	1	68	72
17:15 - 17:30	1	0	1	0	2	0	0	0	0	0	18	4	4	0	26	28
17:30 - 17:45	2	0	0	0	2	0	0	0	0	0	6	0	3	1	10	12
17:45 - 18:00	0	0	0	0	0	0	0	0	0	0	4	3	3	0	10	10
TOTAL	89	7	23	7	126	20	9	1	7	37	1462	67	228	74	1831	1994



TRAFFIC SURVEY																
CLIENT:	AURECON															
SITE:	INTERSECTION OF R555 AND D1261															
DATE:	12 HOUR COUNT ON TUESDAY 30 OCTOBER 2018															
UNITS:	CLASSIFIED															
APPROACH FROM NAME MOVEMENT TIME	EAST R 555															TOTAL
	LEFT TURN					STRAIGHT					RIGHT TURN					ALL MOVEMENTS
	C	T	H	B	TOTAL	C	T	H	B	TOTAL	C	T	H	B	TOTAL	
06:00 - 06:15	162	14	1	16	193	31	0	1	0	32	0	0	0	0	0	225
06:15 - 06:30	179	13	3	7	202	18	0	2	0	20	0	0	0	0	0	222
06:30 - 06:45	275	4	0	0	279	35	0	1	0	36	1	0	0	0	1	316
06:45 - 07:00	100	4	14	4	122	29	2	3	0	34	7	0	1	0	8	164
07:00 - 07:15	80	4	13	0	97	37	2	4	0	43	4	0	0	0	4	144
07:15 - 07:30	11	1	9	0	21	12	3	1	0	16	0	0	0	0	0	37
07:30 - 07:45	22	0	3	0	25	15	2	2	0	19	0	0	0	0	0	44
07:45 - 08:00	25	0	7	2	34	17	3	5	0	25	1	0	0	0	1	60
08:00 - 08:15	31	1	8	0	40	16	0	3	0	19	1	0	0	0	1	60
08:15 - 08:30	24	0	3	0	27	16	0	3	0	19	0	0	0	0	0	46
08:30 - 08:45	15	0	2	0	17	13	2	6	0	21	0	0	1	0	1	39
08:45 - 09:00	19	0	5	0	24	16	0	3	0	19	1	0	0	0	1	44
09:00 - 09:15	17	0	4	0	21	6	1	0	0	7	0	0	1	0	1	29
09:15 - 09:30	23	0	13	2	38	25	2	6	0	33	1	0	0	0	1	72
09:30 - 09:45	21	0	7	0	28	28	1	2	0	31	0	0	0	0	0	59
09:45 - 10:00	16	0	2	0	18	22	1	2	0	25	0	0	0	0	0	43
10:00 - 10:15	19	0	5	2	26	17	1	2	0	20	1	0	0	0	1	47
10:15 - 10:30	18	1	4	0	23	24	3	2	0	29	1	0	0	0	1	53
10:30 - 10:45	9	0	11	0	20	16	1	10	0	27	1	0	0	0	1	48
10:45 - 11:00	15	0	8	0	23	27	1	2	0	30	1	0	0	0	1	54
11:00 - 11:15	13	0	8	0	21	21	1	3	0	25	2	0	0	0	2	48
11:15 - 11:30	16	1	5	0	22	20	3	3	0	26	1	0	0	0	1	49
11:30 - 11:45	19	0	3	0	22	17	0	3	1	21	0	0	0	0	0	43
11:45 - 12:00	17	1	6	0	24	23	2	1	0	26	0	0	0	0	0	50
12:00 - 12:15	25	0	4	1	30	27	0	9	1	37	1	0	0	0	1	68
12:15 - 12:30	15	0	3	1	19	23	0	2	0	25	0	0	0	0	0	44
12:30 - 12:45	17	0	2	2	21	32	6	2	1	41	0	0	0	0	0	62
12:45 - 13:00	16	0	4	0	20	31	4	10	0	45	0	0	0	0	0	65
13:00 - 13:15	19	0	6	2	27	24	3	6	1	34	0	0	0	0	0	61
13:15 - 13:30	30	0	3	1	34	33	1	6	1	41	0	0	0	0	0	75
13:30 - 13:45	14	2	1	0	17	22	1	0	0	23	1	0	0	0	1	41
13:45 - 14:00	8	0	2	0	10	17	3	3	0	23	0	0	0	0	0	33
14:00 - 14:15	14	1	4	4	23	32	5	0	0	37	0	0	0	0	0	60
14:15 - 14:30	5	0	0	11	16	13	0	10	0	23	0	0	0	0	0	39
14:30 - 14:45	18	0	4	7	29	34	1	9	3	47	1	0	0	0	1	77
14:45 - 15:00	14	1	1	7	23	24	2	2	0	28	0	0	0	2	2	53
15:00 - 15:15	8	1	7	0	16	37	2	6	0	45	0	0	0	0	0	61
15:15 - 15:30	3	0	0	0	3	18	0	8	0	26	2	0	0	1	3	32
15:30 - 15:45	6	0	1	0	7	10	3	3	0	16	0	0	0	0	0	23
15:45 - 16:00	4	4	0	0	8	19	0	9	0	28	0	0	0	1	1	37
16:00 - 16:15	4	12	3	0	19	32	3	2	2	39	0	0	0	2	2	60
16:15 - 16:30	14	3	1	0	18	36	1	5	0	42	0	0	0	1	1	61
16:30 - 16:45	6	0	5	0	11	22	5	13	0	40	1	0	0	0	1	52
16:45 - 17:00	10	2	10	0	22	27	2	3	1	33	1	0	0	0	1	56
17:00 - 17:15	7	1	6	1	15	18	0	3	0	21	0	0	0	0	0	36
17:15 - 17:30	7	4	7	1	19	31	0	3	1	35	0	0	0	0	0	54
17:30 - 17:45	18	1	8	1	28	22	0	3	1	26	1	0	0	0	1	55
17:45 - 18:00	5	0	4	2	11	92	1	3	0	96	0	0	0	0	0	107
TOTAL	1433	76	230	74	1813	1177	74	190	13	1454	31	0	3	7	41	3308



TRAFFIC SURVEY																
CLIENT:	AURECON															
SITE:	INTERSECTION OF R555 AND D1261															
DATE:	12 HOUR COUNT ON TUESDAY 30 OCTOBER 2018															
UNITS:	CLASSIFIED															
APPROACH FROM	WEST															TOTAL
NAME	R 555															
MOVEMENT	LEFT TURN					STRAIGHT					RIGHT TURN					ALL
TIME	C	T	H	B	TOTAL	C	T	H	B	TOTAL	C	T	H	B	TOTAL	MOVEMENTS
06:00 - 06:15	0	0	0	0	0	5	0	0	1	6	3	0	0	0	3	9
06:15 - 06:30	0	0	0	0	0	2	1	0	0	3	1	0	0	0	1	4
06:30 - 06:45	3	0	0	0	3	6	3	8	2	19	10	0	0	0	10	32
06:45 - 07:00	2	0	0	0	2	10	7	3	2	22	5	0	0	0	5	29
07:00 - 07:15	2	0	0	0	2	10	2	9	1	22	2	0	0	0	2	26
07:15 - 07:30	3	0	0	0	3	13	8	6	1	28	7	0	0	0	7	38
07:30 - 07:45	1	0	0	0	1	5	4	7	2	18	2	0	0	0	2	21
07:45 - 08:00	3	0	0	0	3	25	6	3	0	34	2	0	0	0	2	39
08:00 - 08:15	1	0	0	0	1	14	5	5	0	24	0	0	0	0	0	25
08:15 - 08:30	3	0	0	0	3	35	4	3	0	42	0	0	0	0	0	45
08:30 - 08:45	1	0	0	0	1	25	15	10	0	50	3	0	0	0	3	54
08:45 - 09:00	0	0	0	0	0	5	10	12	0	27	1	0	0	0	1	28
09:00 - 09:15	0	0	0	0	0	18	9	3	0	30	0	0	0	0	0	30
09:15 - 09:30	0	0	0	0	0	18	2	4	0	24	2	0	0	0	2	26
09:30 - 09:45	3	0	0	0	3	9	3	6	0	18	0	0	0	0	0	21
09:45 - 10:00	0	0	0	0	0	14	0	1	0	15	2	0	0	0	2	17
10:00 - 10:15	0	0	0	0	0	21	3	6	0	30	4	0	0	0	4	34
10:15 - 10:30	0	0	0	0	0	23	3	3	0	29	7	0	0	0	7	36
10:30 - 10:45	0	0	0	0	0	15	0	4	0	19	3	0	0	0	3	22
10:45 - 11:00	0	0	0	0	0	32	3	7	0	42	1	0	0	0	1	43
11:00 - 11:15	0	0	0	0	0	8	0	7	0	15	3	0	0	0	3	18
11:15 - 11:30	0	0	0	0	0	21	2	2	0	25	3	0	0	0	3	28
11:30 - 11:45	0	0	0	0	0	16	3	5	1	25	0	0	0	0	0	25
11:45 - 12:00	0	0	0	0	0	27	4	2	1	34	0	0	0	0	0	34
12:00 - 12:15	0	0	0	0	0	15	3	6	0	24	7	0	0	0	7	31
12:15 - 12:30	0	0	0	0	0	14	1	4	0	19	2	0	0	0	2	21
12:30 - 12:45	0	0	0	0	0	12	0	5	0	17	1	0	0	0	1	18
12:45 - 13:00	0	0	0	0	0	18	2	5	0	25	3	0	0	0	3	28
13:00 - 13:15	0	0	0	0	0	22	1	2	0	25	0	0	0	0	0	25
13:15 - 13:30	0	0	0	0	0	11	1	7	0	19	2	0	0	0	2	21
13:30 - 13:45	0	0	0	0	0	13	2	4	0	19	4	0	0	0	4	23
13:45 - 14:00	0	0	0	0	0	20	4	10	0	34	3	0	0	0	3	37
14:00 - 14:15	0	0	0	0	0	21	3	3	0	27	4	0	0	0	4	31
14:15 - 14:30	0	0	0	0	0	8	4	6	0	18	4	0	0	0	4	22
14:30 - 14:45	0	0	0	0	0	8	2	4	0	14	4	0	0	0	4	18
14:45 - 15:00	0	0	0	0	0	16	1	7	1	25	1	0	0	0	1	26
15:00 - 15:15	0	0	0	0	0	17	2	7	0	26	0	0	0	0	0	26
15:15 - 15:30	0	0	0	0	0	29	0	7	0	36	0	0	0	0	0	36
15:30 - 15:45	0	0	0	0	0	24	4	5	0	33	2	0	0	0	2	35
15:45 - 16:00	0	0	0	0	0	13	4	0	0	17	3	0	0	0	3	20
16:00 - 16:15	0	0	0	0	0	16	5	8	0	29	2	0	0	0	2	31
16:15 - 16:30	0	0	0	0	0	9	2	2	0	13	0	0	0	0	0	13
16:30 - 16:45	0	0	0	0	0	15	2	6	0	23	5	0	0	0	5	28
16:45 - 17:00	0	0	0	0	0	11	6	4	0	21	0	0	0	0	0	21
17:00 - 17:15	0	0	0	0	0	8	0	1	0	9	0	0	0	0	0	9
17:15 - 17:30	0	0	0	0	0	15	0	7	0	22	1	0	0	0	1	23
17:30 - 17:45	0	0	0	0	0	11	1	2	0	14	0	0	0	0	0	14
17:45 - 18:00	0	0	0	0	0	5	0	3	0	8	1	0	0	0	1	9
TOTAL	22	0	0	0	22	728	147	231	12	1118	110	0	0	0	110	1250



