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CONSULTING SERVICES FOR STUDY OF FREIGHT TRANSPORT IN GREATER ACCRA METROPOLITAN AREA

FINAL REPORT

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ACRONYMS AND ABBREVIATIONS

AdMA	Adentan Municipal Assembly
AfDB	African Development Bank
ADT	Average Daily Traffic
AEDA	Ada East District Assembly
AshMA	Ashaiman Municipal Assembly
AMA	Accra Metropolitan Assembly
AWDA	Ada West District Assembly
CAPI	Computer-Assisted Personal Interview
CBD	Central Business District
DoT	Department of Transport
DUR	Department of Urban Roads
GAMA	Greater Accra Metropolitan Area
GWMA	Ga West Municipal Assembly
GEMA	Ga East Municipal Assembly
GCMA	Ga Central Municipal Assembly
GHA	Ghana Highway Authority
GHACEM	Ghana Cement Company
GPHA	Ghana Ports and Harbours Authority
GPRTU	Ghana Private Road Transport Union
GRDA	Ghana Railway Development Authority
GUMAP	Ghana Urban Mobility and Accessibility Project
GSMA	Ga South Municipal Assembly
JAPTU	Joint Association of Port Transport Union
KKDA	Kpone Katamanso District Assembly
KMA	Kumasi Metropolitan Assembly
KOICA	Korea International Cooperation Agency
LaDMA	La Dade-Kotopon Municipal Assembly
LeKMA	Ledzokuku Krowor Municipal Assembly
LaNMMA	La-Nkwantanang-Madina Municipal Assembly

MLGRD	Ministry of Local Government and Rural Development
MMDA	Metropolitan, Municipal and District Assemblies
MOI	Ministry of Information
NiPDA	Ningo-Prampram District Assembly
NDPC	National Development Planning Commission
NTP	National Transport Policy
PPP	Public Private Partnership
RCC	Regional Coordinating Council
SODA	Shai-Osudoku District Assembly
TMA	Tema Metropolitan Assembly
TOR	Tema Oil Refinery
ToR	Terms of Reference
VALCO	Volta Aluminium Company Limited
VOC	Vehicle Operating Cost
WPs	Work Packages

EXECUTIVE SUMMARY

1. The major objectives of this study of freight transport within GAMA are: to assemble all relevant information and legislature as well as regulations on urban freight traffic within the GAMA. In addition, it sets out to identify and map all major generators and attractors of freight traffic within GAMA, as well as the routes used, together with a typology of problems created, where feasible. Finally, as a logical follow up to these objectives, the study proffers potential solutions to the identified problems and prepares a freight transport strategy for the study area.

2. The GAMA has been variously defined but for purposes of this study and from an operational perspective, GAMA was defined as the spatial extent of AMA and the TMA together with all adjoining MMDAs that have major road arterials linking them to Accra/Tema and the volume of freight traffic generated from, or attracted to, an MMDA within the Greater Accra Region. Consequently, the GAMA includes the following 12 MMDAs out of the 16 MMDAs in Greater Accra Region. These 12 MMDAs are: Accra Metropolitan Assembly (AMA), Tema Metropolitan Assembly (TMA), Ga West Municipal Assembly (GWMA), Ga East Municipal Assembly (GEMA), Ga South Municipal Assembly (GSMA), Ga Central Municipal Assembly (GCMA), Adentan Municipal Assembly (AdMA), Ashaiman Municipal Assembly (AshMA), La Dade-Kotopon Assembly (LaDMA), Ledzokuku Krowor Municipal Assembly (LeKMA), La Nkwantanang Madina Municipal Assembly (LaNMMA), and Kpone Katamanso Municipal Assembly (KKMA).

3. Data for this study were gathered from relevant secondary sources, surveys of freight vehicle operators travelling to and from GAMA, interviews of market women, random interview of pedestrians around markets and industrialists. Area-wide Origin and Destination traffic surveys as well as screen line counts were also undertaken. Physical Planning and Transport Departments of the MMDAs (where available) as well as a purposeful selection of stakeholder institutions. Most importantly, proceedings from Workshops organized specifically for the dissemination of the study findings also serve as a veritable source of information.

4. Review of relevant secondary materials revealed that inadequate number and quality of staff in various MMDAs could hamper freight transport planning. For example, the TMA has only 158 staff and four planners for its estimated 350,000 inhabitants. In addition, it is estimated that only one-half of the staff are adequately trained which is below technical staff required. In addition

to all these, the MMDAs also face financial challenges and the transfers from Central Government are inadequate and unpredictable. All these make long-term strategic city-planning in GAMA extremely difficult, let alone strategic planning for freight transport within the same area.

5. Relevant national transport policy documents including: *The Transport Master Plan Project in Greater Accra Region*, *Railway Master Plan of Ghana-Urban Transport Issues*, and the *National Transport Policy* were reviewed. What is important for this study is that the Liberation Road, Nsawam Road, Winneba Road and the Accra-Tema Motorway have exceeded their capacities in terms of the Average Daily Traffic volumes. Traffic Congestion has even spread to other contiguous roads (distributors and collectors) which are not well maintained and developed to carry the excess traffic from the main arterials. It is estimated that Average Daily Traffic Volume of between 1.3-2.2 million vehicles/day and between 7.1 to 11.2 million passengers/day are also recorded. Average peak hour traffic flows are about 150,000 vehicles per hour and between 607, 927 and 949,886 passengers per hour.

6. The traffic surveys revealed that, on the access roads into GAMA the volumes are in the order of 70,000 vehicles per day; 19.2% of which comprises freight vehicles. This proportion may be lower than expected because the arrival and departure times are usually at dawn, morning and late afternoon. The distribution of freight vehicles was disproportionately distributed but was estimated to be between 15% to about 20% of the total traffic volume on all the roads with the lowest percentage being 10% most of which were destined for major markets and industrial sites.

7. The distribution of freight and their volumes are as follows: agricultural products and general cargo (54%) of total freight, bagged cargo (38%), and containerized cargo (5%). The remaining commodities- conventional goods, dry cargo, books and stationery, frozen cargo, iron, steel and pallets constituted 3%. Most, or virtually, all of these cargoes are transported using road networks within GAMA, from their various origins and contribute significantly to the traffic congestion situation in Accra.

8. From the market surveys, all the food crops are meant for local consumption and are mostly transported from northern Ghana. In general, the movement of most freight is by road transport and the situation in GAMA reflects the general situation within the region. GAMA's railway route is 55km (Accra – Tema route is 30.2 km and Accra-Nsawam is 24.9km) and these two routes operate only commuter services and hardly attract any significant freight traffic. Until

the railway network is well developed, road transport will remain the dominant mode for freight transport movements.

9. There are incidences of overloading of freight vehicles within GAMA and 2017 data provided by the Ghana Highway Authority (GHA) revealed that at Doboro Axle Load Station, based on their axle configuration, about 14% of all vehicles are overloaded. This was particularly for import traffic to Burkina Faso, Niger and Mali. The relevance is that they slow down traffic from the Tema Harbour area on to the N6 moving northwards.

10. A review of the laws governing physical development in the MMDAs revealed that there are as many as 15 statutory provisions in the various bye laws of MMDAs that are relevant for dealing with problems of freight vehicles. These include the bye laws on the preparation of transport plans, demarcation of dedicated areas for sale of goods in the markets, unauthorized parking being an offence as well as keeping faulty vehicles on the street for more than two hours. Others include the designation of routes, parking places and terminals for drivers. In addition to these bye laws, there are other relevant national laws including the *Land Use and Spatial Planning Act, 2016*, *National Development Planning Commission Act 479*, the *National Building Regulations (Building Code) L.I 1630* and the *National Housing Policy, 2015*. In spite of all these legal instruments, there are still infractions in respect of where freight vehicles can park and off load goods from vehicles on streets outside the terminals. The study, therefore, infers that MMDAs have sufficient regulations some of which are reviewed from time to time. Instead of the introduction of new pieces of legislation on such matters, what is required would be stricter adherence to these laws and their enforcement.

11. All the MMDAs are statutorily required to have full complement of staff in their Legal Departments but the surveys revealed that apart from the AMA and TMA, all the other MMDAs do not have lawyers and full complement of staff in their Legal Departments. When this is juxtaposed against the high incidence of infractions of road traffic laws, then this could be imputed to mean that the infractions may be because offending parties are not prosecuted. Once the Security Guards' capacities are also built then they will be strengthened and can work together with the Legal Department to ensure compliance.

12. Results of the surveys conducted on the views of stakeholders including vehicle operators, assistants, market women / traders, industrialists, manufacturers, and pedestrians regarding

which areas need immediate action revealed that the limited ancillary facilities, unpaved and limited parking areas, inability to enforce MMDAs' bye laws, high tariffs for the use of designated facilities, overloading as well as security of persons and freight together with the unregulated/restricted periods for freight delivery are issues to be tackled. This implies that the resolution of these major issues will ease the problems faced by freight vehicle operators and facilitate their trips as they move to and from their origins and destinations respectively.

13. There are a number of ancillary facilities required by freight vehicle operators and their assistants as they patronize various vehicle terminals and while waiting to discharge their goods or waiting for return payload. These facilities include: paving of the terminals, security of vehicles, washrooms, mosques, clinics and mechanical shops. These were common needs of freight vehicle operators and their assistants throughout the GAMA. Some market women suggested relocation of various vehicle terminals and some freight vehicle operators suggested relocation of markets to ease congestion but no vehicle operator suggested relocation of their terminals and no market woman suggested relocation of their markets or traders.

14. Strictly in line with the problems encountered by stakeholders in the use of various terminal facilities and related issues, mitigation measures were suggested including: enforcement of traffic regulations, provision and development of alternative access roads for freight vehicles and provision of parking terminals where appropriate. Other mitigation measures were provision of ancillary facilities such as public places of convenience and bulk breaking points for various commodities. Designation of truck routes and limiting hours for truck movements to the CBD to discharge goods were also suggested together with the preparation of traffic plans for sensitive areas.

15. A freight transport strategy for GAMA and action plan for implementation have also been prepared. These strategies are meant to achieve the overall goal of an efficient transportation of freight and its related activities within GAMA in response to the impact areas identified from the study. More specifically, they are meant to address areas such as inadequate parking spaces, encroachment of roadway by market women, unpaved parking areas and unrestricted period for freight delivery. The various strategies have also been outlined into short (Less than two years), medium (three to five years) and long (more than five years) term with an appropriate role-casting matrix indicating who would be required to take the various actions, when it should be implemented and the estimated cost involved.

16. In the short term, measures including an assessment of freight vehicle parking areas in GAMA, publicity and education on bye-laws in various MMDAs, strict enforcement of relevant laws and regulations as well as bye-laws related to freight transportation and routine maintenance of selected roads in GAMA were proposed. Medium term proposals include: construction of freight parking terminals and complementary facilities, designation of truck movement hours and drawing up of traffic plans for sensitive areas in each MMDA. For the long term, it has been proposed that freight traffic assignment to alternative routes, construction of freight truck holding bays along major entry routes into GAMA and construction of new critical road links across GAMA by the Ghana Highway Authority are pursued.

17. It is anticipated that implementation of the strategies outlined in this report will gradually ease the problem of freight vehicles and the traffic problems they cause. However, they must be monitored and the various components coordinated to ensure the plan's success. The role of the PCU is of utmost importance in seeing to the success of implementing the proposed strategies.

1.0 INTRODUCTION

1.1 Study Background

A major function of all human settlements, including the large cities, is to provide access and mobility to people who live within their spheres of influence of services and facilities located within them. In other words, there is no need to duplicate the same higher order services and facilities in all human settlements. Consequently, both residents living in the large urban areas such as Accra and those who live outside the metropolitan area should have unimpeded access to higher order services located within the city or any of its adjoining areas. Previously, this was what characterized the Greater Accra Metropolitan Area (GAMA) to the extent that even those who lived outside the Area could still access such critical and higher order services with considerable ease.

The foregoing scenario has changed and the GAMA is now characterized by long travel times, congested streets with long vehicular queues, degraded environment virtually filled with exhaust fumes and, in general, all trips have become a little more hazardous than they used to be about a decade ago. A major contributory factor to the above situation appears to be the relatively high proportion of freight vehicles of all kinds moving from major traffic generators, both within and outside the city, to major traffic attractors, such as, markets, warehouses, industrial areas and factories. There is a strongly held assertion that, a deeper understanding of this phenomenon is critical to an appreciation of the problem of traffic in the GAMA, including all its Metropolitan, Municipal and District Assemblies. This is important because if it is not handled properly, it could affect productivity adversely because of the several productive man-hours lost in traffic queues when travelling between any origin and destination.

Also, critical to an understanding of the problem of congestion in the GAMA is the delicate relationship between land use and traffic demand. It is assumed that since traffic or the need for movement is a function of land use, they both work in a symbiotic relationship and therefore the need to tackle both elements. This is underscored by the axiom that; traffic is a function of land use. In other words, the level of vehicular traffic in an area has a direct association with land use categories, their aerial extent and intensity of the land use in that area. In addition, an understanding of the situation and the collection of relevant empirical data would also provide solid bases for public policy regarding the needed interventions. However, critical to this discussion is the spatial extent of the GAMA considering that it is subject to several interpretations.

1.2 Study Objectives

In view of the foregoing situation within the GAMA and their implications on the economy in general as well as accessibility and mobility specifically; the main objectives of this study are identified seriatim:

- a. assemble all relevant information, including those from previous studies, on freight transport in the GAMA as well as all related legislation/regulations on urban truck traffic;
- b. identify and map all main generators and attractors of freight traffic in the GAMA together with all their main routes;
- c. identify and document the problems created by freight transport as well as establish a typology of problems where feasible;
- d. document potential solutions to the identified problems (including designated truck routes, improving road infrastructure, limiting hours of truck movements, preparing traffic plans for action areas such as markets, warehouses, large industrial establishments, establishing rules/regulations for parking) and review same with stakeholders; and
- e. preparation of freight transport strategy for the GAMA and an action plan for its implementation.

1.3 Scope of Study

There are two major aspects of the study's scope, namely: the range of variables or aspects of the work to be carried out as well as its geographical extent. The latter is exhaustively discussed under Section 1.4 which deals with the "Study Area – GAMA".

In short, the study was limited to 12 Metropolitan/ Municipal/ District Assemblies constituting GAMA. The scope or extent of work to be carried out is also aptly captured under four main Work Packages (WPs) which are identified as follows:

- a. WP 1 - Data Analysis (Freight Flow Analysis, Review of Regulations and Mapping of Origin/Destination pairs or volumes along each segment of the road network);
- b. WP 2 - Traffic Impact Assessment (Identification and Categorization of Impact Areas as well as Stakeholders Workshop on Impact Area and Problems);
- c. WP 3 - Traffic Mitigation Measures (Definition of Mitigation Measures and Stakeholder Workshop on Mitigation Measures); and,
- d. WP 4 - Freight Traffic Mitigation Action Plan (Description of Mitigation Measures and Implementation Plan).

1.4 Definition of GAMA

In Ghana, a metropolitan area is a human settlement which has a population of more than 250,000 people. A Metropolitan Assembly is created as the pivot of administrative and developmental decision; implying that it is the district and the basic unit of government administration. The Assembly performs deliberative, legislative and executive functions. It is a structure assigned the responsibility for the totality of government to bring about the integration of political, administrative and development support needed to achieve a more equitable allocation of power, wealth, and geographically dispersed development in Ghana. It is constituted as the Planning Authority for the Metropolitan Area.

In 2019, the Greater Accra Metropolitan Area (GAMA) comprised: Accra Metropolitan Assembly (AMA); Tema Metropolitan Assembly (TMA); Ga West Municipal (GWMA); Ga East Municipal Assembly (GEMA); Ga Central Municipal Assembly (GCMA); Ga South Municipal Assembly (GSMA); Ledzokuku Krowor Municipal Assembly (LeKMA); Adentan Municipal Assembly (AdMA); Ashaiman Municipal Assembly (AshMA); La Nkwantanang-Madina Municipal Assembly (LaNMA); La Dade-Kotopon Municipal Assembly (LaDMA); Ada West District Assembly (AWDA); Ada East District Assembly (AEDA); Kpone Katamanso District Assembly (KKDA); Ningo-Prampram District Assembly (NiPDA); and Shai-Osudoku District Assembly (SODA) making a total of 16. In 2011, GAMA was made up of only 8 local government areas. It increased from 8 to 12 in 2012 and from 12 to 16 in 2016 following the creation of new districts in the country. Tables 1.1 and 1.2 show the various local government areas, and estimated populations of their capitals from 1988-2019 while Figure 1.1 shows the spatial extent of the GAMA with its constituent local government areas.

The Greater Accra Metropolitan Area which extends from latitudes 5° 5' 27" N to 5° 28' 2" N and stretches between longitudes 0° 4' 58" E to 0° 37' 2" W along the Atlantic coast is in the southeastern part of Ghana. GAMA has about 4,000,000 inhabitants which makes it the 11th largest metropolitan area in Africa (Akubia, Abubakari & Bruns, 2020). It has an urbanization rate of 4.41% with its main characteristic being its population growth resulting in rapid sprawl of settlements and increasing daily inflow and outflow of both human and vehicular traffic into and out of the metropolis as a result of its commercial and service functions most of which are all concentrated in the Central Business District (CBD) and very few commercial centres. This therefore leads to severe traffic congestion which affects productivity negatively because of the time spent in traffic (Crookes & Ijjasz-Vasquez, 2015). Being the national socio-economic hub

with relatively well-developed infrastructure and services, GAMA attracts migrants from other regions of the country and beyond.

Table 1.1: Composition of GAMA (1988-2011)

MMDA	Capital	Estimated Population
MMDA	Capital	Estimated Population
Accra Metropolitan	Accra	1,665,086
Tema Metropolitan	Tema	292,773
Ga West Municipal	Amasaman	219,788
Ga East Municipal	Abokobi	147,742
Ga South Municipal	Gbawe	411,377
Adenta Municipal	Adenta	78,215
Ashaiman Municipal	Ashaiman	190,972
La Dade-Kotopon Municipal	La	183,528
Total	-	3,189,481

Source: 2010 Population and Housing Census.

Table 1.2: Composition of GAMA (2012-2019)

MMDA	Capital	Estimated Population
Accra Metropolitan	Accra	2,052,341
Tema Metropolitan	Tema	360,828
Ga West Municipal	Amasaman	270,989
Ga East Municipal	Abokobi	182,183
Ga South Municipal	Gbawe	507,192
Ga Central	Sowutuom	144,521
Adenta Municipal	Adenta	96,478
Ashaiman Municipal	Ashaiman	235,465
La Dade-Kotopon Municipal	La	226,148
Ledzokuku/Krowor	Nungua	280,924
La Nkwantanang Madina	Madina	137,975
Kpone Katamanso	Kpone	135,438
Ningo Prampram	Prampram	87,393
Shai Osudoku	Dodowa	64,000
Ada West	Sege	72,880
Ada East	Ada Foah	88,321
Total	-	4,943,076

Source: Ghana Statistical Service, 2019.

For the current study, the GAMA region is defined based on the following criteria:

- Administrative boundary of AMA and TMA;
- Contiguity of MMDAs in relation to AMA and/or TMA;
- Major road connectivity to AMA and/or TMA; and
- Extent of freight traffic movement into and out of AMA and TMA from MMDAs.

Based on these criteria, the physical extent of GAMA encompasses the AMA and TMA as well as contiguous districts that have major arterial connecting them to AMA and TMA and the extent of freight traffic generated from or attracted to an MMDA within the Greater Accra Region. Operationally, GAMA is defined to include 12 out of 16 MMDAs in the Greater Accra Region (see Figure 1.1). These 12 MMDAs are: Accra Metropolitan, Tema Metropolitan, Ga West Municipal, Ga East Municipal, Ga South Municipal, Ga Central, Adenta Municipal, Ashaiman Municipal, La Dade-Kotopon Municipal, Ledzokuku/Krowor, La-Nkwantanang Madina and Kpone Katamanso. Essentially, these include all MMDAs in Greater Accra region except Ningo Prampram, Shai Osudoku, Ada East and Ada West.

