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Appendix 22 Traffic Baseline and Impact Study Environmental Social Impact Assessment Yaoure Gold Project, Côte d'Ivoire


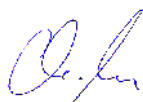


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EXECUTIVE SUMMARY

Introduction / Background

This study has been conducted to assess the impacts of mine related traffic on the surrounding local area, with a specific focus on the establishment of suitable access routes to the site and the identification of the resultant impact that any future development would have as result of increases in traffic on the local and strategic road network.

Purpose of the study

The purpose of this study has been to identify the following:

- The most suitable means of access to the site from the strategic highway network;
- The anticipated impacts of the mine development on local communities, vulnerable road users and non-vulnerable roads users;
- The identification of any improvements to the highway network to facilitate the site development.

Methodology

To achieve the aims and objectives of the study, the following has been undertaken:

- A review of the local access roads that serve the site using GPS video capture technology;
- A review of the available traffic accident data;
- The undertaking of traffic surveys;
- A review of highway capacity.

Summary of Findings

The outcome of the assessment has identified the road to the east of the Bandama River as the most viable access route, served from the A6. The remaining options were discounted due to their current condition and principal purpose as local access routes, which primarily serve the surrounding villages.

From a review of the available traffic accident data it has been concluded that the recorded accidents are attributable to driver/pedestrian error and not to a defect in the design or maintenance of the highway network.

The traffic surveys established that the rural unpaved roads are largely utilised by pedestrians and two-wheelers, and within proximity to the mine site, the majority of trips are commuter based. Along the paved highways, including the A6 and the preferred access route, larger proportions of motorised vehicles are present. It was also established that the assumed capacity threshold for the paved highways was not exceeded.

Summary of Potential Impacts

A review of the environmental impacts as a result of traffic increases was undertaken. It was established that the effects of traffic increases on local communities, vulnerable road users and non-vulnerable users were negligible.

Summary of Management Requirements

No specific management measures were identified, however a number of monitoring measures have been presented in order to ensure the outcome of this assessment remains valid.

Impact Summary

The impact assessment has revealed that all environmental effects as a result of the proposed increase in traffic generated during the operation of the site are negligible.

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A Appendix A Traffic Survey Data

TERMS AND ABBREVIATIONS

Strategic highway – all classified highways of regional/national importance

Local highway – all unclassified roads which serve local settlements

Paved/unpaved road – refers to whether a road is metalled i.e. provides hard surface or unmetalled, does not provide a hard surface.

1.0 INTRODUCTION

This chapter describes the impacts of Project-related traffic on road capacity and highway safety along the local highway network, wider highway network and within the vicinity of neighbouring communities.

A site inspection was undertaken in November 2014, during which observations of traffic behaviour, its interaction within local settlements and the physical condition of the local highway network were recorded in both a written format and using GPS video capture technology.

In addition to the above, traffic data was collected by local enumerators in order to understand key trends and modal splits in terms of numbers of vehicles, pedestrian, etc, facilitate a quantitative assessment of highway capacity, and identify the peak traffic flow demands on the local network.

1.1 Study Area

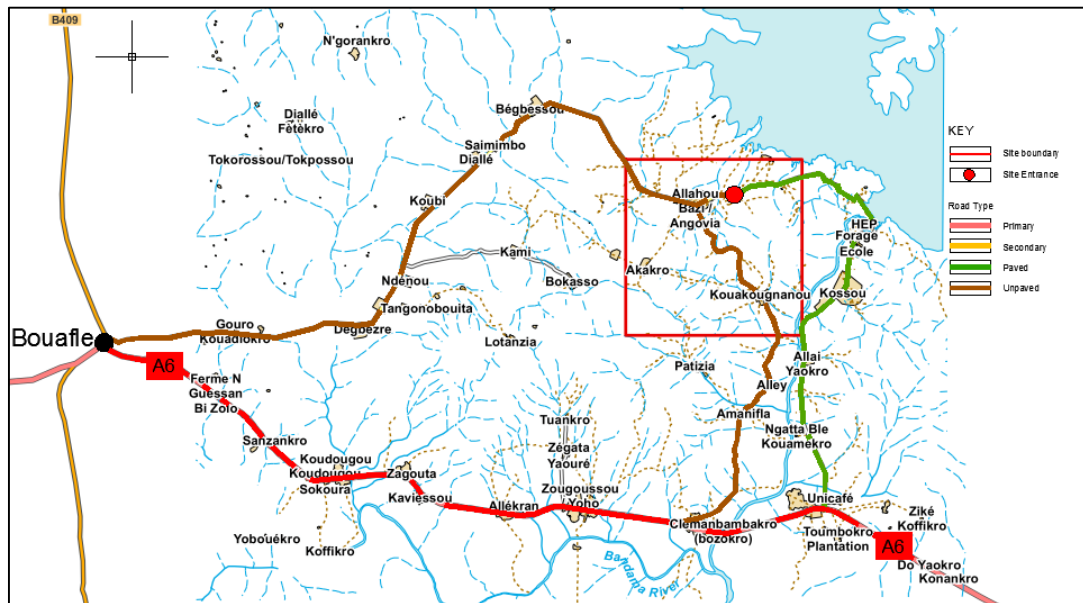
The study area primarily consists of the immediate local highways that provide connections from the site to the settlements of Bouafle, Toumbokro and Bonzi, all of which are served by the strategic A6 highway. The A6 is a regional highway that ultimately links Duekoue in the far west of the country with Yamoussoukro to the east.

In addition to the local highway network, some consideration has been given to the national strategic network that will be utilised during the life cycle of the mining operation to deliver materials and goods not readily available within the local area from the port cities of Abidjan and San-Pedro. The former is linked to the site via the A3 and the A6, and the latter via the San Pedro – Betia Road, the A5 and the A6.

During the site inspection a review of the former was undertaken however due to the vast distances involved, a review of the latter was not possible. It is however understood that San Pedro is a modern port, which is currently underutilised. The quantum of materials imported through Abidjan and San Pedro will be investigated in the next phase of the study.

The highway network referenced within this chapter is illustrated within Figure 1.1

Figure 1.1: Study Area



1.2 Purpose of the Study

The purpose of the study is to quantify and assess the anticipated impacts the proposed mining operation will have on the local highway network in terms of capacity and road safety.

1.3 Legal Requirements

Within the context of ESIA, the legal requirements for the assessment of traffic fall under Côte d'Ivoire Environmental Legal Framework, Act No. 96 – 766 of 3 October 1996, which requires an assessment of the potential short, medium and long term direct, indirect and cumulative impacts associated with the project.

Traffic, whilst not referenced as a standalone category within the assessment criteria, does influence and effect both social and environmental baselines. It is however recognized that both of these fields are covered extensively within dedicated chapters and thus the mandate of this chapter is limited to the assessment of the impact of the traffic generated as a result of the construction, operation and decommission of the proposed Yaouré goldmine.

In addition to the above, the ESIA should also conform to the World Bank's guidance on ESIA, which requires consideration of traffic related effects as part of the overall assessment process.

1.4 Report Structure

The report is structured as follows:

- Methodology:
 - Local and strategic road network assessment;
 - Review of the traffic accident data assessment;
 - Identification of classified traffic survey locations and data collection methodology;
- Results:
 - Outcome of the local and strategic road network assessment;
 - Outcome of the traffic accident data assessment;
 - A review of the key trends and modal splits from the traffic surveys;
- Impact Assessment:
 - A review of the construction, operation and decommissioning of the site;
 - A review of the anticipated impacts on the local network;
 - Identification of any significant issues;
- Management and Monitoring Requirements:
 - Mitigation and best practice traffic management measures to be implemented;
- Summary and Conclusions.

2.0 METHODOLOGY

2.1 Study Topic

In relation to the study of traffic and transportation effects associated within the proposed mine, the following have been considered:

- The most suitable access route to the site;
- The current highway safety record;
- The existing level of traffic using the local network;
- The current modes of travel and areas where there is a high proportion of pedestrians;
- The capacity of the local and strategic road network;
- The impacts of the proposed mine on the local road network.

2.2 Strategic and Local Highway Network Review

An assessment of the strategic and local highway network has been undertaken to identify the most suitable access route to the site. The assessment was carried out over a period of two days (26.11.14 – 27.11.14) and involved a video survey of the A6, between Toumbokro and Bouaflé and of the three local access roads, which connect the site with the A6/Bouaflé, as identified in Figure 1.1

The assessment sought to identify the following:

- The quality of the road surface;
- Its suitability to carry two-way traffic and HGV traffic;
- The location and number of local settlements;
- The interaction between the road and the adjacent villages.

2.3 Traffic Accident Data

A review of the available traffic accident data has been undertaken to assess and identify any current accident trends within the local area. The data has been provided by the Department for Infrastructure and Transport (DIT).

The accident data review comprises a qualitative assessment of the information provided and an assessment of the causation factors and likelihood of future accidents occurring as a result of the mining proposals.

2.4 Traffic Surveys

Fully classified traffic surveys have been undertaken at eight locations, six of which are on local roads and two are on the strategic A6. The local roads comprise the three available access roads that could be used to serve the site as illustrated within Figure 1.1 (listed as paved and unpaved).

The locations of the surveys were discussed with officers within the DIT and two survey periods were requested that coincide with the cocoa harvest. The harvest occurs during the months of November and April.

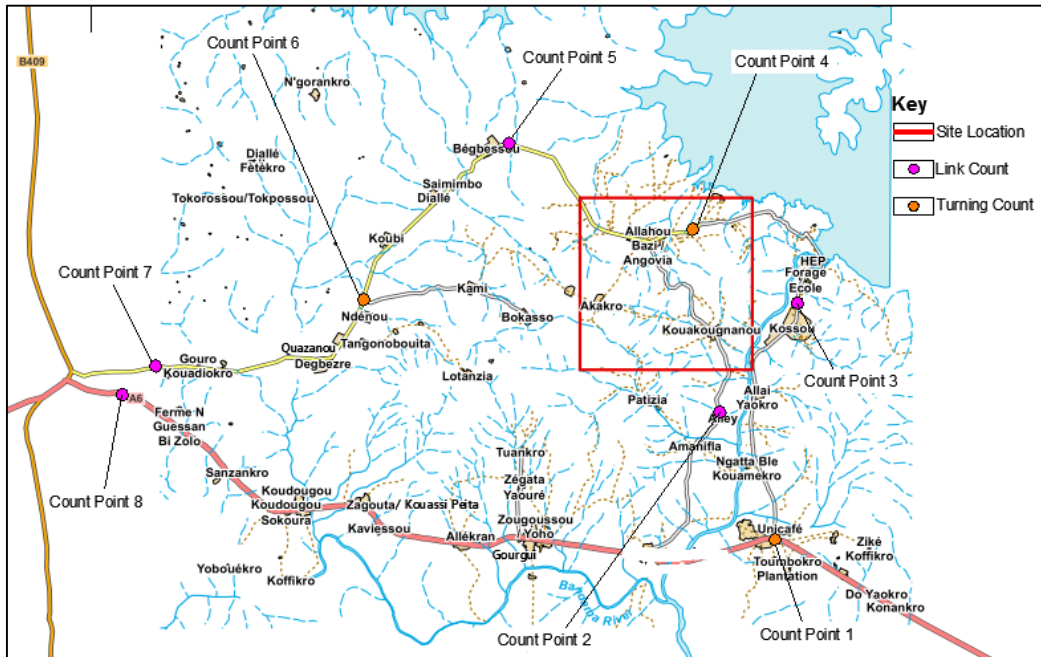
In both instances the surveys were conducted over seven consecutive days in order to obtain a reasonable understanding of traffic and transportation flow rates throughout a typical week during the cocoa harvest.

Prior to the commencement of the surveys, each of the count locations was visited and reviewed as to their suitability, with some minor changes made during the site inspection to optimise safety and comfort for the enumerators. The following was considered:

- Provision of shelter – under nearby trees or buildings and where none exists the provision of parasols;
- A safe place to sit/stand, away from the edge of the road;
- Provision of good visibility from the count position;
- Proximity to a local village or in one instance a military check point to maintain safety.

The count locations are illustrated within Figure 2.1, with a photographic record of their locations shown below.

Figure 2.1: Count Point Locations



Count Point 1 - Toumbokro



Count Point 2 - Alley



Count Point 3 - north of Kossou



Count Point 4 - Site Access



Count Point 5 - Bégbessou



Count Point 6 - Ndenou



Count Point 7 – east of Bouafle



Count Point 8 – A6 east of Bouafle



2.5 Sampling Methodology

2.5.1 Data Collection

The traffic survey data has been collected and recorded in 15 minute intervals between the hours of 06:00 and 18:00 over a period of seven days (Monday to Sunday). The data has been collected either via a handheld tally counter or written manually using the tally count system. All data has been recorded on record sheets and then manually transferred to an Excel spreadsheet.

The survey has been recorded as fully classified, using the following classification:

- Pedestrian;
- Two-wheeler – includes all powered two-wheeled vehicles and bicycles;
- Car – includes cars of all sizes, including any three wheeled vehicles;
- LGV (Light Goods Vehicle) – includes all vans and pick-up trucks;
- HGV (Heavy Goods Vehicle) – includes vehicles bigger than vans such as dumper trucks, coaches and articulated HGVs;
- Agricultural vehicle – includes tractors and any other farm equipment.

As specified, the MIT requested two surveys to be completed that coincide with the cocoa harvest. The dates of the surveys were as follows:

- 28 November – 4 December 2014;
- 21 April – 27 April 2015.

2.5.2 Highway Capacity Threshold

In order to assess the impact of the Project-related traffic on the highway network, there needs to be establishment of the capacity of the roads in terms of traffic volumes. With regards to capacity, consideration has been given to UK guidance contained within Design Manual for Roads and Bridges (DMRB) TA 46/97: 'Traffic Flow Ranges for Use in the Assessment of New Rural Roads'. This guidance has been utilised in the absence of any local or international guidance on the assessment of highway link capacity in the Cote d'Ivoire.

Whilst it is appreciated that the guidance may not be entirely applicable, given the differences in highway design criteria between the UK and Cote d'Ivoire, the factors that influence capacity such as the proportion of HGV traffic, carriageway width, road use (i.e. urban/rural), and speed limit are fundamentally universal. It is therefore considered that the traffic flow values presented within DMRB provide a reasonable indication of capacity for the strategic and surfaced highway network. It is acknowledged that local unpaved roads are unlikely to achieve the levels of capacity identified but given their status they are unlikely to be highly trafficked nor attractive to a high level of vehicles, with the exception of motorcycles. Therefore whilst comment will be made on daily flows, a thorough review of traffic flow capacity on unpaved roads is not considered appropriate.

Within DMRB there are seven highway classifications that range from a standard single lane carriageway to a motorway. There are two types of single lane carriageway categorised as an S2 and WS2, the former is 7.3m wide and the latter is up to 10m wide. Although the majority of the paved roads considered within this assessment exceed the former, it is considered more appropriate to utilise the capacity thresholds for the lower S2 standard carriageway, which has Average Annual Daily Traffic (AADT) Flow of 13,000 vehicles.