TRAFFIC SURVEY																
CLIENT:	AURECON															
SITE:	INTERSECTION OF R577 AND D1261															
DATE:	12 HOUR COUNT ON TUESDAY 30 OCTOBER 2018															
UNITS:	CLASSIFIED															
APPROACH FROM NAME	NORTH D1261															TOTAL
MOVEMENT	LEFT TURN					STRAIGHT					RIGHT TURN					ALL MOVEMENTS
TIME	C	T	H	B	TOTAL	C	T	H	B	TOTAL	C	T	H	B	TOTAL	
06:00 - 06:15	43	8	3	14	68	8	0	0	0	8	4	3	0	3	10	86
06:15 - 06:30	101	11	4	11	127	16	0	0	0	16	7	3	0	1	11	154
06:30 - 06:45	63	6	7	1	77	13	0	1	0	14	8	1	0	1	10	101
06:45 - 07:00	53	3	4	0	60	14	0	0	0	14	3	1	0	0	4	78
07:00 - 07:15	30	2	7	1	40	3	0	0	0	3	3	0	0	0	3	46
07:15 - 07:30	26	3	8	0	37	3	0	0	0	3	3	0	1	0	4	44
07:30 - 07:45	16	0	7	0	23	4	0	1	0	5	1	0	0	0	1	29
07:45 - 08:00	19	0	1	0	20	1	0	0	0	1	0	1	0	0	1	22
08:00 - 08:15	19	0	8	1	28	0	0	0	0	0	1	0	0	1	2	30
08:15 - 08:30	21	0	8	1	30	0	0	0	0	0	0	0	0	0	0	30
08:30 - 08:45	18	0	4	0	22	11	0	1	0	12	0	0	0	0	0	34
08:45 - 09:00	6	0	5	0	11	5	0	0	0	5	2	0	0	0	2	18
09:00 - 09:15	16	1	11	0	28	2	0	0	0	2	2	0	1	0	3	33
09:15 - 09:30	9	3	7	0	19	3	0	0	0	3	1	0	1	0	2	24
09:30 - 09:45	13	0	5	0	18	4	0	0	0	4	0	0	1	0	1	23
09:45 - 10:00	19	0	7	1	27	4	1	1	0	6	1	0	0	0	1	34
10:00 - 10:15	13	0	2	0	15	5	0	1	0	6	1	0	1	0	2	23
10:15 - 10:30	5	0	7	1	13	4	0	2	0	6	1	0	0	0	1	20
10:30 - 10:45	13	1	10	2	26	1	0	0	0	1	2	0	0	0	2	29
10:45 - 11:00	10	0	7	0	17	1	0	1	0	2	3	0	0	0	3	22
11:00 - 11:15	16	0	8	0	24	0	0	0	0	0	0	0	1	0	1	25
11:15 - 11:30	8	0	5	0	13	1	0	0	0	1	2	0	0	0	2	16
11:30 - 11:45	13	0	6	0	19	2	0	0	0	2	0	0	0	0	0	21
11:45 - 12:00	19	1	14	0	34	1	0	1	0	2	5	0	0	0	5	41
12:00 - 12:15	5	0	10	0	15	1	0	0	0	1	6	0	0	1	7	23
12:15 - 12:30	13	1	8	1	23	2	0	0	0	2	3	0	0	0	3	28
12:30 - 12:45	15	0	5	1	21	2	0	0	0	2	3	0	0	0	3	26
12:45 - 13:00	11	0	6	0	17	1	0	0	0	1	0	0	0	0	0	18
13:00 - 13:15	11	0	8	2	21	1	0	0	0	1	1	1	0	0	2	24
13:15 - 13:30	25	1	12	0	38	2	0	0	1	3	1	0	0	0	1	42
13:30 - 13:45	15	0	11	2	28	0	0	0	0	0	2	0	0	0	2	30
13:45 - 14:00	14	1	7	1	23	0	0	0	0	0	3	0	0	0	3	26
14:00 - 14:15	8	1	7	0	16	0	0	1	0	1	1	0	0	0	1	18
14:15 - 14:30	9	1	1	0	11	0	0	0	0	0	0	0	0	0	0	11
14:30 - 14:45	26	1	13	0	40	1	0	0	0	1	1	0	0	0	1	42
14:45 - 15:00	24	3	6	4	37	3	0	0	0	3	6	0	0	0	6	46
15:00 - 15:15	22	5	5	12	44	0	0	1	0	1	2	2	1	1	6	51
15:15 - 15:30	18	1	8	7	34	1	0	0	0	1	8	1	0	1	10	45
15:30 - 15:45	18	1	2	7	28	1	0	1	0	2	5	0	1	3	9	39
15:45 - 16:00	15	1	4	0	20	1	0	0	0	1	2	0	1	0	3	24
16:00 - 16:15	17	5	3	0	25	1	0	0	0	1	4	1	1	0	6	32
16:15 - 16:30	18	1	6	0	25	0	0	1	0	1	7	1	0	1	9	35
16:30 - 16:45	16	0	4	0	20	2	0	0	0	2	5	0	0	0	5	27
16:45 - 17:00	8	2	6	0	16	0	0	0	0	0	3	1	0	0	4	20
17:00 - 17:15	13	3	9	0	25	0	0	0	2	2	2	0	0	0	2	29
17:15 - 17:30	11	3	0	0	14	0	1	0	0	1	4	0	0	0	4	19
17:30 - 17:45	12	1	2	1	16	0	0	0	0	0	2	0	0	0	2	18
17:45 - 18:00	2	0	1	0	3	0	0	0	0	0	1	1	2	4	8	11
TOTAL	915	71	299	71	1356	125	2	13	3	143	122	17	12	17	168	1667



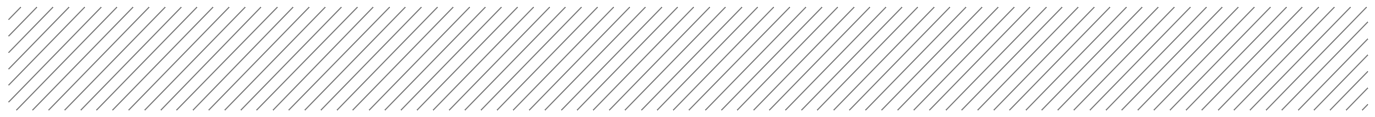
TRAFFIC SURVEY																
CLIENT:	AURECON															
SITE:	INTERSECTION OF R577 AND D1261															
DATE:	12 HOUR COUNT ON TUESDAY 30 OCTOBER 2018															
UNITS:	CLASSIFIED															
APPROACH FROM NAME	SOUTH D1261															TOTAL
MOVEMENT TIME	LEFT TURN					STRAIGHT					RIGHT TURN					ALL MOVEMENTS
	C	T	H	B	TOTAL	C	T	H	B	TOTAL	C	T	H	B	TOTAL	
06:00 - 06:15	7	0	0	0	7	4	0	0	0	4	3	0	0	0	3	14
06:15 - 06:30	4	0	0	0	4	1	0	0	0	1	11	1	1	0	13	18
06:30 - 06:45	8	0	0	3	11	9	1	0	0	10	2	0	0	0	2	23
06:45 - 07:00	12	10	0	11	33	8	0	0	0	8	4	0	0	0	4	45
07:00 - 07:15	11	1	0	1	13	4	0	0	1	5	1	0	0	0	1	19
07:15 - 07:30	4	0	0	0	4	5	0	0	0	5	3	1	0	0	4	13
07:30 - 07:45	6	0	0	0	6	4	0	0	0	4	4	0	0	0	4	14
07:45 - 08:00	1	3	0	0	4	0	0	0	0	0	2	1	0	0	3	7
08:00 - 08:15	3	0	0	0	3	2	0	0	0	2	0	0	0	0	0	5
08:15 - 08:30	4	0	0	0	4	2	0	0	0	2	2	0	0	0	2	8
08:30 - 08:45	3	1	0	0	4	1	0	0	0	1	4	0	0	0	4	9
08:45 - 09:00	2	0	0	0	2	1	0	0	0	1	2	0	1	0	3	6
09:00 - 09:15	1	0	0	0	1	5	0	1	0	6	3	0	0	0	3	10
09:15 - 09:30	2	1	0	0	3	2	0	0	0	2	4	0	0	0	4	9
09:30 - 09:45	3	1	0	0	4	5	0	0	0	5	4	0	2	0	6	15
09:45 - 10:00	5	1	0	0	6	1	0	0	0	1	5	0	0	0	5	12
10:00 - 10:15	4	0	0	0	4	1	0	0	0	1	3	0	3	0	6	11
10:15 - 10:30	7	0	1	0	8	1	0	0	0	1	3	0	0	0	3	12
10:30 - 10:45	5	0	0	0	5	2	0	0	0	2	2	0	0	0	2	9
10:45 - 11:00	1	0	1	0	2	1	0	1	0	2	2	0	0	0	2	6
11:00 - 11:15	3	0	1	0	4	1	0	0	0	1	1	0	0	0	1	6
11:15 - 11:30	6	2	1	0	9	1	0	0	0	1	5	0	0	0	5	15
11:30 - 11:45	4	0	1	0	5	1	0	0	0	1	0	0	0	0	0	6
11:45 - 12:00	3	0	0	0	3	3	0	0	0	3	5	0	0	0	5	11
12:00 - 12:15	8	1	0	0	9	2	0	0	0	2	2	1	0	0	3	14
12:15 - 12:30	9	0	1	0	10	3	0	0	0	3	2	0	0	0	2	15
12:30 - 12:45	4	0	1	0	5	3	0	0	0	3	7	0	0	0	7	15
12:45 - 13:00	2	0	1	0	3	2	0	0	0	2	4	0	1	0	5	10
13:00 - 13:15	7	0	0	0	7	1	0	0	0	1	1	0	1	0	2	10
13:15 - 13:30	3	0	1	0	4	5	0	0	0	5	7	0	0	0	7	16
13:30 - 13:45	3	0	0	0	3	2	0	1	0	3	3	0	0	0	3	9
13:45 - 14:00	7	1	0	0	8	3	0	0	0	3	1	0	0	0	1	12
14:00 - 14:15	7	0	0	0	7	2	0	0	0	2	4	0	0	0	4	13
14:15 - 14:30	1	1	0	0	2	1	1	0	0	2	0	0	0	0	0	4
14:30 - 14:45	6	0	0	0	6	3	0	0	0	3	1	0	1	0	2	11
14:45 - 15:00	0	1	0	0	1	1	0	0	0	1	5	0	0	0	5	7
15:00 - 15:15	3	0	0	0	3	5	0	0	0	5	2	0	0	0	2	10
15:15 - 15:30	4	1	0	1	6	3	0	0	0	3	4	1	1	0	6	15
15:30 - 15:45	24	2	0	0	26	14	0	1	0	15	40	1	0	0	41	82
15:45 - 16:00	14	1	0	0	15	20	0	0	0	20	17	2	0	0	19	54
16:00 - 16:15	16	2	0	2	20	7	0	0	0	7	7	1	0	2	10	37
16:15 - 16:30	8	0	0	6	14	5	0	0	0	5	1	0	1	0	2	21
16:30 - 16:45	3	0	0	0	3	0	0	0	0	0	2	0	0	0	2	5
16:45 - 17:00	5	0	0	0	5	1	0	0	0	1	3	0	0	0	3	9
17:00 - 17:15	7	0	2	0	9	5	0	0	0	5	5	0	0	0	5	19
17:15 - 17:30	8	0	0	0	8	2	0	0	0	2	1	0	0	0	1	11
17:30 - 17:45	1	0	0	7	8	3	0	0	0	3	0	0	0	0	0	11
17:45 - 18:00	2	0	0	0	2	1	0	0	0	1	0	0	0	0	0	3
TOTAL	261	30	11	31	333	159	2	4	1	166	194	9	12	2	217	716