From a development perspective, the Greater Accra Region and in particular, the study's operational area has been bedevilled with several challenges including: uncontrolled and rapid urban sprawl, long journey-to-work, housing shortage, very low traffic speeds along various approach roads into and out of the City of Accra. However, these problems are now being tackled under the aegis of an urban development framework and strategy. A clear national urban strategy and action plan have been developed, but financial and organizational constraints impede implementation of the strategy. Inadequate number and quality of staff is one pressing issue facing the GAMA. For example, Tema Metropolitan Assembly has only 158 municipal staff and 4 planners for its estimated 360,000 population. Generally, in the MMDAs in GAMA, only half of municipal staff are adequately trained for the technical work required. Again, cities in Ghana depend on fiscal transfers from the national government (51% of the budget in Tema) which are highly unpredictable in terms of timing and amount, making planning difficult. Furthermore, GAMA's 16 MMDAs suffer from a lack of city-wide strategic planning, which is particularly detrimental since the key challenges facing the area transcend district boundaries. Moreover, the system is unable to consolidate, plan and service land at the rate required by city growth, and the little land made available for development typically falls outside formal spatial planning and it is often speculative in nature.

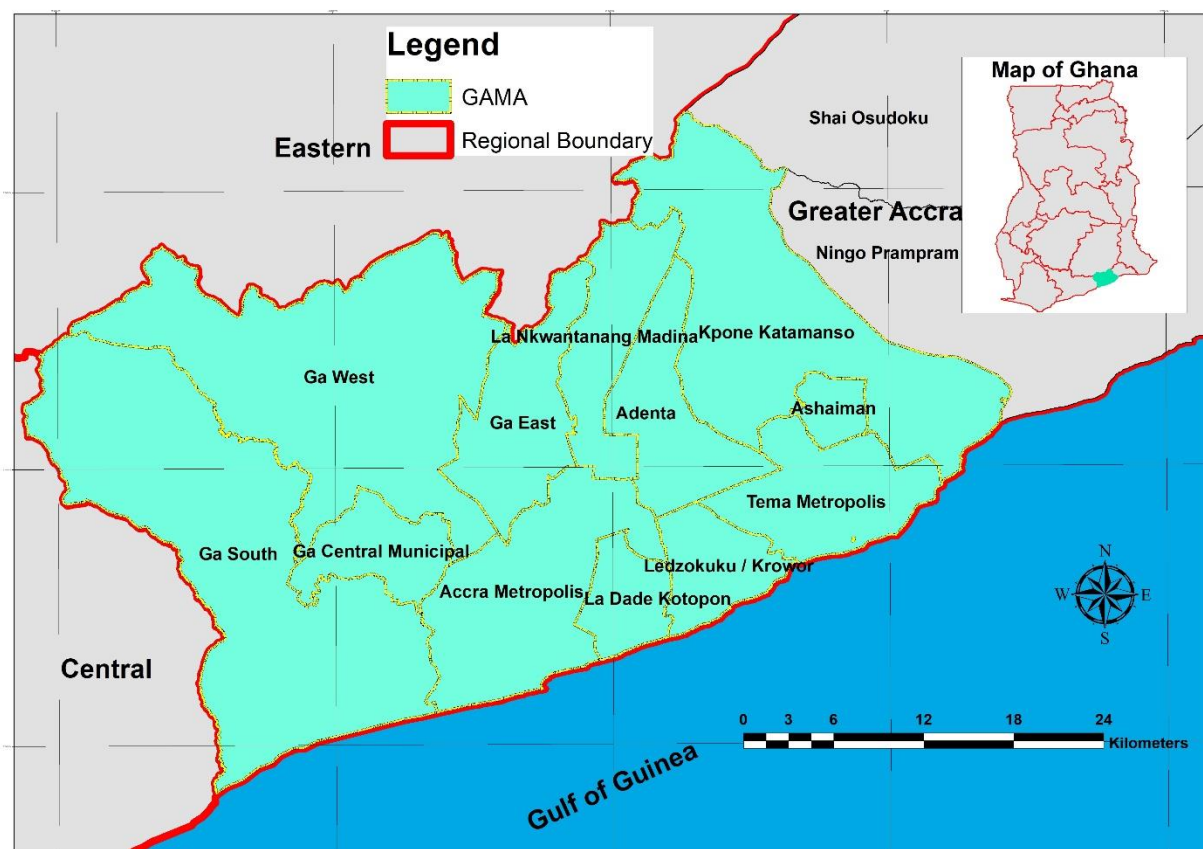


Figure 1.1: Administrative Boundary of GAMA

Source: Consultants' Construct, 2019.

This will soon be remedied with the commencement of the preparation of a city-wide structure plan with about US\$ 2 million made available under the aegis of the Accra Urban Transport Project with funding from the African Development Bank (AfDB).

The Greater Accra Metropolitan Area is also faced with new opportunities and challenges. It is well-located to undertake the challenge of enhancing resilience at the metropolitan level. Though GAMA faces many hazards, there is a strong commitment from leading Ministries to address them. Rapid urbanization of GAMA should be seen as an opportunity to highlight the pull of the “region” as an engine of economic growth and an important gateway to West Africa.

Majority of GAMA's population resides in urban areas with large concentrations of people, investments and economic activities. Some challenges faced in GAMA are rapid urban expansion, lack of infrastructure and service delivery, proliferation of informality, lack of connectivity and

congestion, water scarcity, excessive unemployment, weak urban governance as well as institutional coordination, land, boundary and chieftaincy disputes. Others are flooding, fire outbreaks, cholera outbreaks and coastal erosion.

1.5 Structure of Report

The report is organized under seven sections which cover all the study's requirements and scope outlined in the Terms of Reference (ToR). The first section is an introductory section which situates the study within its appropriate context and covers items such as the study's background, objectives, scope as well as the spatial extent of the GAMA. The latter is essential given the fluidity and changing extent of the GAMA. From an operation perspective, the administrative boundary of GAMA is adopted for this study for reasons that are presented in the foregoing.

In the second section of the report, the study's approach and methodology are presented with a view to highlighting the various frameworks, tools and techniques used in interrogating various items stipulated in the ToR. It covers overall study design, data collection methods and their relevant protocols. Particular mention is made of both quantitative and qualitative tools of data collection based on a sample of traffic attractors and generators. This then provided the basis for the origin and destination surveys and their interpretations. In addition, all the purposive sampling of relevant institutions are presented in this section.

The report's third section is dedicated to the results and interpretation of the traffic surveys. It captures the characteristics of freight transport in GAMA and then also of transit freight as they all use the same road network. The predominant freight routes are also identified with their respective traffic volumes based on traffic counts. Another important aspect of this section is a short presentation of the characteristics of transit freight traffic (imports and exports) through Tema and from/to other regions in the country. A major component of this section is the mapping of freight routes within the GAMA for easy identification of those that are heavily trafficked so that appropriate mitigation measures can be introduced in subsequent sections.

The determination of impact areas for freight transport is the subject matter in the fourth section which catalogues outcomes of various stakeholder engagements and, in addition, it also deals with the problem incidence areas for freight transport. This is the section that also deals with designation of truck routes, road infrastructure and other potential investments such as limiting hours for truck movements as well as traffic plans for sensitive areas including: markets, wholesale zones and Tema Harbour; amongst others.

The fifth section is devoted to a review of the regulatory regime of the various MMDAs within GAMA with the view to identifying provisions relevant to deal with the problem of freight vehicles and identifying gaps or infractions with implementation. The bye-laws of various MMDAs within GAMA were reviewed under sub-themes such as period of promulgation, preparation of public transport plans, obstruction of pathway by sellers, unauthorized parking, parking fees, offloading of freight onto roadway and private participation in provision of parking facilities.

2.0 STUDY APPROACH AND METHODOLOGY

2.1 Introduction

Generally, freight studies are complex because of limitation of information on freight movements that link activities at production and consumption centers. In terms of design, the study relied on relevant secondary information and data, and complemented them with administrative and field surveys of key industrial players on freight movement requirements. The interviews focused on the areas of operation and on issues and constraints encountered. The stakeholders identified are generally varied and many, however, three (3) main groupings were targeted:

- Organizations, who own the goods – manufacturers, wholesalers and importers;
- Organizations, who move the goods – freight haulers and shipping companies; and
- Institutions, who provide infrastructure and support service to support freight movements – roads, ports, railways, distribution companies, freight forwarders and agents.

Another important aspect of the study was the determination of movements on the network of roads within and through GAMA for in-country and transit freight. Manually classified counts of traffic at selected locations were conducted as per Ghana's vehicle classified system. Vehicles that were surveyed included cars, pick-ups and vans, small buses, medium buses, large buses, light trucks, medium trucks, heavy trucks, semi-trailer (light), semi-trailer (heavy), truck trailer and other mobile equipment. However, the focus of the study was on freight traffic and the vehicles were categorized as such. Origin and destination surveys were conducted at appropriate locations to determine the types and distribution of freight within and out of GAMA. Drivers were interviewed to capture information on origin and destination, journey purpose, travel time, commodities carried and vehicle types, among others.

The analysis of data gathered from the desk review and field surveys were employed in developing the freight flows, identifying and categorizing the impact areas that will be considered for traffic mitigation measures. Freight vehicles travel patterns, routing and type of commodities carried, parking and through traffic among others, were key inputs in the identification and categorization of the impact areas. The issues were categorized by severity and the mitigation possibilities defined included coherent policies on the transport sector, licensing and urban development, clearly assigned institutional responsibilities, and adequate legal and organizational framework.

2.2 Review of Previous Transport Studies

Three relevant documents were obtained on most recent transport studies conducted within GAMA, which have been reviewed and the findings presented at appropriate sections of the report. However, the documents have been briefly described.

2.2.1 The Transport Master Plan Project in Greater Accra Region, (Korea International Cooperation Agency [KOICA], 2016)

The Transport Master Plan was to establish a general transport plan for the city of Accra including the existing transport projects and covered 12 administrative districts within the Greater Accra Metropolitan Assembly (GAMA) and other fringe study areas. The work scope included the following:

- To review related transport plan;
- To study current situation of transport facilities and operations;
- To determine future travel demand forecasting;
- To establish conceptual transport improvement system; and
- To establish implementation and financing plan.

An important aspect of the study was to consider the perennial traffic congestion within GAMA due to increasing rate of the urban population and high levels of motorization. It was evident that the major arterials (Liberation road, Nsawam road, Winneba road and the Accra-Tema motorway) have exceeded their capacities in containing the number of vehicles that ply on them on a daily basis. Traffic congestion has even spread to other contiguous roads (distributors and collectors), which are not well maintained and developed to contain these extra traffic.

The short-term plan was to undertake the upgrading and maintenance of contiguous roads to major arterials so that they could meet the appropriate demands and to also adopt traffic management measures to help improve traffic congestion. In addition, new roads that were identified are to be constructed in the medium to long term. The total road length was approximately estimated at 7,591.8km and distributed as trunk: 146.6km, urban: 6,892.1km, and feeder: 553.1km.

The existing road transport plan was to undertake 25 projects which are major road constructions, road expansions and interchange improvements. The planned length of additional road network was 400.8km, bringing the total network size to 7,992.6km after the implementation of the projects. It has been estimated that GAMA's population and the number of vehicles would increase to 6.9mil and 2.0mil respectively by 2035. To keep the city's competitiveness, there was therefore the need for a certain level of road infrastructures and the required funding should be sought for investment in the road network development.

The Transport Master Plan advocated for a comprehensive road network plan by considering the concept of arterial road network from the existing '1 Circular + 5 Radial' to '4 Circular + 9 Radial'. It was suggested that an additional 31 road projects will be required to complement the 25 road projects; adding up 165.2km to the 400.8 from the planned road projects to make up a total of 566km road lengths to the existing network in GAMA.

2.2.2 *Railway Master Plan of Ghana - Urban Transport Issues (TEAM Engineering SpA, 2013)*

The Ghana Railway Master Plan anticipates a massive improvement of the existing railway network, from a predominantly goods-based transport system to a mixture of passenger transport and freight/goods. The overall objective was to ensure a careful balance between the two modes of transportation for the Ghanaian commuter and improve mobility in general within the cities and surrounding towns. Urban transportation is characterized largely by road transport, as both freight and passenger services are extensively road-transport led. Public transport is by means of private and unionized operators with inadequate and poor rolling stock and a weak regulatory regime. The urban transport infrastructure is totally inadequate, undeveloped and under stress due to the growth in population, increase in motorization and the modal share, as well as poor arterial network. The operator service sector is also largely unregulated and operates with poor standards and with inadequate rolling stock. Road space usage is disproportionate, as private cars occupying the most space yet contribute little to mass public transport, which currently represents a priority within the Government of Ghana's policy for urban transportation. Statistical information gathered estimates that, trotros (mini vans used for passenger transport in most cities and towns) and other buses carry more than 68% of passengers, yet they occupy only 32% of road space in the urban areas.

Travel Demand in GAMA

A 2004 traffic studies through 4 “cordon lines” within GAMA, namely; GAMA periphery cordon, Accra-Teshie-Nungua-Tema outer cordon, Accra inner cordon and Tema inner cordon produced the passenger and vehicular traffic volumes presented in Table 2.1.

Table 2.1: Passenger and Vehicular Traffic Volumes

Year	Average Daily Traffic		Average Peak Hour	
	Veh/d	Pas/d	Veh/h	Pas/h
2004	831,500	4,481,213	70,470	379,954
2014	1,330,400	7,169,941	112,752	607,927
2024	2,078,750	11,203,033	176,175	949,886

The values for 2014 and 2024 have been calculated using the growth factors of 1.6 and 2.5. The six main routes, namely; Nsawam road, Harbour road, Beach road, Motorway, Aburi road and Mallam road, contributed to the traffic flows on the 4 cordons. It has been estimated that the flow of passengers entering Accra during the four hours in the morning from 6 to 10 o'clock, varies between approximately 50,000 and 120,000 passengers (2004 data). In 2014, the projected flows was expected to be between 80,000 and 192,000 passengers; and by 2024 will be reaching 125,000 and 300,000 passengers.

The conurbation of Greater Accra is highly populated; in 2012 it went from 2.5 million in the city center to 4.5 million including the districts. By 2024, these values will reach over 3 million and approximately 6 million respectively. In 2012, the average daily traffic exceeded 1,000,000 units and in passenger terms (journeys) was in excess of 5.5 million. By 2024, these values will become over 2 million and approximately 11 million. Considering such high values, it was deemed appropriate to make the following recommendations for transportation:

- Activate a policy to manage local public transportation with the use of a specific public organization that can install a high capacity mass transport system that is multi-modal and integrated.

- Study a local transport plan, considering numerous routes throughout the territory, based on the adoption of high capacity systems, starting with buses (single and 2 or more coaches), BRT systems and tram-buses and escalating to the L.R.T.
- Study the possibility of the rehabilitation and/or new construction of suburban railway lines for commuters. There are six main routes with a length of over 25-30 km. Of these routes, two should be easy to adopt; Tema-Accra already exists and Amasaman-Accra could use a part of the Accra-Kumasi railway line.
- Integrate the various means of transport with interchange points (park and ride) to facilitate public transport and make it more appealing.
- Promote a policy for the supply and distribution of electricity in these cities that will prove “efficient” and “reliable”, because it will be necessary to foresee in good time the implementation of heavy metro and underground L.R.T. systems.

It was suggested that if transport policies are not activated to address the problem of the continuous and ever-growing use of private vehicles within 10-15 years’ time, then there will be an excessive and unacceptable traffic congestion with disastrous consequences on the pollution of the environment.

2.2.3 The National Transport Policy, 2008

The assignment scope and objectives were set out to achieve the following:

- critically assess the content and detail of the National Transport Policy (NTP) in terms of existing state of the transport sector in Ghana in line with best international practice;
- critically assess the efforts made to implement the NTP in terms of what was required to be implemented, who was responsible, what implementation processes were established and what progress has been made and highlight areas of focus for improvements and make concrete recommendations on how implementation of the NTP can be improved; and
- identify gaps within existing policy and planning frameworks and recommend concrete actions that can be taken within an updated National Transport Master Plan to address them.

This Transport Sector Draft Green Paper was developed by the transport sector ministries through a process of analysis and review including:

- A thorough review of the National Transport Policy (NTP, 2008) and Integrated Transport Plan (ITP, 2010) evaluating their adequacy and effectiveness as the sector's primary governance documents;
- Consultation with transport sector stakeholders throughout Ghana; and
- Analysis of Ghana's strategic policy framework, including its commitment to national, regional and international development goals.

From the consultations, analysis and with reference to Ghana's strategic national and international commitments, the joint ministry working group identified 10 themes each with a Policy Goal, as follows:

- Transport for All;
- Ghana as a Transport Hub;
- Sustainable Transport;
- Improved Public and Private Investment in Transport;
- Integrated and Harmonized Transport Planning;
- Legal Mandate for Implementation of Transport Policy and Plans;
- Enforcement of Rules, Regulations and Standards;
- Research and Development;
- Develop Human Resource Capacity; and
- Application of New Technologies in Transport

Themes 1 to 3 were formulated to focus on the transport system that needs to be created to underpin the socio-economic development planned for Ghana as well as fulfilling the technical, financial and quality requirements of its users, service providers and investors. Themes 4 to 10 were formulated to focus on the areas where practices and procedures need to be strengthened or changed to enable the sector as a whole to plan, prepare for and achieve the levels of performance expected of it by its many stakeholders.

Urban transportation is guided by national laws and policies and is managed by institutions. The Ghana National Transport Policy anticipates a major shift from small occupancy transportation to high occupancy vehicular transportation in the urban areas and for public transportation in general. In this direction, mass transportation would be characterized by higher occupancy buses with scheduled services that are operated with the necessary institutional regulations. The Local Government Service's LI.1961 has also created an institutional arrangement which ensures that Transport Departments are created in each of the Municipalities of Ghana. These are provided with the necessary functions and mandates with which they are to operate. The law also provides that the Transport Departments Plan regulates and manages the public transport systems in their respective jurisdictions.

Apart from these 3 transport studies, existing standards and regulations concerning traffic control (especially freight traffic) for the GAMA. It is expected that some standards and regulations are national (by-laws, national traffic legislation, traffic control manuals etc.), whereas international standards from other countries as well as applicable best practices will be considered in the general desk review.

2.3 Administration of Interviews and Questionnaires

To assist in the collection of information in a reasonably structured way, the Consultant developed a questionnaire which covered the key areas of freight movement and which targeted the main groups identified, namely; owners of goods, transporters of goods and facilitators of goods. Instruments were distributed to Metropolitan, Municipal and District Assemblies, Transport Unions, Market Associations, Freight Forwarders, Industries and Warehouses, among others, which were identified to capture trip details on freight movements within the Greater Accra Metropolitan Area and beyond.

A simple random sampling was applied to drivers, pedestrians and drivers. For the Drivers' Union and the District Assembly Staff (6), a purposive sampling technique was applied. In all, a total of 19 Transport Union Executives, 199 market women and market leaders, 270 pedestrians and 180 truck drivers were interviewed in 10 major markets selected randomly within GAMA, namely; Agbobbloshie, Awoshie, Baatsona, Tema Community 1, Dome, Haatso ECOMOG, Madina, Mallam Attah, Tema Harbour/Transit and Maamobi (see Figure 2.1). The characteristics of these markets mirror the general characteristics in major markets across GAMA and as such findings in these markets could be generalized for all major markets in GAMA including Kaneshie,

Kantamanto and other large markets. In addition to the foregoing, these markets were selected in such a way that spatial or geographical equity is attained.

Transport Union Executives were drawn from the Ghana National Cargo Transport Association, GPRTU of TUC - Anyaa branch, Anyaa Market Taxi Terminal branch of GPRTU, GPRTU - Abokobi Area Drivers Union, Nkulenu Taxi Drivers Union, Confederation Generale des transporteurs Terrestres et fluviaux Bamaco, Ghana Truck Drivers Owners Association, Madina Drivers Cooperative Union, JAPTU (Joint Association of Port Transport limited, Flat body Articulated Drivers Union (Tema), Haulage Transport Drivers and Training Center, Patriotic Drivers' Union, Makola No.2 Union Association, Agbogloboshie Troto Drivers Welfare Union, GPRTU Accra Kete Krachi Branch, Tamale Cargo Drivers' Station and MMC Property Management Ltd. at Makola No.2 market.