In the UK, the proportion of trips conducted between 06:00 and 18:00 is 81%. In the absence of any other data, this percentage (as a decimal proportion) has been used to adjust the link capacity so that it conforms to the survey period, thus the capacity threshold is assumed to be 10,530 AADT.

In accordance with the same guidance, the hourly capacity for an S2, based on a robust 20% HGV component, is stated as being 1,080 vehicles. Should the results of the surveys indicate an exceedance of either the hourly or daily threshold, then measures will be considered to manage the potential impacts of the development traffic.

In addition to the above, access to the site via the A6 could necessitate the provision of a left turn lane to facilitate an increase in development traffic. In order to assess the requirements for a left turn lane, guidance has been sought from DMRB TD 42/95 'Geometric Design of Major/Minor Priority Junctions', which states that a dedicated turning

lane for a minor road may be required where the AADT flow exceeds 500 two-way movements, an accident problem is evident, or where vehicles waiting to turn inhibit the through flow and create a hazard. The provision of a turning lane will be considered in relation to the aforementioned criteria. As per the above, the application of the survey period adjustment factor (81% or 0.81) reduces the threshold to 405 two-way movements.

3.0 RESULTS

3.1 Strategic and Local Highway Review

A review of the relevant strategic and local highways is provided within the following section. Extracts from the video survey have been included to illustrate key points.

3.1.1 Strategic Highways

A3 Strategic Highway: Abidjan to Yamoussoukro

The highway provides two lanes in either direction, with a good quality surface and associated road markings. There is no street lighting present except adjacent to the toll booths.

Figure 3.1: Highway - Abidjan to Yamoussoukro



There are numerous footbridges over the A3, with marked heights ranging between 5.0m – 5.3m.

There were a notable number of cyclists and mopeds using the margins adjacent to the A3 as well as occasional pedestrian activity. It was noted that drivers are largely considerate and warn cyclists/pedestrians and other road users when over taking by sounding the horn. The A3 experiences abnormally low volumes of traffic given its stature and is largely frequented by HGVs moving goods between Yamoussoukro and Abidjan.

A6 Strategic Highway: Yamoussoukro to Bozi (Yaoure)

This highway is a wide single lane (approximately 9.0m), two-way carriageway with no road markings or street lighting. Informal overtaking was observed from both streams of traffic due to the carriageway width and a lack of road markings.

Figure 3.2: Highway - Yamoussoukro to Bozi (Yaoure)



From Yamoussoukro the carriageway condition is relatively good, although pot holes are present along the length of the A6. This type of deterioration is a consistent feature of the highway network, although maintenance is evident and was observed during the site inspection.

Onsite observations suggest the road is lightly trafficked and travel speeds along the highway were observed to be approximately km/h80km/h. There are no footways, and where there are no villages the highway is lined with dense foliage.

Settlements along the A6 are largely obscured by adjacent vegetation and set back from the edge of the carriageway.

A6 Strategic Highway: Bozi (Yaoure) to Bouafle

Between Bozi and Boufle the A6 continues to provide a wide (approximately 9.0m) carriageway. The permitted speed limit is up to 90km/h, however observed speeds tended to be 50-55km/h.

No footways are provided at any point, but extensive shared use was observed, especially within settlements, where street vendors and market stalls are prominent and attract a relatively high level of footfall. Between Bozi and Boufle there are eight settlements (inclusive), each of which exhibits shared use characteristics. It is noted that vehicles travel cautiously through local settlements, especially in the presence of pedestrians and cyclists.

Figure 3.3: Typical Street Scene (example taken in Tombokro)



3.1.2 Local Highways

From the A6 to the Site via the Eastern Approach

The highway is relatively wide (approximately 7.0m) with occasional narrow sections where vegetation has encroached. The highway is largely maintained and Government work vans were observed filling various potholes between the village of Kossou and the dam.

Although there are no footways there is evidence of verge management, where controlled burning was taking place. The road is frequented by pedestrians, cyclists and livestock, and as such these verge areas are well utilised.

Figure 3.4: A6 to Site via Eastern Approach



Along the road, village frontages are generally set back from the edge of the carriageway, although a handful of dwellings do have direct frontage access. It was noted that the schools located to the north and south of Kossou attracted relatively high volumes of students who were travelling by foot and by bicycle, although drivers approaching the area did so cautiously. Driver behaviour around pedestrians and other vulnerable road users

was generally noted to be considerate along all highways observed during the site inspection.

Figure 3.5: Pedestrians and Cyclists



Upon approach to the dam, the surface of the road deteriorates significantly, with frequent, severe potholing present along the length of the dam wall.

Figure 3.6: Road to the Dam



The dam is protected by the military, with an informal check point located on the eastern approach road. No congestion was observed at the check point due mainly to the low number of vehicles currently utilising the road.

Between the Dam and the Site access, the road is unpaved and mainly comprised of laterite. In parts the carriageway is extremely wide ~ 15.0m.

Figure 3.7: Between the Dam and the Site access



There are no villages or settlements fronting the carriageway along this section of the route and pedestrian/cycle activity was relatively minimal. Those that were observed were largely traversing along the open grass lands and segregated tracks to the north of the road.

Site to Bozi (Yaoure) via Alley

Driving east from the mine site towards the villages of Allahou Bazi and Angovia. The road was lined with pedestrians (artisanal miners) making their way east towards the mine site area. Pedestrians utilised both sides of the road, effectively reducing the carriageway to single vehicle running.

Figure 3.8: Site to Bozi (Yaoure) via Alley



Motorcycles and bicycles comprised a large proportion of the traffic using the road, with numerous cars also observed but not to the extent of the former.

Within the village itself, the road is lined with shops, cafes, vendors and local services such as bicycle and motorcycle mechanics/open workshops. The majority of the shops and services are within approximately 2m of the road.

The road is an unpaved single track through the village of Angovia, with drainage ditches adjacent. The surface is generally poor with numerous divots, potholes and ruts.

Driving south towards Alley, the road is again unpaved and wide enough to accommodate two-way traffic flow for the majority of its length, although the quality of the surface is poor and often vehicles wait for the other to pass before commencing.

Figure 3.9: Site to Bozi (Yaoure) via Alley (2)



Within the villages, families, especially children frequent the edges of the road, as do livestock. Livestock (mainly goats) is largely unpenned and able to roam freely, this leads again to cautious driving.

Figure 3.10: Site to Bozi (Yaoure) via Alley (3)



Speeds along the road were typically 20 – 30km/h. It was also noted that in dry conditions, vehicles travelling along the unpaved surfaces generated a significant amount of dust, which in some cases masked the presence of pedestrians/cyclists.

Bouafle to Angovia

The road from Bouafle is unpaved, with dense foliage either side, and a width of approximately 6.0m. The road directly serves seven villages between Bouafle and Angovia, each sharing similar characteristics to villages along the Angovia/Bozi road as described above.

3.1.3 Summary and Conclusion

The strategic highways considered within this assessment provide relatively, reasonable, high quality links between Abidjan and the local site area, despite the presence of pot holes along the A6.

The local highway network is largely comprised of unpaved and poorly maintained laterite tracks, which serve the surrounding local villages and are considered to be incapable of accommodating a high-level of traffic.

The exception to this is the purpose built highway that routes along the eastern side of the Bandama River between the A6 and the dam. This road provides a reasonable quality asphalt surfaced carriageway, capable of accommodating two-way traffic flow. Sections of the road are in need of maintenance and it is also noted that the quality of the road between the dam and the site access is relatively poor.

It is evident from the baseline review that the most appropriate access arrangements between the strategic highway network and the site is along the above highway.

3.1.4 Accident Data Review

The accident data for selected road links has been provided by the DIT. A copy of which is provided within Annex 1.

The data received was for 2012 and 2013. The report states that earlier data for the previous years had been lost during the post-election crisis. The accident data includes information on the number of those injured/killed, the main causes of accidents and the accident hotspots. Only one link was found to be relevant for the project: Yamoussoukro – Daloa, with the rest of the links being outside the study area.

Yamoussoukro and Daloa are connected by the A6. According to the accident data, in 2012 this section of the A6 had a total of 14 accidents which resulted in 51 people being injured and six fatalities. In 2013 a total of 21 accidents occurred, which involved 119 people being injured and seven fatalities. The main accident hotspot is identified as Yakro-Bouaflé PK25 and Bouaflé-Yakro PK 16, which is regarded as being between Yamoussoukro and Bouaflé.

The main cause of accidents are identified as excessive speed, mechanical failure, careless drivers and reckless pedestrians. This suggests that the recorded accidents can be attributed to driver/other user error and not to any defect in the design or maintenance of the highway.

3.1.5 Summary & Conclusion

The use of this road by all modes of transport, including pedestrians, exacerbates the likelihood of an accident occurring, especially during the hours of darkness and at hours of reduced light during dawn and dusk. Measures to mitigate such accidents are difficult to implement due to the existing circumstances, however, driver awareness measures can be applied to reduce the risk of mine associated traffic movements from further exacerbating the existing highway safety situation.

3.2 Traffic Survey Results

The survey results have been analysed in order to identify key trends and patterns in travel behaviour during a typical week and day in the cocoa harvest season. The results for the November/December 2014 and April 2015 surveys have been analysed separately in order to ensure any seasonal shifts in travel behaviour are identified.

The following sections set out the results of the analysis, which considers the following data sets:

- Mode of travel – the average proportion of people recorded;
- Weekly traffic profile – includes all modes of transport recorded;
- Daily traffic profile – presenting total flows.

In addition to the above, consideration will also be given to the major and minor arm flows at count point 1, in order to establish whether a turning lane facility is required.

3.2.1 Count Point 1

Table 3.1: Count Point 1: Average Modal Split

% Split	Pedestrian	Two-Wheeler	Car	LGV	HGV	Agricultural Vehicle
Nov/Dec	8%	25%	30%	21%	15%	1%
April	7%	24%	33%	18%	18%	0%

Figure 3.11: Count Point 1 Flow Profile – Weekly

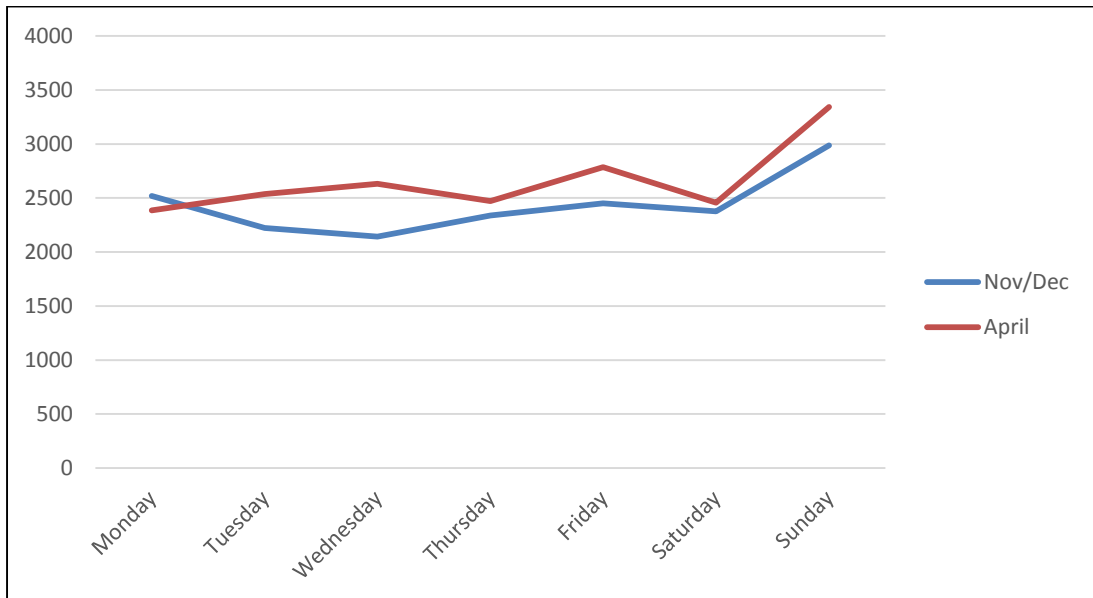
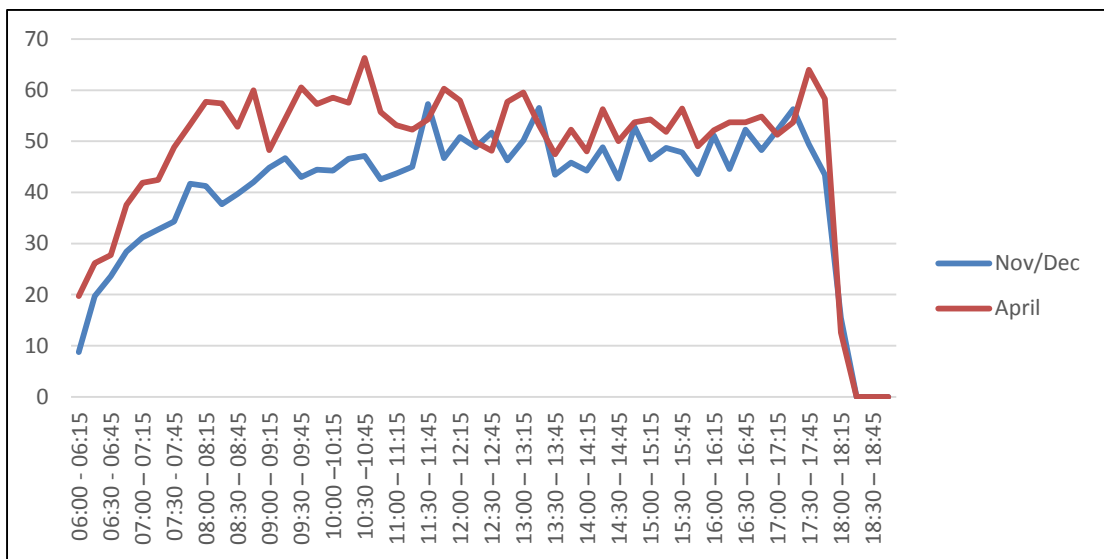


Figure 3.12: Count Point 1 Flow Profile – Daily



At count point 1, the modal split, the weekly profile and the daily profile remain broadly consistent between the November/December survey and the April survey. There is a relatively low proportion of pedestrians recorded at count point 1, with the majority of trips made by two-wheelers, cars and LGVs. The proportion of HGV traffic is relatively high, although this is to be expected given the strategic A6 is included within the survey.

Total daily flows fluctuate between 2,100 and 3,300 movements, which, based on the average modal split equates to a maximum of approximately 3,036 two-way vehicle movements per survey period.

During an average day, there is no discernible peak periods, with flows fluctuating between 40 and 65 movements for the majority of the survey period. There is however a notable drop in flows towards the end of the day and during the last 30 minutes of the survey no flows were recorded. This event corresponds with the occurrence of sunset, at which point it is widely understood that the majority of travel on the local network ceases due to a lack of street lights and an increase in the potential for criminal activity.