TRAFFIC SURVEY																	
CLIENT:	AURECON																
SITE:	INTERSECTION OF R577 AND D1261																
DATE:	12 HOUR COUNT ON TUESDAY 30 OCTOBER 2018																
UNITS:	CLASSIFIED																
APPROACH FROM	EAST R 577															TOTAL	
NAME																	
MOVEMENT	LEFT TURN					STRAIGHT					RIGHT TURN					ALL	
TIME	C	T	H	B	TOTAL	C	T	H	B	TOTAL	C	T	H	B	TOTAL	MOVEMENTS	
06:00 - 06:15	52	0	2	1	55	26	0	5	0	31	50	0	1	1	52	138	
06:15 - 06:30	21	0	0	1	22	9	2	2	2	15	12	6	3	2	23	60	
06:30 - 06:45	30	1	0	0	31	10	3	1	2	16	29	3	0	4	36	83	
06:45 - 07:00	12	2	1	0	15	12	7	0	1	20	32	6	0	5	43	78	
07:00 - 07:15	2	0	0	0	2	10	5	1	3	19	23	5	2	8	38	59	
07:15 - 07:30	4	0	0	0	4	2	10	0	1	13	18	4	11	6	39	56	
07:30 - 07:45	6	0	0	0	6	15	0	1	0	16	10	0	0	1	11	33	
07:45 - 08:00	0	0	0	0	0	10	5	0	0	15	16	1	3	3	23	38	
08:00 - 08:15	7	0	0	0	7	8	0	2	1	11	11	1	6	7	25	43	
08:15 - 08:30	1	0	0	0	1	11	0	1	1	13	23	0	7	2	32	46	
08:30 - 08:45	1	1	0	1	3	18	1	0	5	24	11	0	9	3	23	50	
08:45 - 09:00	4	0	0	0	4	11	0	1	0	12	9	0	6	0	15	31	
09:00 - 09:15	2	0	0	0	2	8	1	6	1	16	17	0	24	0	41	59	
09:15 - 09:30	0	0	0	0	0	7	0	1	1	9	4	0	11	0	15	24	
09:30 - 09:45	4	0	0	0	4	7	1	3	0	11	19	0	13	0	32	47	
09:45 - 10:00	3	0	0	0	3	2	0	2	0	4	12	1	18	0	31	38	
10:00 - 10:15	2	0	0	0	2	3	0	2	0	5	16	0	0	0	16	23	
10:15 - 10:30	8	2	0	0	10	6	0	2	0	8	21	0	4	0	25	43	
10:30 - 10:45	1	0	0	0	1	6	0	1	0	7	16	0	4	0	20	28	
10:45 - 11:00	1	0	0	0	1	6	0	1	0	7	24	0	5	0	29	37	
11:00 - 11:15	1	2	5	0	8	8	1	6	0	15	6	0	10	0	16	39	
11:15 - 11:30	3	0	1	0	4	8	1	1	0	10	26	0	11	0	37	51	
11:30 - 11:45	0	0	0	0	0	8	0	2	0	10	17	0	10	0	27	37	
11:45 - 12:00	6	0	2	0	8	9	0	4	0	13	14	0	8	0	22	43	
12:00 - 12:15	9	0	4	0	13	10	0	5	0	15	24	0	14	0	38	66	
12:15 - 12:30	3	0	1	0	4	4	0	3	0	7	13	0	2	0	15	26	
12:30 - 12:45	0	0	0	0	0	5	0	0	0	5	13	0	5	0	18	23	
12:45 - 13:00	3	0	0	0	3	11	0	2	0	13	12	0	3	0	15	31	
13:00 - 13:15	1	0	1	0	2	11	0	8	0	19	22	0	5	0	27	48	
13:15 - 13:30	3	0	0	0	3	8	0	2	0	10	23	1	5	0	29	42	
13:30 - 13:45	0	0	0	0	0	11	0	4	0	15	11	0	7	0	18	33	
13:45 - 14:00	2	0	0	0	2	18	0	6	0	24	20	1	10	0	31	57	
14:00 - 14:15	2	0	0	0	2	20	6	2	0	28	50	1	4	1	56	86	
14:15 - 14:30	0	0	0	0	0	13	0	0	0	13	11	1	10	0	22	35	
14:30 - 14:45	0	0	0	0	0	20	5	2	0	27	24	1	3	0	28	55	
14:45 - 15:00	0	0	0	0	0	25	3	2	0	30	38	2	4	0	44	74	
15:00 - 15:15	1	1	0	0	2	44	1	1	1	47	73	3	2	2	80	129	
15:15 - 15:30	2	0	0	0	2	8	0	1	0	9	29	0	9	0	38	49	
15:30 - 15:45	1	0	0	0	1	38	2	2	1	43	55	6	5	5	71	115	
15:45 - 16:00	4	0	0	0	4	77	3	4	5	89	113	15	1	15	144	237	
16:00 - 16:15	1	0	0	0	1	6	0	2	3	11	59	4	15	15	93	105	
16:15 - 16:30	2	0	0	0	2	51	0	0	0	51	20	1	4	0	25	78	
16:30 - 16:45	2	0	2	0	4	23	1	2	3	29	23	0	8	3	34	67	
16:45 - 17:00	1	0	0	0	1	14	1	0	6	21	24	2	7	5	38	60	
17:00 - 17:15	0	0	0	0	0	23	2	0	2	27	20	3	3	2	28	55	
17:15 - 17:30	0	0	0	0	0	21	10	2	6	39	23	9	5	6	43	82	
17:30 - 17:45	0	0	1	0	1	5	2	0	0	7	6	0	6	1	13	21	
17:45 - 18:00	0	0	0	0	0	4	0	0	0	4	7	3	0	2	12	16	
TOTAL	208	9	20	3	240	690	73	95	45	903	1149	80	303	99	1631	2774	



TRAFFIC SURVEY																
CLIENT:	AURECON															
SITE:	INTERSECTION OF R577 AND D1261															
DATE:	12 HOUR COUNT ON TUESDAY 30 OCTOBER 2018															
UNITS:	CLASSIFIED															
APPROACH FROM NAME	WEST R 577															TOTAL
MOVEMENT	LEFT TURN					STRAIGHT					RIGHT TURN					ALL
TIME	C	T	H	B	TOTAL	C	T	H	B	TOTAL	C	T	H	B	TOTAL	MOVEMENTS
06:00 - 06:15	3	0	0	0	3	65	30	10	24	129	18	1	0	2	21	153
06:15 - 06:30	4	0	0	0	4	75	19	3	13	110	11	2	0	8	21	135
06:30 - 06:45	9	2	0	0	11	62	4	1	1	68	23	2	0	1	26	105
06:45 - 07:00	9	1	0	3	13	42	2	1	4	49	29	3	2	0	34	96
07:00 - 07:15	6	0	0	1	7	24	1	2	3	30	11	0	1	0	12	49
07:15 - 07:30	4	1	0	0	5	14	0	2	0	16	5	1	0	0	6	27
07:30 - 07:45	5	1	0	0	6	14	2	8	1	25	6	1	0	1	8	39
07:45 - 08:00	7	0	0	0	7	12	1	1	0	14	2	1	0	0	3	24
08:00 - 08:15	1	0	0	0	1	9	0	0	0	9	3	0	1	0	4	14
08:15 - 08:30	0	0	0	0	0	7	0	3	0	10	1	0	0	0	1	11
08:30 - 08:45	2	0	0	0	2	9	0	2	0	11	2	1	0	0	3	16
08:45 - 09:00	1	0	0	1	2	9	1	2	0	12	3	0	0	0	3	17
09:00 - 09:15	4	1	0	0	5	7	1	4	0	12	3	0	1	0	4	21
09:15 - 09:30	5	0	0	0	5	11	0	2	0	13	1	0	0	0	1	19
09:30 - 09:45	2	0	0	0	2	14	0	3	0	17	4	1	3	0	8	27
09:45 - 10:00	2	0	2	0	4	6	0	0	0	6	2	0	0	0	2	12
10:00 - 10:15	1	0	0	0	1	8	1	2	1	12	2	0	2	0	4	17
10:15 - 10:30	1	1	1	1	4	6	0	2	0	8	1	0	2	0	3	15
10:30 - 10:45	3	0	0	1	4	5	0	1	0	6	3	2	0	0	5	15
10:45 - 11:00	2	0	0	0	2	8	1	2	0	11	1	1	0	0	2	15
11:00 - 11:15	1	1	2	1	5	8	3	3	0	14	1	0	0	0	1	20
11:15 - 11:30	2	1	0	0	3	1	1	1	0	3	0	0	0	0	0	6
11:30 - 11:45	2	0	0	0	2	10	0	2	1	13	1	0	2	0	3	18
11:45 - 12:00	1	0	0	0	1	7	2	1	0	10	4	0	0	0	4	15
12:00 - 12:15	3	0	0	0	3	18	1	3	0	22	8	0	0	0	8	33
12:15 - 12:30	4	0	0	0	4	7	1	1	0	9	5	0	0	0	5	18
12:30 - 12:45	1	0	0	0	1	8	0	0	0	8	5	1	1	0	7	16
12:45 - 13:00	4	0	0	0	4	3	0	2	0	5	2	0	2	0	4	13
13:00 - 13:15	0	0	1	0	1	8	3	1	0	12	3	0	0	0	3	16
13:15 - 13:30	1	1	0	0	2	10	3	3	0	16	1	0	0	0	1	19
13:30 - 13:45	2	0	0	1	3	7	1	2	0	10	0	0	0	0	0	13
13:45 - 14:00	3	1	0	0	4	9	0	1	0	10	1	0	0	0	1	15
14:00 - 14:15	0	1	1	0	2	10	8	2	0	20	2	2	0	0	4	26
14:15 - 14:30	5	1	0	0	6	12	1	0	0	13	4	0	2	1	7	26
14:30 - 14:45	4	2	0	0	6	7	3	0	1	11	0	1	3	1	5	22
14:45 - 15:00	2	0	0	0	2	14	6	5	9	34	2	1	1	0	4	40
15:00 - 15:15	2	1	0	0	3	8	1	0	2	11	2	1	0	1	4	18
15:15 - 15:30	1	0	1	0	2	24	3	2	1	30	5	0	0	0	5	37
15:30 - 15:45	4	1	0	0	5	18	8	0	0	26	3	1	0	8	12	43
15:45 - 16:00	9	1	0	0	10	18	6	0	2	26	5	0	0	3	8	44
16:00 - 16:15	5	0	0	5	10	6	4	1	1	12	1	0	2	0	3	25
16:15 - 16:30	5	1	0	2	8	8	2	1	2	13	0	0	0	0	0	21
16:30 - 16:45	4	0	2	0	6	10	2	0	1	13	0	0	0	0	0	19
16:45 - 17:00	5	1	0	1	7	10	2	0	0	12	2	0	0	3	5	24
17:00 - 17:15	4	0	1	0	5	9	1	0	0	10	1	1	2	4	8	23
17:15 - 17:30	4	0	0	0	4	7	1	1	0	9	0	0	0	0	0	13
17:30 - 17:45	5	0	0	3	8	13	1	8	2	24	2	0	0	0	2	34
17:45 - 18:00	2	0	1	0	3	1	0	0	1	2	2	0	0	0	2	7
TOTAL	156	20	12	20	208	678	127	91	70	966	193	24	27	33	277	1451



TRAFFIC SURVEY																
CLIENT:	AURECON GROUP															
SITE:	INTERSECTION OF R577 AND MINE ACCESS ROAD															
DATE:	12 HOUR COUNT ON TUESDAY 30 OCTOBER 2018															
UNITS:	CLASSIFIED															
APPROACH FROM NAME MOVEMENT TIME	SOUTH MINE ACCESS ROAD															TOTAL
	LEFT TURN					STRAIGHT					RIGHT TURN					ALL MOVEMENTS
	C	T	H	B	TOTAL	C	T	H	B	TOTAL	C	T	H	B	TOTAL	
06:00 - 06:15	8	1	2	1	12	0	0	0	0	0	1	1	1	1	4	16
06:15 - 06:30	7	3	1	2	13	0	0	0	0	0	0	2	0	0	2	15
06:30 - 06:45	4	2	0	1	7	0	0	0	0	0	3	3	0	0	6	13
06:45 - 07:00	0	0	0	1	1	0	0	0	0	0	3	0	0	0	3	4
07:00 - 07:15	5	1	0	0	6	0	0	0	0	0	0	2	0	0	2	8
07:15 - 07:30	12	3	0	4	19	0	0	0	0	0	0	0	0	1	1	20
07:30 - 07:45	12	5	0	2	19	0	0	0	0	0	12	0	1	0	13	32
07:45 - 08:00	22	5	3	4	34	0	0	0	0	0	10	0	0	0	10	44
08:00 - 08:15	20	2	2	11	35	0	0	0	0	0	5	0	3	3	11	46
08:15 - 08:30	15	0	4	1	20	0	0	0	0	0	1	0	0	0	1	21
08:30 - 08:45	24	1	3	7	35	0	0	0	0	0	6	0	3	0	9	44
08:45 - 09:00	5	0	10	0	15	0	0	0	0	0	1	0	4	0	5	20
09:00 - 09:15	10	0	8	0	18	0	0	0	0	0	6	1	3	0	10	28
09:15 - 09:30	11	0	6	1	18	0	0	0	0	0	5	0	1	0	6	24
09:30 - 09:45	6	0	9	0	15	0	0	0	0	0	1	0	3	0	4	19
09:45 - 10:00	12	0	12	0	24	0	0	0	0	0	7	0	2	0	9	33
10:00 - 10:15	13	0	5	0	18	0	0	0	0	0	7	0	0	0	7	25
10:15 - 10:30	12	0	4	0	16	0	0	0	0	0	4	0	1	0	5	21
10:30 - 10:45	9	0	3	0	12	0	0	0	0	0	11	0	10	0	21	33
10:45 - 11:00	18	0	4	0	22	0	0	0	0	0	7	0	6	0	13	35
11:00 - 11:15	15	0	10	0	25	0	0	0	0	0	16	0	4	0	20	45
11:15 - 11:30	28	0	7	0	35	0	0	0	0	0	6	0	2	0	8	43
11:30 - 11:45	11	0	7	0	18	0	0	0	0	0	17	0	0	0	17	35
11:45 - 12:00	15	0	10	0	25	0	0	0	0	0	5	0	2	0	7	32
12:00 - 12:15	13	0	6	0	19	0	0	0	0	0	6	0	1	0	7	26
12:15 - 12:30	11	0	4	0	15	0	0	0	0	0	6	0	0	0	6	21
12:30 - 12:45	22	1	6	0	29	0	0	0	0	0	6	0	2	0	8	37
12:45 - 13:00	9	0	2	0	11	0	0	0	0	0	4	0	1	0	5	16
13:00 - 13:15	18	0	3	0	21	0	0	0	0	0	5	0	3	0	8	29
13:15 - 13:30	13	0	5	0	18	0	0	0	0	0	4	0	2	0	6	24
13:30 - 13:45	7	0	1	0	8	0	0	0	0	0	11	0	2	0	13	21
13:45 - 14:00	18	0	5	0	23	0	0	0	0	0	10	0	1	0	11	34
14:00 - 14:15	13	2	2	1	18	0	0	0	0	0	10	0	1	0	11	29
14:15 - 14:30	33	1	3	0	37	0	0	0	0	0	9	0	1	0	10	47
14:30 - 14:45	21	3	2	0	26	0	0	0	0	0	10	0	4	0	14	40
14:45 - 15:00	23	0	3	0	26	0	0	0	0	0	18	0	2	0	20	46
15:00 - 15:15	32	0	6	0	38	0	0	0	0	0	27	0	3	0	30	68
15:15 - 15:30	47	4	1	1	53	0	0	0	0	0	40	0	0	0	40	93
15:30 - 15:45	106	16	4	6	132	0	0	0	0	0	66	3	0	0	69	201
15:45 - 16:00	69	4	8	11	92	0	0	0	0	0	53	2	0	5	60	152
16:00 - 16:15	41	1	5	13	60	0	0	0	0	0	37	0	0	3	40	100
16:15 - 16:30	45	0	3	7	55	0	0	0	0	0	29	1	1	0	31	86
16:30 - 16:45	28	3	5	5	41	0	0	0	0	0	19	0	2	0	21	62
16:45 - 17:00	7	2	3	8	20	0	0	0	0	0	4	0	2	0	6	26
17:00 - 17:15	22	0	3	6	31	0	0	0	0	0	9	0	0	0	9	40
17:15 - 17:30	29	1	1	11	42	0	0	0	0	0	44	0	4	2	50	92
17:30 - 17:45	8	15	3	0	26	0	0	0	0	0	9	0	1	0	10	36
17:45 - 18:00	3	0	2	0	5	0	0	0	0	0	8	0	2	0	10	15
TOTAL	932	76	196	104	1308	0	0	0	0	0	578	15	81	15	689	1997