An additional 15 industries that own and operated their own trucks for distribution of goods within and outside GAMA were also interviewed. They included Amani Manufacturing Company Limited, Bamson Company Limited, Conserveria Distribution Limited (Warehouse), Decorplast Limited, Fine Print Limited, Metalex Group Limited, Multipro Private Limited, Muus Timber Market, Sika Krobea Company Limited, Special Ice Company Limited, Tex Styles Ghana Limited (GTP), Volta Aluminium Company Limited (VALCO) and Wilmar Africa Limited. A good number of industries and manufacturing refused our request for interview and that affected the sample size. Figure 2.2 illustrates some of the freight generators in the Greater Accra Metropolitan Area. These freight traffic generators were selected on the basis of the volume of freight that is transported to and from them. These markets, malls, industries and warehouses are specific facilities housing businesses that individually or collectively produce and attract a large number of daily truck trips.



Figure 2.1: Freight Traffic Generators in GAMA (Markets)

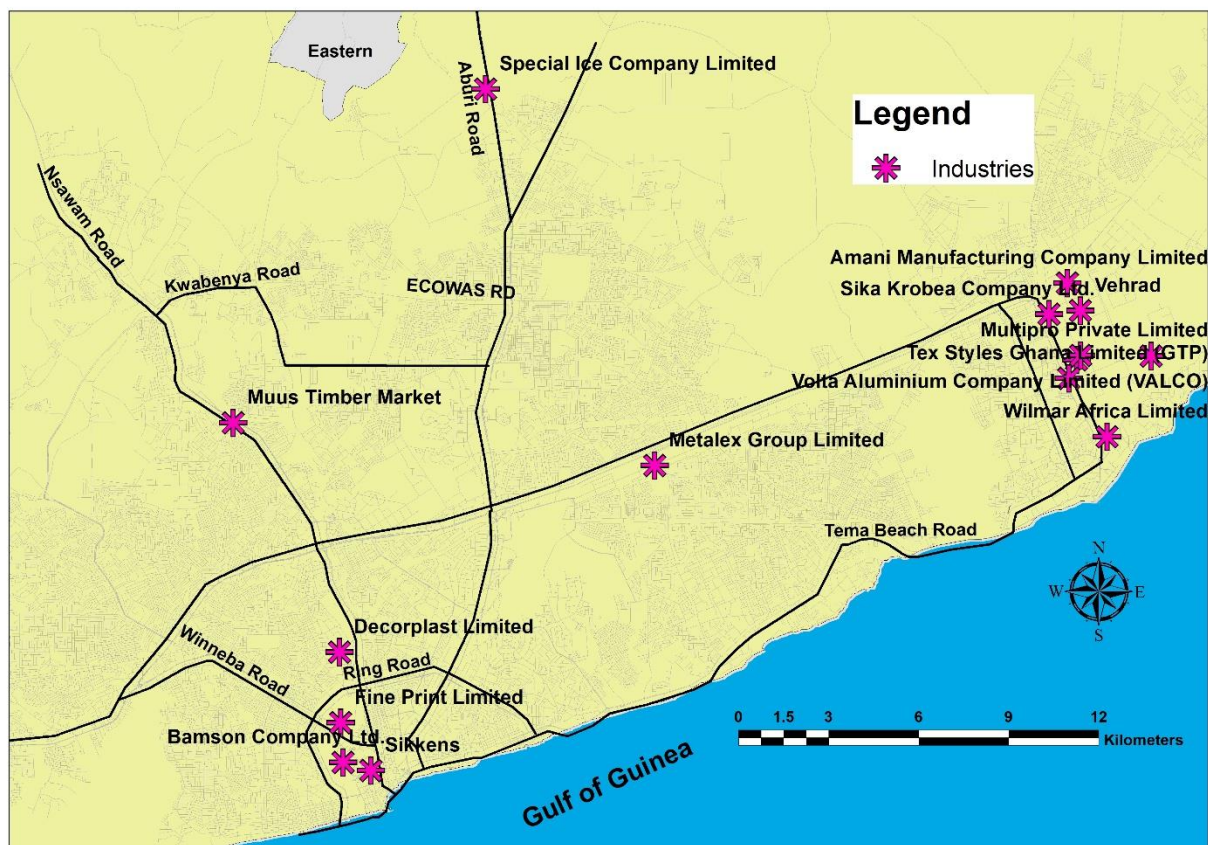


Figure 2.2: Freight Traffic Generators in GAMA (Industries)

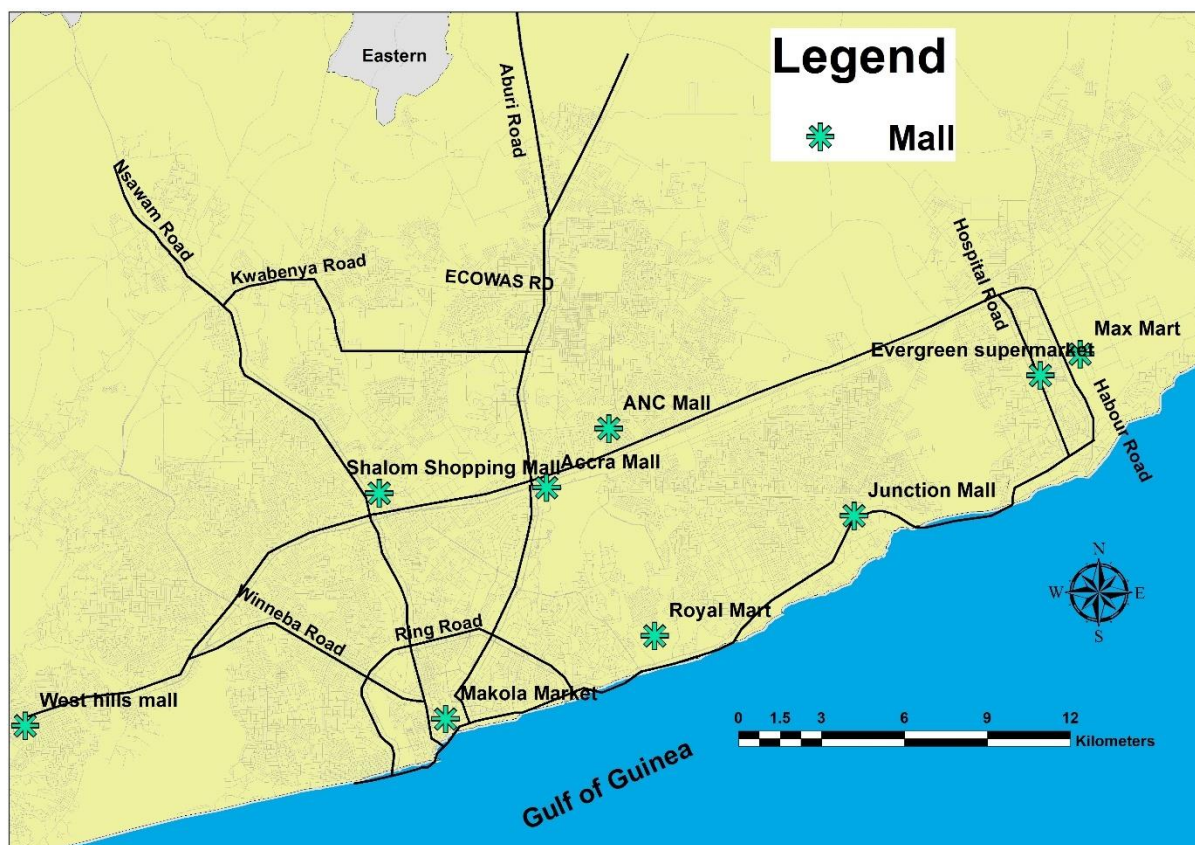


Figure 2.3: Freight Traffic Generators in GAMA (Malls)

The main surveys were conducted from 7th October to 24th October 2019 and the additional surveys to complement the earlier one was conducted in August 2020. These data collectively represented the study area freight movement characteristics as provided by the respective industry players. Sample questionnaires were initially sent to industrial players to prepare them adequately before physical engagement. The survey instrument requested specific information such as quantity of produce, quantity supplied within GAMA, estimated travel time, frequently used routes and their vehicular movements.

Three teams were deployed to carry out the exercise, each team consisted of two personnel and were assigned specific stakeholders to administer the instruments in the form of Computer-Assisted Personal Interview (CAPI). Enumerators administered the questionnaires by reading the questions from and entering the responses into the KoBoCollect platform. Interviews were granted to identify the exact route used by the freight operators within the study area and that of through freight traffic. During the execution of the survey, freight operators of some industries were available to provide additional information on the difficulties they encountered on routes used as well as respond to information related to the frequency of the journeys and also make useful contributions on solutions in dealing with the freight movement challenges and associated congestion as well as other traffic externalities.

The data collected on the KoboCollect platform was downloaded (in an excel variable format) and exported into SPSS (version 25). Further analysis were conducted in the SPSS by generating data on themes for the report.

2.4 Assessment of Local and Transit Freight Traffic

Traffic data on the road network were obtained from manual classified counts. Screen line counts were performed at mid-blocks with fifteen-minute volumes recorded for classified vehicles over a period of 16 hours and 24 hours. The counts were performed throughout the counting period and survey enumerators manually recorded the volume of vehicles per type between 18th and 25th August 2020. Weather conditions were fine, but the covid-19 situation may have unduly influenced the traffic volumes that observed at the census stations in the later surveys. However, previous Master station traffic counts were employed to validate the traffic data recorded at these stations.

Screen line counts were performed at 15 census stations for three days per site for a minimum of 16 hours per day. The vehicles were classified as specified and the counts included one 24-hour count. The location of screen line counts is shown in Table 2.2 and also presented graphically in

Figure 2.4. The surveys captured traffic data for the vehicle types as per the classification system, namely; cars and taxis, pick-ups and vans, small buses, medium buses, large buses, light trucks, medium trucks, heavy trucks, semi-trailers light, semi-trailers heavy, truck trailers and other mobile equipment. They were categorized into mainly three groups as light, medium and heavy vehicles.

Table 2.2: Location of Traffic Census Stations and Road Sections

No.	Road name	Census Station
1	Accra – Nsawam Road	Tesano Baptist
2	Motorway – Mallam Road	Dworwulu
3	Harbour Road	Tema Technical
4	Beach Road	Labadi Beach
5	Accra - Aburi Road	Airport First
6	Mallam – Kasoa Road	Old barrier
7	Madina – Kwabenya Road	Haatso
8	Accra – Tema Motorway	Accra Toll Booth
9	Aburi Road	Shiashi Bus stop
10	Nsawam Road	Pokuase
11	Beach Road	Sakumono Lagoon
12	Kaneshie - Mallam	Kaneshie market
13	Ring Road East	Labone Junction
14	Ring Road Central	Nima Police Station
15	Ring Road West	STC



Figure 2.4: Location of traffic census stations along major road sections

2.5 Traffic Analysis

Traffic information gathered from both secondary and primary sources were employed in the analysis. The observed daily traffic volumes were compared with previous traffic data at same census stations for validation and to project growth trends following which traffic volumes and peak flows were determined on the study roads in order to make appropriate recommendations on effective intervention measures to address congestion.

The contribution of freight vehicle is of significant importance to the vehicle type distribution that use the study roads. Therefore, all the vehicle types were categorized based on the observed traffic flows and the impact of the different vehicle categories on road space utilization, safety, capacity and efficiency, among others were assessed and reported. For freight traffic, it was further disaggregated into trucks and trailers to understand the effects of local and transit traffic as well as their impact on pavement deterioration and associated maintenance and rehabilitation costs.

From the analysis of the origin and destination surveys, and especially, on alternative routes to major arterials, possibilities of diverting freight traffic (local or transit) were determined to improve the general traffic condition. Most significant freight vehicle types and their proportion in terms of their use were determined and commodities carried by the freight vehicle types were determined and appropriately located on the routes within the study area. The effect of axle loads and their damaging effect to the pavement was also noted as they contribute significantly to the cost of road maintenance and rehabilitation.

2.6 Other Qualitative Issues

As indicated above, the interviews and surveys covered a number of other issues affecting the freight sector, including ways in which the sector might develop in future and the constraints that those involved in the movement of freight faced now or might face subsequently. From the surveys and discussions, a number of the key issues were identified that affect the freight sector either directly or indirectly in the movement of goods. Suggestions re-emphasized the need to develop policies and strategies that provide a clearer picture in terms of direction and delivery of an efficient freight transport sector.

3.0 TRAFFIC STUDIES AND ANALYSIS

This section presents and discusses the results of the traffic surveys on selected study roads and also from the interviews. It also contains some historical traffic data of previous studies in the study area and were used to validate data and also for traffic projections. The analysis has been presented under the following sub-headings:

- Traffic volumes and variability;
- Patterns of freight movement;
- Parking provisions; and
- Freight flow and mapping.

3.1 Traffic Volumes and Variability

3.1.1 Traffic Volumes

Present day vehicular traffic data on the study roads as determined as daily traffic volumes and 2016 traffic data for some of the study roads have been presented. Therefore, Table 3.1 provides a summary of the results of the traffic surveys (average daily traffic) observed at selected census stations on the study roads in GAMA and the historical data for 2016 (See Figure 3.1).

Table 3.1: Average Daily Traffic (ADT) Volumes on Road Sections

No.	Road name	Average Daily Traffic (vpd)		Growth Rate (%)
		2020	2016*	
1	Accra – Nsawam Road	52,059	-	-
2	Motorway – Mallam Road	80,895	55,619	9.8
3	Harbour Road	45,114	38,916	3.8
4	Beach Road (Sakumono)	34,470	-	-
5	Accra - Aburi Road	76,946	68,408	3.0
6	Mallam – Kasoa Road	71,901	62,123	3.7

No.	Road name	Average Daily Traffic (vpd)		Growth Rate (%)
		2020	2016*	
7	Madina – Kwabenya Road	21,523	-	-
8	Accra – Tema Motorway	74,420	45,189	13.3
9	Aburi Road	73,868	60,957	4.9
10	Nsawam Road	77,619	70,302	2.5
11	Beach Road (Labadi)	35,002	-	-
12	Kaneshie - Mallam	79,908	46,086	14.8
13	Ring Road East	50,768	43,793	3.8
14	Ring Road Central	56,598	48,822	3.8
15	Ring Road West	30,751	25,275	5.0

Source: Field surveys and *Transport Master Plan Project in Greater Accra Region, 2016.

The traffic volumes on some important major arterials, namely; Motorway and its Extensions, Nsawam Road and Aburi Road, which are the main accesses into the GAMA, are all of the order of 70,000 vehicles every day. They are heavily traffic roads together with the contiguous distributors, such as, Madina – Kwabenya Road, Beach Road, Harbour Road and the Ring Roads, that connect activity generators and attractors in GAMA. The poor surface condition of most of these roads, coupled with the high traffic volumes have generally contributed to commuters discomfort due to the many traffic challenges.

From Table 3.1, it is evident that the estimated daily traffic volumes (2020) have witnessed appreciable growth over the years. On average and across the major arterials, traffic grew by rates from 2.5% to 14.8% per annum. However, the arterial road network has seen very little development during these years. This situation obviously has implications on the deteriorating traffic conditions on the entire road network. Appropriate interventions will be required, in terms of traffic management and overall arterial network development within GAMA in order to address issues of congestion, accidents, pollution and convenience, among others.

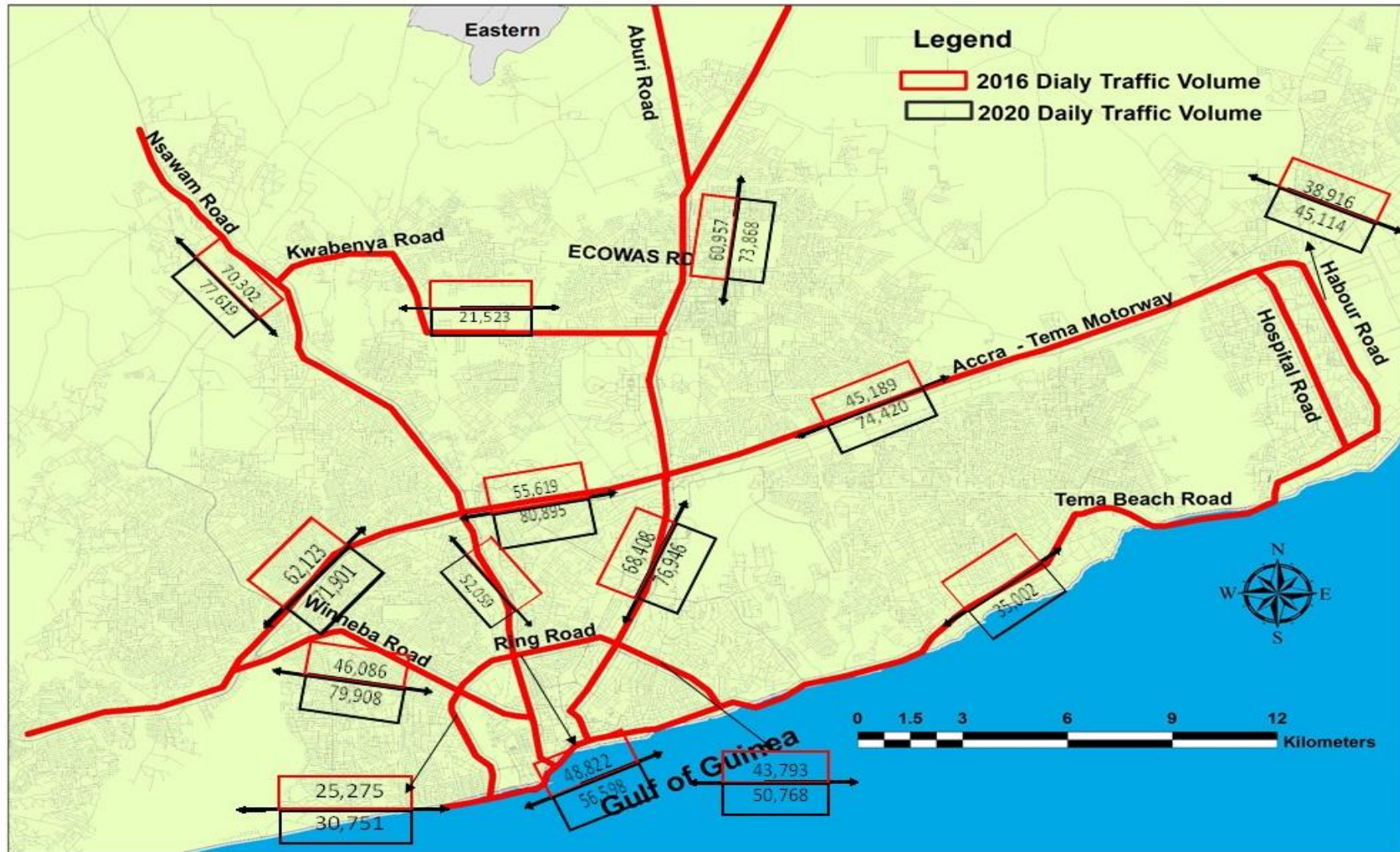


Figure 3.1: Average Daily Traffic (ADT) Volumes on Selected Road Sections – 2016, 2020

3.1.2 Peak Traffic Volume

Figure 3.2 illustrates the hourly traffic flow pattern on the Motorway – Mallam Road. Apart from an hour peak between 5:00 and 6:00pm, traffic appears to grow early in the morning till 9:00am when the trend is sustained till 6:00pm. There are no distinct peak periods as the road is reasonably trafficked throughout the day.