With regards to two-way traffic flow, flows along the A6 during the November/December survey period totalled 1,861 and during the April survey period totalled 1,956 movements. On the minor road the two-way flows totalled 419 and 407 respectively. As specified in Section 2, the provision of a left turn lane would be considered where the two-way flow on the minor road exceeded 405 daily movements. As noted, the provision of a turning lane should also be considered in relation to the main line flow and the occurrence of accidents.

In the first instance, the current main line flow was recorded as a maximum of 1,956 daily movements, which if apportioned over a 10 hour period (08:00 – 18:00) when the majority of the flows are recorded, equates to approximately 195 two-way movements an hour or approximately 3 vehicles per minute. This level of traffic is considered to be relatively low and as such it is considered that left turning traffic would have ample opportunity to turn unhindered and without detriment to main line flows.

With regards to accident data, no significant patterns were identified that would support the provision of a turning lane. Therefore the provision of a turning lane is not considered to be appropriate.

3.2.2 Count Point 2

Table 3.2: Count Point 2: Average Modal Split

% Split	Pedestrian	Two-Wheeler	Car	LGV	HGV	Agricultural Vehicle
Nov/Dec	36%	54%	4%	5%	1%	0%
April	31%	57%	3%	6%	3%	0%

Figure 3.13: Count Point 2 Flow Profile – Weekly

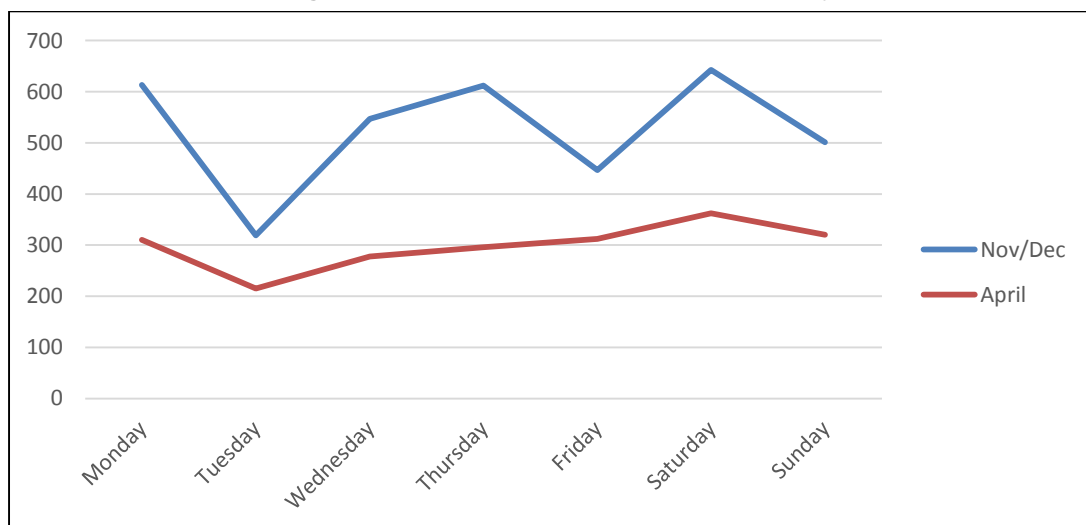
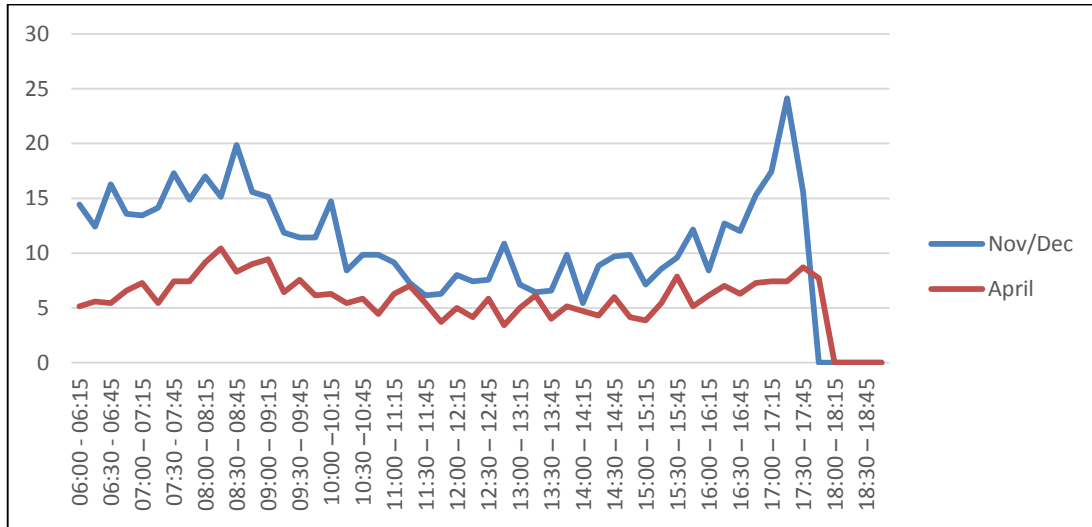


Figure 3.14: Count Point 2 Flow Profile – Daily



At count point 2 the modal split remains relatively consistent between the two survey periods, with the proportion of trips made by foot and by two-wheelers accounting for approximately 90% of journeys made. This level of activity was observed during the site inspection and is attributed to the movements of artisanal miners, moving between Alley/Amanifla and local dig sites, situated on the periphery of the mine.

The modal split is consistent with the quality and purpose of the road, which is made up of laterite and serves three villages.

The average weekly profile between the two survey periods differs considerably, with the November/December survey displaying significant fluctuations in movements from 319 to 643. Conversely the April survey shows relative consistency with a range of between 215 and 362. In addition, the survey results show a general reduction in flow between the two surveys (from November/December to April).

The reasons for this reduction are unknown, however, the road is unlikely to result in any significant increases in flow as a result of the mine and furthermore, the current daily flows are also well below the stated capacity threshold.

3.2.3 Count Point 3

Table 3.3: Count Point 3: Average Modal Split

% Split	Pedestrian	Two-Wheeler	Car	LGV	HGV	Agricultural Vehicle
Nov/Dec	21%	22%	37%	17%	2%	0%
April	23%	18%	36%	16%	6%	0%

Figure 3.15: Count Point 3 Flow Profile – Weekly

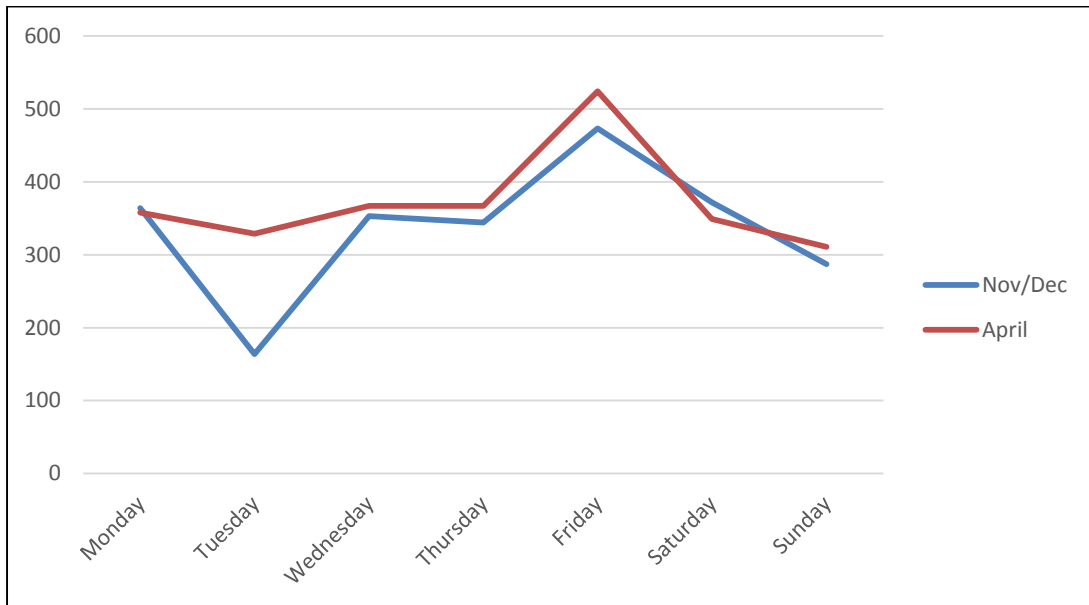
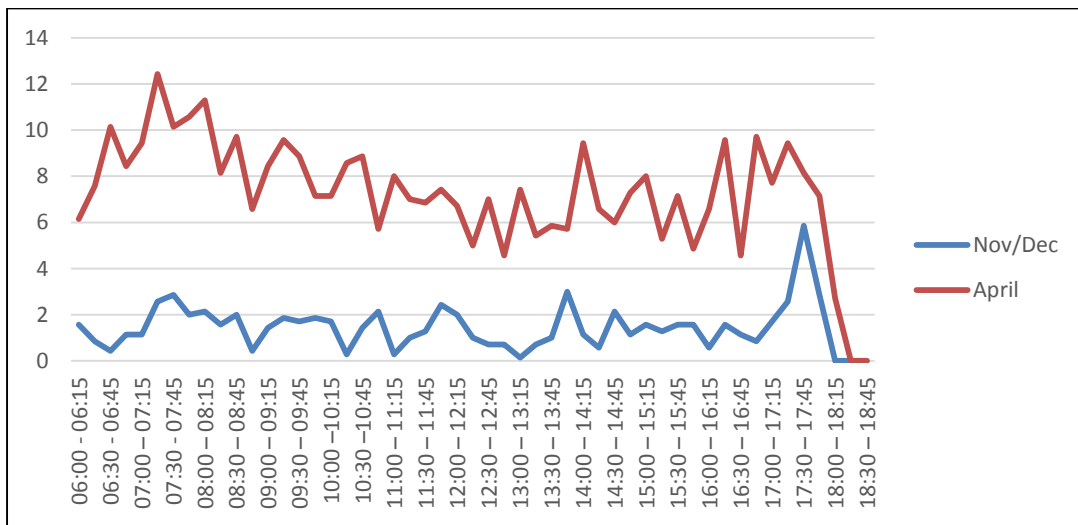


Figure 3.16: Count Point 3 Flow Profile – Daily



At count point 3 the modal split remains relatively consistent between the two surveys, with reasonable proportions of pedestrians, two-wheelers, cars and LGVs observed. Count point 3 is located just north of Koussou on the purpose built paved road, which connects the A6 with the dam. As such, use of the road by all modes is an expected trend.

The daily profile between the survey periods are almost identical, with the exception of Tuesday, where the November/December survey results are approximately half of the April results. This occurrence could simply be as a result of severe weather, although exact reasons are unknown.

The daily profiles from the surveys exhibit similar patterns, albeit the November/December flows are approximately a quarter of the April flows.

There is no distinguishable peak hours during the April survey period, although the November/December survey does have a peak of six movements between 17:30 and 17:45. Both the hourly and daily flows are significantly lower than the capacity thresholds identified and thus increases in traffic as a result of the proposed mine are likely to cause any significant impacts in terms of capacity.

3.2.4 Count Point 4

Table 3.4: Count Point 4: Average Modal Split

% Split	Pedestrian	Two-Wheeler	Car	LGV	HGV	Agricultural Vehicle
Nov/Dec	56%	35%	5%	3%	1%	0%
April	44%	43%	9%	1%	2%	1%

Figure 3.17: Count Point 4 Flow Profile – Weekly

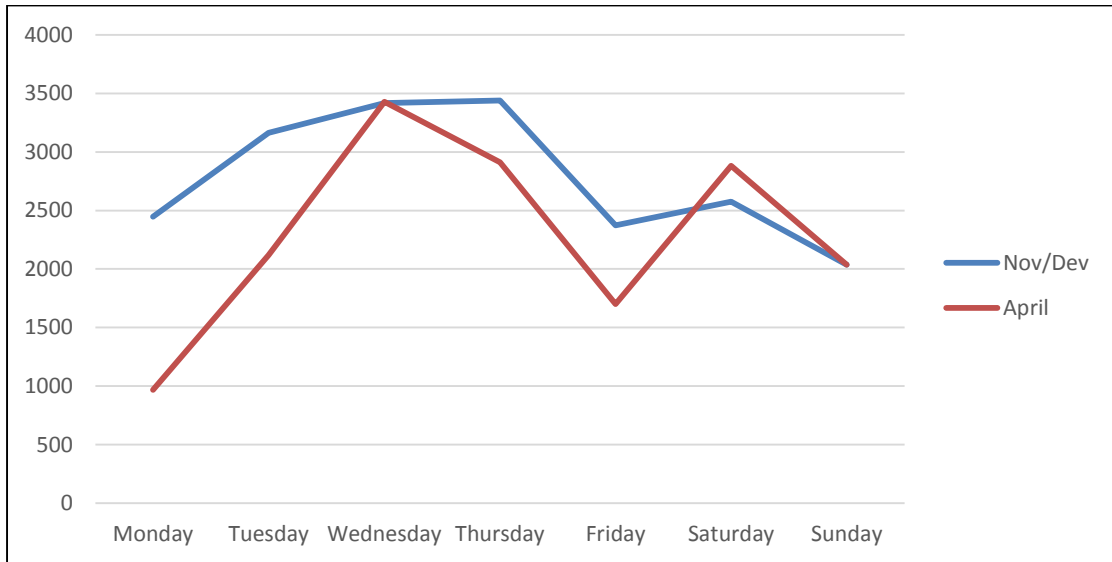
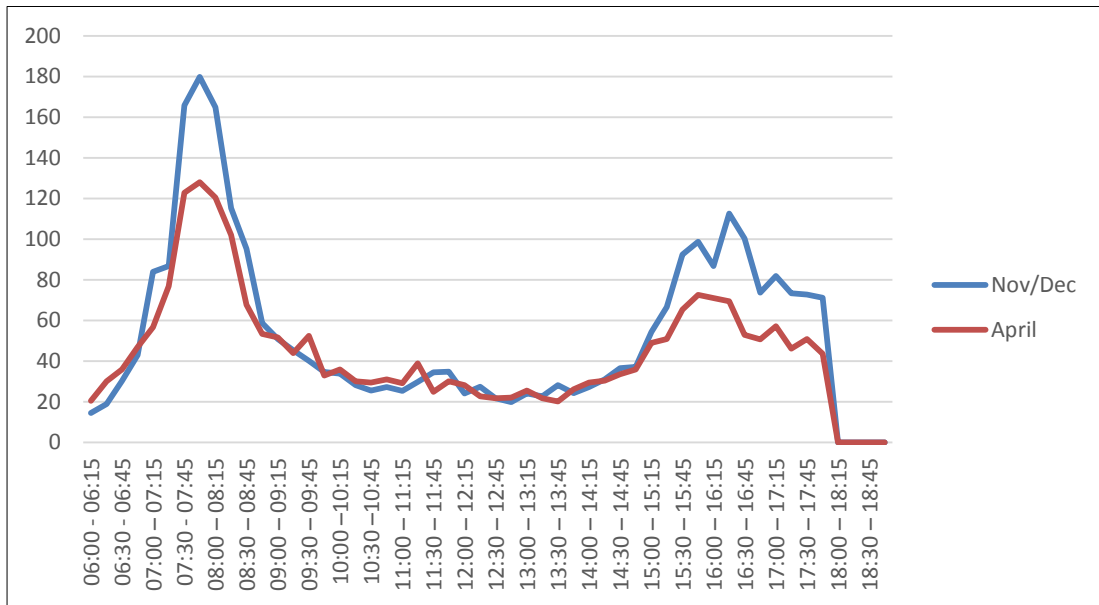


Figure 3.18: Count Point 4 Flow Profile – Daily



At count point 4 there are notable fluctuations in modal split between the two survey periods, with an apparent modal shift from pedestrian to two-wheeler flows between the November/December and April surveys. In both cases the proportion of pedestrians and two-wheelers accounts for approximately 90% of the total recorded flow rate.