TRAFFIC SURVEY																
CLIENT:	AURECON GROUP															
SITE:	INTERSECTION OF R577 AND MINE ACCESS ROAD															
DATE:	12 HOUR COUNT ON TUESDAY 30 OCTOBER 2018															
UNITS:	CLASSIFIED															
APPROACH FROM NAME	EAST R 577															TOTAL
MOVEMENT	LEFT TURN					STRAIGHT					RIGHT TURN					ALL
TIME	C	T	H	B	TOTAL	C	T	H	B	TOTAL	C	T	H	B	TOTAL	MOVEMENTS
06:00 - 06:15	81	10	1	12	104	44	1	1	1	47	0	0	0	0	0	151
06:15 - 06:30	97	2	4	3	106	54	1	2	1	58	0	0	0	0	0	164
06:30 - 06:45	47	0	14	0	61	56	3	1	0	60	0	0	0	0	0	121
06:45 - 07:00	82	1	2	0	85	49	5	1	0	55	0	0	0	0	0	140
07:00 - 07:15	27	0	0	0	27	20	0	1	0	21	0	0	0	0	0	48
07:15 - 07:30	12	0	2	0	14	45	2	3	0	50	0	0	0	0	0	64
07:30 - 07:45	7	0	1	0	8	20	0	7	0	27	0	0	0	0	0	35
07:45 - 08:00	4	0	3	0	7	8	2	3	0	13	0	0	0	0	0	20
08:00 - 08:15	5	0	1	0	6	16	1	3	0	20	0	0	0	0	0	26
08:15 - 08:30	5	0	1	0	6	7	0	3	0	10	0	0	0	0	0	16
08:30 - 08:45	5	0	4	0	9	3	0	2	0	5	0	0	0	0	0	14
08:45 - 09:00	6	0	3	0	9	13	0	5	0	18	0	0	0	0	0	27
09:00 - 09:15	9	0	6	0	15	6	0	16	0	22	0	0	0	0	0	37
09:15 - 09:30	6	0	3	0	9	7	0	17	0	24	0	0	0	0	0	33
09:30 - 09:45	7	0	4	0	11	20	1	9	0	30	0	0	0	0	0	41
09:45 - 10:00	21	5	2	0	28	3	1	9	0	13	0	0	0	0	0	41
10:00 - 10:15	18	0	1	0	19	6	0	2	0	8	0	0	0	0	0	27
10:15 - 10:30	11	0	4	0	15	12	0	2	0	14	0	0	0	0	0	29
10:30 - 10:45	20	0	6	0	26	5	0	2	0	7	0	0	0	0	0	33
10:45 - 11:00	20	0	8	0	28	3	0	2	0	5	0	0	0	0	0	33
11:00 - 11:15	10	0	14	0	24	2	0	3	0	5	0	0	0	0	0	29
11:15 - 11:30	25	1	22	0	48	5	0	8	0	13	0	0	0	0	0	61
11:30 - 11:45	5	0	0	0	5	6	0	17	0	23	0	0	0	0	0	28
11:45 - 12:00	4	0	3	0	7	8	0	1	0	9	0	0	0	0	0	16
12:00 - 12:15	2	0	0	0	2	9	0	0	0	9	0	0	0	0	0	11
12:15 - 12:30	5	0	1	0	6	11	0	1	0	12	0	0	0	0	0	18
12:30 - 12:45	12	1	2	0	15	9	0	12	0	21	0	0	0	0	0	36
12:45 - 13:00	3	0	0	0	3	9	0	1	0	10	0	0	0	0	0	13
13:00 - 13:15	8	0	4	0	12	5	0	3	0	8	0	0	0	0	0	20
13:15 - 13:30	3	0	2	0	5	6	0	1	0	7	0	0	0	0	0	12
13:30 - 13:45	6	2	3	0	11	4	0	6	0	10	0	0	0	0	0	21
13:45 - 14:00	2	2	2	0	6	7	0	3	0	10	0	0	0	0	0	16
14:00 - 14:15	3	0	5	0	8	7	0	2	0	9	0	0	0	0	0	17
14:15 - 14:30	1	0	3	0	4	8	0	2	0	10	0	0	0	0	0	14
14:30 - 14:45	7	0	2	0	9	3	0	0	0	3	0	0	0	0	0	12
14:45 - 15:00	11	0	7	3	21	5	0	1	0	6	0	0	0	0	0	27
15:00 - 15:15	6	1	2	0	9	4	0	1	2	7	0	0	0	0	0	16
15:15 - 15:30	4	0	3	0	7	4	0	4	0	8	0	0	0	0	0	15
15:30 - 15:45	3	0	1	0	4	4	2	2	0	8	0	0	0	0	0	12
15:45 - 16:00	2	0	1	0	3	14	0	4	0	18	0	0	0	0	0	21
16:00 - 16:15	1	0	0	0	1	4	0	3	0	7	0	0	0	0	0	8
16:15 - 16:30	0	0	1	0	1	4	0	4	0	8	0	0	0	0	0	9
16:30 - 16:45	7	1	1	0	9	10	0	4	0	14	0	0	0	0	0	23
16:45 - 17:00	2	0	2	0	4	7	0	1	0	8	0	0	0	0	0	12
17:00 - 17:15	3	0	0	0	3	5	0	0	0	5	0	0	0	0	0	8
17:15 - 17:30	4	0	2	0	6	7	0	2	0	9	0	0	0	0	0	15
17:30 - 17:45	0	0	0	0	0	9	0	4	0	13	0	0	0	0	0	13
17:45 - 18:00	0	0	0	0	0	13	0	3	0	16	0	0	0	0	0	16
TOTAL	629	26	153	18	826	586	19	184	4	793	0	0	0	0	0	1619



TRAFFIC SURVEY																
CLIENT:	AURECON GROUP															
SITE:	INTERSECTION OF R577 AND MINE ACCESS ROAD															
DATE:	12 HOUR COUNT ON TUESDAY 30 OCTOBER 2018															
UNITS:	CLASSIFIED															
APPROACH FROM NAME	WEST R 577															TOTAL
MOVEMENT	LEFT TURN					STRAIGHT					RIGHT TURN					ALL MOVEMENTS
TIME	C	T	H	B	TOTAL	C	T	H	B	TOTAL	C	T	H	B	TOTAL	
06:00 - 06:15	0	0	0	0	0	10	1	9	0	20	150	7	12	18	187	207
06:15 - 06:30	0	0	0	0	0	8	0	5	0	13	64	7	6	18	95	108
06:30 - 06:45	0	0	0	0	0	11	0	1	0	12	70	0	3	2	75	87
06:45 - 07:00	0	0	0	0	0	9	0	0	0	9	62	0	1	4	67	76
07:00 - 07:15	0	0	0	0	0	19	1	4	0	24	13	0	13	1	27	51
07:15 - 07:30	0	0	0	0	0	12	2	1	0	15	12	0	5	1	18	33
07:30 - 07:45	0	0	0	0	0	11	2	3	0	16	20	2	13	2	37	53
07:45 - 08:00	0	0	0	0	0	8	0	1	1	10	20	0	4	0	24	34
08:00 - 08:15	0	0	0	0	0	9	2	1	1	13	23	0	4	0	27	40
08:15 - 08:30	0	0	0	0	0	4	1	0	0	5	19	0	3	0	22	27
08:30 - 08:45	0	0	0	0	0	10	0	2	0	12	19	1	8	0	28	40
08:45 - 09:00	0	0	0	0	0	3	0	2	0	5	11	0	3	0	14	19
09:00 - 09:15	0	0	0	0	0	4	2	2	0	8	8	0	3	0	11	19
09:15 - 09:30	0	0	0	0	0	3	0	4	0	7	16	1	19	0	36	43
09:30 - 09:45	0	0	0	0	0	8	0	2	0	10	19	0	5	0	24	34
09:45 - 10:00	0	0	0	0	0	12	0	4	0	16	21	0	6	0	27	43
10:00 - 10:15	0	0	0	0	0	7	1	3	0	11	10	0	5	0	15	26
10:15 - 10:30	0	0	0	0	0	5	0	1	0	6	4	0	2	1	7	13
10:30 - 10:45	0	0	0	0	0	5	1	3	0	9	17	0	10	0	27	36
10:45 - 11:00	0	0	0	0	0	11	0	4	0	15	7	0	3	3	13	28
11:00 - 11:15	0	0	0	0	0	13	0	4	0	17	9	0	4	0	13	30
11:15 - 11:30	0	0	0	0	0	8	0	4	0	12	9	1	2	0	12	24
11:30 - 11:45	0	0	0	0	0	6	0	3	1	10	9	0	2	0	11	21
11:45 - 12:00	0	0	0	0	0	20	0	9	0	29	10	0	11	0	21	50
12:00 - 12:15	0	0	0	0	0	10	1	7	0	18	10	0	5	0	15	33
12:15 - 12:30	0	0	0	0	0	10	1	9	0	20	7	0	0	0	7	27
12:30 - 12:45	0	0	0	0	0	14	1	9	0	24	17	0	5	0	22	46
12:45 - 13:00	0	0	0	0	0	15	1	4	0	20	9	0	3	0	12	32
13:00 - 13:15	0	0	0	0	0	10	1	3	0	14	6	0	5	0	11	25
13:15 - 13:30	0	0	0	0	0	14	2	3	0	19	4	0	4	0	8	27
13:30 - 13:45	0	0	0	0	0	16	0	5	0	21	11	1	4	1	17	38
13:45 - 14:00	0	0	0	0	0	12	0	5	0	17	13	3	4	3	23	40
14:00 - 14:15	0	0	0	0	0	10	0	6	0	16	10	0	0	0	10	26
14:15 - 14:30	0	0	0	0	0	6	1	4	0	11	10	2	4	3	19	30
14:30 - 14:45	0	0	0	0	0	13	0	3	0	16	12	2	0	4	18	34
14:45 - 15:00	0	0	0	0	0	14	1	0	0	15	26	5	6	16	53	68
15:00 - 15:15	0	0	0	0	0	16	2	7	0	25	13	3	2	15	33	58
15:15 - 15:30	0	0	0	0	0	30	0	3	1	34	33	4	4	5	46	80
15:30 - 15:45	0	0	0	0	0	88	2	8	0	98	22	1	3	0	26	124
15:45 - 16:00	0	0	0	0	0	32	3	3	0	38	4	0	1	0	5	43
16:00 - 16:15	0	0	0	0	0	30	1	2	3	36	8	2	0	0	10	46
16:15 - 16:30	0	0	0	0	0	49	4	3	0	56	11	1	5	3	20	76
16:30 - 16:45	0	0	0	0	0	25	0	4	0	29	8	0	0	1	9	38
16:45 - 17:00	0	0	0	0	0	19	1	3	1	24	7	0	2	1	10	34
17:00 - 17:15	0	0	0	0	0	31	0	2	0	33	4	2	3	0	9	42
17:15 - 17:30	0	0	0	0	0	14	1	2	0	17	9	1	3	0	13	30
17:30 - 17:45	0	0	0	0	0	6	0	2	1	9	4	0	1	0	5	14
17:45 - 18:00	0	0	0	0	0	3	0	3	0	6	3	0	1	0	4	10
TOTAL	0	0	0	0	0	703	36	172	9	920	883	46	212	102	1243	2163