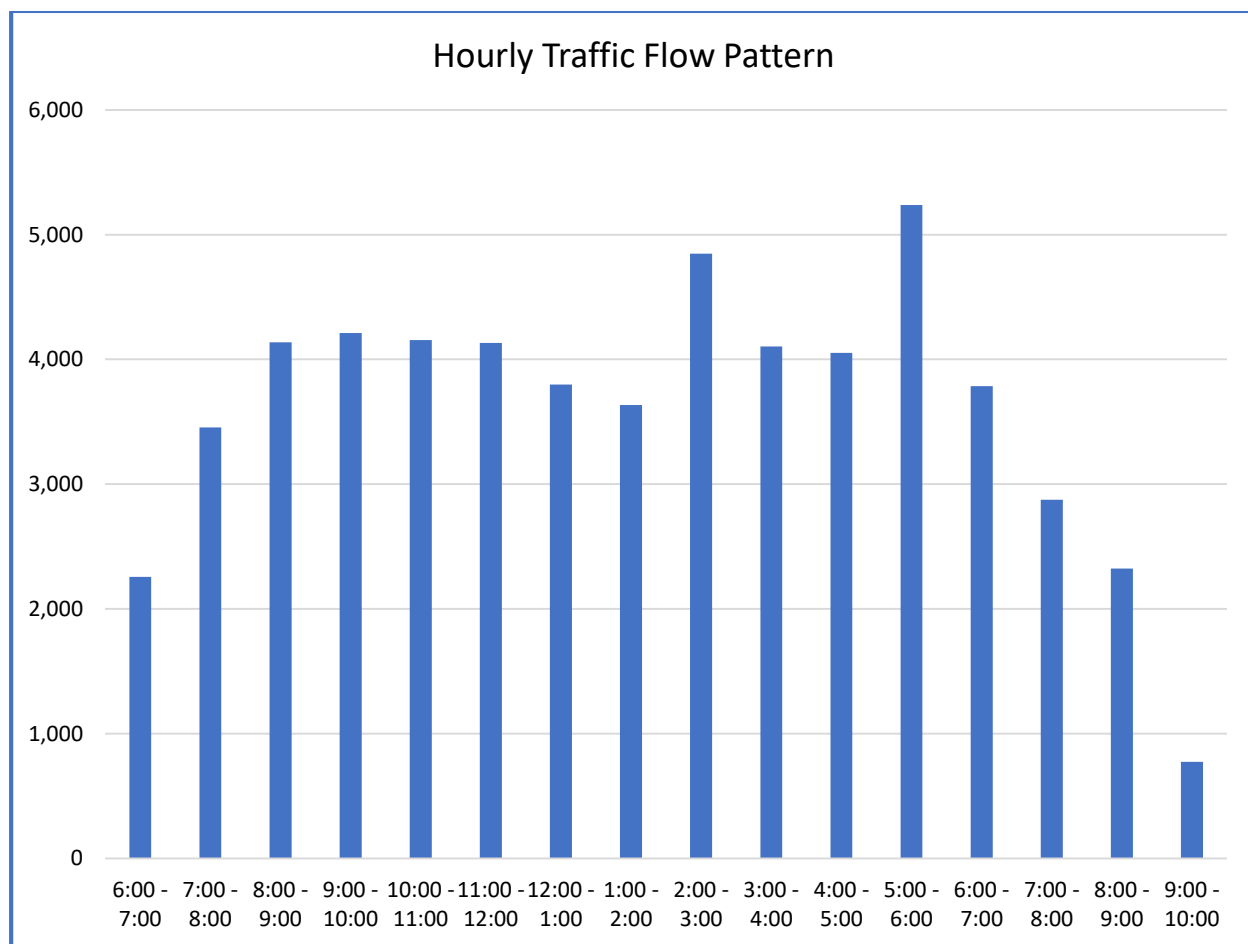


Figure 3.2: Hourly Traffic Profile on Motorway – Mallam Road

The situation are very different for some of the study roads. Table 3.2 presents morning and evening peak periods as observed on the respective roads. The hourly peak periods were within 7:00 – 9:00am in the morning and 5:00 – 8:00pm in the evening with volumes averaging 3,219 vehicles per hour.

Table 3.2: Traffic Volume at Peak Period of Study Roads

No.	Road Name	Peak Period (veh/hr)	
		AM	PM
1	Accra – Nsawam Road	3,303	2,450
2	Motorway – Kasoa Road	4,211	5,237
3	Harbour Road	2,232	1,935
4	Beach Road (Sakumono)	3,618	2,102
5	Accra - Aburi Road	5,998	4,728
6	Mallam – Kasoa Road	4,689	4,176
7	Madina – Kwabenya Road	1,249	1,474
8	Accra – Tema Motorway	2,863	3,197
9	Aburi Road	3,151	4,106
10	Nsawam Road	4,688	4,627
11	Beach Road (Labadi)	2,306	2,418
12	Kaneshie - Mallam	2,989	2,741
13	Ring Road East	3,891	2,924
14	Ring Road Central	3,535	3,881
15	Ring Road West	1,839	2,211

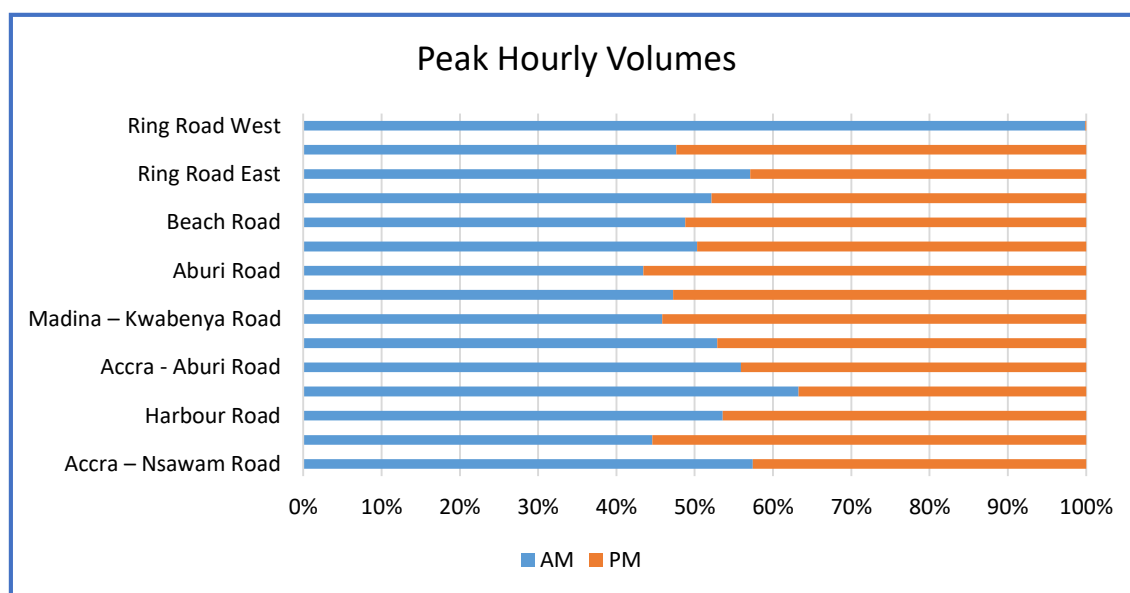


Figure 3.3: Peak Hourly Traffic Volume on Study Roads

3.1.3 Vehicle Category Proportions

The daily traffic volumes were then classified based on vehicle types and the results are presented in Table 3.3. The vehicles were grouped into Light (car, taxi, pick-up, van and small bus), Medium (medium bus, mammy wagon, light truck and medium truck) and Heavy (heavy truck, semi-trailer light, semi-trailer heavy, truck trailer and other mobile equipment).

Table 3.3: Vehicle Category Proportions on Study Roads in GAMA

No.	Road Name	Vehicle Category (vpd)						Total
		Light		Medium		Heavy		
		No.	%	No.	%	No.	%	
1	Accra – Nsawam Road	42,921	82.4	5,964	11.5	3,174	6.1	52,059
2	Motorway – Kasoa Road	73,158	90.4	3,744	4.6	3,993	4.9	80,895
3	Harbour Road	33,671	74.6	4,580	10.2	6,863	15.2	45,114
4	Beach Road (Sakumono)	32,192	93.4	1,461	4.2	817	2.4	34,470
5	Accra - Aburi Road	74,946	97.4	1,574	2.0	426	0.6	76,946
6	Mallam – Kasoa Road	47,160	65.6	12,887	17.9	11,854	16.5	71,901
7	Madina –Kwabanya Road	20,852	96.9	457	2.1	214	1.0	21,523
8	Accra – Tema Motorway	51,234	68.8	19,967	26.8	3,219	4.3	74,420
9	Aburi Road	57,555	77.9	12,574	17.0	3,739	5.1	73,868
10	Nsawam Road	55,477	71.5	14,460	18.6	7,682	9.9	77,619
11	Beach Road (Labadi)	26,559	75.9	6,906	19.7	1,537	4.4	35,002
12	Kaneshie - Mallam	59,834	74.9	13,729	17.2	6,345	7.9	79,908
13	Ring Road East	42,148	83.0	7,750	15.3	870	1.7	50,768
14	Ring Road Central	43,113	76.2	10,179	18.0	3,306	5.8	56,598
15	Ring Road West	24,021	78.1	5,285	17.2	1,445	4.7	30,751

On the distribution of vehicle types, the range of proportions are summarized as follows:

- Light vehicles - 65.6 – 97.4 percent
- Medium vehicles - 2.0 – 26.8 percent
- Heavy vehicles - 0.6 – 16.5 percent

The vehicle categories were disproportionately distributed on the study roads. Light vehicles made up a considerable proportion (on average 80%) of the total vehicle population, medium vehicles accounted for 12%, while heavy vehicles constituted almost 8% of the total traffic volume observed on the study roads. Regarding freight vehicles, which is represented by the heavy vehicle category and some medium vehicles accounted for about 15% of the total traffic volume. It was clear from Table 3.3 that the major arterials (Nsawam Road as well as Motorway and its Extensions) featured considerable freight vehicles as they recorded not less than 10% of the total vehicular volumes. Considering the freight vehicles servicing various markets and institutions in GAMA, it was found that substantial freight vehicles were in transit with their trip origins and destinations beyond GAMA. This reinforces the need to look for alternative routes especially for transit freight traffic in addressing the already congested major arterial network.

3.2 Patterns of Freight Movements

3.2.1 General Freight Movements

Freight types and their quantities as transported by roads in the country were obtained from origin and destination data at weighbridge stations located at Boankra, Dobro and Tema. From the data, it was revealed that majority of the freight vehicles were articulated trucks and trailers, though a small proportion of light and medium trucks were also found to be used to transport some commodities. The total volumes of 2017 imports and exports based on the regional distribution (on earlier 10 regions of Ghana) is presented in Table 3.4. The same data was disaggregated into freight traffic by transfer mode as captured in Table 3.5. While a significant proportion (91%) is transferred as loose cargo by trucks only 9% of the total freight volume are transferred in containers.

Table 3.4: Distribution of Freight by Region, 2017

Region	Volume (Tonnes)	Proportion (%)
Ashanti Region	3,692,621	28.4
B/A Region	416,070	3.2
Central Region	117,020	0.9
Eastern Region	234,039	1.8
Greater Accra	7,164,204	55.1
Northern Region	650,109	5.0
Upper East Region	143,024	1.1
Upper West Region	260,044	2.0
Western Region	117,020	0.9
Volta	208,035	1.6
Total	13,002,185	100.0

Table 3.5: Distribution of Freight Traffic by Transfer Mode

Region	Traffic Volume (Tonnes)	Proportion (%)
Container	1,170,197	9.0
Non-Containerized Trucks	11,831,988	91.0
Grand Total	13,002,185	100.0

The distribution of freight and their volumes is as follows: agricultural products and general cargo make up 54% of the total freight volume, followed by bagged cargo (38%) and containerized cargo (5%). The remaining commodities, namely; conventional goods, dry cargo, books and stationery, frozen cargo, iron, steel and pallets constitute only 3%. Figure 3.4 presents the volume proportions of the different freight types.

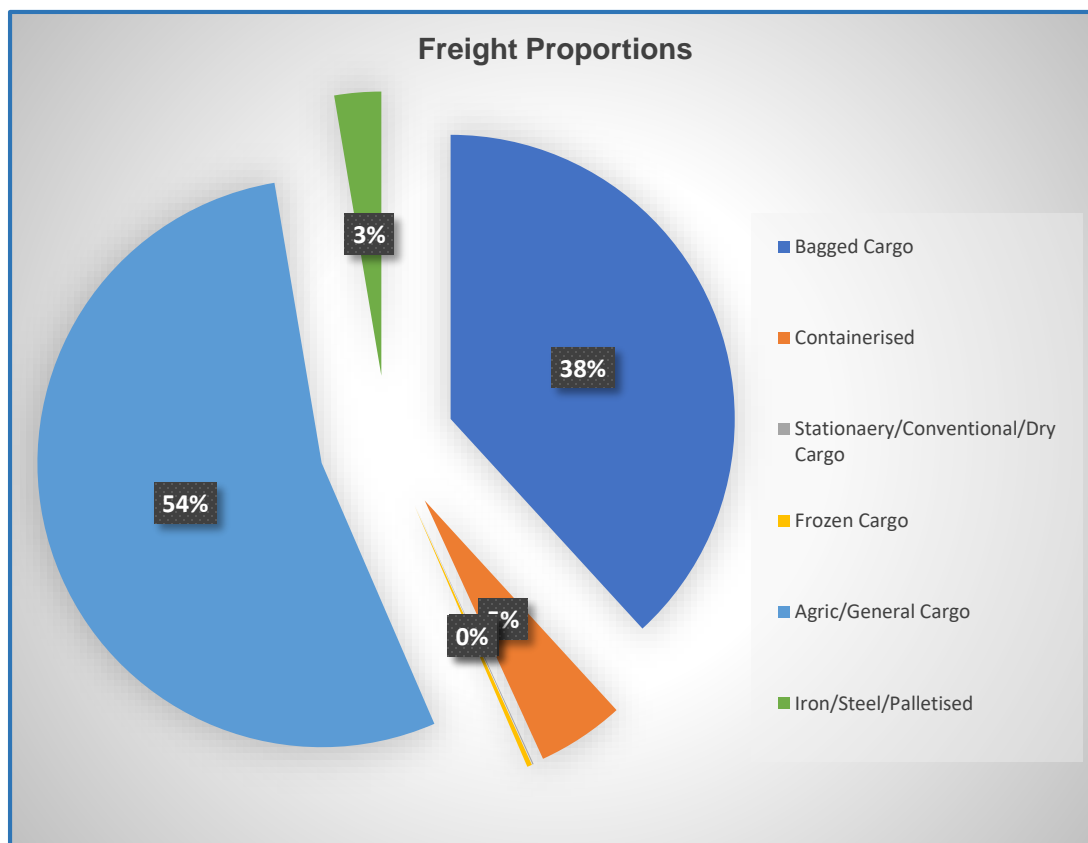


Figure 3.4: Volume Proportion of Different Types

It is worth noting that all these commodities are mostly transported using the road network within GAMA to the ports from their various origins and contribute significantly to the already congested traffic situation in Accra.

3.2.2 Freight Movement in GAMA

In order to assess the patterns of movements of freight in GAMA, the institutional, industrial and market surveys data were analyzed. Tables 3.6 and 3.7 present a variety of commodities produced by some industries and the 10 major markets that were studied including their annual tonnages.

Table 3.6: Estimated Annual Tonnage of Commodities by Some Industries

Company	Commodity	Annual Tonnage
Fine Print Limited	Paper Products	520,000
Tex Styles Ghana Limited (GTP)	Textile fabrics	32,160
Bamson Company Limited (Sikkens)	Paints	60,000
Wilmar Africa Limited	Cooking Oil	330,000
	Soap	8,200
	Rice	33,000
	Seasoning	330
	Margarine	3,300
Conserveria Distribution Limited (Warehouse)	Tomato Products	5,000
	Rice	
	Milk	
Amani Manufacturing Co. Ltd	Plastic Products	2,000
Metalex Group Ltd.	Aluzinc Sheets	40
	Aluminium Sheets	
	T&G Plastics	
	Duratile	
	Trusses	
Special Ice Company Limited	Bottled Water	3,000
Volta Aluminium Company Limited (VALCO)	Primary Aluminum/Molten Metal	40,000
		7,000
Decorplast Limited	Plastic Products	10,000

Table 3.7: Estimated Tonnage of Commodities from Markets

Commodity type	Tonnages
Rice	200,000.00
Maize	350,000.00
Tomatoes	155,000.00
Onions	175,000.00
Yam	250,000.00
Plantain	45,000.00
Livestock	13,730.00

The industrial products are meant for both domestic and international markets and are transported by road to the various destinations. From the market surveys, all the food crops are for local consumption and are mostly transported from northern Ghana. In general, the movement of most freight are road-transport led and the situation within GAMA is no exception. GAMA's railway route is 55.1km (Accra – Tema route is 30.2km and Accra – Nsawam is 24.9km) and the 2 routes operate only commuter services and hardly attract any significant freight traffic. Until the railway network is well developed, road transport will remain the dominant mode for freight traffic movements.

Type of Freight Vehicles

The driver interviews provided information on the type of vehicles used and the numbers servicing the 10 markets. The distribution is presented in Table 3.8.

Table 3.8: Type of Freight Vehicles Serving Markets

Type of Vehicle	Frequency (Nr)	Percent (%)
Small Bus	3	1.7
Light Truck	57	31.7
Medium Truck	25	13.9
Heavy Truck	22	12.2
Semi-Trailer (Light)	4	2.2

Type of Vehicle	Frequency (Nr)	Percent (%)
Semi-Trailer (Heavy)	24	13.3
Truck Trailer	45	25.0
Total	180	100.0

It is quite clear from the distribution that light trucks (31.7%) represented a third of the total freight traffic followed by truck trailers (25.0%), medium trucks (13.9%) and semi-trailers heavy (13.3%). Heavy trucks constituted 12.2% of the total freight traffic and semi-trailers light together with small buses represented 3.9%. The vehicles transport a variety of commodities from yams, rice, maize, vegetables to livestock, among others. These vehicles transport freights from all over the country to markets in GAMA.

The tonnages of various goods transported imply that some considerable number of freight trucks will be required to move these freight contributing to a high mix of freight trucks in an average traffic stream in GAMA. In addition, the spatial distribution of the industries and markets imply that the challenges posed by freight vehicles such as lack of parking spots, frequent breakdowns of freight trucks which obstruct views and endanger road users, the nuisance posed by on-street parking, among others will be distributed across the whole of GAMA.

Frequency of Market Trips

On the average, the frequency at which goods were transported to the markets indicates once a week (45.7%), two to three times a week (19.3%), and two to four times a month (14.9%). From the data, those who transported goods everyday were found to be the least (1.6%). Table 3.9 provides the number of times goods were transported to the markets within GAMA.

Table 3.9: The Number of Times Goods are Transported to Markets

Number of times	Frequency	Percentage
Everyday	3	1.6
Once a week	86	45.7
Once in two weeks	8	4.3
Two to three times a week	37	19.6
Once a month	25	13.3
2-4 times a month	28	14.9
Others	1	0.5

From the table, majority of the freight owners indicated their preference to sending their wares to the markets once a week. This presents an opportunity to explore clustering of freight categories to be transported using appropriate vehicles.

Availability of Parking Space

The location of markets and their close proximity to the arterial network has implications on traffic congestion and related matters. From a survey of drivers on locating available spaces for parking either within the market precinct or along nearby roads yielded the responses as presented in Table 3.10.

Table 3.10: Availability and Location of Regular Parking Spot

Market	Availability of Parking	Frequency
Agboglobloshie Market	Yes	7
	No	38
Awoshie Market	Yes	2
	No	9
Baatsona Market	Yes	4
	No	3
Community 1 Market	Yes	2
	No	2
Dome Market	Yes	6
	No	4
Haatso Ecomog Market	Yes	4
	No	7
Madina Market	Yes	2
	No	9
Mallam Attah Market	Yes	2
	No	5
Tema Harbour/Transit	Yes	28
	No	23
Tuesday Market Maamobi	Yes	7
	No	16
Total		180

For lack of adequate parking spaces, the results showed that about 64.4% of the vehicles park along contiguous roads to the markets. In terms of specific markets and terminals, 57% of respondents indicated that they use the Baatsona Market park and another 55% said they park at the Tema Harbour Transit Park. Dome market recorded 60% of respondents as using the parking space while drivers at Madina and Mallam Attah markets usually park along adjoining roads. Provision of parking space remains an issue in most of the market as availability of land to serve that purpose is an impossibility. The tendency of on-street parking especially by these heavy goods vehicles cause traffic congestion and accidents; an assertion confirmed by 77.2% of the respondents.

Time spent looking for a parking spot

From the study, it was realized that, looking for a place to park a vehicle was a major challenge among drivers. The least time to search and locate a place was probably 20 minutes and the most was about 2 days. This misfortune makes drivers feel uneasy, whereas driving when tired can also cause accidents on the roads. Table 3.11 shows the time spent by drivers in looking for parking spaces around activity centers.