This level of activity was observed during the site inspection and is attributed to the movements of artisanal miners, moving between Angovia and local dig sites, situated on the periphery of the mine.

The daily flows are largely consistent, although a lower flow during the start of the week was recorded in April.

Daily flows are considered to be relatively high, although the actual numbers of cars, LGVs, HGVs and agricultural vehicles remains low, with a daily peak of approximately 350 vehicle movements, based on the average modal split. This level of traffic is extremely low when compared with the daily capacity threshold. However, given the abundance of vulnerable road users i.e. pedestrians/two-wheelers using the road in conjunction with the aforementioned, consideration will need to be given to ensure traffic accessing the mine site does so cautiously and with consideration of other road users.

Daily flows are again consistent between the two surveys and obvious morning and evening peak periods are apparent and occur between the hours of 07:30 – 08:30 and 15:30 – 18:00.

3.2.5 Count Point 5

Table 3.5: Count Point 5: Average Modal Split

% Split	Pedestrian	Two-Wheeler	Car	LGV	HGV	Agricultural Vehicle
Nov/Dec	32%	62%	2%	2%	1%	1%
April	19%	71%	3%	5%	2%	0%

Figure 3.19: Count Point 5 Flow Profile – Weekly

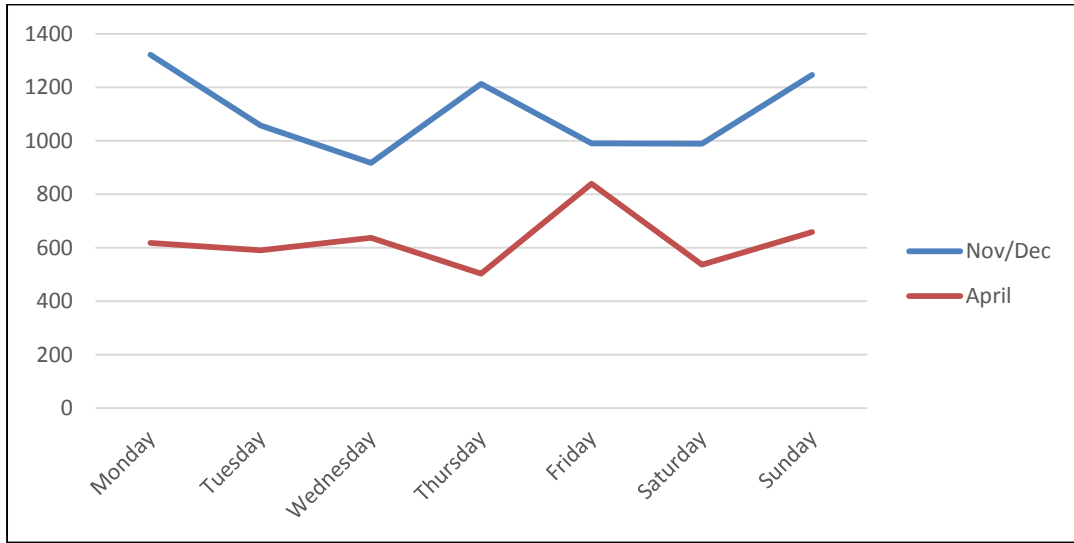
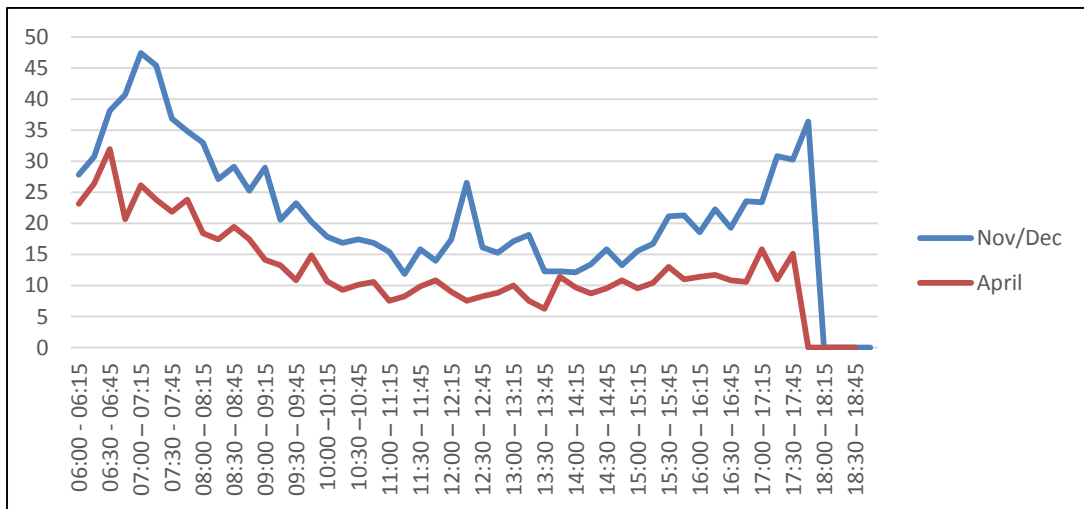


Figure 3.20: Count Point 5 Flow Profile – Daily



As observed at count point 4, the count point 5 modal split exhibits signs of modal shift between pedestrians and two-wheelers and thus this type of travel behaviour extends beyond Angovia. The modal shift between November/December and April’s survey could be attributed to the occurrence of higher rainfall during the month of April compared with November and December. In either case, the proportion of pedestrians and two wheelers represents approximately 90% of all flows and is consistent with the quality and purpose of the road, which is made up of laterite and serves seven villages.

The daily flows fluctuate between the two survey periods, with lows of 500 recorded during April and highs of 1050 recorded during the November/December survey. Given the average modal split this equates to between 50 and 100 vehicle movements per day and is not considered to be significant.

The daily flow fluctuates, but with distinguishable peaks occurring between the hours of 06:45 - 07:45, 12:00 – 13:00 and 17.15 – 18.15. These largely accord with the peaks observed at count point 4 and are attributable to the movement of artisanal miners travelling to site in the morning and returning in the evening.

3.2.6 Count Point 6

Table 3.6: Count Point 6: Average Modal Split

% Split	Pedestrian	Two-Wheeler	Car	LGV	HGV	Agricultural Vehicle
Nov/Dec	24%	60%	7%	7%	3%	0%
April	26%	60%	4%	8%	2%	0%

Figure 3.21: Count Point 6 Flow Profile – Weekly

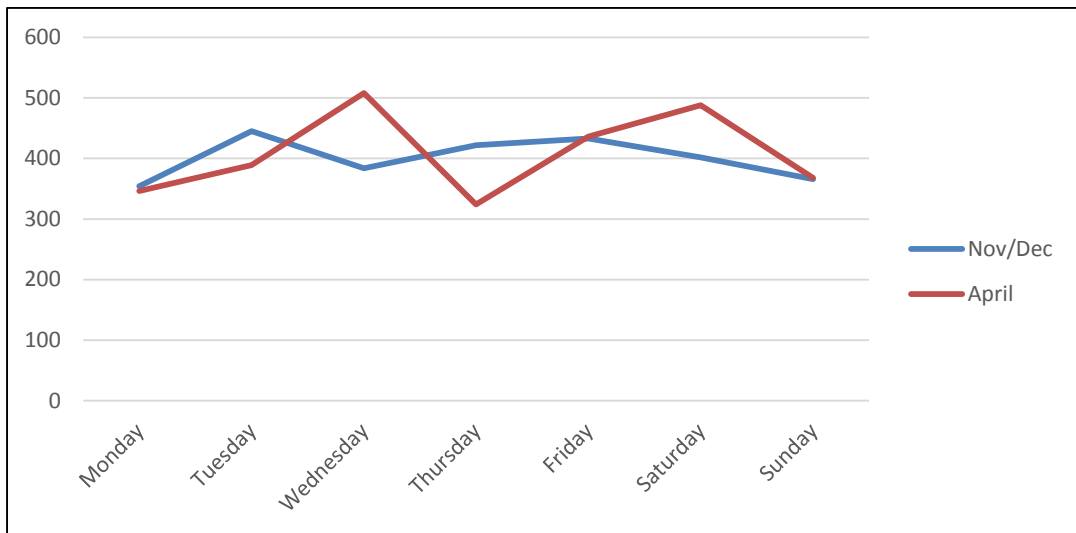
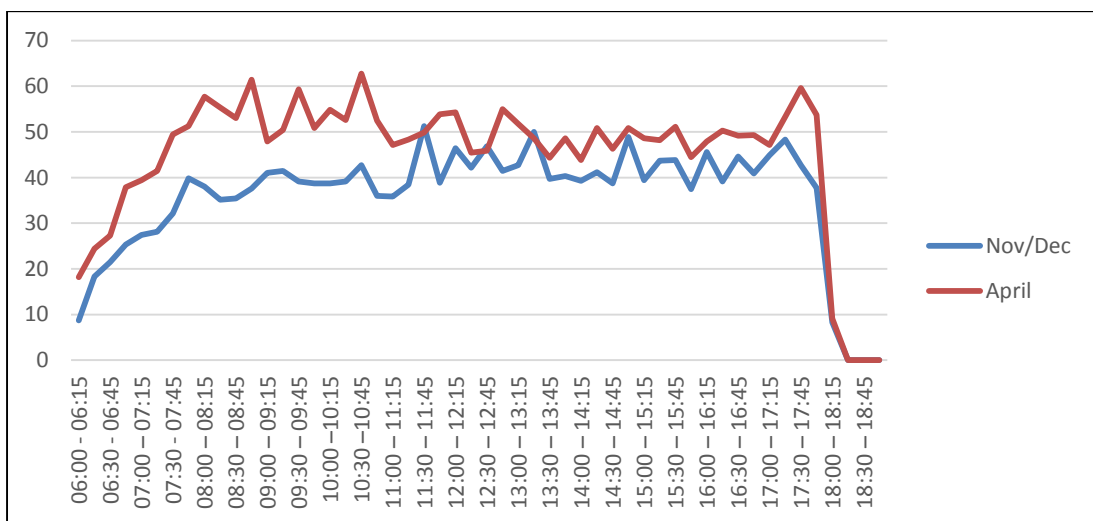


Figure 3.22: Count Point 6 Flow Profile – Daily



At count point 6 the modal split remains consistent between the two survey periods, with pedestrian and two-wheeler flows accounting for 85% of recorded flows. This pattern is prevalent on the unpaved access roads and accords with count points 2, 4 and 5. All of which are local access roads, which provide a local means of access for neighboring villages.

The weekly traffic flow profile is fairly consistent between the November/December and April surveys, as is the daily profile. Daily flows range from 324 to 508, which based on the average modal split equates to between 50 and 75 vehicle movements per day.

There are no distinguishable peaks in the daily profile and as per the other count points, zero flows are recorded towards the end of the survey period.

3.2.7 Count Point 7

Table 3.7: Count Point 7: Average Modal Split

Arrivals	Pedestrian	Two-Wheeler	Car	LGV	HGV	Agricultural Vehicle
Nov/Dec	36%	44%	16%	2%	1%	1%
April	27%	28%	24%	10%	11%	1%

Figure 3.23: Count Point 7 Flow Profile – Weekly

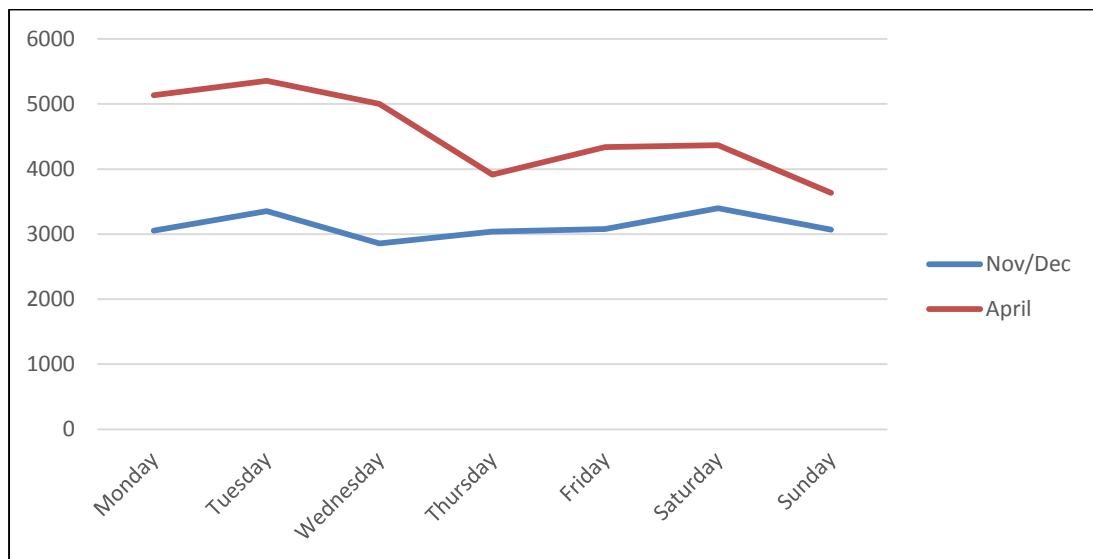
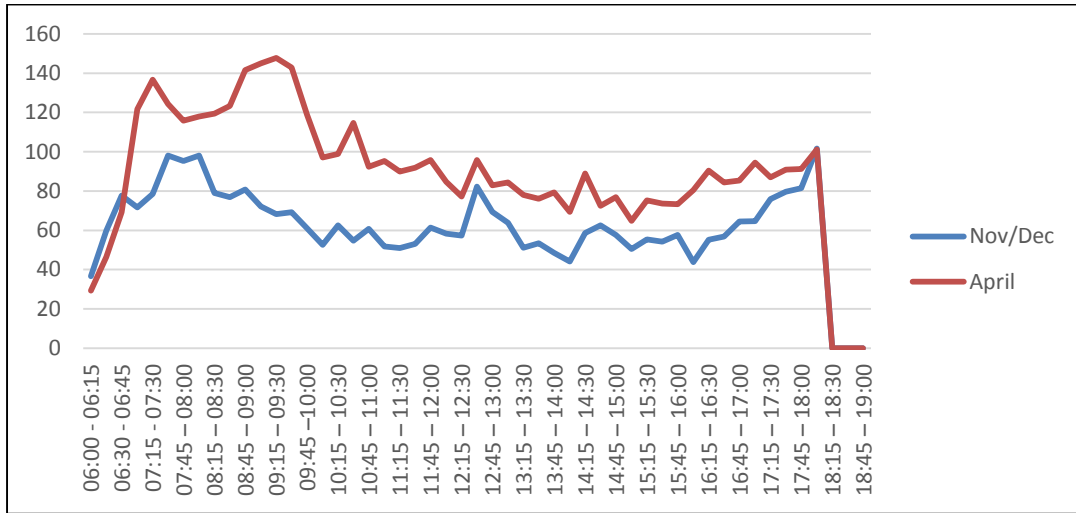


Figure 3.24: Count Point 7 Flow Profile – Daily



At count point 7, the modal split in November/December differs from the April surveys, with a 25% reduction in the proportion of pedestrians and two wheelers and an increase in cars, LGVs and HGVs. The count point is located on the edge of Bouafle and as such an increase in vehicular traffic is not unexpected. The daily flows fluctuate between lows of 2,855 in November/December to highs of 5,358 in April, the latter equating to approximately 2,464 vehicle movements a day based on the average modal split.