Appendix B

SIDRA Analysis

MOVEMENT SUMMARY

Site: 1 [Mine Access Rd & R577 - AM]

Mine Access Rd & R557 PM Peak
Stop (Two-Way)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Mine Access Road											
1	L2	33	9.0	0.105	9.6	LOS A	0.4	2.7	0.48	0.90	48.2
3	R2	15	7.0	0.105	23.9	LOS C	0.4	2.7	0.48	0.90	48.0
Approach		48	8.4	0.105	14.1	LOS B	0.4	2.7	0.48	0.90	48.1
East: R577											
4	L2	356	6.0	0.200	5.6	LOS A	0.0	0.0	0.00	0.57	53.3
5	T1	220	3.0	0.115	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
Approach		576	4.9	0.200	3.5	NA	0.0	0.0	0.00	0.36	55.7
West: R577											
11	T1	54	28.0	0.033	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
12	R2	424	6.0	0.582	12.6	LOS B	4.4	32.2	0.71	1.05	48.2
Approach		478	8.5	0.582	11.2	NA	4.4	32.2	0.63	0.93	49.3
All Vehicles		1102	6.6	0.582	7.3	NA	4.4	32.2	0.29	0.63	52.4

MOVEMENT SUMMARY

Site: 1 [Mine Access Rd & R577 - PM]

Mine Access Rd & R557 PM Peak
Stop (Two-Way)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Mine Access Road											
1	L2	339	6.0	0.634	10.9	LOS B	7.6	54.8	0.26	0.96	48.6
3	R2	200	1.0	0.634	16.6	LOS C	7.6	54.8	0.26	0.96	48.6
Approach		539	4.1	0.634	13.0	LOS B	7.6	54.8	0.26	0.96	48.6
East: R577											
4	L2	9	33.0	0.006	5.9	LOS A	0.0	0.0	0.00	0.57	52.2
5	T1	41	32.0	0.025	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
Approach		50	32.2	0.025	1.1	NA	0.0	0.0	0.00	0.10	58.4
West: R577											
11	T1	228	7.0	0.129	0.1	LOS A	0.4	3.3	0.07	0.11	58.8
12	R2	61	15.0	0.129	6.0	LOS A	0.4	3.3	0.10	0.17	55.6
Approach		289	8.7	0.129	1.3	NA	0.4	3.3	0.07	0.12	58.1
All Vehicles		878	7.2	0.634	8.5	NA	7.6	54.8	0.19	0.63	51.9

MOVEMENT SUMMARY

 **Site: 101v [R577 and D1261 - AM]**

New Site
Stop (All-Way)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: D1261											
1	L2	55	1.0	0.175	14.7	LOS B	0.6	4.4	0.94	1.28	48.5
2	T1	23	1.0	0.167	15.0	LOS B	0.6	4.2	0.96	1.27	48.4
3	R2	22	1.0	0.167	15.0	LOS B	0.6	4.2	0.96	1.27	48.4
Approach		100	1.0	0.175	14.8	LOS B	0.6	4.4	0.95	1.27	48.5
East: R577											
4	L2	123	2.5	0.411	18.3	LOS C	1.8	13.1	0.98	1.39	46.3
5	T1	82	10.0	0.274	14.5	LOS B	1.1	8.1	0.96	1.33	48.5
6	R2	154	3.0	0.457	18.9	LOS C	2.1	15.4	0.98	1.42	45.9
Approach		359	4.4	0.457	17.7	LOS C	2.1	15.4	0.98	1.39	46.6
North: D1261											
7	L2	332	6.0	1.139	339.8	LOS F	46.4	341.3	1.00	6.40	9.1
8	T1	52	1.0	0.333	19.5	LOS C	1.4	9.7	0.99	1.34	45.7
9	R2	35	1.0	0.333	19.5	LOS C	1.4	9.7	0.99	1.34	45.7
Approach		419	5.0	1.139	273.3	LOS F	46.4	341.3	1.00	5.35	11.0
West: R577											
10	L2	31	1.0	0.101	11.1	LOS B	0.3	2.4	0.93	1.25	50.9
11	T1	356	4.5	1.045	196.3	LOS F	31.5	228.8	1.00	4.91	14.2
12	R2	102	1.0	0.331	15.3	LOS C	1.4	9.6	0.97	1.34	47.8
Approach		489	3.5	1.045	146.8	LOS F	31.5	228.8	0.99	3.93	17.6
All Vehicles		1367	4.0	1.139	142.0	LOS F	46.4	341.3	0.98	3.50	18.0

MOVEMENT SUMMARY

 **Site: 101v [R577 and D1261 - PM]**

New Site
Stop (All-Way)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: D1261											
1	L2	79	1.0	0.392	25.7	LOS D	1.7	12.2	1.00	1.37	42.4
2	T1	49	1.0	0.546	32.6	LOS D	2.9	20.3	1.00	1.48	39.3
3	R2	76	1.0	0.546	32.6	LOS D	2.9	20.3	1.00	1.48	39.3
Approach		204	1.0	0.546	29.9	LOS D	2.9	20.3	1.00	1.44	40.4
East: R577											
4	L2	8	1.0	0.027	10.1	LOS B	0.1	0.6	0.91	1.23	51.6
5	T1	204	4.0	0.647	29.3	LOS D	4.0	28.9	1.00	1.61	40.6
6	R2	351	7.5	1.034	126.0	LOS F	20.2	150.1	1.00	3.46	19.6
Approach		563	6.1	1.034	89.2	LOS F	20.2	150.1	1.00	2.76	24.4
North: D1261											
7	L2	103	15.0	0.708	70.2	LOS F	4.7	36.9	1.00	1.69	27.9
8	T1	5	40.0	0.266	31.1	LOS D	1.1	8.4	1.00	1.32	39.7
9	R2	28	11.0	0.266	29.9	LOS D	1.1	8.4	1.00	1.32	40.4
Approach		137	15.1	0.708	60.3	LOS F	4.7	36.9	1.00	1.60	30.2
West: R577											
10	L2	35	1.0	0.160	14.4	LOS B	0.6	4.1	0.99	1.27	48.7
11	T1	81	2.6	0.324	17.9	LOS C	1.3	9.5	0.99	1.34	46.5
12	R2	24	8.7	0.111	13.4	LOS B	0.4	2.9	0.98	1.26	49.0
Approach		140	3.3	0.324	16.2	LOS C	1.3	9.5	0.99	1.31	47.5
All Vehicles		1044	5.9	1.034	64.0	LOS F	20.2	150.1	1.00	2.15	29.3

MOVEMENT SUMMARY



Site: 101v [R577 and D1261 - AM - Conversion]

New Site

Signals - Fixed Time Isolated Cycle Time = 60 seconds (Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: D1261											
1	L2	55	1.0	0.069	16.2	LOS B	0.9	6.6	0.61	0.69	46.3
2	T1	23	1.0	0.092	14.4	LOS B	0.9	6.4	0.70	0.62	46.9
3	R2	22	1.0	0.092	20.0	LOS B	0.9	6.4	0.70	0.62	45.9
Approach		100	1.0	0.092	16.6	LOS B	0.9	6.6	0.65	0.66	46.4
East: R577											
4	L2	123	2.5	0.169	18.2	LOS B	2.3	16.7	0.68	0.73	45.2
5	T1	82	10.0	0.112	12.3	LOS B	1.5	11.5	0.66	0.52	49.9
6	R2	154	3.0	0.479	26.7	LOS C	4.0	28.8	0.89	0.79	40.9
Approach		359	4.4	0.479	20.5	LOS C	4.0	28.8	0.76	0.71	44.1
North: D1261											
7	L2	332	6.0	0.492	18.6	LOS B	6.9	50.7	0.74	0.78	44.9
8	T1	52	1.0	0.136	12.5	LOS B	1.6	11.6	0.67	0.61	48.4
9	R2	35	1.0	0.136	18.0	LOS B	1.6	11.6	0.67	0.61	47.3
Approach		419	5.0	0.492	17.8	LOS B	6.9	50.7	0.73	0.75	45.5
West: R577											
10	L2	31	1.0	0.042	17.4	LOS B	0.6	3.9	0.63	0.68	45.7
11	T1	356	4.5	0.470	14.6	LOS B	7.8	57.0	0.79	0.67	48.4
12	R2	102	1.0	0.214	20.0	LOS C	2.1	14.9	0.72	0.74	44.0
Approach		489	3.5	0.470	15.9	LOS B	7.8	57.0	0.76	0.69	47.2
All Vehicles		1367	4.0	0.492	17.7	LOS B	7.8	57.0	0.74	0.71	45.8

MOVEMENT SUMMARY

 **Site: 101v [R577 and D1261 - PM - Conversion]**

New Site

Signals - Fixed Time Isolated Cycle Time = 60 seconds (Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: D1261											
1	L2	75	1.0	0.188	26.9	LOS C	1.9	13.1	0.85	0.74	40.8
2	T1	47	1.0	0.387	23.7	LOS C	3.2	22.5	0.91	0.76	41.6
3	R2	72	1.0	0.387	29.2	LOS C	3.2	22.5	0.91	0.76	40.8
Approach		194	1.0	0.387	27.0	LOS C	3.2	22.5	0.89	0.75	41.0
East: R577											
4	L2	8	1.0	0.007	10.2	LOS B	0.1	0.6	0.40	0.62	50.2
5	T1	194	4.0	0.166	5.3	LOS A	2.4	17.5	0.45	0.38	55.2
6	R2	333	7.5	0.416	12.1	LOS B	5.1	38.1	0.55	0.74	48.7
Approach		535	6.1	0.416	9.6	LOS A	5.1	38.1	0.51	0.61	50.9
North: D1261											
7	L2	98	15.0	0.270	27.7	LOS C	2.5	19.7	0.87	0.76	40.2
8	T1	5	40.0	0.115	22.2	LOS C	0.8	6.4	0.85	0.70	41.5
9	R2	27	11.0	0.115	27.8	LOS C	0.8	6.4	0.85	0.70	40.5
Approach		130	15.1	0.270	27.5	LOS C	2.5	19.7	0.87	0.75	40.3
West: R577											
10	L2	33	1.0	0.029	10.3	LOS B	0.4	2.6	0.41	0.65	50.1
11	T1	77	2.6	0.065	4.9	LOS A	0.9	6.4	0.42	0.33	55.5
12	R2	23	8.7	0.033	11.3	LOS B	0.3	2.2	0.44	0.66	48.9
Approach		133	3.3	0.065	7.4	LOS A	0.9	6.4	0.42	0.47	52.9
All Vehicles		992	5.9	0.416	15.0	LOS B	5.1	38.1	0.62	0.63	47.3

MOVEMENT SUMMARY

 **Site: 1v [R555 & D1261 - AM]**

R555 & D1261 AM Peak
Stop (All-Way)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
SouthEast: D1261											
21	L2	10	0.0	0.085	13.8	LOS B	0.3	2.1	0.95	1.25	49.1
22	T1	12	8.3	0.085	14.2	LOS B	0.3	2.1	0.95	1.25	48.8
23	R2	94	9.6	0.315	18.6	LOS C	1.3	9.7	0.97	1.34	46.3
Approach		116	8.6	0.315	17.7	LOS C	1.3	9.7	0.97	1.33	46.8
NorthEast: R555											
24	L2	796	2.3	2.604	2916.6	LOS F	417.4	2978.5	1.00	22.70	1.2
25	T1	122	5.8	0.411	18.4	LOS C	1.8	13.5	0.99	1.39	46.2
26	R2	9	10.0	0.030	10.8	LOS B	0.1	0.8	0.92	1.24	51.0
Approach		927	2.8	2.604	2507.0	LOS F	417.4	2978.5	1.00	19.69	1.4
NorthWest: Mine Admin											
27	L2	4	0.0	0.077	20.5	LOS C	0.3	1.9	1.00	1.25	45.1
28	T1	8	0.0	0.077	20.6	LOS C	0.3	1.9	1.00	1.25	45.1
29	R2	1	0.0	0.008	18.8	LOS C	0.0	0.2	1.00	1.23	46.1
Approach		13	0.0	0.077	20.4	LOS C	0.3	1.9	1.00	1.24	45.2
SouthWest: R555											
30	L2	5	0.0	0.019	10.5	LOS B	0.1	0.4	0.94	1.23	51.4
31	T1	50	22.0	0.160	13.1	LOS B	0.6	4.7	0.93	1.29	49.2
32	R2	19	0.0	0.070	11.2	LOS B	0.2	1.7	0.95	1.24	50.8
Approach		74	14.9	0.160	12.5	LOS B	0.6	4.7	0.94	1.28	49.8
All Vehicles		1130	4.2	2.604	2059.5	LOS F	417.4	2978.5	0.99	16.38	1.7