Table 3.11: Time Spent Looking for Parking Spot

Time	Frequency	Percent
1-60 mins	67	37.2
1-6hrs	85	47.2
1-2 days	28	15.6
Total	180	100.0

In developing a management plan for freight traffic, the traffic flow on strategic major arterials and distributors were presented on a map. Figure 3.5 presents the traffic flow map showing the total traffic volumes and related freight components on selected routes. This presentation offer opportunities to alternative routes and other missing links that could be developed to form a comprehensive freight vehicle routes in GAMA.

Having identified the major accesses for freight traffic as the Nsawam Road as well as the Motorway and its Extensions to markets and industries, some connecting distributors could be employed as detours so that freight especially those in transit will not be traveling the full length of these major arterials thus reducing traffic and improving capacity significantly. These routes, namely; Dome – Kitase Road, Dome – Kwabenya Road and Awoshie – Pokuase Road, among others, if improved can accommodate some freight vehicles and help reduce that huge traffic volumes that are captive on most major arterials.

Synthesized traffic flow data, freight data and samples of the raw dataset have been presented in the Appendices.



Figure 3.5: Freight and Total Traffic Flow Map

4.0 IMPACT AREAS FOR FREIGHT TRANSPORT

4.1 Introduction

This chapter examines the most likely impact areas arising from freight traffic and this is assessed through the stakeholder engagements and surveys. The impact areas identified through the stakeholder engagements were validated through the survey of industrial establishments or production centres and major land uses including the markets. The impact areas are also categorized and taken into consideration. This was done under the major assumption that traffic is a function of land use. This provides a very general overview of various problem incidence areas for freight transport with the view to providing mitigation measures in the next chapter.

To facilitate an understanding of these freight transport problems or problem incidence areas, the interactions between various actors is viewed as a system. At one end of the system is the Ministry of Local Government and Rural Development (MLGRD) which plays a supervisory role and provides directives to the MMDAs including the need to provide an appropriate environment within which the Assemblies can work; in this case, to facilitate achievement of the GAMA's urban mobility and access programme/objective within the framework of the *National Transport Policy* which "provides overall guidance for the holistic and strategic development of the transport sector."

At the next level of the system are the MMDAs whose work in the road transport sub-sector is facilitated by the MMDAs' Department of Transport (well established ones include those in Tema Metropolitan Assembly (TMA) and Accra Metropolitan Assembly (AMA)) and the Department of Urban Roads (DUR) which is essentially the Assemblies' roads department. These two agencies mimic what happens at the national level where the Department of Transport (DoT) is concerned with policy planning, monitoring and evaluation whereas the DUR's mandate includes planning, maintenance, monitoring and evaluation of road works within its jurisdiction. The actions of DUR and DoT impact the road infrastructure that is used by sellers/suppliers of goods in the wholesales, markets, industries, shops and supermarkets.

In the markets, for example, there are the commodity queens and commodity traders in whose interest the freight vehicles discharge their freight in, or within, the markets' proximity. In another stead, there are the vehicle operators and their assistants as well as a rather long chain in the

logistics chain from various source areas (as origins) to various land use destinations within the GAMA (including industrial establishments, wholesales, factories and the markets).

What also seems to compound the problem of freight traffic in the GAMA are the activities of four-wheel non-motorized push trucks, pedestrians, hawkers and other itinerant traders. In some situations, including the La Dade Kotopon, La Nkwantanang and Tema markets as well as the fishing harbor, the situation is so serious that on Saturdays the speed of freight vehicles around their markets are slowed down to about 15kph as recorded by the Korea International Cooperation Agency (KOICA) study in 2016.

Consequently, the foregoing provided a backdrop for a more comprehensive identification of the major stakeholders or potential areas likely to be impacted by freight vehicles. Following this, the various impact areas can be easily identified so that the extent to which they are impacted can be determined and used as basis for recommendation or mitigation measures.

On the basis of the foregoing considerations and their variation from one MMDA to another and from one market to the other, major identifiable impact areas for freight transport are listed as follows:

- a. inadequate parking spaces & infrastructure;
- b. prolonged time spent in looking for parking space;
- c. encroachment on the roadway by market traders;
- d. limited ancillary facilities;
- e. unpaved parking areas;
- f. inability to enforce existing laws;
- g. high charges and insecure parks;
- h. safety and security of persons;
- i. overloading of freight vehicles;
- j. unrestricted period for freight delivery; and
- k. Road infrastructure challenges.

The ensuing sections present an analysis of the various impact areas for freight traffic within GAMA.

4.2 Inadequate parking spaces and infrastructure

When trip makers commence their journeys from their various origins either within or outside the GAMA, they expect to find spaces to park their vehicles when they arrive at their destinations. Unfortunately, this does not appear to be the case and particularly for freight vehicles that arrive at the major traffic attractors and generators; this has been a difficulty. Consequently, the vehicle operators resort to parking on any available space both on and off street; thus further compounding the parking problems in each of the MMDAs sampled for the study.

The surveys revealed that 43.3% of freight vehicle operators admitted that they do not have access to any designated parking along various access roads (on-street parking). Because of the lack of designated parking spaces, these freight truck operators resort to parking along available roads close to the markets where they can load or offload the freight being transported. When this happens, the services of head porters or “kayayei” and push trucks are sought to move wares into the markets where they will be traded (see Table 4.1). The push trucks also limit road space available for vehicular traffic, thereby compounding the problem of congestion on roads around markets or traffic generators in GAMA.

Table 4.1: Availability and Location of Regular Parking Spaces within GAMA

Availability of parking (Yes/No)	Location of Parking Spaces	Frequency	Percent
No	Along the roads	78	43.3
Yes	Agbogloboshie	38	21.1
Yes	Awoshie	1	0.6
Yes	Private Parking Yard	13	7.2
Yes	Any Open Space (School Parks, Church Compounds, Taxi Ranks, Police Stations)	3	1.6
Yes	Tema GPHA Park	34	18.93
Yes	Dome market	6	3.3
Yes	Botwe Madina	3	1.61
Yes	ECOMOG parking station	2	1.1
Yes	Tuesday Market	2	1.1
Total		180	100.0



Figure 4.1: Parking on carriage way at Madina market



Figure 4.2: Activities of Push Trucks at Agbogloboshie market

As many as 43% of the vehicle operators practice on-street parking which also reduces the roads' effective width; further slowing down capacity of these roads and results in congestion. Clearly, the situation in Agbogloboshie which is the destination of about 21% of freight vehicles entering GAMA simply goes to worsen the already congested market. In like manner, the situation in Tema with nearly 19% of freight vehicles driving to the GPHA lot is also indicative of where transit freight vehicles park in Tema when they are exporting and importing cargoes from or to Burkina Faso, Niger and Mali. Because of limited freight parking facilities in Tema Port area, freight trucks easily park at any available open space within the port vicinity as well as along road shoulders.

The situation of other freight vehicles' parking facilities is slightly better with some industrial establishments in Tema including the Free Zones Area, Tema Oil Refinery (TOR), Ghana Cement Company (GHACEM) and the main harbor also have severe difficulties with parking of freight vehicles that come to transact business with these organizations.

4.3 Prolonged time spent in looking for parking space

In most markets and other traffic generators within GAMA there is inadequate parking spaces for freight truck operators. This situation compels truck operators to park at unauthorized locations within the city. It must be mentioned that some freight truck operators spend time searching for places to park and load or offload their trucks with wares they had carried. In the surveys

undertaken, the drivers mentioned they spent varied times in search of places to park as summarized in Table 4.2.

Table 4.2: Time Spent Looking for Parking Space

Time Period	Frequency	Percent
0 - 5 mins	15	8.3
6 - 10 mins	14	7.8
11 - 15 mins	13	7.2
16 - 20 mins	11	6.1
21 - 30 mins	23	12.8
31mins - 1 hour	32	17.8
1 - 2 hours	24	13.3
2 - 3 hours	16	8.9
Up to a day	13	7.2
Between 2-3 hours	7	3.9
1 week	12	6.7
TOTAL	180	100.0

Source: Field Surveys, 2019.

Most freight vehicle operators (17.8%) spend between 30 minutes to one hour looking for parking space to offload freight. In addition, about 52.8% also spent between 21 minutes and 3 hours searching for an appropriate space to park and offload freight meant for sale (see Table 4.2).

Spending more time cruising in traffic in search of spaces to park freight trucks hinders efficient utilization of road space while also contributing to emission of greenhouse gases. This phenomenon poses a congested road space in the event that truck operators are unable to locate a suitable space to park.

4.4 Encroachment on the roadway by market traders

A common feature that was observed during the field studies was the encroachment on road space by market traders. This challenge has been observed in virtually all the markets surveyed in GAMA where it was seen that sellers prefer to sell on, and along, the road because they are of the view that, it is more convenient and buyers can easily have access to the goods they sell; ignoring the fact that they cause congestion on these roads and trucks take a longer time trying to navigate to get a parking spot.

The incidence of encroachment on roads compelled pedestrians to share the road space with vehicles amidst all the congestion already recorded in the city especially around markets. In effect, the effective roadway width is reduced, speeds are reduced and the roads underutilized. This phenomenon also puts the pedestrians at risk of having pedestrian – vehicular conflicts resulting in reduced safety for all classes of road users.



Figure 4.3: Encroachment on carriageway by Traders at Agboglobloshie market



Figure 4.4: Encroachment on carriageway by Traders at Kaneshie market

4.5 Limited ancillary facilities

Within the context of this freight study of GAMA, these facilities are those which support the patronage of the various trips generated or attracted by freight vehicles as they access services provided by industrial establishments and markets. Such facilities, as revealed by our surveys, included parking for freight vehicles, security to guard the vehicles, mosque, washroom, paving the parking area, clinic, fire tender and mechanics' shops (see Table 4.3).



Figure 4.5: Parking area with no ancillary facilities at Tema



Figure 4.6: Parking area with no ancillary facilities at Agbogbloshie

As can be seen from Figures 4.5 and 4.6, where parking areas have been provided most of them are not paved and collect water any time it rains. Such areas are also not properly designed and laid out, resulting in haphazard parking and in the end these facilities are only able to take fewer vehicles such as the facilities at Tema Oil Refinery, Fishing Harbour and Agbogbloshie Market.

As Table 4.3 indicates the provision of a mosque (dwarf wall structure for praying) was identified by as many as 8.3% of the patrons, especially those that haul freight over long distances within Ghana and outside the country who need to spend a relatively long period of time either at the Port of Tema, the industrial enclave or the markets. Currently, Moslem vehicle operators use every conceivable place near these traffic generators and attractors or even spaces between the vehicles for this purpose.

Wash rooms were also considered as ancillary facilities because when freight vehicle operators have to spend a few days to mobilize return payload or travel empty to pick up payload from, say, the Port of Tema or any industrial establishment in other locations. They need such facilities when they break their journeys along the route. The absence of these facilities in the study locations including the freight vehicle terminals around the markets (such as Madina, ECOMOG and Dome) has resulted in insanitary and poor environmental conditions as was observed.

Security of freight vehicles, their contents and owners were also considered as an important ancillary facility because nearly 16% of respondents were of the view that security is very important if the various freight vehicle terminals are to be used. Other ancillary facilities identified by vehicle operators, market women and pedestrians are mechanics' shops (2.7%), clinic (3.5%), crèche/school (3.8%) and fire tender (4.3%). On a closely related view, some market women and pedestrians suggested that the freight vehicle operators be relocated.

Interestingly, no market woman suggested relocation of traders and no freight vehicle driver suggested the relocation of drivers (refer to Table 4.3)

As many as 162 out of the 599 people interviewed (27.1%) expressed concern about the untarred nature of the freight vehicle parking facilities. Most of them remain in earth surface but almost all of them are not paved. This subject is dealt with in the next section of this report.

Table 4.3: Facilities at Car Park/Improvements to be made to the Existing Condition

	Mosque	Security	Washroom	Concrete/ Paved	Clinic	Creche/ school	Fire Tender	Mechanic shop	Relocate Traders	Relocate Drivers	TOTAL	%
Drivers	47	41	31	23	-	-	-	16	22	-	180	30.1%
Market Women	3	39	21	34	21	23	17	-	-	32	190	31.7%
Pedestrians Markey	0	15	24	105	0	0	9	0	4	72	229	38.2%
TOTAL	50	95	76	162	21	23	26	16	26	104	599	100%
Percentages	8.3%	15.9%	12.7%	27.1%	3.5%	3.8%	4.3%	2.7%	4.3%	17.4%	100%	

4.6 Unpaved Parking Areas

What was also noticeable in virtually all the freight vehicle terminals, for markets and industrial areas, was their unpaved nature (refer to Figure 4.7). In the absence of such paved areas and the disorganized state of these facilities, the MMDAs are unable to levy appropriate tariffs for patrons to pay resulting in limited funds for improvement in paving the parking areas.

As can be seen in the figure referred to in the foregoing, and with the repeated axles on the unpaved parking facilities, potholes develop very quickly and collect water when it rains. With the passage of time, they widen and collect more water which results in poorly maintained freight parking facilities. Where there are alternatives, freight vehicle operators move on to use any nearby facility or park resulting in the infraction of laid down parking guidelines or bye laws.

As can be seen at the Agbogbloshie, Dome and ECOMOG markets, amongst others, the unpaved nature of the parking facilities also leads to severe erosion; further deepening erosion and damaging surface of the parking facilities.



Figure 4.7: Unpaved parking area at Agbogbloshie

4.7 Inability to enforce existing laws

There are several laws regulating physical development at the local level in all MMDAs in Ghana. These legal instruments are usually enacted to provide support and regulatory powers to planning authorities such as the MMDAs, to enable them carry out their functions without restraint.

Currently, the existing laws related to physical development include the following:

- a. Local Government Act 462 of 1993;
- b. National Building Regulations;
- c. Land Use and Spatial Planning Act 2016 Act 925;
- d. National Development Planning Commission Act 479; and
- e. National Development Planning System Act 480.

A summary of these laws relevant to physical development is attached as Appendix 7.

However, to cater for local differences and peculiarities at the MMDAs level, each MMDA has been given powers to enact bye laws to deal with specific problems or circumstances. Under this study, all the bye laws for the beneficiary MMDAs have been reviewed and the findings presented in a subsequent chapter. Following the review, it became clear that, there are sufficient laws and bye laws to govern the movement and safe operations of freight vehicles as they move between origins and destinations within GAMA.

There are specific laws indicating where and when vehicles in general, and specifically freight vehicles, can park and for what duration as well as routes along which movement of freight vehicles are banned from travelling. It is in the context of the foregoing and the fact that there are infractions of these laws that one can conclude that the laws are either not appropriate or the MMDAs do not have the capacity to implement their own laws. The surveys revealed that apart from the AMA and TMA, none of the other MMDAs have a full functioning legal department; that is, a lawyer and a full complement of staff members.

Given the above situation, it is therefore clear that the problem with the MMDAs is not the paucity of laws to deal with offenders but, rather, it could be with the unavailability of the relevant laws to “bite”. Consequently, there is the need to improve on the capacity of the various MMDAs’ Legal Departments.

4.8 High charges and insecure parks

In this study, the high charges refer to the tariffs charged by the MMDAs to enter their parking facilities by freight transport operators based on its number of axles and the weight of goods carried. Considering that most MMDAs do not have such facilities, it was considered essential to assess how much the freight vehicle operators would be willing to pay for the use of such overnight facilities provided some minimum level of service can be assured.

Table 4.4: Proposed Amount for Overnight Parking

Amount Willing to Pay (GH¢)	Frequency	Percentage
5.0	87	48.3
5.01-10.00	50	27.8
10.01-15.00	22	12.2
15.01-20.00	13	7.3
20.01-30.00	8	4.4
Total	180	100.00

Source: Field Surveys, 2019

It will be seen from Table 4.4 that, nearly one half of the respondents (48.3%) were prepared to pay GH¢5.00 with a further 27.8% willing to pay GH¢10.00 for use of the MMDAs' overnight freight parking facilities. What this indicates is that, it is an impact area but its feasibility will depend on the peculiar circumstances of each MMDA and it must also be noted that any amount in excess of GH¢10.00 is unlikely to be intensively utilized by operators of freight vehicles. In other words, the level of service provided must be commensurate with the threshold revealed from the surveys.

4.9 Safety and security of persons

Once again, this was a major concern for some freight vehicle operators; especially those who arrive in the GAMA from dusk to dawn but this was not assessed in any meaningful manner because of the lack of appropriate data. However, individual freight drivers including those who operate from the Fishing Harbor vehicle terminal, ECOMOG and Madina markets as well as those who transport various agricultural commodities to markets in Accra complained about the safety

of their goods once they arrive at their destination. As it turned out, safety and security of the freight carried was a major concern as was the case of agricultural goods destined for markets within the GAMA. Since, the vehicle terminals are not protected, the goods are simply at the mercy of the weather and miscreants.

As a freight vehicle operator carrying foodstuff intimated, “Every time I bring sugarcane from Kyebi to Agbogloboshie, I am so scared that I only wish morning breaks so quickly so I can offload and return to Suhum. This place is not safe”.

Safety and security have been identified as a major incidence impact area because of its possible implications on the use of freight vehicle terminals. If they are not comfortable with the terminals, the freight vehicles will resort to on-street parking. The latter could then have an impact on travel speeds and congestion within GAMA. This incidence impact area can be considered in the provision of new freight parking facilities as is being contemplated in the design of such a facility opposite Tema Technical Institute in Tema by the TMA.

4.10 Overloading of freight vehicles

In view of the lack of current data on overloading of freight vehicles on various approach roads leading to destinations in markets, industrial areas, the Tema Harbour, extensive was made of visual inspection and the height of the loaded vehicle above its body as that determines the stability of the vehicle.

Old data (2017) provided by the Ghana Highway Authority at the Dobro Axle Load Station revealed that based on the axle configuration, about 14% of all vehicles passing that point are overloaded (refer to Table 5.3). In addition, the axle configuration in Table 5.4 reveals that most of these vehicles (54.47%) of the vehicles had less than five (5) axles which was the predominant freight vehicle type encountered in our surveys.

Table 4.5: GHA Axle Load Standards (10T per axle)

Incidence of Overloading	Frequency	%
Yes	165	14.35
No	985	85.65
TOTAL	1,150	100.00

Source: Doboro Axle Load Station Data (Jan. 2017)

Table 4.6: Incidence of Overloading by Truck's Number of Axles

Number of Axles	Incidence of Overloading				Total Freight Vehicles
	Yes	%	No	%	
2-axle	21	12.50	14	87.50	6
3-axle	16	10.391	138	89.61	1541
4-axle	30	31.58	651	68.42	95
5-axle	36	18.85	55	81.15	191
6-axle	65	10.73	541	89.27	606
7-axle	13	16.46	66	83.54	9
8-axle	31	33.331	6	66.67	97
Total	165	14.35	985	85.65	1150

Source: Doboro Axle Load Station Data (Jan. 2017)

Therefore, by extension, it is to be expected that about 14% of all traffic on the major approach roads with less than five (5) axles are all overloaded with significant impacts on travel speeds for all other vehicles.

For export cargoes moving towards the Harbour, it was noticed that freight vehicles from various origins in and outside Ghana were not overloaded whereas import traffic to Burkina Faso, Niger and Mali from Tema Port were almost always overloaded in spite of the presence of the Way Bridge personnel from the Ghana Highway Authority. These vehicles move slowly and contribute significantly to traffic congestion along the major arterials.

In the case of agricultural commodities, such as corn dough, the vehicles are almost always overloaded because of their heavy nature of such commodities. Charcoal from the hinterland is also heavily loaded and a risk for public safety (see Figure 5.4)

This is an incidence impact area because when the freight vehicles are overloaded, they tend to be driven at a snail pace; hence, causing congestion with long queue lengths. This is a reason for considering overloading of freight vehicles as an area that needs attention.



Figure 4.8: Overloaded vehicles along Pokuase-Nsawam road

4.11 Unrestricted period for freight delivery

During the surveys, it became clear that the freight vehicles delivered several input and output goods from various parts of the country to destinations within the GAMA region at any time of the day.

Table 5.5 reveals that freight vehicles come into the markets and the industrial establishment every time of the day. These freight vehicles are normally hired from their origins to destinations including: Agbogbloshie, Tudu, Tema Community One, Makola, Haatso and Madina, among other destinations.