The daily profile fluctuates during both survey periods, with the only discernable peak occurring between 08:45 – 09:45. Access to the site through count point 7 is unlikely and based on the outcome of the route review, will not be promoted as part of the site access strategy.

3.2.8 Count Point 8

Table 3.8: Count Point 8: Average Modal Split

% Split	Pedestrian	Two-Wheeler	Car	LGV	HGV	Agricultural Vehicle
Nov/Dec	45%	21%	17%	11%	7%	0%
April	43%	39%	13%	2%	1%	1%

Figure 3.25: Count Point 8 Flow Profile – Weekly

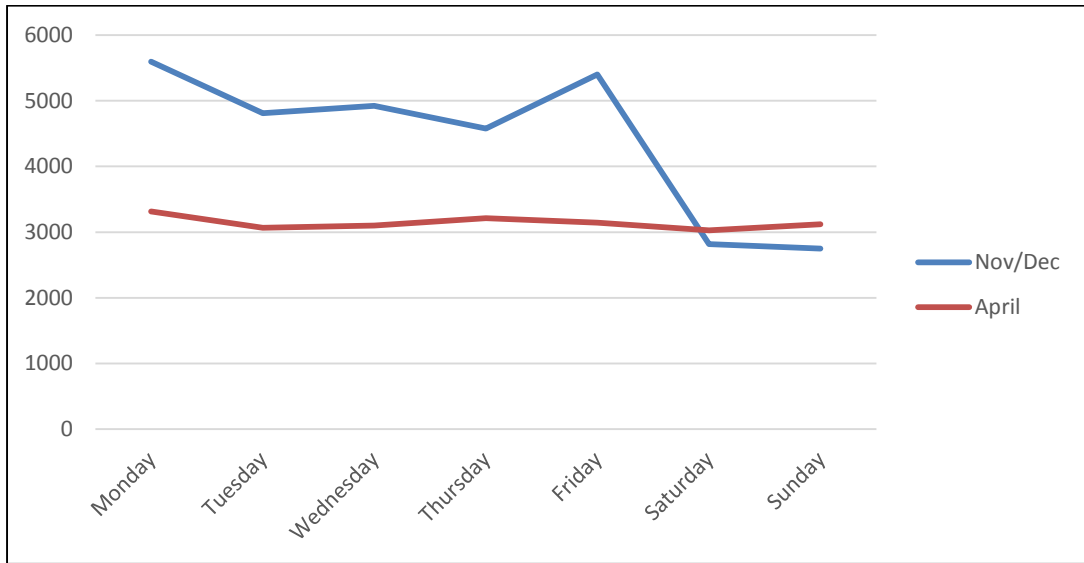
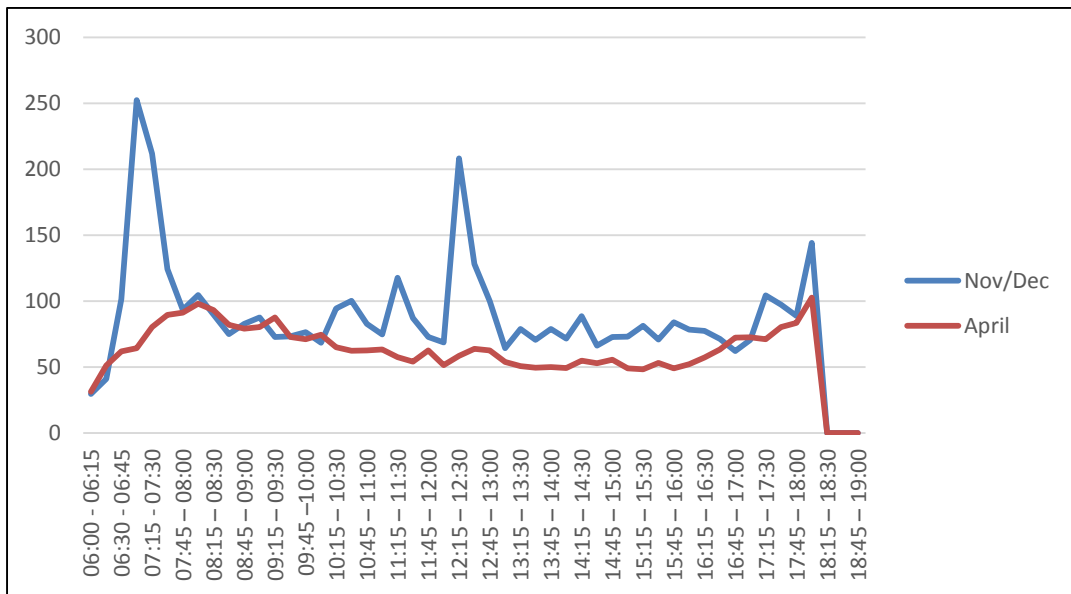


Figure 3.26: Count Point 8 Flow Profile – Daily



At count point 8, the modal split is broadly similar for pedestrians and cars, but differs for two-wheelers, LGVs and HGVs, with an increase in the former but a decrease in the latter two modes. The count point is located on the A6, on the edge of Bouafle. Flows recorded during the November/December survey are significantly higher than those recorded in April, with peak daily flows for the former of 5,593 and the latter of 3,315.

Based on the average modal split, the peak flows referenced above equate to 3,076 and 1,823 vehicular movements respectively. Both are well below the daily capacity threshold.

With regards to the daily profile, the November/December survey displays three distinct peak periods, 07:00 – 07:45, 12:15 – 12:45 and 18:00 – 18:30. Given the count point location in proximity to Bouafle, these patterns are consistent with a typical urban traffic profile, where the dominant trip purpose is commuting. Peaks during lunch times are also evident of a typical commuting profile. In addition, it should also be noted that the peak hourly flows are also considerably lower than the hourly capacity threshold, and as such no capacity issues are anticipated.

3.3 Conclusion

For count points located on unpaved tracks within rural areas, the proportion of vehicular traffic has been consistently low, with high proportions of pedestrians and two-wheelers. This pattern is endemic to the nature and purpose of these roads, which exist to provide local means of access for neighbouring villages.

Paved roads, such as those at count points 1, 3, 7 and 8 have higher proportions of vehicular traffic, although it is noted that pedestrians and two-wheelers still form a significant proportion of movements at each location, with the exception of count point 1.

The weekly profiles show flow fluctuation on a daily basis, with the exception of count point 1, although it is noted that some consistency is present for one survey and not the other at the remaining count points.

The daily profiles show fluctuations for count points 1, 3, 6 and 7, with more typical daily profiles observed at count points 2, 4, 5 and 8, which is attributed to more commuter based travel behaviour.

It is also noted that all movements terminate around 18:30, which corresponds with information provided by the client regarding the avoidance of night time travel, due to a lack of street lighting and an increase in criminal activity.

No exceedance of the capacity thresholds were identified and it was established that the provision of a turning lane at count point 1 was unnecessary. However, the high proportion of pedestrians recorded around the mine site, at count points 2, 4 and 5, will need to be considered when managing traffic movements to and from the site.

4.0 IMPACT ASSESSMENT

4.1 Impact Description

4.1.1 Assessment Criteria

Increases in traffic as a result of new development can have a number of effects on local communities and existing road users. To the knowledge of the assessment team, there is no local guidance on methodologies for assessing potentially significant environmental effects of traffic and transportation. In the absence of this, reference has been made to the UK document, The Institute of Environmental Management and Assessment (IEMA) publication *Guidance Notes No. 1: Guidelines for the Environmental Assessment of Road Traffic* (hereafter referred to as the IEMA guidelines) (1993).

The IEMA guidelines state that:

“...the detailed assessment of impacts is...likely to concentrate on the period during which the absolute level of an impact is at its peak, as well as the hour at which the greatest level of change is likely to occur.”

As with any development there are three phases during which the proposed mine will generate levels of traffic:

- Construction;
- Operation;
- Decommission.

The following provides a summary of each phase and its likely level of impact.

Construction

The Construction materials that will be required for the Project include the following:

- Cement;
- Aggregate, sand, gravel;
- Rock fill, crushed rock;
- Wood (small quantities).

Apart from cement, which will be delivered from Yamassoukro, construction materials will be sourced locally, most likely within the footprint of the TMF.

All plant, material and supplies that cannot be locally sourced will be imported through the port of Abidjan or San Pedro. Construction is anticipated to last approximately 18 months therefore the impact of the construction period on the local and strategic road network will be temporary. Given that a significant proportion of the required facilities and plant are already available onsite, the impact, if any, will be minimised.

Operation

The site will operate 24 hours a day, 365 days a year, employ approximately 800 people and receive regular daily deliveries, currently estimated at 180 per month. The site will operate on a shift based system, with mine workers and plant crews alternating between a day shift (06:00 – 18:00) and a night shift (18:00 – 06:00) and additional administrative/professional staff working between the hours of 07:00 and 17:00.

The site will operate for approximately 13 years and therefore the impact of the operation period on the local and strategic road network, if any, will be prolonged.

Decommission

The decommission of the site will take approximately 3 years to complete at which point all mine infrastructure will be removed from the site and the various temporary land uses and storage areas will undergo remediation. The majority of activities will occur within the confines of the mine boundary and only during the removal of plant and other mine equipment is there likely to be any significant movements.

A closure and remediation plan for the site will be submitted prior to the commencement of this phase and at that stage measures to manage vehicular movements will be devised and agreed with the Ministry of Transport.

The impact of the decommissioning stage on the local and strategic road network will be relatively temporary and is anticipated to be similar to the construction phase in terms of traffic generation.

Given the above, it is considered that most onerous phase in which to base the assessment is that of the operation.

4.1.2 Assessment of Effects

An increase in traffic as a result of a development can have a series of environmental effects on local communities, existing vulnerable road users i.e. pedestrians/two-wheelers and non-vulnerable road users i.e. cars, LGVs, HGVs.

For developments of this nature the most applicable effects to consider are summarized in the following sections.

Severance

Severance is the perceived division that can occur within a community when it becomes separated by a major traffic artery and is used to describe the factors that separate people from other people and places.

The IEMA guidelines state that marginal changes in traffic flow are unlikely to create or remove severance, but that, in determining whether severance is likely to be an important issue, consideration should be given to factors such as road width, traffic flow and composition, traffic speeds, the availability of crossing facilities and the number of

movements that are likely to cross the affected route. Consideration should also be given to different groups such as the elderly and young children.

Driver Delay

Delays for drivers can occur at different points on the local highway network as a result of the additional traffic that would be generated by a development. The IEMA guidelines state that delays are only likely to be significant when the traffic on the network surrounding the development is already at, or close to, the capacity of the system.

Pedestrian Delay

Changes in the volume, composition or speed of traffic may affect the ability of people to cross roads, and therefore, increases in traffic levels are likely to lead to greater delays to pedestrians. Delays would also depend upon the general level of pedestrian activity, visibility and the general physical conditions of the crossing location.

Pedestrian Amenity

Pedestrian amenity is broadly defined as the relative pleasantness of a journey, and is considered to be affected by traffic flow, traffic composition and pavement width/separation from traffic.

Fear and Intimidation

The scale of fear and intimidation experienced by pedestrians is dependent on the volume of traffic, its HGV composition, its proximity to people or the lack of protection caused by factors such as narrow pavement widths, together with factors such as the speed and size of vehicles.

Accidents and safety

Due to the numerous local causation factors involved in personal injury accidents, the IEMA guidelines do not recommend the use of thresholds to determine significance. Instead professional judgement should be applied to the assessment. If a particular accident cluster is identified, then this may also justify further analysis and the implementation of measures to mitigate effects

The impact on each of these environmental effects will be assessed accordingly.

4.2 Impact Assessment

4.2.1 Traffic Generation Potential

In order to undertake the assessment of traffic impact, information on the operation of the site has been provided by the client and is split between the principal traffic generators, namely staff travel and external deliveries. At this stage in the development appraisal process not all details are known and assumptions have been made based on professional judgement and knowledge of the local area, e.g. staff origins, traffic routing.

Staff

All staff employed at the mine will reside locally, with junior staff based in the surrounding villages and senior staff housed in a purpose built camp situated adjacent to the mine site. The camp will be linked to the mine via a private access road, which will be constructed as part of the development proposals.

Staff travel assumptions

Staff travel arrangements will differ depending on grade. Senior workers are anticipated to drive to the site from the purpose built camp, whereas junior workers, residing in the surrounding local villages are more likely to walk, use a motorcycle or potentially utilise a taxi as per the observed travel arrangements currently utilised by local people.

In order to establish how the junior staff will travel to and from the site during the operation, the existing count data was analysed to extract the distribution of travel by the likely modes of travel. Table 4.1 below shows the average modal split across the study area for pedestrians and 2-wheeled transport modes based on data collected during November/December 2014 and April 2015.