MOVEMENT SUMMARY

 **Site: 1v [R555 & D1261 - PM]**

R555 & D1261 AM Peak
Stop (All-Way)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
SouthEast: D1261											
21	L2	13	7.7	0.046	11.0	LOS B	0.1	1.1	0.86	1.24	50.8
22	T1	6	0.0	0.046	10.8	LOS B	0.1	1.1	0.86	1.24	51.1
23	R2	387	3.0	0.883	60.6	LOS F	11.8	84.4	1.00	2.58	30.3
Approach		406	3.1	0.883	58.3	LOS F	11.8	84.4	0.99	2.52	30.9
NorthEast: R555											
24	L2	52	9.6	0.450	41.2	LOS E	2.1	16.1	1.00	1.42	35.9
25	T1	125	15.2	0.962	204.0	LOS F	13.1	103.5	1.00	2.69	13.8
26	R2	4	0.0	0.035	17.1	LOS C	0.1	0.8	1.00	1.24	47.1
Approach		181	13.3	0.962	153.1	LOS F	13.1	103.5	1.00	2.29	17.1
NorthWest: Mine Admin											
27	L2	3	0.0	0.034	16.2	LOS C	0.1	0.8	0.98	1.24	47.6
28	T1	4	0.0	0.034	16.3	LOS C	0.1	0.8	0.98	1.24	47.6
29	R2	1	0.0	0.006	15.8	LOS C	0.0	0.1	0.99	1.23	48.0
Approach		8	0.0	0.034	16.2	LOS C	0.1	0.8	0.98	1.23	47.6
SouthWest: R555											
30	L2	1	0.0	0.008	15.5	LOS C	0.0	0.2	1.00	1.23	48.1
31	T1	92	16.3	0.650	59.9	LOS F	4.1	32.4	1.00	1.64	30.2
32	R2	7	0.0	0.057	17.0	LOS C	0.2	1.4	1.00	1.24	47.1
Approach		100	15.0	0.650	56.5	LOS F	4.1	32.4	1.00	1.61	31.1
All Vehicles		695	7.4	0.962	82.3	LOS F	13.1	103.5	1.00	2.32	25.6

MOVEMENT SUMMARY

 **Site: 1vv [R555 & D1261 - AM - Conversion]**

R555 & D1261 AM Peak

Signals - Fixed Time Isolated Cycle Time = 60 seconds (Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
SouthEast: D1261											
21	L2	10	0.0	0.089	31.2	LOS C	0.6	4.3	0.91	0.67	40.2
22	T1	12	8.3	0.089	25.7	LOS C	0.6	4.3	0.91	0.67	41.0
23	R2	94	9.6	0.410	33.2	LOS C	2.7	20.5	0.96	0.77	38.2
Approach		116	8.6	0.410	32.2	LOS C	2.7	20.5	0.95	0.75	38.6
NorthEast: R555											
24	L2	796	2.3	0.622	10.7	LOS B	12.4	88.7	0.57	0.77	49.8
25	T1	122	5.8	0.093	3.1	LOS A	1.1	8.3	0.34	0.28	57.1
26	R2	9	10.0	0.010	9.2	LOS A	0.1	0.7	0.35	0.62	50.6
Approach		927	2.8	0.622	9.7	LOS A	12.4	88.7	0.54	0.70	50.6
NorthWest: Mine Admin											
27	L2	4	0.0	0.047	30.9	LOS C	0.3	2.2	0.90	0.63	40.7
28	T1	8	0.0	0.047	25.3	LOS C	0.3	2.2	0.90	0.63	41.5
29	R2	1	0.0	0.004	30.3	LOS C	0.0	0.2	0.88	0.59	39.4
Approach		13	0.0	0.047	27.4	LOS C	0.3	2.2	0.90	0.63	41.1
SouthWest: R555											
30	L2	5	0.0	0.004	8.4	LOS A	0.0	0.3	0.31	0.61	51.5
31	T1	50	22.0	0.052	3.7	LOS A	0.5	4.4	0.36	0.30	56.2
32	R2	19	0.0	0.052	13.9	LOS B	0.5	4.4	0.52	0.61	48.3
Approach		74	14.9	0.052	6.6	LOS A	0.5	4.4	0.40	0.40	53.6
All Vehicles		1130	4.2	0.622	12.0	LOS B	12.4	88.7	0.58	0.69	49.1

MOVEMENT SUMMARY

 **Site: 1vv [R555 & D1261 - PM - Conversion]**

R555 & D1261 AM Peak

Signals - Fixed Time Isolated Cycle Time = 60 seconds (Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
SouthEast: D1261											
21	L2	13	7.7	0.016	9.6	LOS A	0.2	1.4	0.37	0.52	51.7
22	T1	6	0.0	0.016	3.9	LOS A	0.2	1.4	0.37	0.52	53.3
23	R2	387	3.0	0.411	11.1	LOS B	5.5	39.3	0.51	0.73	49.8
Approach		406	3.1	0.411	10.9	LOS B	5.5	39.3	0.50	0.72	49.9
NorthEast: R555											
24	L2	52	9.6	0.163	28.8	LOS C	1.3	10.1	0.88	0.73	39.8
25	T1	125	15.2	0.384	24.4	LOS C	3.4	26.7	0.92	0.73	42.9
26	R2	4	0.0	0.016	29.6	LOS C	0.1	0.7	0.87	0.64	39.6
Approach		181	13.3	0.384	25.8	LOS C	3.4	26.7	0.91	0.73	41.9
NorthWest: Mine Admin											
27	L2	3	0.0	0.006	9.4	LOS A	0.1	0.5	0.36	0.41	53.1
28	T1	4	0.0	0.006	3.9	LOS A	0.1	0.5	0.36	0.41	54.4
29	R2	1	0.0	0.001	9.4	LOS A	0.0	0.1	0.36	0.59	50.8
Approach		8	0.0	0.006	6.6	LOS A	0.1	0.5	0.36	0.43	53.5
SouthWest: R555											
30	L2	1	0.0	0.003	27.1	LOS C	0.0	0.2	0.83	0.59	40.7
31	T1	92	16.3	0.285	23.8	LOS C	2.4	19.4	0.90	0.70	43.1
32	R2	7	0.0	0.033	30.9	LOS C	0.2	1.3	0.89	0.66	39.1
Approach		100	15.0	0.285	24.3	LOS C	2.4	19.4	0.90	0.70	42.8
All Vehicles		695	7.4	0.411	16.7	LOS B	5.5	39.3	0.66	0.71	46.5

Base Year Horizon

MOVEMENT SUMMARY



Site: 1 [Mine Access Rd & R577 - Base year AM]

Mine Access Rd & R577 PM Peak
Stop (Two-Way)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Mine Access Road											
1	L2	36	9.0	0.123	9.6	LOS A	0.4	3.2	0.49	0.91	47.8
3	R2	17	7.0	0.123	25.4	LOS D	0.4	3.2	0.49	0.91	47.7
Approach		53	8.4	0.123	14.7	LOS B	0.4	3.2	0.49	0.91	47.8
East: R577											
4	L2	371	6.0	0.208	5.6	LOS A	0.0	0.0	0.00	0.57	53.3
5	T1	220	3.0	0.115	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
Approach		591	4.9	0.208	3.5	NA	0.0	0.0	0.00	0.36	55.6
West: R577											
11	T1	54	28.0	0.033	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
12	R2	449	6.0	0.630	13.5	LOS B	5.1	37.5	0.74	1.10	47.6
Approach		503	8.4	0.630	12.1	NA	5.1	37.5	0.66	0.98	48.7
All Vehicles		1147	6.6	0.630	7.8	NA	5.1	37.5	0.31	0.66	52.0

MOVEMENT SUMMARY



Site: 1 [Mine Access Rd & R577 - Base Year PM]

Mine Access Rd & R577 PM Peak
Stop (Two-Way)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Mine Access Road											
1	L2	364	6.0	0.684	11.7	LOS B	9.7	70.1	0.28	0.97	47.9
3	R2	215	1.0	0.684	18.0	LOS C	9.7	70.1	0.28	0.97	47.9
Approach		579	4.1	0.684	14.1	LOS B	9.7	70.1	0.28	0.97	47.9
East: R577											
4	L2	11	33.0	0.007	5.9	LOS A	0.0	0.0	0.00	0.57	52.2
5	T1	41	32.0	0.025	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
Approach		52	32.2	0.025	1.3	NA	0.0	0.0	0.00	0.12	58.2
West: R577											
11	T1	228	7.0	0.131	0.1	LOS A	0.5	3.5	0.07	0.11	58.7
12	R2	64	15.0	0.131	6.0	LOS A	0.5	3.5	0.11	0.18	55.5
Approach		292	8.8	0.131	1.4	NA	0.5	3.5	0.08	0.13	58.0
All Vehicles		923	7.2	0.684	9.3	NA	9.7	70.1	0.20	0.65	51.2

MOVEMENT SUMMARY

 **Site: 101v [R577 and D1261 - Base Year AM]**

New Site

Signals - Fixed Time Isolated Cycle Time = 60 seconds (Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: D1261											
1	L2	55	1.0	0.069	16.2	LOS B	0.9	6.6	0.61	0.69	46.3
2	T1	23	1.0	0.110	15.3	LOS B	1.0	7.3	0.72	0.64	46.2
3	R2	27	1.0	0.110	20.8	LOS C	1.0	7.3	0.72	0.64	45.2
Approach		105	1.0	0.110	17.2	LOS B	1.0	7.3	0.66	0.67	46.0
East: R577											
4	L2	124	2.5	0.170	18.2	LOS B	2.4	16.9	0.68	0.73	45.2
5	T1	83	10.0	0.113	12.3	LOS B	1.5	11.7	0.66	0.52	49.9
6	R2	155	3.0	0.493	26.8	LOS C	4.1	29.2	0.89	0.80	40.8
Approach		362	4.4	0.493	20.5	LOS C	4.1	29.2	0.76	0.71	44.1
North: D1261											
7	L2	342	6.0	0.507	18.7	LOS B	7.1	52.6	0.75	0.78	44.8
8	T1	52	1.0	0.141	13.2	LOS B	1.7	11.9	0.68	0.62	47.9
9	R2	35	1.0	0.141	18.7	LOS B	1.7	11.9	0.68	0.62	46.9
Approach		429	5.0	0.507	18.0	LOS B	7.1	52.6	0.73	0.75	45.3
West: R577											
10	L2	31	1.0	0.042	17.4	LOS B	0.6	3.9	0.63	0.68	45.7
11	T1	366	4.5	0.483	14.7	LOS B	8.1	59.0	0.79	0.68	48.3
12	R2	102	1.0	0.214	20.0	LOS C	2.1	14.9	0.72	0.74	44.0
Approach		499	3.6	0.483	15.9	LOS B	8.1	59.0	0.77	0.69	47.2
All Vehicles		1395	4.0	0.507	17.9	LOS B	8.1	59.0	0.75	0.71	45.7

MOVEMENT SUMMARY

 **Site: 101v [R577 and D1261 - Base Year PM]**

New Site

Signals - Fixed Time Isolated Cycle Time = 60 seconds (Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: D1261											
1	L2	75	1.0	0.188	26.9	LOS C	1.9	13.1	0.85	0.74	40.8
2	T1	47	1.0	0.391	23.7	LOS C	3.2	22.7	0.91	0.76	41.6
3	R2	73	1.0	0.391	29.2	LOS C	3.2	22.7	0.91	0.76	40.8
Approach		195	1.0	0.391	27.0	LOS C	3.2	22.7	0.89	0.75	41.0
East: R577											
4	L2	13	1.0	0.011	10.2	LOS B	0.1	1.0	0.40	0.63	50.1
5	T1	204	4.0	0.174	5.3	LOS A	2.6	18.5	0.46	0.38	55.2
6	R2	343	7.5	0.429	12.2	LOS B	5.3	39.7	0.56	0.74	48.6
Approach		560	6.1	0.429	9.6	LOS A	5.3	39.7	0.52	0.61	50.9
North: D1261											
7	L2	99	15.0	0.272	27.7	LOS C	2.5	19.9	0.87	0.76	40.2
8	T1	5	40.0	0.115	22.2	LOS C	0.8	6.4	0.85	0.70	41.5
9	R2	27	11.0	0.115	27.8	LOS C	0.8	6.4	0.85	0.70	40.5
Approach		131	15.1	0.272	27.5	LOS C	2.5	19.9	0.87	0.75	40.3
West: R577											
10	L2	33	1.0	0.029	10.3	LOS B	0.4	2.6	0.41	0.65	50.1
11	T1	78	2.6	0.066	4.9	LOS A	0.9	6.5	0.42	0.33	55.5
12	R2	23	8.7	0.034	11.3	LOS B	0.3	2.2	0.44	0.66	48.9
Approach		134	3.3	0.066	7.3	LOS A	0.9	6.5	0.42	0.46	52.9
All Vehicles		1020	5.9	0.429	14.9	LOS B	5.3	39.7	0.62	0.63	47.3