Table 4.7: Times for Delivery of Goods into the Market

Time of Day	Frequency	Percentage
Dawn	102	51.26
Morning	86	43.22
Night	70	35.18
Evening	41	20.60
Early Afternoon	36	18.09
Late Afternoon	25	12.56

Source: Field Surveys, 2019

From Table 5.5 it is clear that most of the traders and their hired trucks deliver goods at dawn and in the morning. Incidentally, this time (morning) coincides with the morning peak when most trip makers are seeking access to the centres of Accra and Tema, thus contributing in no small way to the slow speeds experienced in the central areas of these cities and their associated congestion.

As can be seen from the Table 4.7, “Dawn”, “Morning” and “Night” are more popular for the discharge of various types of freight within GAMA. On the other hand, the “Evening”, “Early Afternoon” and “Late Afternoon” were not very popular times for the discharge of freight. Perhaps, there may be the need to restrict the times during which freight will be allowed into the city centres of Accra and Tema.

The unrestricted period for freight delivery could have adverse impacts on traffic flows. Hence, it could be considered as a potential impact area.

4.12 Road Infrastructure

The condition of road infrastructure is extremely important in the management of traffic demand. Failing this, congestion will be exacerbated and this could have debilitating effects on overall economic development. According to several authors, including Musah et al. (2019) and Abane (2017), traffic congestion in Accra is a nightmare to commuters and other users of road space. The total road network in 2011 was 1,632km with 1,310km being tarred. The Korea International Cooperation Agency (KOICA) in 2016 undertook a study in the GAMA and found out that the total road length in Accra was 7,592km which was 58% less than the expected road length of 18,952km.

On the other hand, the total number of registered vehicles in Ghana stood at approximately 1, 952,564 with the Greater Accra region having the highest number of registered vehicles of 1,164, 564. Hence, the vehicle/population ratio in Ghana has also grown steadily from about 50 vehicles per 1,000 population in 2010, to about 70 vehicles per 1,000 population in 2015. It is therefore clear that the road network length has not grown as fast as the vehicle/population in Accra; and GAMA for that matter.

Literary what it means is that there are so many vehicles on the network that deteriorates as a result of lack of maintenance or neglected maintenance. This worsens the already precarious situation by reducing traffic speeds to levels that allow traffic to build up in a relatively short period

of time. Another implication of this phenomenon is that with the passage of time, traffic congestion is likely to spread to other MMDAs within the GAMA.

In another breadth, Abane (2017) has also argued that where some of the roads have poor surfaces a large volume of the traffic (including freight vehicles) is usually forced to over concentrate on the relatively good roads, causing congestion on most of them. In addition, in other parts of the GAMA, shop keepers and other workers park their vehicles by their workplaces further rendering the roads narrower and intensifying congestion; with travel speeds reducing to about 20 kph during peak periods (7:30-9:00am and 4:30-6:00pm).

The delicate relationship between land use and transport has not been recognized by virtually all the MMDAs partly because of the manner in which physical development has unfolded in recent times. Residential development has outstripped the development of roads in the GAMA and in other cases, incompatible uses have been located in close proximity to each other. As a result, access to such areas are impaired and it would appear that most of the roads in even residential areas are gradually becoming congested.

5.0 REVIEW OF MMDAs' BYE-LAWS

In the Greater Accra Metropolitan Area (GAMA), the movement of freight has a significant impact on traffic and congestion. As a major center for population influx and economic activities, managing traffic congestion is crucial. Freight vehicles normally come from different parts of the country and other neighbouring countries into the major business centers in the GAMA. According to the first objective of the study, which is to generate a solid basis of information on freight transport in GAMA, there is the need to review existing standards and regulations that pertain to the issues and find the gaps and how best they can be improved upon. Under the Local Government Act, 1993 (Act 462), Assemblies have the power to make bye-laws to better govern their jurisdictions. This section is a review of the bye-laws for the beneficiary MMDAs.

The approach was simply to review the bye-laws for the various beneficiary Assemblies and to compare them with each other to facilitate the determination of any underlying circumstances or whether one can learn from the positive experiences of other Assemblies. Various thematic areas were selected from the review for the various comparisons based on their relevance to access and mobility within GAMA.

5.1 Date bye-laws were promulgated

The La-Nkwantanang Municipal bye-laws were promulgated by the Assembly and published on 29th October, 2014. The Ga-East, Accra Metropolitan Assembly, Ga Central, Ga South and Tema Metropolitan Assembly bye-laws were also published in 2008. It will be seen that the year of publication may, or may not, be an indicator of an Assembly's capacity to effectively solve the problems created by freight vehicles in their areas of jurisdiction but it also gives an indication of how long the problems of access and mobility have persisted. They provide a basis to analyse the implementation of transport related provisions.

5.2 Preparation of a Public Transport Plan

All the MMDAs (excluding La-Nkwantanang) have bye-laws that make provision for the preparation of a Public Transport Plan which shall have due regard for any relevant guidelines issued under the authority of the National Development Planning (System) Act 1994 (Act 480) and the Development Plan of the area. The plan is to identify specific transport related issues and make provision for solutions over a period of time, and the plan is to be reviewed periodically to fill in the gaps.

5.3 Designated areas for sale of goods in the market

The bye-laws state that, there shall be designated areas or stalls for the sale of goods and the rendering of any kind of service. These designated areas are assigned to interested persons by the Assembly and they are to maintain those areas for as long as they wish to be there to avoid obstruction in the market and ensure orderliness. In addition, the bye-laws prohibit any form of market activities that obstruct vehicular movement. Contrary to this provisions, various markets exhibit different levels of infraction with Agbogbloshie, Madina and Tema Markets being the worst offenders.

5.4 Obstruction of pathway by sellers and others being an offence

The bye-laws for Ga East, Accra Metropolitan Assembly, Ga Central, Ga South and Tema Metropolitan Areas emphasize the fact that obstruction of pathways by sellers is an offence and anyone caught flouting this law is liable to a fine. Comparatively, the bye-law for La-Nkwantanang places less emphasis on this particular measure. In whatever way this is viewed, it is clear that enforcement does not appear to be strong. Perhaps, what is required now is to help the various traffic generators, such as markets, to deal with their on-street parking of freight vehicles, and a stricter enforcement of, and adherence to, existing traffic bye-laws.

5.5 Unauthorized parking being an offence

The bye-law for La-Nkwantanang states that parking at an authorized place, for loading & off-loading, by passenger vehicles or private vehicles is an offence. This problem is one of the major causes of traffic on roads in and around the markets and their immediate environs. Due to the fact that there are inadequate parking terminals at the markets, people prefer to park their cars along the roads around the markets, while some sellers also exhibit their goods along and within the road space. These are critical contributors to traffic obstruction around market centers. However, the bye-laws for Ga South, Ga Central, Ga East, Accra Metropolitan Assembly and Tema Metropolitan Assembly do not state this as an offence. Perhaps for these Assemblies, efforts should be made to bring this observation to the responsible officers' attention and ultimately for the Assemblies' consideration.

5.6 Keeping faulty vehicles on the street for more than two (2) hours as an offence

The practice of keeping of faulty vehicles on the street overnight and even for days seems to be normal for a lot of people, but this causes serious traffic on roads within the immediate environs of the markets. Especially for major arterials in and around market centers, faulty vehicles are left there unattended to, and this also causes delays in movement of other vehicles, including freight vehicles. In the bye-laws for Ga East, Ga South, Ga Central, Accra Metropolitan Assembly and Tema Metropolitan Assembly, it is stated that leaving a faulty vehicle on the road for more than two (2) hours is an offence and the Assembly has the right to tow the vehicle. If this has been captured in the bye-laws and there are still infractions, then this could be attributed to weak enforcement of the same laws.

5.7 Establishment of a complaints unit at the Transport Department

The presence of complaints unit in any Assembly is very important as most of the drivers of freight vehicles normally face challenges which need to be addressed immediately. In the absence of this, they resort to the market queens who have little or no control over some of the issues. The bye-laws for Ga East, Ga South, Ga Central, Accra Metropolitan Assembly and Tema Metropolitan Assembly have made provision for this. The Assemblies could also view this as an opportunity to enable the various Transport Departments to begin to liaise a little more closely with the vehicle operators and other strategic stakeholders.

5.8 Carrying passengers or goods in excess of the capacity of the vehicle

In addition to road crashes, overloaded freight vehicles contribute to increase on-street vehicular breakdowns which create the unwanted traffic congestion and prolonged travel times. In most cases, the transport operators are motivated by their quest to maximize their trips and make more money. The bye-laws for Ga South, Ga Central, Ga East, Accra Metropolitan Assembly and Tema Metropolitan Assembly, all have provisions to take care of this phenomenon. Strict adherence to axle loads for different freight vehicles is a major national problem on the highways but in such local circumstances, the Assemblies can strategize to deal with it for the roads to last longer.

5.9 Definition of routes, parking places and terminals for drivers by the Assembly

Some routes leading to the markets tend to be congested during peak periods. It is as a result of this that the Assembly has the power to define the routes drivers should use. It is in this regard

that the Assemblies within the context of their bye-laws could draw up traffic management plans for execution in their various areas of jurisdiction to enhance access and mobility. These same bye-laws enjoin the Assemblies to develop vehicle terminals or lorry stations for parking of freight vehicles and offloading of goods from such vehicles. When this is enforced, the problems caused by such vehicles would be minimized, particularly on-street parking and offloading of freight.

5.10 Enforcing services and vehicle quality standards in accordance with procedures

The maintenance of vehicles is essential for their effective and efficient operations. In order to reduce unfortunate occurrences, it is expedient for vehicle owners to ensure that they adhere to quality standards as well as services available to them. These services go a long way to help ensure safety within the environs of the Assembly. It is in this regard that the Ga East, Ga South, Ga Central, Accra Metropolitan Assembly and Tema Metropolitan Assembly deemed it necessary to include these in their bye-laws. On the other hand, La Nkwantanang Madina Municipal Assembly bye-laws do not make provisions for enforcing services and vehicle quality standards. This can be included in their bye-Laws to ensure the safety of everyone.

5.11 Setting of parking fees by Assembly

Parking fees set for vehicle owners are very useful in terms of operation and maintenance of related facilities. With strict adherence, the Assembly is capable of managing and ensuring that vehicles do not park at unauthorized areas such as on the streets and pedestrian walkways. This will prevent private entities who own parking terminals from exploiting freight drivers when they park their trucks to offload. Again, the Assembly can accrue revenue from these fees to engage in developmental projects for the benefit of society. Interestingly, none of the Assemblies make provision for this which is a bit worrying and needs a critical look. The Tema Municipal Assembly has just commenced an initiative that will privatize the collection of parking fees set by the Assembly for on-street parking. This same Assembly is also developing a freight parking facility on a Public Private Partnership (PPP) basis with a private entity. A successful example of this is the privatization of on-street parking of private vehicles by the Kumasi Metropolitan Assembly (KMA).

5.12 Sanitation day for cleaning of the market

Sanitation is key to the development of human life and the markets provide a reliable source of income for most people in Ghana. These markets are also the major sources of foodstuff for its

clientele. However, most markets in GAMA are characterized by dirt, filth and unhygienic conditions. These conditions breed diseases such as cholera and diarrhoea which slow down productivity of workers; especially when they fall sick. In this regard, the La Nkwantanang Madina Municipal Assembly has made provision for a sanitation day which is obligatory for all to participate in the cleaning of the market. Persons who flout this law will pay the corresponding penalty which is not less than three and not more than ten penalty units as stipulated in the Bye-Law. Again, there shall be no movement of vehicles as stipulated by the law until the clean-up is done.

This provision in the bye-law is a very good and relevant one and indeed will ensure that sanitation is improved but unfortunately only the La Nkwantanang Madina Municipal Assembly has this enshrined in its bye-laws. The other Assemblies in GAMA do not have similar provisions and therefore the periodic cleaning up of the markets by the citizens is done intermittently and by convention rather than law. In any case, the law and its enforcement would seem to ensure sustainability of the cleaning exercises.

5.13 Operation of push trucks (on pedestrian walkways and not the carriageway of roads) as an offence

Push trucks serve a significant role in the delivery of goods in and around markets. These trucks convey goods from freight vehicles to market women in order for buying and selling to take place. These trucks normally ply the carriageway taking up space and, in some cases, cause nuisance to the general public. In this regard, the Ga East, Ga Central, Ga South, Accra Metropolitan Assembly and Tema Metropolitan Assembly have made provisions for these push trucks by delineating the routes along which they can operate to reduce avoidable traffic crashes and nuisance on major roads in the cities. Nonetheless, the La Nkwantanang Madina Municipal Assembly does not have any such provisions and this needs to be encouraged to include these provisions in the bye-laws given their potential implications to reduce road crashes and to enhance the uninterrupted flow of traffic.

5.14 Offloading of goods from vehicles on streets or outside vehicle terminals as an offence

Freight vehicles play a vital role in the delivery of goods and services in and around markets. These goods are transported from neighbouring countries such as Mali, Burkina Faso and Niger and other areas within the country. Most freight vehicles park on the roads to offload goods which

cause heavy vehicular traffic leading to delays to travellers, increased vehicle operating cost (VOC) and, in some cases, crashes which lead to loss of lives. This can also be attributed to the lack of designated parking terminals or, better still, the disregard for designated parking spaces due to distance because they are not conveniently located. So far, no provision has been made in relation to this bye-law by any of the project beneficiary MMDAs but it is so important that relevant provisions in this regard should be incorporated in the MMDAs' bye-laws.

5.15 Authority to charge for on-street parking

MMDAs involved in the *Ghana Urban Mobility and Accessibility Project* have not made provisions for charging for on-street parking. A major generator of traffic congestion is on-street parking which has been practiced for a long period of time. This has been a norm in most parts of MMDAs. On-street parking by vehicles leads to delays in travel time and also leads to congestion on most roads. Assemblies can also generate income by enforcing these laws when enacted to develop their jurisdictions. Where it is seen as an activity which cannot be done effectively by the Assemblies, it can be privatized.

5.16 Bye-Laws allow for private participation in parking services delivery

Private participation is essential to the development of every economy. The development of facilities such as parking terminals, stores and other ancillary facilities can be done by private entities to gain profit while benefitting society at large. MMDAs should help bring them on board in the provision of such amenities. With the engagement of private participation, operations and management are best managed and utilized to benefit the people. However, none of the participating MMDAs has made any provision for such a development in their bye-laws. This should be encouraged to bring more private sector participation into the provision of facilities such as vehicle terminals, on-street parking and management of markets.

5.17 Summary

Table 5.1 summarises the various provisions in the bye-laws of the beneficiary Assemblies. The review indicated that, there are as many as 15 statutory provisions in the various bye-laws of the MMDAs that are relevant for dealing with the problem of freight vehicles, unauthorized parking, on-street parking and setting of fees; among others. Themes such as obstruction of pathways by sellers being an offense, keeping faulty vehicles on the carriageway, establishment of complaints unit at the Transport Department (see Table 5.1) are all areas which the MMDAs are concerned

with. It is therefore to be expected that, with these bye-laws backing them, they should be able to deal with some of the major problems which characterize the markets and other major traffic generation areas including vehicle terminals.

The ability to deal with all the foregoing problems may be attributed to several factors including lack of capacity to adequately implement and monitor the various provisions of the bye-laws. Consequently, the problem appears to be related to the inability of the MMDAs to enforce various provisions of their own bye-laws.

The freight traffic impact areas identified following the data analyses are addressed in the next report which captures all the mitigation measures as well as strategies for implementation in the short, medium and long term to ensure safe and timely freight transport in GAMA.

Table 5.1: Summary of Provisions in Bye-Laws of MMDAs

	Ga East	Ga South	Ga Central	Accra Metropolitan Assembly	Tema Metropolitan Assembly	La Nkwantanang Madina Municipal Assembly
Date Bye-Laws Promulgated	2008	2008	2008	2008	2008	2014
Preparation of a Public Transport Plan	√	√	√	√	√	
Having designated areas for sale of goods in the market	√	√	√	√	√	√
Obstruction of pathway by sellers and others being an offence	√	√	√	√	√	
Unauthorized parking being an offence						√
Keeping faulty vehicles on the street for more than 2 hours as an offence	√	√	√	√	√	
Establishment of a complaints unit at the Transport Department	√	√	√	√	√	
Carrying passengers or goods in excess of the capacity of the vehicle	√	√	√	√	√	
Definition of routes, parking places and terminals for drivers by the Assembly	√	√	√	√	√	√

	Ga East	Ga South	Ga Central	Accra Metropolitan Assembly	Tema Metropolitan Assembly	La Nkwantanang Madina Municipal Assembly
Enforcing services and vehicle quality standards in accordance with the procedures	√	√	√	√	√	
Setting of parking fees by Assembly						
Sanitation day for cleaning of the market						√
Operation of push trucks (on pedestrian walkways and not the carriage way of roads) as an offence	√	√	√	√	√	
Off Loading of goods from vehicles on streets or outside vehicle terminals as an offence	√	√	√	√	√	
Authority to charge for on-street parking						
Bye Laws allow for private participation in parking services delivery						

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APPENDICES

- APPENDIX 1: 24-HOUR TRAFFIC VOLUMES OF SOME STUDY ROADS
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APPENDIX 1

24-HOUR TRAFFIC VOLUMES OF SOME STUDY ROADS

MANUAL CLASSIFIED TRAFFIC COUNT													
Road Section: Madina - Kwabenya Road				Count Location: Haatso			Direction:						
Date: 11/08/20				Day of Week: Tuesday			Weather:						
Enumerator:													
Time	Cars and Taxis	Pickups and Van	Small Buses	um Buses/M. Wa	Heavy Buses	Light Trucks	Medium Trucks	Heavy Trucks	Semi-Trailer Lt	Semi-Trailer Hy.	Truck Trailer	Others	Total
6:00am-7:00am	373	128	338	3	0	38	0	10	0	1	3	0	894
7:00am -8:00am	531	217	400	5	0	23	0	8	0	0	1	1	1186
8:00am -9:00am	645	186	333	2	0	24	1	3	0	1	1	1	1197
9:00am -10:00am	621	249	313	0	0	12	4	12	0	0	3	0	1214
10:00am - 11:00am	675	276	260	1	0	22	4	4	1	5	1	0	1249
11:00am - 12:00pm	669	250	255	0	0	33	2	8	0	2	2	0	1221
12:00pm - 1:00pm	639	275	215	1	0	17	3	9	1	0	6	0	1166
1:00pm - 2:00pm	696	293	228	0	0	27	1	15	2	0	2	2	1266
2:00pm - 3:00pm	733	466	238	0	1	23	2	8	0	3	0	0	1474
3:00pm - 4:00pm	705	271	246	1	0	16	0	13	0	1	5	0	1258
4:00pm - 5:00pm	623	261	209	0	0	21	0	10	0	0	1	0	1125
5:00pm - 6:00pm	600	219	238	0	0	23	4	7	0	0	1	0	1092
6:00pm - 7:00pm	623	210	286	1	0	19	1	3	1	1	2	0	1147
7:00pm - 8:00pm	507	156	240	0	0	12	2	5	0	0	5	0	927
8:00pm - 9:00pm	539	170	190	0	1	17	0	3	0	0	4	0	924
9:00pm - 10:00pm	358	126	108	0	0	14	0	5	0	0	0	0	611
10:00pm - 11:00pm	216	119	96	1	0	10	0	6	0	0	0	0	448
11:00pm - 12:00am	156	219	75	0	0	9	0	3	0	0	0	0	462
12:00am - 1:00am	150	189	78	0	0	7	0	2	0	0	0	0	426
1:00am - 2:00am	105	300	65	1	0	8	0	3	0	0	0	0	482
2:00am - 3:00am	167	186	75	1	0	2	0	1	1	1	2	0	436
3:00am - 4:00am	125	130	95	0	0	10	0	2	0	0	1	0	363
4:00am - 5:00am	167	89	125	0	0	12	1	0	0	1	0	0	395
5:00am - 6:00am	298	94	146	1	0	12	1	4	1	0	2	1	560
Total	10921	5079	4852	18	2	411	26	144	7	16	42	5	21523