Table 4.1: Mode of Travel

November/December & April Average			
	Pedestrian	Two-Wheeler	Total
% Distribution across study area	40%	60%	100%

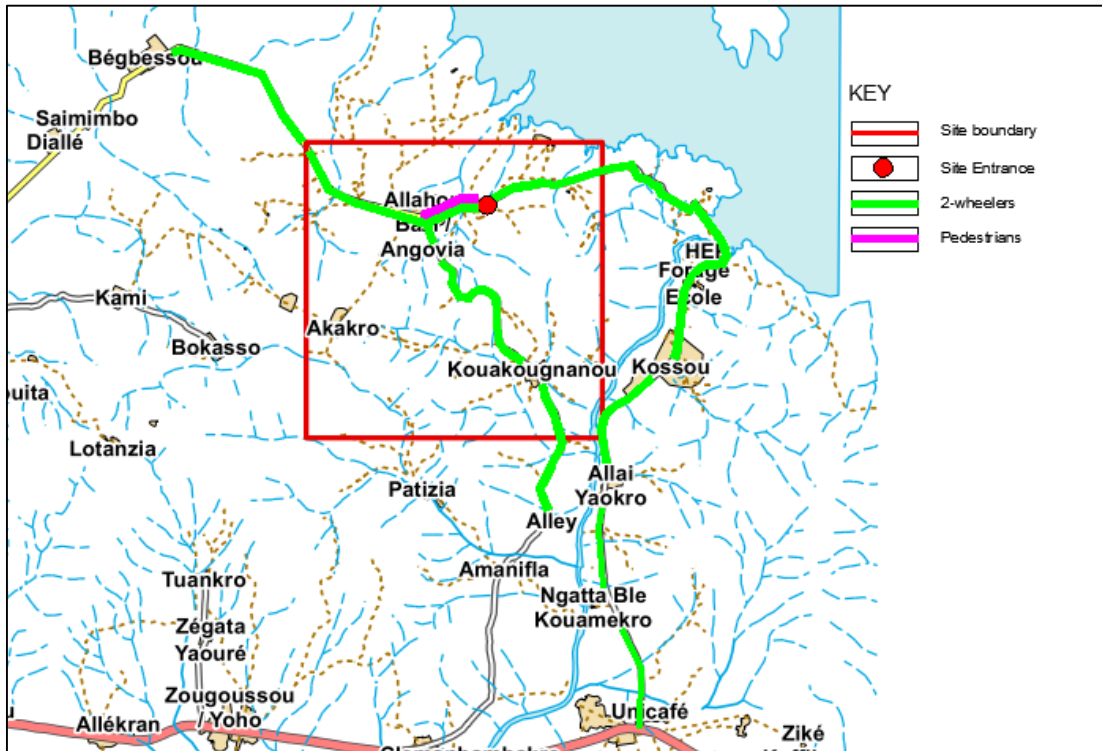
Table 9 above shows that the most common mode of travel across the study area between 06:00-18:00 Monday to Friday is 2-wheeled transport modes, with 60% of journeys. The remaining 40% of journeys were recorded as being made on foot.

The exact origin of staff members is currently unknown, however, for the purposes of the assessment assumptions based on the intended mode of travel have been made. These assumptions are as follows:

- The proportion of staff travelling by foot will reside in the nearest settlement, Angovia. Villages further away are considered unviable due to the distances involved, the quality of the pedestrian environment and the lack of footways or street lighting;
- The proportion of staff travelling by two-wheelers will be split equally between the villages of Bégbessou, Alley and Toumbokro. These villages have been selected as they represent the furthest realistic options along each of the three approaching roads;
- Whilst the use of taxis is a possibility, information on the availability of this option during the shift change over times is unknown and as such no consideration has been given.

The above routes are illustrated within Figure 4.1:

Figure 4.1: Staff Travel Routes



Multiple occupancy has also been identified for two-wheelers and cars, with the former considered to accommodate an average of two members of staff and the latter an average of four members of staff.

For the purposes of assessment the Client has provided information on the operational requirements for each of the shifts. Table 4.2 below provides a breakdown of the workforce and likely pattern of activity for the 24 hour operation of the site.

Table 4.2: Shift Patterns and Workers

	Travel Movements per Shift		Pedestrian	Two-Wheeler*	Car**	Total
Mine and Plant Workers	06:00 Change Over	Arrivals	40	30	5	120
		Departures	40	30	5	120
		Total	80	60	10	240
	18:00 Change Over	Arrivals	40	30	5	120
		Departures	40	30	5	120
		Total	80	60	10	240
Administrative/ Professional Staff	07:00 Start	Arrivals	25	19	32	188
	17:00 Finish	Departures	25	19	32	188

* assumes two members of staff by vehicle

** assumes four members of staff per vehicle

Table 4.2 shows that staff change over for the mine and plant workers results in the generation of 80 pedestrians, 60 two-wheelers and 10 cars, which will occur between the hours of 05:00 and 07:00 and between 17:00 and 19:00. The time periods referenced account for the travel time for staff travelling to and from the site either side of the shift changeover time.

For the administrative and professional staff, it is anticipated that there will be 25 pedestrians, 19 two-wheelers and 32 cars, with the trips occurring between the hours of 06:00 and 07:00 and 17:00 and 18:00 to account for workers arriving in the AM and leaving in the PM.

With reference to the above, it is apparent that there will be some overlap between mine/plant workers and administrative/professional staff. Between 06:00 and 07:00 the combined trip generation for pedestrians would be 65 (40 departing mine/plant workers and 25 arriving professional/administrative staff), the combined trip generation for two wheelers would be 49 (30 departing mine/plant workers and 19 arriving professional/administrative staff) and the combined trip generation for cars would be 37 (5 departing mine/plant workers and 32 arriving professional/administrative staff). With a similar patterns observed between the hours of 17:00 and 18:00.

Given the potential origins of staff, the above trips would result in 65 pedestrian trips occurring between the site and Angovia, 16 two-wheeler trips between the site and Bégbessou, Alley and Toumbokro (49 in total split between the three assumed points of origin) and 37 cars, all utilising the private access road between the site and the purpose built camp,

With reference to the survey results for count point 4, which is situated at the mine site entrance where the above trips would ultimately converge. There are up to 60 two-way movements in the AM between the hours of 06:00 – 07:00 and up to 80 two-way flows in the PM between the hours of 17:00 – 18:00, with approximately 91% of these trips made on either foot or by two-wheeler. The addition of 65 extra pedestrians and 49 two-wheelers would total 174 two-way movements in the AM and 194 movements in the PM. These figures are similar to the current recorded peak flow rate of 180 movements, which occurs between the hours of 07:30 and 08:30.

Given these levels of flows are currently accommodated and the anticipated mode of travel for future junior workers will be similar to existing road users it is considered that the impact of the proposed mine site in relation to staff travel will be negligible and as such no further consideration to staff travel will be given.

Furthermore, the provision of a dedicated access track between the purpose built camp and the site, minimises the level of traffic generated on the public roads, which will be of benefit to local highway safety.

Deliveries

Fuel deliveries will require approximately 90 trucks per month. As a preliminary estimate, this figure has been doubled to account for other deliveries and thus is anticipated to be approximately 180 trucks per month or nine trucks a day, assuming deliveries take place five days a week. Deliveries will either be from San Pedro or Abidjan.

Delivery frequencies may vary over the various phases of the mine's life cycle and may peak during the construction period. However, for the purpose of this ESIA, it is assumed that the deliveries will be of the same order of magnitude during the construction and operation phase.

Unlike the staff shift patterns, deliveries will not be limited to specific hours and will occur throughout the day. As such, based on a 10 hour delivery period which avoids the hour directly after sunrise and directly before sunset, deliveries could be one per hour.

Given the low frequency of expected deliveries, it is considered that the impacts on local communities will be negligible.

4.2.2 Traffic Impact Assessment on Environmental Effects

Based on the delivery traffic only, an impact assessment on the following environmental effects has been undertaken:

- Severance;
- Driver Delay;
- Pedestrian Delay;
- Pedestrian Amenity;
- Fear and Intimidation;
- Accidents and Safety.

Table 4.3: Impact on Severance

Impact	Impact on Severance			
Nature	Negative		Positive	
	An increase in traffic during the operation of the site will have a negative impact on severance, due to routing through local villages.			
Nature of Impact	Direct	Indirect (Secondary)	Cumulative	
	The impact has a direct effect.			
Likelihood / Probability	1 = Unlikely	2 = Possible	3 = Likely	4 = Definite likelihood
	Unlikely: the movement of delivery vehicles, whilst consistent, will be low with an average of one delivery per hour.			
Duration	1 = Short term	2 = Medium term	4 = Long term	4 = Permanent
	The impact will be felt long term.			
Extent / Spatial	1 = Localised	2 = Site	3 = Wider and Adjacent Region	4 = National / International
	The impact will be within the wider and adjacent region.			
Magnitude / Scale	1 = Low	2 = Minor	3 = Moderate	4 = High
	The magnitude will be low.			

Impact	Impact on Severance			
Resource/Receptor Sensitivity/ Importance of Value	2 = Low	4 = Moderate Low	6 = Moderate	8 = High
	The villages impacted upon by vehicular traffic are largely set back from the edge of the carriageway and are located on the paved roads. The sensitivity of which is considered to be low.			
Significance of the impact	1 – 20 = Negligible	21 – 56 = Low	57 – 92 = Medium	93 – 128 = High
	Impact on severance scored 18 and is thus considered to be negligible. The assessment identifies the A6 and the paved highway east of the Bandama River as the principal access route into the site, thus avoiding the majority of the local villages. There are two villages served by the principal route and both are largely set back from the carriageway, with relatively minor frontages. The presence of the school south of Kossou, is the only sensitive land use, but school start (07:00) and finishing times (14:30)* would only coincide with approximately two HGV deliveries.			

*source: http://www.encyclopedia.com/topic/Ivory_Coast.aspx

Table 4.4: Impact on Driver Delay

Impact	Impact on Driver Delay			
Nature	Negative		Positive	
	An increase in traffic during the operation of the site will have a negative impact on driver delay.			
Nature of Impact	Direct	Indirect (Secondary)	Cumulative	
	The impact has a direct effect.			
Likelihood / Probability	1 = Unlikely	2 = Possible	3 = Likely	4 = Definite likelihood
	Unlikely: the movement of delivery vehicles, whilst consistent, will be low with an average of one delivery per hour.			
Duration	1 = Short term	2 = Medium term	4 = Long term	4 = Permanent
	The impact will be felt long term.			
Extent / Spatial	1 = Localised	2 = Site	3 = Wider and Adjacent Region	4 = National / International
	The impact will be within the wider and adjacent region			

Impact	Impact on Driver Delay			
Magnitude / Scale	1 = Low	2 = Minor	3 = Moderate	4 = High
	The magnitude will be low.			
Resource/Receptor Sensitivity/ Importance of Value	2 = Low	4 = Moderate Low	6 = Moderate	8 = High
	There are a very few vehicles on the road and thus the likelihood of any additional driver delay occurring is low.			
Significance of the impact	1 – 20 = Negligible	21 – 56 = Low	57 – 92 = Medium	93 – 128 = High
	Impact on driver delay scored 18 and is thus considered to be negligible. From a review of the daily traffic profiles for count points 1 and 3, which are located on the principal access route and thus are paved highways, no exceedance of the stated capacity thresholds occurred. The level of traffic generated on a daily basis will be very low and therefore unlikely to impact upon driver delay.			

Table 4.5: Impact on Pedestrian Delay

Impact	Impact on pedestrian delay			
Nature	Negative		Positive	
	An increase in traffic during the operation of the site will have a negative impact on pedestrian delay, due to routing through local villages.			
Nature of Impact	Direct		Indirect (Secondary)	Cumulative
	The impact has a direct effect.			
Likelihood / Probability	1 = Unlikely	2 = Possible	3 = Likely	4 = Definite likelihood
	Unlikely: the movement of delivery vehicles, whilst consistent, will be low with an average of one delivery per hour.			
Duration	1 = Short term	2 = Medium term	4 = Long term	4 = Permanent
	The impact will be felt long term.			
Extent / Spatial	1 = Localised	2 = Site	3 = Wider and Adjacent Region	4 = National / International
	The impact will be within the wider and adjacent region			

Impact	Impact on pedestrian delay			
Magnitude / Scale	1 = Low	2 = Minor	3 = Moderate	4 = High
	The magnitude will be low.			
Resource/Receptor Sensitivity/ Importance of Value	2 = Low	4 = Moderate Low	6 = Moderate	8 = High
	On the local network, where there are higher instances of pedestrian activity, the principal access route only intersects two villages. The amount traffic generated is low and therefore the likelihood of operational traffic causing pedestrian delay is low.			
Significance of the impact	1 – 20 = Negligible	21 – 56 = Low	57 – 92 = Medium	93 – 128 = High
	Impact on pedestrian delay scored 18 and is thus considered to be negligible. The level of traffic generated during the mine's operation is low and thus it is extremely unlikely that this will delay pedestrians crossing any of the affected highways.			

Table 4.6: Pedestrian Amenity

Impact	Impact on pedestrian amenity			
Nature	Negative		Positive	
	An increase in traffic during the operation of the site will have a negative impact on pedestrian amenity, due to routing through local villages.			
Nature of Impact	Direct		Indirect (Secondary)	Cumulative
	The impact has a direct effect.			
Likelihood / Probability	1 = Unlikely	2 = Possible	3 = Likely	4 = Definite likelihood
	Unlikely: the movement of delivery vehicles, whilst consistent, will be low with an average of one delivery per hour.			
Duration	1 = Short term	2 = Medium term	4 = Long term	4 = Permanent
	The impact will be felt long term.			
Extent / Spatial	1 = Localised	2 = Site	3 = Wider and Adjacent Region	4 = National / International
	The impact will be within the wider and adjacent region			

Impact	Impact on pedestrian amenity			
Magnitude / Scale	1 = Low	2 = Minor	3 = Moderate	4 = High
	The magnitude will be low.			
Resource/Receptor Sensitivity/ Importance of Value	2 = Low	4 = Moderate Low	6 = Moderate	8 = High
	The villages impacted upon do not currently benefit from dedicated footways, however grass verges are present and well utilised. The increase in traffic as a result of the operational phase is low and thus impact on the overall pleasantness of a pedestrian journey is also considered to be low.			
Significance of the impact	1 – 20 = Negligible	21 – 56 = Low	57 – 92 = Medium	93 – 128 = High
	Impact on pedestrian amenity scored 18 and is thus considered to be negligible. The level of traffic generated by the operation phase is extremely low and is therefore unlikely to impact upon pedestrian amenity.			

Table 4.7: Impact on Fear and Intimidation

Impact	Impact on fear and intimidation			
Nature	Negative		Positive	
	An increase in traffic during the operation of the site will have a negative impact on fear and intimidation, due to routing through local villages.			
Nature of Impact	Direct		Indirect (Secondary)	Cumulative
	The impact has a direct effect.			
Likelihood / Probability	1 = Unlikely	2 = Possible	3 = Likely	4 = Definite likelihood
	Unlikely: the movement of delivery vehicles (HGVs), whilst consistent, will be low with an average of one delivery per hour.			
Duration	1 = Short term	2 = Medium term	4 = Long term	4 = Permanent
	The impact will be felt long term.			
Extent / Spatial	1 = Localised	2 = Site	3 = Wider and Adjacent Region	4 = National / International
	The impact will be within the wider and adjacent region			

Impact	Impact on fear and intimidation			
Magnitude / Scale	1 = Low	2 = Minor	3 = Moderate	4 = High
	The magnitude will be low.			
Resource/Receptor Sensitivity/ Importance of Value	2 = Low	4 = Moderate Low	6 = Moderate	8 = High
	The level of traffic generated is low. There will only be 9 HGV deliveries per day and as such impact on fear and intimidation is considered to be low.			
Significance of the impact	1 – 20 = Negligible	21 – 56 = Low	57 – 92 = Medium	93 – 128 = High
	Impact on fear and intimidation scored 18 and is thus considered to be negligible. There will only be 9 HGV deliveries per day and as such impact on fear and intimidation is considered to be low.			