MOVEMENT SUMMARY

 **Site: 1vv [R555 & D1261 - Base Year AM]**

R555 & D1261 AM Peak

Signals - Fixed Time Isolated Cycle Time = 60 seconds (Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
SouthEast: D1261											
21	L2	10	0.0	0.089	31.2	LOS C	0.6	4.3	0.91	0.67	40.2
22	T1	12	8.3	0.089	25.7	LOS C	0.6	4.3	0.91	0.67	41.0
23	R2	95	9.6	0.414	33.2	LOS C	2.7	20.7	0.96	0.77	38.2
Approach		117	8.6	0.414	32.2	LOS C	2.7	20.7	0.95	0.75	38.6
NorthEast: R555											
24	L2	806	2.3	0.630	10.8	LOS B	12.7	90.7	0.58	0.77	49.7
25	T1	122	5.8	0.093	3.1	LOS A	1.1	8.3	0.34	0.28	57.1
26	R2	9	10.0	0.010	9.2	LOS A	0.1	0.7	0.35	0.62	50.6
Approach		937	2.8	0.630	9.8	LOS A	12.7	90.7	0.55	0.70	50.6
NorthWest: Mine Admin											
27	L2	4	0.0	0.047	30.9	LOS C	0.3	2.2	0.90	0.63	40.7
28	T1	8	0.0	0.047	25.3	LOS C	0.3	2.2	0.90	0.63	41.5
29	R2	1	0.0	0.004	30.3	LOS C	0.0	0.2	0.88	0.59	39.4
Approach		13	0.0	0.047	27.4	LOS C	0.3	2.2	0.90	0.63	41.1
SouthWest: R555											
30	L2	5	0.0	0.004	8.4	LOS A	0.0	0.3	0.31	0.61	51.5
31	T1	50	22.0	0.052	3.7	LOS A	0.5	4.4	0.36	0.30	56.2
32	R2	19	0.0	0.052	14.4	LOS B	0.5	4.4	0.53	0.61	48.0
Approach		74	14.9	0.052	6.7	LOS A	0.5	4.4	0.40	0.40	53.5
All Vehicles		1141	4.1	0.630	12.1	LOS B	12.7	90.7	0.58	0.69	49.1

MOVEMENT SUMMARY

 **Site: 1vv [R555 & D1261 - Base year PM]**

R555 & D1261 AM Peak

Signals - Fixed Time Isolated Cycle Time = 60 seconds (Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
SouthEast: D1261											
21	L2	13	7.7	0.016	9.6	LOS A	0.2	1.4	0.37	0.52	51.7
22	T1	6	0.0	0.016	3.9	LOS A	0.2	1.4	0.37	0.52	53.3
23	R2	397	3.0	0.421	11.1	LOS B	5.7	40.7	0.52	0.73	49.7
Approach		416	3.1	0.421	11.0	LOS B	5.7	40.7	0.51	0.72	49.8
NorthEast: R555											
24	L2	53	9.6	0.166	28.8	LOS C	1.4	10.3	0.88	0.73	39.8
25	T1	125	15.2	0.384	24.4	LOS C	3.4	26.7	0.92	0.73	42.9
26	R2	4	0.0	0.016	29.6	LOS C	0.1	0.7	0.87	0.64	39.6
Approach		182	13.2	0.384	25.8	LOS C	3.4	26.7	0.91	0.73	41.9
NorthWest: Mine Admin											
27	L2	3	0.0	0.006	9.4	LOS A	0.1	0.5	0.36	0.41	53.1
28	T1	4	0.0	0.006	3.9	LOS A	0.1	0.5	0.36	0.41	54.4
29	R2	1	0.0	0.001	9.4	LOS A	0.0	0.1	0.36	0.59	50.8
Approach		8	0.0	0.006	6.6	LOS A	0.1	0.5	0.36	0.43	53.5
SouthWest: R555											
30	L2	1	0.0	0.003	27.1	LOS C	0.0	0.2	0.83	0.59	40.7
31	T1	92	16.3	0.285	23.8	LOS C	2.4	19.4	0.90	0.70	43.1
32	R2	7	0.0	0.033	30.9	LOS C	0.2	1.3	0.89	0.66	39.1
Approach		100	15.0	0.285	24.4	LOS C	2.4	19.4	0.90	0.70	42.8
All Vehicles		706	7.4	0.421	16.6	LOS B	5.7	40.7	0.67	0.72	46.5

5 Year Horizon

MOVEMENT SUMMARY

Site: 1 [Mine Access Rd & R577 - 5 year AM]

Mine Access Rd & R557 PM Peak
Stop (Two-Way)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Mine Access Road											
1	L2	39	9.0	0.145	9.8	LOS A	0.5	3.7	0.53	0.91	47.2
3	R2	18	7.0	0.145	28.7	LOS D	0.5	3.7	0.53	0.91	47.1
Approach		57	8.4	0.145	15.7	LOS C	0.5	3.7	0.53	0.91	47.2
East: R577											
4	L2	398	6.0	0.223	5.6	LOS A	0.0	0.0	0.00	0.57	53.3
5	T1	237	3.0	0.124	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
Approach		635	4.9	0.223	3.5	NA	0.0	0.0	0.00	0.36	55.6
West: R577											
11	T1	58	28.0	0.035	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
12	R2	482	6.0	0.718	16.0	LOS C	6.7	49.3	0.79	1.23	46.1
Approach		540	8.4	0.718	14.3	NA	6.7	49.3	0.71	1.10	47.3
All Vehicles		1232	6.6	0.718	8.8	NA	6.7	49.3	0.33	0.71	51.3

MOVEMENT SUMMARY

Site: 1 [Mine Access Rd & R577 - 5 Year PM]

Mine Access Rd & R557 PM Peak
Stop (Two-Way)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Mine Access Road											
1	L2	390	6.0	0.750	13.5	LOS B	13.3	96.6	0.32	1.00	46.6
3	R2	230	1.0	0.750	21.2	LOS C	13.3	96.6	0.32	1.00	46.6
Approach		620	4.1	0.750	16.4	LOS C	13.3	96.6	0.32	1.00	46.6
East: R577											
4	L2	12	33.0	0.008	5.9	LOS A	0.0	0.0	0.00	0.57	52.2
5	T1	44	32.0	0.027	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
Approach		56	32.2	0.027	1.3	NA	0.0	0.0	0.00	0.12	58.1
West: R577											
11	T1	246	7.0	0.141	0.1	LOS A	0.5	3.8	0.07	0.11	58.7
12	R2	69	15.0	0.141	6.0	LOS A	0.5	3.8	0.11	0.18	55.5
Approach		315	8.8	0.141	1.4	NA	0.5	3.8	0.08	0.13	58.0
All Vehicles		991	7.2	0.750	10.7	NA	13.3	96.6	0.23	0.67	50.3

MOVEMENT SUMMARY

 **Site: 101v [R577 and D1261 - 5 Year AM]**

New Site

Signals - Fixed Time Isolated Cycle Time = 60 seconds (Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: D1261											
1	L2	59	1.0	0.074	16.3	LOS B	1.0	7.1	0.61	0.70	46.3
2	T1	25	1.0	0.122	15.4	LOS B	1.1	8.0	0.73	0.65	46.1
3	R2	29	1.0	0.122	21.0	LOS C	1.1	8.0	0.73	0.65	45.2
Approach		113	1.0	0.122	17.3	LOS B	1.1	8.0	0.67	0.67	46.0
East: R577											
4	L2	133	2.5	0.182	18.2	LOS B	2.5	18.2	0.68	0.73	45.1
5	T1	89	10.0	0.122	12.3	LOS B	1.7	12.6	0.66	0.52	49.9
6	R2	167	3.0	0.563	28.2	LOS C	4.6	32.8	0.92	0.81	40.2
Approach		389	4.4	0.563	21.2	LOS C	4.6	32.8	0.78	0.72	43.8
North: D1261											
7	L2	367	6.0	0.551	18.9	LOS B	7.8	57.4	0.76	0.79	44.7
8	T1	56	1.0	0.153	13.3	LOS B	1.8	12.9	0.69	0.62	47.9
9	R2	38	1.0	0.153	18.8	LOS B	1.8	12.9	0.69	0.62	46.8
Approach		461	5.0	0.551	18.2	LOS B	7.8	57.4	0.75	0.76	45.2
West: R577											
10	L2	34	1.0	0.046	17.4	LOS B	0.6	4.3	0.64	0.68	45.7
11	T1	393	4.5	0.519	14.9	LOS B	8.9	64.5	0.81	0.70	48.2
12	R2	110	1.0	0.235	20.2	LOS C	2.3	16.3	0.73	0.75	43.9
Approach		537	3.6	0.519	16.2	LOS B	8.9	64.5	0.78	0.71	47.1
All Vehicles		1500	4.0	0.563	18.2	LOS B	8.9	64.5	0.76	0.72	45.5

MOVEMENT SUMMARY

 **Site: 101v [R577 and D1261 - 5 Year PM]**

New Site

Signals - Fixed Time Isolated Cycle Time = 60 seconds (Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: D1261											
1	L2	80	1.0	0.200	27.0	LOS C	2.0	14.0	0.86	0.75	40.8
2	T1	51	1.0	0.435	24.8	LOS C	3.6	25.2	0.93	0.77	41.1
3	R2	79	1.0	0.435	30.3	LOS C	3.6	25.2	0.93	0.77	40.3
Approach		210	1.0	0.435	27.7	LOS C	3.6	25.2	0.90	0.76	40.7
East: R577											
4	L2	14	1.0	0.012	10.2	LOS B	0.2	1.1	0.40	0.63	50.1
5	T1	219	4.0	0.187	5.3	LOS A	2.8	20.0	0.46	0.39	55.2
6	R2	369	7.5	0.472	13.0	LOS B	6.1	45.8	0.60	0.76	48.1
Approach		602	6.1	0.472	10.1	LOS B	6.1	45.8	0.54	0.62	50.5
North: D1261											
7	L2	107	15.0	0.294	27.8	LOS C	2.7	21.6	0.88	0.76	40.1
8	T1	6	40.0	0.136	23.3	LOS C	0.9	7.2	0.87	0.71	41.1
9	R2	29	11.0	0.136	28.9	LOS C	0.9	7.2	0.87	0.71	40.1
Approach		142	15.2	0.294	27.8	LOS C	2.7	21.6	0.88	0.75	40.2
West: R577											
10	L2	36	1.0	0.032	10.3	LOS B	0.4	2.9	0.41	0.65	50.1
11	T1	84	2.6	0.071	4.9	LOS A	1.0	7.0	0.42	0.33	55.5
12	R2	24	8.7	0.036	11.4	LOS B	0.3	2.3	0.44	0.66	48.9
Approach		144	3.2	0.071	7.3	LOS A	1.0	7.0	0.42	0.47	52.9
All Vehicles		1098	5.9	0.472	15.4	LOS B	6.1	45.8	0.64	0.64	47.0

MOVEMENT SUMMARY



Site: 1vv [R555 & D1261 - 5 Year AM]

R555 & D1261 AM Peak

Signals - Fixed Time Isolated Cycle Time = 60 seconds (Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
SouthEast: D1261											
21	L2	11	0.0	0.097	31.3	LOS C	0.6	4.7	0.91	0.67	40.2
22	T1	13	8.3	0.097	25.7	LOS C	0.6	4.7	0.91	0.67	41.0
23	R2	102	9.6	0.447	33.3	LOS C	3.0	22.4	0.96	0.77	38.1
Approach		126	8.6	0.447	32.4	LOS C	3.0	22.4	0.95	0.75	38.5
NorthEast: R555											
24	L2	867	2.3	0.678	11.1	LOS B	14.5	103.8	0.62	0.79	49.5
25	T1	131	5.8	0.100	3.1	LOS A	1.2	9.0	0.34	0.28	57.1
26	R2	10	10.0	0.012	9.6	LOS A	0.1	0.8	0.36	0.62	50.3
Approach		1008	2.8	0.678	10.1	LOS B	14.5	103.8	0.58	0.72	50.4
NorthWest: Mine Admin											
27	L2	5	0.0	0.055	30.9	LOS C	0.4	2.6	0.90	0.64	40.7
28	T1	9	0.0	0.055	25.4	LOS C	0.4	2.6	0.90	0.64	41.4
29	R2	2	0.0	0.009	30.5	LOS C	0.1	0.4	0.89	0.61	39.3
Approach		16	0.0	0.055	27.8	LOS C	0.4	2.6	0.90	0.64	40.9
SouthWest: R555											
30	L2	6	0.0	0.005	8.4	LOS A	0.1	0.4	0.31	0.61	51.5
31	T1	54	22.0	0.060	4.1	LOS A	0.6	5.1	0.38	0.32	55.8
32	R2	20	0.0	0.060	15.3	LOS B	0.6	5.1	0.56	0.61	47.5
Approach		80	14.9	0.060	7.2	LOS A	0.6	5.1	0.42	0.42	53.1
All Vehicles		1230	4.1	0.678	12.4	LOS B	14.5	103.8	0.61	0.70	48.9