MANUAL CLASSIFIED TRAFFIC COUNT													
Road Section: Accra - Aburi road			Count Location: Airport first			Direction:							
Date: 12/08/20			Day of Week: Wednesday			Weather:							
Enumerator:													
Time	Cars and Taxis	Scups and Van	Small Buses	m Buses/M. W	Heavy Buses	Light Trucks	Medium Trucks	Heavy Trucks	Semi-Trailer L	Semi-Trailer H	Truck Trailer	Others	Total
6:00am-7:00am	981	617	973	9	1	31	3	10	0	0	12	0	2637
7:00am-8:00am	1446	870	1103	12	12	32	2	14	0	0	2	0	3493
8:00am-9:00am	1533	854	1100	8	11	47	4	14	2	0	4	0	3577
9:00am-10:00am	2002	1371	1490	6	8	67	7	18	1	2	3	0	4975
10:00am-11:00am	2554	1846	1481	10	12	52	14	19	0	1	9	0	5998
11:00am-12:00pm	2162	1873	1037	2	7	83	17	22	3	0	6	0	5212
12:00pm-1:00pm	1912	1470	575	3	12	73	9	15	0	0	4	0	4073
1:00pm-2:00pm	2015	1543	1045	6	17	62	13	20	2	2	3	0	4728
2:00pm-3:00pm	2220	1470	804	1	10	73	9	26	2	1	7	0	4623
3:00pm-4:00pm	1797	1308	772	7	17	73	18	16	1	3	3	0	4015
4:00pm-5:00pm	1986	1520	712	13	5	85	9	16	2	0	3	0	4351
5:00pm-6:00pm	1915	1615	773	12	7	57	14	10	1	1	3	0	4408
6:00pm-7:00pm	1502	1245	852	9	4	43	10	21	4	1	4	0	3695
7:00pm-8:00pm	1204	889	879	9	4	40	3	7	2	0	2	0	3039
8:00pm-9:00pm	1127	652	584	2	2	43	2	4	0	3	1	0	2420
9:00pm-10:00pm	675	578	466	1	0	20	1	5	0	1	3	0	1750
10:00pm-11:00pm	542	488	504	3	0	15	1	6	0	2	3	0	1564
11:00pm-12:00am	421	524	550	4	0	10	2	4	0	1	2	0	1518
12:00am-1:00am	429	501	520	5	0	15	2	3	0	0	4	0	1479
1:00am-2:00am	524	498	387	8	2	26	1	3	0	1	2	0	1452
2:00am-3:00am	604	555	342	10	3	30	1	5	0	2	5	0	1557
3:00am-4:00am	750	665	356	11	3	45	4	6	0	2	1	0	1843
4:00am-5:00am	768	825	460	10	10	34	3	10	1	1	4	0	2126
5:00am-6:00am	827	924	584	15	9	35	2	11	0	0	6	0	2413
Total	31896	24701	18349	176	156	1091	151	285	21	24	96	0	76946

MANUAL CLASSIFIED TRAFFIC COUNT													
Road Section: Motorway - Kasoa				Count Location: Dworwulu				Direction:					
Date: 13/08/20				Day of Week: Tuesday				Weather:					
Enumerator:													
Time	Cars and Taxis	Scups and Van	Small Buses	m Buses/M. W	Heavy Buses	Light Trucks	Medium Trucks	Heavy Trucks	Semi-Trailer L	Semi-Trailer Hy	Truck Trailer	Others	Total
6:00am-7:00am	1063	551	422	22	5	67	19	49	18	5	34	2	2257
7:00am-8:00am	1503	1031	713	11	9	101	17	40	14	0	17	0	3456
8:00am-9:00am	1845	1257	766	5	2	100	33	59	15	12	42	0	4136
9:00am-10:00am	1851	1377	647	3	5	136	46	50	13	9	70	4	4211
10:00am-11:00am	1732	1557	477	5	1	156	46	75	10	1	95	0	4155
11:00am-12:00pm	1950	1188	581	0	4	177	26	90	14	15	86	1	4132
12:00pm-1:00pm	1942	1133	410	11	1	124	28	56	23	7	63	0	3798
1:00pm-2:00pm	1592	1060	580	10	4	160	33	71	15	18	91	0	3634
2:00pm-3:00pm	2167	1662	566	9	6	185	45	63	24	8	113	0	4848
3:00pm-4:00pm	1774	1377	550	6	4	168	32	61	13	10	107	2	4104
4:00pm-5:00pm	1788	1467	306	11	7	190	57	63	24	13	127	0	4053
5:00pm-6:00pm	2130	1762	949	15	6	120	36	52	25	5	136	1	5237
6:00pm-7:00pm	1657	1370	423	10	5	85	24	61	12	1	136	1	3785
7:00pm-8:00pm	1086	1039	395	7	3	117	10	36	26	2	155	0	2876
8:00pm-9:00pm	1090	854	299	5	2	75	15	57	40	1	142	0	2580
9:00pm-10:00pm	980	721	300	6	2	55	7	42	15	0	94	0	2222
10:00pm-11:00pm	884	708	272	6	4	42	11	30	15	0	120	0	2092
11:00pm-12:00am	602	650	320	8	1	37	8	26	15	1	111	1	1780
12:00am-1:00am	506	602	354	6	3	168	5	12	17	2	88	0	1763
1:00am-2:00am	805	754	550	5	6	154	13	28	10	6	85	0	2416
2:00am-3:00am	1200	1050	508	7	2	125	10	30	9	7	90	0	3038
3:00am-4:00am	1240	1100	502	10	1	185	11	35	8	3	105	2	3202
4:00am-5:00am	1553	1200	530	11	2	106	9	42	12	2	90	0	3557
5:00am-6:00am	1860	1012	456	12	2	75	7	45	11	1	82	0	3563
Total	34800	26482	11876	201	87	2908	548	1173	398	129	2279	14	80895

MANUAL CLASSIFIED TRAFFIC COUNT													
Road Section:	Beach Road	Count Location:	Labadi Beach	Direction:									
Date:	12/08/2020	Day of Week:	Tuesday	Weather:	Good								
Enumerator:	Godwin												
Time	Cars and Taxis	cksups and Van	Small Buses	m Buses/M. W	Heavy Buses	Light Trucks	Medium Trucks	Heavy Trucks	Semi-Trailer L	Semi-Trailer H	Truck Trailer	Others	Total
6:00am-7:00am	542	50	617	15	5	40	3	13	6	4	13	0	1308
7:00am-8:00am	2239	576	707	19	3	39	11	8	0	1	15	0	3618
8:00am-9:00am	1320	105	735	7	5	50	6	7	10	0	19	0	2264
9:00am-10:00am	544	111	284	3	1	65	9	11	4	10	36	0	1078
10:00am-11:00am	437	61	212	0	1	40	5	7	0	4	7	0	774
11:00am-12:00pm	715	70	288	3	0	75	16	10	0	14	20	0	1211
12:00pm-1:00pm	670	53	264	8	7	52	10	7	0	10	22	0	1103
1:00pm-2:00pm	1217	119	357	4	1	80	24	14	6	8	24	2	1856
2:00pm-3:00pm	912	150	330	2	2	71	5	16	0	4	21	0	1513
3:00pm-4:00pm	920	84	456	17	5	69	16	6	1	6	33	1	1614
4:00pm-5:00pm	510	68	262	10	2	56	13	5	0	2	33	0	961
5:00pm-6:00pm	1060	63	270	12	1	49	11	9	0	3	31	0	1509
6:00pm-7:00pm	1300	111	520	8	1	33	4	3	1	2	17	0	2000
7:00pm-8:00pm	1295	80	647	5	2	31	8	10	0	4	20	0	2102
8:00pm-9:00pm	1010	39	384	8	3	21	3	16	1	1	27	0	1513
9:00pm-10:00pm	855	45	191	8	1	10	9	6	0	2	12	0	1139
10:00pm-11:00pm	605	54	106	9	5	10	3	6	0	2	10	0	810
11:00pm-12:00am	555	62	94	10	1	8	4	5	1	2	8	0	750
12:00am-1:00am	650	45	185	7	3	15	5	15	0	3	10	1	939
1:00am-2:00am	623	39	298	6	2	18	10	8	1	1	12	1	1019
2:00am-3:00am	750	76	295	12	3	28	9	17	0	8	8	0	1206
3:00am-4:00am	904	56	296	15	1	35	10	10	0	6	11	0	1344
4:00am-5:00am	965	65	300	10	2	45	9	12	2	5	10	1	1426
5:00am-6:00am	888	72	354	14	6	35	8	14	0	9	12	1	1413
Total	21486	2254	8452	212	63	975	211	235	33	111	431	7	34470

MANUAL CLASSIFIED TRAFFIC COUNT													
Road Section:	Harbour Road	Count Location:	Tema Technical Institute/	Direction:									
Date:	11/08/2020	Day of Week:	Wednesday	Weather	Good								
Enumerator:	Godwin												
Time	Cars and Taxis	Scups and Van	Small Buses	m Buses/M. W	Heavy Buses	Light Trucks	Medium Trucks	Heavy Trucks	Semi-Trailer L	Semi-Trailer H	Truck Trailer	Others	Total
6:00am-7:00am	1016	239	583	74	30	145	30	158	7	22	109	1	2414
7:00am-8:00am	1158	350	613	36	7	128	34	162	10	36	131	0	2665
8:00am-9:00am	960	392	642	22	0	108	43	159	10	26	125	0	2487
9:00am-10:00am	945	354	515	14	3	123	61	145	14	23	121	4	2322
10:00am-11:00am	854	309	370	6	3	129	67	179	5	34	154	1	2111
11:00am-12:00pm	792	224	307	8	1	114	46	165	9	51	192	1	1910
12:00pm-1:00pm	802	263	265	5	1	122	53	167	4	46	161	0	1889
1:00pm-2:00pm	692	295	240	38	10	131	87	159	10	48	156	0	1866
2:00pm-3:00pm	970	300	216	20	8	158	67	104	4	28	235	36	2146
3:00pm-4:00pm	820	365	270	19	2	125	47	102	6	29	218	45	2048
4:00pm-5:00pm	1004	405	254	21	4	155	20	78	11	29	151	2	2134
5:00pm-6:00pm	1021	399	338	25	7	140	32	63	6	27	171	1	2230
6:00pm-7:00pm	865	200	337	32	9	138	29	40	4	37	165	1	1857
7:00pm-8:00pm	826	335	301	19	4	152	15	43	10	25	124	0	1854
8:00pm-9:00pm	850	200	97	29	4	94	30	40	13	19	92	0	1468
9:00pm-10:00pm	760	176	81	23	10	89	19	39	10	22	85	0	1314
10:00pm-11:00pm	733	127	105	24	10	56	22	24	8	20	77	1	1207
11:00pm-12:00am	697	104	96	31	10	65	31	110	7	32	101	0	1284
12:00am-1:00am	659	98	112	45	10	86	10	103	4	30	111	1	1269
1:00am-2:00am	602	82	150	20	10	90	24	118	5	26	98	1	1226
2:00am-3:00am	722	72	240	50	10	123	11	86	8	34	121	2	1479
3:00am-4:00am	866	75	356	75	10	102	15	107	3	22	132	0	1763
4:00am-5:00am	978	101	486	68	10	120	19	101	9	19	128	0	2039
5:00am-6:00am	999	137	504	71	10	89	28	134	12	30	118	0	2132
Total	20591	5602	7478	775	183	2782	840	2586	189	715	3276	97	45114

MANUAL CLASSIFIED TRAFFIC COUNT													
Road Section:	Nsawam - Accra		Count Location:	Tesano Baptist Church		Direction:							
Date:	11/08/2020		Day of Week:	Tuesday		Weather	Good						
Enumerator:	Jasper												
Time	Cars and Taxis	Trucks and Vans	Small Buses	Medium Buses/M. W	Heavy Buses	Light Trucks	Medium Trucks	Heavy Trucks	Semi-Trailer L	Semi-Trailer H	Truck Trailer	Others	Total
6:00am-7:00am	1221	667	727	140	155	154	81	86	37	19	30	1	3318
7:00am-8:00am	1461	776	757	117	53	85	45	50	33	19	42	0	3438
8:00am-9:00am	894	446	490	73	29	103	31	44	26	20	54	0	2210
9:00am-10:00am	1470	934	690	60	24	178	33	27	24	14	60	0	3514
10:00am-11:00am	1230	698	444	115	60	140	69	48	60	45	45	9	2963
11:00am-12:00pm	1366	655	474	90	91	200	98	104	79	64	77	5	3303
12:00pm-1:00pm	1228	678	427	94	38	163	66	40	55	29	42	5	2865
1:00pm-2:00pm	1105	613	310	43	40	108	47	39	49	39	43	6	2442
2:00pm-3:00pm	1028	551	362	61	61	130	50	44	57	52	47	7	2450
3:00pm-4:00pm	780	342	252	42	34	49	45	29	36	28	21	4	1662
4:00pm-5:00pm	1038	502	339	83	79	99	55	44	43	30	27	7	2346
5:00pm-6:00pm	1034	534	425	61	60	107	52	38	48	39	31	4	2433
6:00pm-7:00pm	764	434	415	26	35	69	32	28	31	17	33	5	1889
7:00pm-8:00pm	720	304	216	29	30	12	14	16	18	16	23	0	1398
8:00pm-9:00pm	808	300	248	30	50	26	14	15	21	11	27	1	1551
9:00pm-10:00pm	564	161	152	27	58	47	28	13	16	10	37	8	1121
10:00pm-11:00pm	678	123	119	32	60	25	25	12	11	9	30	2	1126
11:00pm-12:00am	708	111	208	28	52	19	30	11	10	8	27	1	1213
12:00am-1:00am	818	105	211	19	45	19	40	10	9	16	25	1	1318
1:00am-2:00am	968	302	189	33	38	54	45	24	8	18	19	0	1698
2:00am-3:00am	807	400	208	56	40	60	30	35	12	20	23	3	1694
3:00am-4:00am	852	562	123	71	49	72	28	49	13	25	38	6	1888
4:00am-5:00am	987	555	131	86	52	88	31	38	20	20	45	2	2055
5:00am-6:00am	999	576	147	101	85	102	31	32	23	30	37	1	2164
Total	23528	11329	8064	1517	1318	2109	1020	876	739	598	883	78	52059

MANUAL CLASSIFIED TRAFFIC COUNT													
Road Section:			Count Location:	Old Barrier		Direction:							
Date:	12/08/2020		Day of Week:	Wednesday		Weather	Good						
Enumerator:	Jasper												
Time	Cars and Taxis	Trucks and Vans	Small Buses	Medium Buses/M. W.	Heavy Buses	Light Trucks	Medium Trucks	Heavy Trucks	Semi-Trailer L	Semi-Trailer H	Truck Trailer	Others	Total
6:00am-7:00am	973	628	605	230	98	214	132	104	118	92	156	27	3377
7:00am-8:00am	855	465	698	245	115	199	156	212	76	118	125	5	3269
8:00am-9:00am	1426	831	950	215	172	280	170	188	177	140	122	5	4676
9:00am-10:00am	1035	625	644	219	72	217	165	173	82	74	88	0	3394
10:00am-11:00am	785	486	618	177	86	231	152	156	156	151	163	9	3170
11:00am-12:00pm	889	760	761	158	147	252	130	306	132	126	199	3	3863
12:00pm-1:00pm	745	437	522	210	168	158	147	234	193	119	158	5	3096
1:00pm-2:00pm	610	402	455	141	92	142	119	113	124	137	168	5	2508
2:00pm-3:00pm	797	573	650	214	162	217	145	135	168	135	173	0	3369
3:00pm-4:00pm	571	360	296	45	50	73	67	92	50	55	51	0	1710
4:00pm-5:00pm	646	402	444	193	97	166	176	137	105	120	119	0	2605
5:00pm-6:00pm	1209	769	765	127	82	173	103	165	126	85	101	2	3707
6:00pm-7:00pm	1051	824	815	212	226	193	170	178	136	162	95	12	4074
7:00pm-8:00pm	1054	858	908	124	242	266	188	113	114	123	80	10	4080
8:00pm-9:00pm	775	572	616	46	37	120	80	101	62	43	65	5	2522
9:00pm-10:00pm	665	508	445	79	69	98	79	180	48	67	97	0	2335
10:00pm-11:00pm	508	511	336	64	88	73	85	170	53	67	88	0	2043
11:00pm-12:00am	404	486	322	54	97	65	68	165	67	67	101	1	1897
12:00am-1:00am	303	654	405	34	86	82	95	156	98	67	123	1	2104
1:00am-2:00am	450	768	512	58	120	92	101	197	48	67	108	0	2521
2:00am-3:00am	592	755	568	79	119	101	124	206	101	67	133	0	2845
3:00am-4:00am	665	814	445	104	98	118	95	180	99	67	127	2	2814
4:00am-5:00am	788	702	423	154	89	121	88	145	111	67	142	1	2831
5:00am-6:00am	665	796	510	188	75	145	99	180	112	67	154	0	2991
Total	18461	14986	13713	3370	2687	3796	2934	3986	2556	2283	2936	93	71801

APPENDIX 2

DISTRIBUTION OF 2017 FREIGHT TRAFFIC BY REGION AND ITEM

Distribution of freight traffic by Region and Item, 2017

Items / Region	Western	Ashanti	Brong Ahafo	Central	Eastern	Greater Accra	Northern	Upper East	Upper West	Volta Region	Freight Volume
Agri Bulk		275	-								275
Bagged Cargo	65,303	1,631,105	266,695	42,410	145,003	2,118,597	311,514	78,462	215,078	93,616	4,967,783
Books & Stationery		262	-				851				1,113
Containerised		539,177	12,913	32,200	8,751		38,259	6,678	6,923		644,901
Conventional		1,996	-				1,098		483		3,577
Dry Bulk		2,945	-				963				3,908
Frozen Cargo		3,307	564		1,710		1,277	1,992		27,045	35,895
General Cargo	40,102	1,258,678	122,466	43,195	57,767	5,045,607	268,237	54,738	34,179	74,893	6,999,862
Iron/Steel	11,614	251,396	12,777		20,830		27,395	1,155	3,381	12,482	341,030
Palletised		3,481	655				515				4,651
All items combined	117,020	3,692,621	416,070	117,020	234,039	7,164,204	650,109	143,024	260,044	208,035	13,002,186

Note: Volumes are in tonnes

APPENDIX 3

PEDESTRAINS AND MARKET PATRONS SURVEYS

PEDESTRAINS AND MARKET PATRONS SURVEY

Name Optional	Sex	Age	Occupation	Commodity Purchased	Market	Visit Frequency	Route to Market	Parking Space	Recommendation
Lomotey	1	56	Civil engineer	Foodstuff	Anyaa market	1	Anyaa -- Anyaa market	No Parks within the small parking lot at the market	
Naomi	2	54	Housewife	YamsTomatoes Dried fish	Haatso Baasari Yam Market	1	road --Haatso / Atomic road -- ECOMOG	No Place very muddy when it rains	Ground should be filled with concrete.
Amanua Botchway	2	29	Nurse	Yams	Haatso ecomog yam market	1	Haatso- Atomic- Haatso ecomog yam market	No. Because it an open place, parking is not an issue	None
Amanda Sackey	2	40	Banker	Yams	Haatso ecomog yam market	1	Haatso Papao- Haatso ecomog yam market	No. Since this place is not as big as other markets, parking to buy foodstuff is not difficult. This place is very spacious although dusty which is the only issue.	None
Sadiq Inusah	1	42	Driver	Yams (5 tubers)	Haatso ecomog yam market	1	Pillar 2- Atomic- Haatso ecomog yam market	No	None
Linda Atiso	2	32	Caterer	Yams (30 tubers)	Haatso ecomog yam market	1	- Kwabenya- Atomic- Haatso ecomog yam market	No. This place is not too busy as compared to other markets so finding space to park is not a problem at all.	None.
Sedinam Dotse	1	36	IT Specialist	Yams (10 tubers)	Haatso Ecomog Yam market	1	West legon- Haatso- Yam market	No. The place is open and spacious enough so we don't encounter any parking issues	None
	2	32	Businesswoman	Foodstuffs	Domi Market	2	Alajo	Yes, I always park at any available space that is convenient.	Get us a parking place
Nana Akua	2		Housewife	Foodstuffs	Domi Market	1	Mile 7 (petroleum)	Yes. There's no parking facilities so we park at any available space congestion convenient for us	Get a parking place for us
Emmanuel	1	37	Welding	Foodstuffs	Domi Market	1	South Ofankor	Yes. I always park away from the road	Get a parking place for the private cars
Angela	2	36	Teaching	Foodstuffs	Domi Market	1	Pobiman	Yes. There's no a designated place so you have to find a convenient place to park	Get us a parking place
Kwabena Agyemang	1	45	Businessman	Foodstuffs	Domi Market	1	Achimota	There's no parking facilities so we park by the roadside or any available place	Get us a parking place
Adjoa	2	33	Engineer	Foodstuffs	Domi Market	1	West Legon via kiseman	Yes. There's no designated place for parking	Get us a parking place with security
Mrs Augustina Mensah	2	48	Catering	Foodstuffs	Domi Market	1	Kingsbe roundabout	Yes. No particular place to park	Get us a parking place
Amos	1	38	NHIS Officer	Foodstuffs	Domi Market	1	Sowutuom	Sometimes.	1. Get us a parking place 2. Let the traders that sell on the road to vacate the place. 3. Get a place for the taxi and trotro drivers who use the roadside as station
Mr. Agyei	1	38	Mechanic	Foodstuffs	Domi Market	1	Ablekuma fanmilk to the market	We always park by the roadside and I have to be in the car.	A parking place for the private cars
Anti Angela	2	38	Dressmaker				Ofankor Saint John's route	Yes	A new parking space will solve the parking problems
Mr Kwame Akoto	1	47	Accountant				From Parakuo Estate Dome	No	As for me I won't to suggest that the government together with the assembly should construct a parking space for us
Mr Donkor	1	47	Teacher				From Taifa Saint John's	Yes	Because we don't have enough space space all the vehicle parked on the street
Akosua Bemah	2	38	Trader				From Taifa	Yes	Therefore we need a parking space for our vehicle
Adwoa Darkoa	2	37	Teacher				Ashongman Estate	Yes	I need a parking space to resolve
Anti Dzadu	2	34	Caterer				From Atomic	No	In Dome market you can only park at the roadside
Afia Nkansah	2	36	Businesswoman				From Kwabenya	No	Therefore we need a parking space
									No idea
									Parking space will solve the problems