Table 4.8: Impact on Accidents and Safety

Impact	Impact on accidents and safety			
Nature	Negative		Positive	
	An increase in traffic during the operation of the site will have a negative impact on accidents and safety, due to routing through local villages.			
Nature of Impact	Direct		Indirect (Secondary)	Cumulative
	The impact has a direct effect.			
Likelihood / Probability	1 = Unlikely	2 = Possible	3 = Likely	4 = Definite likelihood
	Unlikely: the movement of delivery vehicles (HGVs), whilst consistent, will be low with an average of one delivery per hour.			
Duration	1 = Short term	2 = Medium term	4 = Long term	4 = Permanent
	The impact will be felt long term.			
Extent / Spatial	1 = Localised	2 = Site	3 = Wider and Adjacent Region	4 = National / International
	The impact will be within the wider and adjacent region			
Magnitude / Scale	1 = Low	2 = Minor	3 = Moderate	4 = High

Impact	Impact on accidents and safety			
	The magnitude will be low.			
Resource/Receptor Sensitivity/ Importance of Value	2 = Low	4 = Moderate Low	6 = Moderate	8 = High
	The level of traffic generated is low. Therefore the likelihood for an accident to occur is low.			
Significance of the impact	1 – 20 = Negligible	21 – 56 = Low	57 – 92 = Medium	93 – 128 = High
	Impact on accidents and safety scored 18 and is thus considered to be negligible. The level of traffic generated by the mine's operation is low and occurs outside of discernible peak hours. As such the likelihood of an accident occurring is low.			

4.3 Alternative Assessment

All impacts associated with traffic occur external to the site and therefore any internal site alterations will have no impact on the assessment undertaken.

4.4 Important Issues

From an assessment of the likely environmental impacts on communities, vulnerable road users and non-vulnerable road users, no significant issues have been identified.

However, as part of the route appraisal exercise, a number of issues were identified as follows:

- Potholing along the A6, between Yamoussoukro and the main site access, east of the Bandama River;
- Potholing and general degradation along the main site access road, east of the Bandama River;
- Lack of a paved surface over the existing dam towards the site access and along the connecting road.

5.0 MANAGEMENT AND MONITORING REQUIREMENTS

5.1 Impact Mitigating and Management Requirements

Given the lack of impact exerted by the proposed development, no specific mitigation measures are considered necessary.

It is recognised that the A6 and eastern access road require some maintenance and as specified government maintenance vehicles were observed during the site inspection filling pot holes. It is understood that a 5% levy on the mining company will be made by the government, in addition to taxes and that at the government's discretion, this money could be used to improve the local roads.

5.2 Residual Impacts

There no residual impacts anticipated.

5.3 Monitoring Requirements

In order to ensure the assessed status of the development remains valid, the following monitoring is required:

- Traffic surveys to be conducted during cocoa harvest once every 3 years to assess whether or not any traffic growth has occurred, or whether traffic flow profiles have significantly altered;
- A review of traffic accident data along the A6, between Yamoussoukro and Bouafle;
- A review of staff movements and mode of travel to be conducted every 3 years to assess whether any significant changes may have occurred;
- A review of delivery frequencies and volumes to occur annually to ensure the assumed delivery numbers remain valid;
- A record of any traffic accidents that involve employees, sub-consultants or suppliers. This information will be reviewed annually to identify any potential mitigation measures that may be required;
- A bi-annual inspection of the condition of the principal access route to identify maintenance requirements;
- An annual inspection of the condition of the new roads between Begbessou/ Angovia and the site to identify maintenance requirements.

6.0 SUMMARY AND CONCLUSION

This study has reviewed and assessed the likely impact of the proposed mine on local communities, vulnerable road users and non-vulnerable road users in terms of the environmental effects linked with increases in road traffic.

A review of local highway safety data was undertaken, which revealed that all recorded accidents were attributable to driver/pedestrian error and not to a defect in the design or maintenance of the highway network.

An access route appraisal was conducted during the site inspection, which identified the most suitable access arrangements. It was concluded that the unpaved access roads that route between Bouafle and Angovia and between Bozi-Yaour and Angovia, via Alley were unsuitable due to their condition and use as local village access routes. The paved road route along the eastern side of the Bandama River was considered to be most suitable and would be accessed via the strategic A6.

It was identified that potholing and some general degradation were present along both the paved highway and the A6, which could be addressed by the government using funds levied from the mining company.

Fully classified traffic surveys were conducted by local enumerators for two separate weeks during the November/December 2014 cocoa harvest and the April 2015 cocoa harvest. The surveys were analysed to identify key trends and patterns. It was established that local unpaved routes are heavily utilised by pedestrians and two-wheelers, with very low levels of cars, LGVs, HGVs and agricultural vehicles. Along the paved roads and roads within Bouafle, excluding the A6, a high proportion of pedestrians and two-wheelers is still evident, however the volume of motorised vehicles is greater.

On the A6, the proportion of pedestrians is relatively low, with motorised vehicles making up the majority of the recorded flows. Patterns in the daily flows are limited to areas of Bouafle and around the mine site, where commuter based trips are apparent, with distinctive morning and evening peak periods identified.

In the vicinity of the mine site, these commuter trips are attributed to the local artisanal miners who travel to neighbouring dig sites, largely on foot or on a two-wheeler. For this reason, it is advised that future traffic should access the site cautiously.

An assessment of the environmental effects of the mine on local communities, vulnerable and non-vulnerable road users was undertaken using the IEMA guidelines. It was concluded that the low generation of traffic during operation would have a negligible impact on the key environment effects associated with increases in traffic.

6.1 Gap Analysis

Information on the delivery of hazardous loads was unavailable and as such no consideration to these has been given.

6.2 Conclusion

From the information made available, it is concluded that the traffic and transportation as a result of the proposed development is unlikely to cause detriment to existing local road users and communities. The proposed access into the site is considered to be best available option, and the least disruptive to surrounding villages.

7.0 REFERENCES

- Design Manual for Roads and Bridges TA 46/97: '*Traffic Flow Ranges for Use in the Assessment of New Rural Roads*'
- Design Manual for Roads and Bridges TD 42/95 '*Geometric Design of Major/Minor Priority Junctions*'
- Institute of Environmental Management and Assessment (1993) '*Guidance Notes No. 1: Guidelines for the Environmental Assessment of Road Traffic*'. Horncastle: IEMA.

Annex 1: Traffic Accident Data

2024-05

Date		1. 1st Quarter				2. 2nd Quarter				3. 3rd Quarter				4. 4th Quarter					
Year	Month	Day	Hour	Minute	Day	Hour	Minute	Day	Hour	Minute	Day	Hour	Minute	Day	Hour	Minute	Day	Hour	Minute
2024	05	01	00	00	01	00	00	02	00	00	03	00	00	04	00	00	05	00	00
2024	05	02	00	00	01	00	00	02	00	00	03	00	00	04	00	00	05	00	00
2024	05	03	00	00	01	00	00	02	00	00	03	00	00	04	00	00	05	00	00
2024	05	04	00	00	01	00	00	02	00	00	03	00	00	04	00	00	05	00	00
2024	05	05	00	00	01	00	00	02	00	00	03	00	00	04	00	00	05	00	00
2024	05	06	00	00	01	00	00	02	00	00	03	00	00	04	00	00	05	00	00
2024	05	07	00	00	01	00	00	02	00	00	03	00	00	04	00	00	05	00	00
2024	05	08	00	00	01	00	00	02	00	00	03	00	00	04	00	00	05	00	00
2024	05	09	00	00	01	00	00	02	00	00	03	00	00	04	00	00	05	00	00
2024	05	10	00	00	01	00	00	02	00	00	03	00	00	04	00	00	05	00	00
2024	05	11	00	00	01	00	00	02	00	00	03	00	00	04	00	00	05	00	00
2024	05	12	00	00	01	00	00	02	00	00	03	00	00	04	00	00	05	00	00
2024	05	13	00	00	01	00	00	02	00	00	03	00	00	04	00	00	05	00	00
2024	05	14	00	00	01	00	00	02	00	00	03	00	00	04	00	00	05	00	00
2024	05	15	00	00	01	00	00	02	00	00	03	00	00	04	00	00	05	00	00
2024	05	16	00	00	01	00	00	02	00	00	03	00	00	04	00	00	05	00	00
2024	05	17	00	00	01	00	00	02	00	00	03	00	00	04	00	00	05	00	00
2024	05	18	00	00	01	00	00	02	00	00	03	00	00	04	00	00	05	00	00
2024	05	19	00	00	01	00	00	02	00	00	03	00	00	04	00	00	05	00	00
2024	05	20	00	00	01	00	00	02	00	00	03	00	00	04	00	00	05	00	00
2024	05	21	00	00	01	00	00	02	00	00	03	00	00	04	00	00	05	00	00
2024	05	22	00	00	01	00	00	02	00	00	03	00	00	04	00	00	05	00	00
2024	05	23	00	00	01	00	00	02	00	00	03	00	00	04	00	00	05	00	00
2024	05	24	00	00	01	00	00	02	00	00	03	00	00	04	00	00	05	00	00
2024	05	25	00	00	01	00	00	02	00	00	03	00	00	04	00	00	05	00	00
2024	05	26	00	00	01	00	00	02	00	00	03	00	00	04	00	00	05	00	00
2024	05	27	00	00	01	00	00	02	00	00	03	00	00	04	00	00	05	00	00
2024	05	28	00	00	01	00	00	02	00	00	03	00	00	04	00	00	05	00	00
2024	05	29	00	00	01	00	00	02	00	00	03	00	00	04	00	00	05	00	00
2024	05	30	00	00	01	00	00	02	00	00	03	00	00	04	00	00	05	00	00
2024	05	31	00	00	01	00	00	02	00	00	03	00	00	04	00	00	05	00	00

2024-05

Date		1. 1st Quarter				2. 2nd Quarter				3. 3rd Quarter				4. 4th Quarter			
Year	Month	Day	Hour	Minute	Day	Hour	Minute	Day	Hour	Minute	Day	Hour	Minute	Day	Hour	Minute	
2024	05	01	00	00	01	00	00	02	00	00	03	00	00	04	00	00	
2024	05	02	00	00	01	00	00	02	00	00	03	00	00	04	00	00	
2024	05	03	00	00	01	00	00	02	00	00	03	00	00	04	00	00	
2024	05	04	00	00	01	00	00	02	00	00	03	00	00	04	00	00	
2024	05	05	00	00	01	00	00	02	00	00	03	00	00	04	00	00	
2024	05	06	00	00	01	00	00	02	00	00	03	00	00	04	00	00	
2024	05	07	00	00	01	00	00	02	00	00	03	00	00	04	00	00	
2024	05	08	00	00	01	00	00	02	00	00	03	00	00	04	00	00	
2024	05	09	00	00	01	00	00	02	00	00	03	00	00	04	00	00	
2024	05	10	00	00	01	00	00	02	00	00	03	00	00	04	00	00	
2024	05	11	00	00	01	00	00	02	00	00	03	00	00	04	00	00	
2024	05	12	00	00	01	00	00	02	00	00	03	00	00	04	00	00	
2024	05	13	00	00	01	00	00	02	00	00	03	00	00	04	00	00	
2024	05	14	00	00	01	00	00	02	00	00	03	00	00	04	00	00	
2024	05	15	00	00	01	00	00	02	00	00	03	00	00	04	00	00	
2024	05	16	00	00	01	00	00	02	00	00	03	00	00	04	00	00	
2024	05	17	00	00	01	00	00	02	00	00	03	00	00	04	00	00	
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2024	05	23	00	00	01	00	00	02	00	00	03	00	00	04	00	00	
2024	05	24	00	00	01	00	00	02	00	00	03	00	00	04	00	00	
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2024	05	27	00	00	01	00	00	02	00	00	03	00	00	04	00	00	
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2024	05	29	00	00	01	00	00	02	00	00	03	00	00	04	00	00	
2024	05	30	00	00	01	00	00	02	00	00	03	00	00	04	00	00	
2024	05	31	00	00	01	00	00	02	00	00	03	00	00	04	00	00	

02.10.19

Сводный баланс																																
№ п/п	Счета 01				Счета 02				Счета 03				Счета 04				Счета 05				Счета 06				Счета 07				Счета 08			
№ п/п	наименование	контр-партнер	сумма	сумма	наименование	контр-партнер	сумма	сумма	наименование	контр-партнер	сумма	сумма	наименование	контр-партнер	сумма	сумма	наименование	контр-партнер	сумма	сумма	наименование	контр-партнер	сумма	сумма	наименование	контр-партнер	сумма	сумма	наименование	контр-партнер	сумма	сумма
01	01.01				02.01				03.01				04.01				05.01				06.01				07.01				08.01			
02	01.02				02.02				03.02				04.02				05.02				06.02				07.02				08.02			
03	01.03				02.03				03.03				04.03				05.03				06.03				07.03				08.03			
04	01.04				02.04				03.04				04.04				05.04				06.04				07.04				08.04			
05	01.05				02.05				03.05				04.05				05.05				06.05				07.05				08.05			
06	01.06				02.06				03.06				04.06				05.06				06.06				07.06				08.06			
07	01.07				02.07				03.07				04.07				05.07				06.07				07.07				08.07			
08	01.08				02.08				03.08				04.08				05.08				06.08				07.08				08.08			
09	01.09				02.09				03.09				04.09				05.09				06.09				07.09				08.09			
10	01.10				02.10				03.10				04.10				05.10				06.10				07.10				08.10			
11	01.11				02.11				03.11				04.11				05.11				06.11				07.11				08.11			
12	01.12				02.12				03.12				04.12				05.12				06.12				07.12				08.12			
13	01.13				02.13				03.13				04.13				05.13				06.13				07.13				08.13			
14	01.14				02.14				03.14				04.14				05.14				06.14				07.14				08.14			
15	01.15				02.15				03.15				04.15				05.15				06.15				07.15				08.15			
16	01.16				02.16				03.16				04.16				05.16				06.16				07.16				08.16			
17	01.17				02.17				03.17				04.17				05.17				06.17				07.17				08.17			
18	01.18				02.18				03.18				04.18				05.18				06.18				07.18				08.18			
19	01.19				02.19				03.19				04.19				05.19				06.19				07.19				08.19			
20	01.20				02.20				03.20				04.20				05.20				06.20				07.20				08.20			
21	01.21				02.21				03.21				04.21				05.21				06.21				07.21				08.21			
22	01.22				02.22				03.22				04.22				05.22				06.22				07.22				08.22			
23	01.23				02.23				03.23				04.23				05.23				06.23				07.23				08.23			
24	01.24				02.24				03.24				04.24				05.24				06.24				07.24				08.24			
25	01.25				02.25				03.25				04.25				05.25				06.25				07.25				08.25			
26	01.26				02.26				03.26				04.26				05.26				06.26				07.26				08.26			
27	01.27				02.27				03.27				04.27				05.27				06.27				07.27				08.27			
28	01.28				02.28				03.28				04.28				05.28				06.28				07.28				08.28			
29	01.29				02.29				03.29				04.29				05.29				06.29				07.29				08.29			
30	01.30				02.30				03.30				04.30				05.30				06.30				07.30				08.30			
31	01.31				02.31				03.31				04.31				05.31				06.31				07.31				08.31			