MOVEMENT SUMMARY

 **Site: 1vv [R555 & D1261 - 5 year PM]**

R555 & D1261 AM Peak

Signals - Fixed Time Isolated Cycle Time = 60 seconds (Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
SouthEast: D1261											
21	L2	14	7.7	0.018	9.6	LOS A	0.2	1.6	0.37	0.52	51.8
22	T1	7	0.0	0.018	3.9	LOS A	0.2	1.6	0.37	0.52	53.4
23	R2	427	3.0	0.454	11.3	LOS B	6.3	45.1	0.53	0.73	49.6
Approach		448	3.1	0.454	11.1	LOS B	6.3	45.1	0.52	0.72	49.7
NorthEast: R555											
24	L2	57	9.6	0.179	28.9	LOS C	1.5	11.1	0.88	0.74	39.8
25	T1	135	15.2	0.415	24.5	LOS C	3.7	29.1	0.93	0.74	42.8
26	R2	5	0.0	0.021	29.7	LOS C	0.1	0.9	0.87	0.64	39.6
Approach		197	13.2	0.415	25.9	LOS C	3.7	29.1	0.91	0.74	41.8
NorthWest: Mine Admin											
27	L2	4	0.0	0.007	9.4	LOS A	0.1	0.6	0.36	0.42	53.0
28	T1	5	0.0	0.007	3.9	LOS A	0.1	0.6	0.36	0.42	54.4
29	R2	2	0.0	0.002	9.4	LOS A	0.0	0.1	0.36	0.60	50.8
Approach		11	0.0	0.007	6.9	LOS A	0.1	0.6	0.36	0.45	53.2
SouthWest: R555											
30	L2	2	0.0	0.006	27.3	LOS C	0.0	0.3	0.83	0.61	40.7
31	T1	99	16.3	0.306	23.9	LOS C	2.6	21.0	0.91	0.71	43.1
32	R2	8	0.0	0.039	32.0	LOS C	0.2	1.5	0.91	0.66	38.6
Approach		109	14.8	0.306	24.6	LOS C	2.6	21.0	0.90	0.70	42.7
All Vehicles		765	7.3	0.454	16.8	LOS B	6.3	45.1	0.68	0.72	46.4

10 Year Horizon

MOVEMENT SUMMARY

Site: 1 [Mine Access Rd & R577 - 10 year AM]

Mine Access Rd & R557 PM Peak
Stop (Two-Way)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Mine Access Road											
1	L2	41	9.0	0.173	9.9	LOS A	0.6	4.4	0.57	0.91	46.4
3	R2	19	7.0	0.173	32.8	LOS D	0.6	4.4	0.57	0.91	46.3
Approach		60	8.4	0.173	17.2	LOS C	0.6	4.4	0.57	0.91	46.4
East: R577											
4	L2	428	6.0	0.240	5.6	LOS A	0.0	0.0	0.00	0.57	53.3
5	T1	255	3.0	0.133	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
Approach		683	4.9	0.240	3.5	NA	0.0	0.0	0.00	0.36	55.6
West: R577											
11	T1	63	28.0	0.038	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
12	R2	517	6.0	0.825	21.1	LOS C	9.9	72.6	0.88	1.50	43.3
Approach		580	8.4	0.825	18.8	NA	9.9	72.6	0.78	1.33	44.7
All Vehicles		1323	6.6	0.825	10.9	NA	9.9	72.6	0.37	0.81	49.8

MOVEMENT SUMMARY

Site: 1 [Mine Access Rd & R577 - 10 Year PM]

Mine Access Rd & R557 PM Peak
Stop (Two-Way)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Mine Access Road											
1	L2	393	6.0	0.804	15.9	LOS C	17.2	124.6	0.37	1.05	44.9
3	R2	247	1.0	0.804	25.0	LOS C	17.2	124.6	0.37	1.05	44.9
Approach		640	4.1	0.804	19.4	LOS C	17.2	124.6	0.37	1.05	44.9
East: R577											
4	L2	13	33.0	0.009	5.9	LOS A	0.0	0.0	0.00	0.57	52.2
5	T1	48	32.0	0.030	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
Approach		61	32.2	0.030	1.3	NA	0.0	0.0	0.00	0.12	58.1
West: R577											
11	T1	265	7.0	0.152	0.1	LOS A	0.5	4.1	0.08	0.11	58.7
12	R2	74	15.0	0.152	6.0	LOS A	0.5	4.1	0.12	0.18	55.5
Approach		339	8.7	0.152	1.4	NA	0.5	4.1	0.09	0.13	58.0
All Vehicles		1040	7.2	0.804	12.5	NA	17.2	124.6	0.25	0.69	49.1

MOVEMENT SUMMARY

 **Site: 101v [R577 and D1261 - 10 Year AM]**

New Site

Signals - Fixed Time Isolated Cycle Time = 60 seconds (Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: D1261											
1	L2	64	1.0	0.083	17.0	LOS B	1.1	8.0	0.63	0.70	45.9
2	T1	27	1.0	0.147	17.1	LOS B	1.3	9.1	0.77	0.67	45.1
3	R2	31	1.0	0.147	22.7	LOS C	1.3	9.1	0.77	0.67	44.2
Approach		122	1.0	0.147	18.5	LOS B	1.3	9.1	0.70	0.68	45.3
East: R577											
4	L2	144	2.5	0.189	17.6	LOS B	2.7	19.3	0.67	0.73	45.5
5	T1	96	10.0	0.126	11.7	LOS B	1.7	13.2	0.65	0.51	50.3
6	R2	180	3.0	0.611	29.0	LOS C	5.1	36.4	0.94	0.84	39.8
Approach		420	4.4	0.611	21.1	LOS C	5.1	36.4	0.78	0.73	43.8
North: D1261											
7	L2	395	6.0	0.625	20.0	LOS C	8.8	65.1	0.80	0.80	44.1
8	T1	60	1.0	0.180	14.9	LOS B	2.1	14.8	0.73	0.65	46.9
9	R2	41	1.0	0.180	20.4	LOS C	2.1	14.8	0.73	0.65	45.9
Approach		496	5.0	0.625	19.4	LOS B	8.8	65.1	0.79	0.77	44.6
West: R577											
10	L2	36	1.0	0.047	16.8	LOS B	0.6	4.4	0.62	0.68	46.0
11	T1	423	4.5	0.536	14.4	LOS B	9.5	68.8	0.80	0.69	48.5
12	R2	118	1.0	0.248	19.5	LOS B	2.4	17.2	0.72	0.75	44.3
Approach		577	3.6	0.536	15.6	LOS B	9.5	68.8	0.77	0.70	47.4
All Vehicles		1615	4.0	0.625	18.4	LOS B	9.5	68.8	0.77	0.73	45.4

MOVEMENT SUMMARY

 **Site: 101v [R577 and D1261 - 10 Year PM]**

New Site

Signals - Fixed Time Isolated Cycle Time = 60 seconds (Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: D1261											
1	L2	87	1.0	0.218	27.1	LOS C	2.2	15.3	0.86	0.75	40.7
2	T1	55	1.0	0.476	25.0	LOS C	3.9	27.5	0.94	0.78	41.0
3	R2	85	1.0	0.476	30.6	LOS C	3.9	27.5	0.94	0.78	40.2
Approach		227	1.0	0.476	27.9	LOS C	3.9	27.5	0.91	0.77	40.6
East: R577											
4	L2	14	1.0	0.012	10.2	LOS B	0.2	1.1	0.40	0.63	50.1
5	T1	236	4.0	0.201	5.4	LOS A	3.0	21.8	0.46	0.39	55.1
6	R2	387	7.5	0.500	13.2	LOS B	6.6	49.2	0.61	0.76	48.0
Approach		637	6.1	0.500	10.2	LOS B	6.6	49.2	0.55	0.62	50.5
North: D1261											
7	L2	115	15.0	0.316	27.9	LOS C	3.0	23.4	0.88	0.77	40.1
8	T1	6	40.0	0.146	23.3	LOS C	1.0	7.6	0.87	0.71	41.0
9	R2	31	11.0	0.146	29.0	LOS C	1.0	7.6	0.87	0.71	40.0
Approach		152	15.2	0.316	28.0	LOS C	3.0	23.4	0.88	0.75	40.1
West: R577											
10	L2	38	1.0	0.033	10.3	LOS B	0.4	3.0	0.41	0.65	50.1
11	T1	90	2.6	0.076	4.9	LOS A	1.0	7.5	0.42	0.34	55.5
12	R2	27	8.7	0.041	11.9	LOS B	0.4	2.7	0.46	0.66	48.6
Approach		155	3.3	0.076	7.5	LOS A	1.0	7.5	0.43	0.47	52.8
All Vehicles		1171	5.9	0.500	15.6	LOS B	6.6	49.2	0.65	0.65	46.9

MOVEMENT SUMMARY

 **Site: 1vv [R555 & D1261 - 10 Year AM]**

R555 & D1261 AM Peak

Signals - Fixed Time Isolated Cycle Time = 60 seconds (Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
SouthEast: D1261											
21	L2	11	0.0	0.101	31.3	LOS C	0.7	4.9	0.91	0.67	40.2
22	T1	14	8.3	0.101	25.8	LOS C	0.7	4.9	0.91	0.67	41.0
23	R2	110	9.6	0.482	33.5	LOS C	3.2	24.3	0.97	0.78	38.0
Approach		135	8.7	0.482	32.5	LOS C	3.2	24.3	0.96	0.76	38.5
NorthEast: R555											
24	L2	933	2.3	0.735	11.5	LOS B	16.8	120.0	0.66	0.80	49.2
25	T1	142	5.8	0.108	3.1	LOS A	1.3	9.8	0.34	0.28	57.1
26	R2	10	10.0	0.012	10.4	LOS B	0.1	0.9	0.40	0.63	49.8
Approach		1085	2.8	0.735	10.4	LOS B	16.8	120.0	0.62	0.73	50.1
NorthWest: Mine Admin											
27	L2	5	0.0	0.055	30.9	LOS C	0.4	2.6	0.90	0.64	40.7
28	T1	9	0.0	0.055	25.4	LOS C	0.4	2.6	0.90	0.64	41.4
29	R2	2	0.0	0.009	30.5	LOS C	0.1	0.4	0.89	0.61	39.3
Approach		16	0.0	0.055	27.8	LOS C	0.4	2.6	0.90	0.64	40.9
SouthWest: R555											
30	L2	6	0.0	0.005	8.4	LOS A	0.1	0.4	0.31	0.61	51.5
31	T1	58	22.0	0.071	5.0	LOS A	0.7	6.1	0.42	0.36	55.0
32	R2	22	0.0	0.071	16.4	LOS B	0.7	6.1	0.59	0.61	47.0
Approach		86	14.8	0.071	8.1	LOS A	0.7	6.1	0.46	0.44	52.5
All Vehicles		1322	4.1	0.735	12.7	LOS B	16.8	120.0	0.65	0.72	48.6

MOVEMENT SUMMARY

 **Site: 1vv [R555 & D1261 - 10 year PM]**

R555 & D1261 AM Peak

Signals - Fixed Time Isolated Cycle Time = 60 seconds (Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
SouthEast: D1261											
21	L2	15	7.7	0.019	9.6	LOS A	0.2	1.6	0.37	0.52	51.7
22	T1	7	0.0	0.019	3.9	LOS A	0.2	1.6	0.37	0.52	53.3
23	R2	459	3.0	0.488	11.5	LOS B	7.0	50.1	0.55	0.74	49.5
Approach		481	3.1	0.488	11.3	LOS B	7.0	50.1	0.54	0.73	49.6
NorthEast: R555											
24	L2	61	9.6	0.191	29.0	LOS C	1.6	12.0	0.88	0.74	39.7
25	T1	145	15.2	0.446	24.7	LOS C	4.0	31.5	0.93	0.75	42.7
26	R2	5	0.0	0.022	30.7	LOS C	0.1	0.9	0.89	0.64	39.2
Approach		211	13.2	0.446	26.1	LOS C	4.0	31.5	0.92	0.74	41.7
NorthWest: Mine Admin											
27	L2	4	0.0	0.007	9.4	LOS A	0.1	0.6	0.36	0.42	53.0
28	T1	5	0.0	0.007	3.9	LOS A	0.1	0.6	0.36	0.42	54.4
29	R2	2	0.0	0.002	9.4	LOS A	0.0	0.1	0.36	0.60	50.8
Approach		11	0.0	0.007	6.9	LOS A	0.1	0.6	0.36	0.45	53.2
SouthWest: R555											
30	L2	2	0.0	0.006	27.3	LOS C	0.0	0.3	0.83	0.61	40.7
31	T1	107	16.3	0.331	24.1	LOS C	2.9	22.8	0.91	0.72	43.0
32	R2	8	0.0	0.040	32.1	LOS C	0.2	1.5	0.91	0.66	38.6
Approach		117	14.9	0.331	24.7	LOS C	2.9	22.8	0.91	0.71	42.6
All Vehicles		820	7.3	0.488	17.0	LOS B	7.0	50.1	0.69	0.73	46.3



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