2016.05

Date	A. Income Statement				B. Balance Sheet				C. Statement of Cash Flows				D. Statement of Retained Earnings			
	Revenue	Cost of Sales	Operating Expenses	Income Before Tax	Assets	Liabilities	Equity	Net Change	Operating	Investing	Financing	Net Change	Beginning Balance	Net Change	Ending Balance	
01/01/2016	1000	600	200	200	1000	200	800						800		800	
01/02/2016	1000	600	200	200	1000	200	800						800		800	
01/03/2016	1000	600	200	200	1000	200	800						800		800	
01/04/2016	1000	600	200	200	1000	200	800						800		800	
01/05/2016	1000	600	200	200	1000	200	800						800		800	
01/06/2016	1000	600	200	200	1000	200	800						800		800	
01/07/2016	1000	600	200	200	1000	200	800						800		800	
01/08/2016	1000	600	200	200	1000	200	800						800		800	
01/09/2016	1000	600	200	200	1000	200	800						800		800	
01/10/2016	1000	600	200	200	1000	200	800						800		800	
01/11/2016	1000	600	200	200	1000	200	800						800		800	
01/12/2016	1000	600	200	200	1000	200	800						800		800	
01/13/2016	1000	600	200	200	1000	200	800						800		800	
01/14/2016	1000	600	200	200	1000	200	800						800		800	
01/15/2016	1000	600	200	200	1000	200	800						800		800	
01/16/2016	1000	600	200	200	1000	200	800						800		800	
01/17/2016	1000	600	200	200	1000	200	800						800		800	
01/18/2016	1000	600	200	200	1000	200	800						800		800	
01/19/2016	1000	600	200	200	1000	200	800						800		800	
01/20/2016	1000	600	200	200	1000	200	800						800		800	
01/21/2016	1000	600	200	200	1000	200	800						800		800	
01/22/2016	1000	600	200	200	1000	200	800						800		800	
01/23/2016	1000	600	200	200	1000	200	800						800		800	
01/24/2016	1000	600	200	200	1000	200	800						800		800	
01/25/2016	1000	600	200	200	1000	200	800						800		800	
01/26/2016	1000	600	200	200	1000	200	800						800		800	
01/27/2016	1000	600	200	200	1000	200	800						800		800	
01/28/2016	1000	600	200	200	1000	200	800						800		800	
01/29/2016	1000	600	200	200	1000	200	800						800		800	
01/30/2016	1000	600	200	200	1000	200	800						800		800	
01/31/2016	1000	600	200	200	1000	200	800						800		800	
02/01/2016	1000	600	200	200	1000	200	800						800		800	
02/02/2016	1000	600	200	200	1000	200	800						800		800	
02/03/2016	1000	600	200	200	1000	200	800						800		800	
02/04/2016	1000	600	200	200	1000	200	800						800		800	
02/05/2016	1000	600	200	200	1000	200	800						800		800	
02/06/2016	1000	600	200	200	1000	200	800						800		800	
02/07/2016	1000	600	200	200	1000	200	800						800		800	
02/08/2016	1000	600	200	200	1000	200	800						800		800	
02/09/2016	1000	600	200	200	1000	200	800						800		800	
02/10/2016	1000	600	200	200	1000	200	800						800		800	
02/11/2016	1000	600	200	200	1000	200	800						800		800	
02/12/2016	1000	600	200	200	1000	200	800						800		800	
02/13/2016	1000	600	200	200	1000	200	800						800		800	
02/14/2016	1000	600	200	200	1000	200	800						800		800	
02/15/2016	1000	600	200	200	1000	200	800						800		800	
02/16/2016	1000	600	200	200	1000	200	800						800		800	
02/17/2016	1000	600	200	200	1000	200	800						800		800	
02/18/2016	1000	600	200	200	1000	200	800						800		800	
02/19/2016	1000	600	200	200	1000	200	800						800		800	
02/20/2016	1000	600	200	200	1000	200	800						800		800	
02/21/2016	1000	600	200	200	1000	200	800						800		800	
02/22/2016	1000	600	200	200	1000	200	800						800		800	
02/23/2016	1000	600	200	200	1000	200	800						800		800	
02/24/2016	1000	600	200	200	1000	200	800						800		800	
02/25/2016	1000	600	200	200	1000	200	800						800		800	
02/26/2016	1000	600	200	200	1000	200	800						800		800	
02/27/2016	1000	600	200	200	1000	200	800						800		800	
02/28/2016	1000	600	200	200	1000	200	800						800		800	
02/29/2016	1000	600	200	200	1000	200	800						800		800	
03/01/2016	1000	600	200	200	1000	200	800						800		800	

2024-05

Date		1. 1st Quarter				2. 2nd Quarter				3. 3rd Quarter				4. 4th Quarter			
Year	Month	Day	Hour	Minute	Day	Hour	Minute	Day	Hour	Minute	Day	Hour	Minute	Day	Hour	Minute	
2024	05	01	00	00	01	00	00	02	00	00	03	00	00	04	00	00	
2024	05	02	00	00	01	00	00	02	00	00	03	00	00	04	00	00	
2024	05	03	00	00	01	00	00	02	00	00	03	00	00	04	00	00	
2024	05	04	00	00	01	00	00	02	00	00	03	00	00	04	00	00	
2024	05	05	00	00	01	00	00	02	00	00	03	00	00	04	00	00	
2024	05	06	00	00	01	00	00	02	00	00	03	00	00	04	00	00	
2024	05	07	00	00	01	00	00	02	00	00	03	00	00	04	00	00	
2024	05	08	00	00	01	00	00	02	00	00	03	00	00	04	00	00	
2024	05	09	00	00	01	00	00	02	00	00	03	00	00	04	00	00	
2024	05	10	00	00	01	00	00	02	00	00	03	00	00	04	00	00	
2024	05	11	00	00	01	00	00	02	00	00	03	00	00	04	00	00	
2024	05	12	00	00	01	00	00	02	00	00	03	00	00	04	00	00	
2024	05	13	00	00	01	00	00	02	00	00	03	00	00	04	00	00	
2024	05	14	00	00	01	00	00	02	00	00	03	00	00	04	00	00	
2024	05	15	00	00	01	00	00	02	00	00	03	00	00	04	00	00	
2024	05	16	00	00	01	00	00	02	00	00	03	00	00	04	00	00	
2024	05	17	00	00	01	00	00	02	00	00	03	00	00	04	00	00	
2024	05	18	00	00	01	00	00	02	00	00	03	00	00	04	00	00	
2024	05	19	00	00	01	00	00	02	00	00	03	00	00	04	00	00	
2024	05	20	00	00	01	00	00	02	00	00	03	00	00	04	00	00	
2024	05	21	00	00	01	00	00	02	00	00	03	00	00	04	00	00	
2024	05	22	00	00	01	00	00	02	00	00	03	00	00	04	00	00	
2024	05	23	00	00	01	00	00	02	00	00	03	00	00	04	00	00	
2024	05	24	00	00	01	00	00	02	00	00	03	00	00	04	00	00	
2024	05	25	00	00	01	00	00	02	00	00	03	00	00	04	00	00	
2024	05	26	00	00	01	00	00	02	00	00	03	00	00	04	00	00	
2024	05	27	00	00	01	00	00	02	00	00	03	00	00	04	00	00	
2024	05	28	00	00	01	00	00	02	00	00	03	00	00	04	00	00	
2024	05	29	00	00	01	00	00	02	00	00	03	00	00	04	00	00	
2024	05	30	00	00	01	00	00	02	00	00	03	00	00	04	00	00	
2024	05	31	00	00	01	00	00	02	00	00	03	00	00	04	00	00	

05.10.16

General Ledger																			
1. General Balance				2. General Balance				3. General Balance				4. General Balance				5. General Balance			
Year	Month	Balance	Debit	Credit	Year	Month	Balance	Debit	Credit	Year	Month	Balance	Debit	Credit	Year	Month	Balance	Debit	Credit
2016	12					12					12					12			
2016	11					11					11					11			
2016	10					10					10					10			
2016	09					09					09					09			
2016	08					08					08					08			
2016	07					07					07					07			
2016	06					06					06					06			
2016	05					05					05					05			
2016	04					04					04					04			
2016	03					03					03					03			
2016	02					02					02					02			
2016	01					01					01					01			
2015	12					12					12					12			
2015	11					11					11					11			
2015	10					10					10					10			
2015	09					09					09					09			
2015	08					08					08					08			
2015	07					07					07					07			
2015	06					06					06					06			
2015	05					05					05					05			
2015	04					04					04					04			
2015	03					03					03					03			
2015	02					02					02					02			
2015	01					01					01					01			
2014	12					12					12					12			
2014	11					11					11					11			
2014	10					10					10					10			
2014	09					09					09					09			
2014	08					08					08					08			
2014	07					07					07					07			
2014	06					06					06					06			
2014	05					05					05					05			
2014	04					04					04					04			
2014	03					03					03					03			
2014	02					02					02					02			
2014	01					01					01					01			

Дата	1. Январь					2. Февраль					3. Март					4. Апрель					5. Май					6. Июнь																																																																																																																																																																																																																																																																																																																																																		
Суббота	Воскресенье	Понедельник	Вторник	Среда	Четверг	Суббота	Воскресенье	Понедельник	Вторник	Среда	Четверг	Суббота	Воскресенье	Понедельник	Вторник	Среда	Четверг	Суббота	Воскресенье	Понедельник	Вторник	Среда	Четверг	Суббота	Воскресенье	Понедельник	Вторник	Среда	Четверг	Суббота	Воскресенье	Понедельник	Вторник	Среда	Четверг	Суббота	Воскресенье	Понедельник	Вторник	Среда	Четверг	Суббота	Воскресенье																																																																																																																																																																																																																																																																																																																																	
01.01.16	02.01.16	03.01.16	04.01.16	05.01.16	06.01.16	07.01.16	08.01.16	09.01.16	10.01.16	11.01.16	12.01.16	13.01.16	14.01.16	15.01.16	16.01.16	17.01.16	18.01.16	19.01.16	20.01.16	21.01.16	22.01.16	23.01.16	24.01.16	25.01.16	26.01.16	27.01.16	28.01.16	29.01.16	30.01.16	31.01.16	01.02.16	02.02.16	03.02.16	04.02.16	05.02.16	06.02.16	07.02.16	08.02.16	09.02.16	10.02.16	11.02.16	12.02.16	13.02.16	14.02.16	15.02.16	16.02.16	17.02.16	18.02.16	19.02.16	20.02.16	21.02.16	22.02.16	23.02.16	24.02.16	25.02.16	26.02.16	27.02.16	28.02.16	01.03.16	02.03.16	03.03.16	04.03.16	05.03.16	06.03.16	07.03.16	08.03.16	09.03.16	10.03.16	11.03.16	12.03.16	13.03.16	14.03.16	15.03.16	16.03.16	17.03.16	18.03.16	19.03.16	20.03.16	21.03.16	22.03.16	23.03.16	24.03.16	25.03.16	26.03.16	27.03.16	28.03.16	29.03.16	30.03.16	31.03.16	01.04.16	02.04.16	03.04.16	04.04.16	05.04.16	06.04.16	07.04.16	08.04.16	09.04.16	10.04.16	11.04.16	12.04.16	13.04.16	14.04.16	15.04.16	16.04.16	17.04.16	18.04.16	19.04.16	20.04.16	21.04.16	22.04.16	23.04.16	24.04.16	25.04.16	26.04.16	27.04.16	28.04.16	29.04.16	30.04.16	01.05.16	02.05.16	03.05.16	04.05.16	05.05.16	06.05.16	07.05.16	08.05.16	09.05.16	10.05.16	11.05.16	12.05.16	13.05.16	14.05.16	15.05.16	16.05.16	17.05.16	18.05.16	19.05.16	20.05.16	21.05.16	22.05.16	23.05.16	24.05.16	25.05.16	26.05.16	27.05.16	28.05.16	29.05.16	30.05.16	31.05.16	01.06.16	02.06.16	03.06.16	04.06.16	05.06.16	06.06.16	07.06.16	08.06.16	09.06.16	10.06.16	11.06.16	12.06.16	13.06.16	14.06.16	15.06.16	16.06.16	17.06.16	18.06.16	19.06.16	20.06.16	21.06.16	22.06.16	23.06.16	24.06.16	25.06.16	26.06.16	27.06.16	28.06.16	29.06.16	30.06.16	01.07.16	02.07.16	03.07.16	04.07.16	05.07.16	06.07.16	07.07.16	08.07.16	09.07.16	10.07.16	11.07.16	12.07.16	13.07.16	14.07.16	15.07.16	16.07.16	17.07.16	18.07.16	19.07.16	20.07.16	21.07.16	22.07.16	23.07.16	24.07.16	25.07.16	26.07.16	27.07.16	28.07.16	29.07.16	30.07.16	31.07.16	01.08.16	02.08.16	03.08.16	04.08.16	05.08.16	06.08.16	07.08.16	08.08.16	09.08.16	10.08.16	11.08.16	12.08.16	13.08.16	14.08.16	15.08.16	16.08.16	17.08.16	18.08.16	19.08.16	20.08.16	21.08.16	22.08.16	23.08.16	24.08.16	25.08.16	26.08.16	27.08.16	28.08.16	29.08.16	30.08.16	31.08.16	01.09.16	02.09.16	03.09.16	04.09.16	05.09.16	06.09.16	07.09.16	08.09.16	09.09.16	10.09.16	11.09.16	12.09.16	13.09.16	14.09.16	15.09.16	16.09.16	17.09.16	18.09.16	19.09.16	20.09.16	21.09.16	22.09.16	23.09.16	24.09.16	25.09.16	26.09.16	27.09.16	28.09.16	29.09.16	30.09.16	01.10.16	02.10.16	03.10.16	04.10.16	05.10.16	06.10.16	07.10.16	08.10.16	09.10.16	10.10.16	11.10.16	12.10.16	13.10.16	14.10.16	15.10.16	16.10.16	17.10.16	18.10.16	19.10.16	20.10.16	21.10.16	22.10.16	23.10.16	24.10.16	25.10.16	26.10.16	27.10.16	28.10.16	29.10.16	30.10.16	31.10.16	01.11.16	02.11.16	03.11.16	04.11.16	05.11.16	06.11.16	07.11.16	08.11.16	09.11.16	10.11.16	11.11.16	12.11.16	13.11.16	14.11.16	15.11.16	16.11.16	17.11.16	18.11.16	19.11.16	20.11.16	21.11.16	22.11.16	23.11.16	24.11.16	25.11.16	26.11.16	27.11.16	28.11.16	29.11.16	30.11.16	01.12.16	02.12.16	03.12.16	04.12.16	05.12.16	06.12.16	07.12.16	08.12.16	09.12.16	10.12.16	11.12.16	12.12.16	13.12.16	14.12.16	15.12.16	16.12.16	17.12.16	18.12.16	19.12.16	20.12.16	21.12.16	22.12.16	23.12.16	24.12.16	25.12.16	26.12.16	27.12.16	28.12.16	29.12.16	30.12.16	31.12.16