Sister Esther	2	37	Dressmaker				From Ablekuma	No	No idea
	2	39	Trader				From Odorgonno	Yes	We need a big space to resolve the problems
Anti Ama	2	41	Beauty Therapist				Awoshie Junction	Yes	We need a big parking space
									No parking problems
Sister Rita	2	32	Teacher				Odorgonno	No	But I suggest that if the authorities can get a place close to the market for parking it will resolve the problems
Anti Comfort	2	34	Trader				From Ablekuma	Yes	I park at the roadside
Anti Dede	2	42	Businesswoman				From Awoshie	Yes	I will suggest that the assembly will create a parking space close to the market for us
									I think that the place should be properly backfill and paved
Maame Joan	2	43	Trader				Korle bu	Yes	For now the space is too small for parking but we will manage it
	2	35	Lawyer	Yam	Ecomog yam market	1	Oyarifa to ecomog market	No	Maybe in future new one will be constructed
Felix	1	35	Driving	Foodstuffs	Anyaa market	1	Atlas, Anyaa to anyaa market	No, but there is no parking facilities here so we park by the roadside anytime we come	Get us a parking place
Edem	1	36	Civil engineering	Foodstuffs	Anyaa market	1	Pokuase to anyaa market	No. I park by the roadside	On street or offstreet parking place
								There are spaces around but the problem is before you return from the market somebody might have scratched your car. There's no well organised car park.	
Uncle Ebo	1	65	Proprietor	Toiletries	Anyaa market	1	Deeper life to anyaa market		Get us an organised and well managed carpark
								Yes, parking in this market has always been a major challenge. People just park along both shoulders of the road making it very difficult accessing it. When you drive through without the least care, you will smash or dent someone's car. And most of these cars stay parked along the road for very long times	Keep a watchful eye on cars that never seem to go anywhere. If a vehicle is seen parked along road shoulders for more than certain hours, consider towing them if owners can't be found
Sarah Ansah	2	32	Teacher	Foodstuff	Madina market	1	Presec- Rawlings Circle- Taxi rank- Madina market		
								Unless the road is widened which may not be feasible.	
								Little can be done here except perhaps, banning parking along road shoulders with the exception of on-street parking in order to increase traffic flow	
Mr. Kusi	1	48	Civil Engineer	Household foodstuff	Madina market	1	Abokobi- Pantang- Adenta Barrier- Zongo junction- Madina market	Yes, there are no adequate parking spaces in this market. Either you park on road shoulders or find other alternatives such as parking on unbusy streets. The choice of parking along road shoulders in turn creates traffic and impedes access.	Also, I think that inappropriate parking should be fined and improperly parked vehicles should be promptly removed or towed.
									Again, strict enforcement of parking regulations should be ensured by the responsible bodies
Melissa Darkey	2	43	Fresh Juice Vendor	Disposable Plastic Bottles	Madina market	1	Pantang- Adenta Barrier- Zongo Junction- Madina market	Yes, finding a place to park is really challenging. So I now park here, in someone's compound who has offered to use it as parking space and we pay a fee for parking	Provide adequate parking spaces to help manage this situation and ensure strict enforcement systems of parking regulations
									If proper distribution of parking spaces is done along with the proper implementation of the parking policies for the management of parking spaces, I think the increasing problem of parking can be resolved
Freda	2	53	Member of Parliament	Foodstuff	Madina market	1	Adjei Mensah- North Legon- Zongo junction- Madina market	Yes	
Frank Nkum	1	40	Mechanical Engineer	uits and Household foodstu	Madina market	1	Firestone- Zongo junction- Madina market	No. Able to attain a space to park on each visit	None
								Yes, some of the "trotro" drivers have occupied the road shoulders loading passengers resulting in narrowing of the road hindering access.	

NAME/Address	Age	Sex	Business	Occupation	Market	Frequency	Location	Comments	Recommendations
Josephine Nanor	2	48	Accountant	Foodstuff	Madina market	1	School Junction(Ashaley Botwe)- 3rd gate- Nsampanowmu- Madina market	Yes, the car park isn't big enough to contain all customers vehicles since they have outgrown the parking space so usually have to find streets that are not used frequently to park along them	Put up signs with a time limit so that, the flow of customers moving in and out of the parking lot can be kept.
Diana Entsie	2	34	Baker	Margarine, 2 boxes of flour	Madina market	1	Ashiyie- Frafraha- Adenta Barrier- Zongo junction- Madina market	No, usually use the on street parking and pay for ticket.	None
Gyamfua	2	31	Firefighter	YamDried fish	Haatso Baasari Yam Market	1	Papao - Haatso /Atomic road - Baasari Yam Market	No	
Alex	1	49	Electric Engineer	Yam	Haatso Baasari Yam Market	1	Adjei-Mensah --- Haatso /Atomic road - Baasari Yam Market	No	
Hassan	1	45	Mechanic	Yams	Haatso Baasari Yam Market	1	Atomic - Haatso road --- Haatso Baasari Yam Market	No	
Ibrahim	1	53	Head teacher	Yam Dried fish Tomatoes	Haatso Baasari Yam Market	1	ECOMOG -- Baasari Yam Market	No	
Nii Nortey	1	33	Businessman	Yam	Baasari Yam Market	1	ECOMOG -- Baasari Yam Market	No	
Lucy	2	37	Civil servant	Yams	Yams	1	Mabey -- Haatso/Accra road -- Baasari Yam Market	No	No problems
	2	39	Trader				From Adenta	Yes	We need a parking space
Kwasi	1	35	Driving	Foodstuffs	Madina market	1	Spintex	Yes.this part of the on street parking is not functioning because there's misunderstanding between the Assembly and the police.The police arrest you Whenever you park here and it's worries us alot.	We need a parking place. Provide also a place for the taxi drivers who transport our stuff.
Kwame Banabas	1	34	Driving	Foodstuffs	Madina market	1	Botwe	No. I use the on street parking place provided by the Assembly.	Provide more parking places for the private and taxis
Benjamin	1	41	Businessman	Foodstuff	Madina market	1	Royal - friendly road - Hannah road - Madina market	Yes When you park along the road shoulders, people complain you have blocked their businesses.	More on-street parking spots should be made available
Deborah	2	38	Teacher	Foodstuff	Madina market	1	Obgojo -- Nsampanowmu - Taxi rank - Madina market	No	
Yayra	2	33	Educationist	Foodstuff	Madina market	1	Teiman - Oyarifa - Adenta - Zongo Junction - Madina market	No I park at a private parking lot at a fee on someone's premises.	
Rose Mingle	2	41	Hair Stylist	Hair accessories	Madina market	1	Libya Quatres - Zongo Junction - Madina market	Yes	More on - street parking spots should be provided
Dorothea	2	35	Businesswoman	Grocery	Madina market	1	Dela-Junction -- Taxi rank - Madina market	Yes Road is full of vendors which makes parking on the road shoulders very difficult.	Vendors who have occupied the road should be made to enter the market complex so as to have enough space
Regina Ocloo	2	48	Civil servant	Foodstuff	Madina market	1	Ayi-Mensah -- Pantlang -- Zongo Junction	No I park at the Market complex's parking lot.	
Aba Koomson	2	54	Civil servant	stuff General household goods	Madina market	1	Adenta Housing Down - 3rd Gate - Ritz - Post office - Madina Market	No I park at the market complex's parking lot.	
Majorie	2	45	Baker	Foodstuff Baking ingredients	Madina market	1	Akosombo Junction - Rawlings Circle - Taxi rank - Madina market	NoParks by the police station	
Kuma	1	37	Plumber	Plumbing works itemsTiles	Madina market	1	Amranhia -- Adenta Barrier -- Zongo Junction - Madina market	Yes Parks on the shoulders of the road but the shop owners complain of blocking their businesses	A bigger parking lot should be provided to contain all vehicles
Monalisa	2	40	Seamstress	Leaving accessories Foodstuff	Madina market	1	Danfa -- Ayi-Mensah -- Pantang junction - Zongo Junction - Madina market	No	
Doris	2	47	Second-hand clothes vendor	Second-hand clothes	Madina market	1	Ritz - Post office - Madina market	NoI park beside the post office.	
Eugene Dey	1	35	Driver	Foodstuff	Madina market	1	American house -- IPS road -- Rawlings Circle -- Taxi rank -- Madina market	NoUses on-street parking spots	

Participant	Age	Gender	Occupation	Business	Market	Market	Market	Market	Market
Regina Ocloo	2	48	Civil servant	Foodstuff	Madina market	1	Ayi-Mensah -- Pantang -- Zongo Junction	No	on the road shoulders very difficult
Aba Koomson	2	54	Civil servant	stuff General household goods	Madina market	1	Adenta Housing Down - 3rd Gate - Ritz - Post office - Madina Market	No	Enough space
Majorie	2	45	Baker	Foodstuff Baking ingredients	Madina market	1	Akosombo Junction - Rawlings Circle - Taxi rank - Madina market	No	I park at the Market complex's parking lot.
Kuma	1	37	Plumber	Plumbing works items Tiles	Madina market	1	Amranhia -- Adenta Barrier -- Zongo Junction - Madina market	Yes	Parks on the shoulders of the road but the shop owners complain of blocking their businesses
Monalisa	2	40	Seamstress	Leaving accessories Foodstuff	Madina market	1	Danfa -- Ayi-Mensah -- Pantang junction - Zongo Junction - Madina market	No	A bigger parking lot should be provided to contain all vehicles
Doris	2	47	Second-hand clothes vendor	Second-hand clothes	Madina market	1	Ritz - Post office - Madina market	No	I park beside the post office.
Eugene Dey	1	35	Driver	Foodstuff	Madina market	1	American house -- IPS road -- Rawlings Circle -- Taxi rank -- Madina market	No	Uses on-street parking spots
Kojo	1	62	Retiree	Foodstuff	Madina market	1	Abokobi- Boi -- Pantang junction -- N4 -- Zongo junction - Madina market	No	I park at the bank's parking lot at a fee.
Anti Serah	2	32	Dressmaker				Raaco flat (Madina)	Yes	We need a pavement blocks so that we can park properly
Anti Comfort	2	36	Trader				From Abokobi Bio	Yes	We need a new parking space
Maa Kyei	2	35	Teacher				From Botwe	Yes	To solve the parking problems is to construct new parking place
Gina	2	38	Businesswoman	Foodstuffs	Madina market	1	Botwe	Yes	This parking space is very congested
Anti Boateamaah	1	41	Nursing Sister				From Botwe	Yes	We need a parking space it will resolve the parking problems
Anti Sisi	2	40	Businesswoman				From Botwe	Yes	We need a parking space close to the market
Mama Doku	2	37	Trader				From madina Zongo	Yes	I suggest that the government should construct a new parking space for us we will pay
Sister Josephine	2	34	Trader				From madina	Yes	I suggest that the government together with assembly should construct ultramodern parking space for us
Anti Ama	2	41	Dressmaker				From Ayi mensa	Yes	We need a parking space
Mr Anokye	1	42	Teacher/Businessman				From Agbogba	Yes	I can't tell
	2	39	Businesswoman				From Botwe	Yes	We need a parking space
Maame Helina Baah	2	40	Trader				From Adenta	Yes	I think that new parking place will solve the problems
Anti Cynthia	2	34	Teacher				From Oyarifa	Yes	Proper parking space can solve the problems
Mr Appiah	1	46	Driving	Foodstuffs	Madina market	1	Agbogba via riss	Yes	What we can do solve the problems is to construct new parking space
Odame Edward	1		Driving	Foodstuffs	Madina market	1	Botwe	Yes	Get us a basement and storey building parking place that will accommodate alot of cars
Evans	1		Maekeler	Items	Madina market	1	Firestone atomic	Yes	Get a larger space for parking
Chief Ibrahim	1	45	Businessman	uffs and other stuff for rest	Madina market	1	East legon	A huge parking problem	Get us a large parking place
Mr Kwaku Krah	1	70	Driving	Foodstuffs	Madina market	2	Dwuwulu via n1	Yes. The place is too congested	Clear The traders off the way and from the carpark
ELI	1	31	Driving	Foodstuffs	Madina market	1	Adringano	Yes. The traders are competing over the place with us. It's difficult parking here	Get a larger parking place for us
David	1	35	Driving	Foodstuffs	Madina market	1	Hatso	Yes. Congestion	Yes. The traders are competing over the place with us. It's difficult parking here
Mad sophia	2	45	Proprietress	Foodstuffs	Madina market	1	Adenta	Yes. The traders have taken over the carpark and has created congestion. It becomes very difficult to get in and out of the park	Get off the traders from this place
Sister Veronica	2	39	Trader				From Adenta	Yes	Get the traders off the carpark
Wofa Kwadwo	1	40	Businessman				From Legon	Yes	We need a parking space to resolve the situation
									We need a parking place

Mad sophia	2	45	Proprietress	Foodstuffs	Madina market	1	Adenta	Yes. The traders have taken over the carpark and has created congestion. It becomes very difficult to get in and out of the park	Clear The traders from this place
Sister Veronica	2	39	Trader				From Adenta	Yes	We need a parking space to resolve the situation
Wofa Kwadwo	1	40	Businessman				From Legon	Yes	We need a parking place
Sister Beatrice	2	38	Banker				From Raaco flat	Yes	The government should construct ultramodern parking space for us
Sister Pat	2	39	Dressmaker				From Adenta	Yes	We need a parking place The problems will stop
Anti Fustina	2	35	Nurse				From Ayi mensa	Yes	I think that new parking place will solve the problems
Sister Dede Atsugah	2	37	Nursing Sister				From Legon	Yes	We need a big parking space
Anti Patricia yeaboah	2	36	Businesswoman				From Adenta	Yes	A parking place to reduce the amount of traffic congestion along the roadside of madina
Anti Lucy	2	38	Teacher				From Agbogba	Yes	We need a big parking space for our vehicles to park there
Anti Doris	2	34	Trader				From Haatso	Yes	I suggest that new parking space would be considered so that we can afford to pay and parked our vehicles there
Mrs Yankey	2	39	Trader				Agbogba	Yes	We need a parking space
Anti Becky	2	40	Designer				From Oyarifa	Yes	We need a parking space
Mr. PrinceTexpo	1	35	Driver	Foodstuff	Texpo Market	1	Lashibi - Transformer - Vivian Farm - Baatsona (Texpo Market)	Yes Taxi drivers block access at the open space which is used as a parking space within the market so finding space to park is very difficult since there's a lot of congestion	There's enough space within the market which is big enough to be used as a parking lot. Authorities should ensure people who do not park there but rather the road shoulders should be arrested and fined.
Emmanuel GbekleyTexpo	1	64	Engineer	Foodstuff	Texpo Market	1	Community 20 - 18 Junction - Texpo Market	Yes There's no parking space so customers are compelled to park along the shoulders of the road which is wrong.	Make provisions for parking close to the market since parking on the shoulders of road is not safe and it creates congestion. Need a large parking area
Mr. BernardTexpo Mark	1	40	Civil engineer	Foodstuff	Texpo Market	1	Sakumono Estate - Texpo Market	Yes It's very difficult to find space to park on Saturday since it's a market day so one is compelled to park on the shoulders of the road.	Decentralize markets in various communities so more people have to rush and come here. Fine people who park along the r Move vendors outside to the market so the outside can be used as a parking lot.
Naa AdjeleyTexpo	2	31	Bank Teller	Foodstuff	Texpo Market	1	Shalom spot - Community 18 - Texpo market	Yes There's a parking space behind the market but there's nobody to direct vehicles to park properly so vehicles are parked anyhow. If you park there and you want to leave it becomes difficult because other drivers who might have blocked your access would be nowhere to be found.	Authorities should put people there to direct motorists so they park properly so there will be order.
Agartha SowahTexpo	2	26	Teacher	Foodstuff	Texpo Market	1	Community 16 - Community 18 Junction - Texpo market	There's no parking space so I end up parking on the shoulders of the road.	Market women on the outside of the market should move back inside so that that space can be used as a parking lot.
Evans	1	30	Electrical Engineer	Foodstuff	Madina market	1	Ashaley Botwe- Maye hot - Social welfare- Madina market	Yes, finding a parking space to park is usually frustrating in this market. And when you are able to get a space at the designated parking lot too, moving out to return to your origin is very stressful due to cars being parked on both shoulders of the road narrowing it. So in order not to go through all this stress I usually park along the street beside the post office which is not too busy and walk to the market	Provide adequate parking spaces to help manage traffic congestion situations in the market

APPENDIX 4

MARKET WOMEN AND TRADERS SURVEYS

MARKET WOMEN AND TRADER SURVEYS												
Name	Monthly Income	Monthly Expenditure on Transport	Commodity	Origin	Trip Frequency	Trip Cost	Quantity	Vehicle	Trip Route	Parking	Recommendation	
Auntie Mavis	600.0	192.0	Pepper	Agbobloshie	2	6 cedis / bag	8 bags	KIA Macho	Agbobloshie - Circle - Achimota - St. John's - Dome market	Taxis and trotros have occupied the front of the market loading so freight vehicles have a hard time finding parking spots	The commercial vehicles should be made not to load there	
Paulina	1000.0	480.0	Com	Nkoranza	others specify	20 bags of maize	24/ bag	KIA Rhino	Nkoranza - Techiman/Accra - Tantra roundabout - CFC - Dome market	Verbal attacks from vendors whose displayed items have been blocked by vehicles	If possible, a parking lot close to the market should be provided.	
Obaa Yaa	600.0	1200.0	Plantain Banana	Tepa	2	300	1 pole of banana 3 poles of plantain		Tepa - Kumasi/Accra road - St. John's - Dome market	Goods are offloaded on the road No sheds	Market complex should be properly constructed with necessary facilities	
Rosina	500.0	2400.0	Palm-nuts Okra Turkey berries	Namamwura	3	300 cedis	5 bags of palm-nuts 3 bags of okra 1 bag of Turkey berries		Namamwura - Mamkong Nkwanta - Bawijase - Kast- Anyaa market	Place is very muddy when it rains.	The market should be properly constructed with a parking lot	
Esi Nana	400.0	1600.0	Cassava	Sweduru	3	20 bags of cassava	200 cedis	KIA Bongo	Sweduru - Bawijase - Kasoa - Anyaa market	People tell you to pick up your staff because you have invading their land.	Market complex should be constructed	
Naa Ayorkor	2500.0	3600.0	Groundnut	Navrongo	2	30ghc per bag	30 bags		Navrongo- Bolgatanga- Walewale - Savelugu- Tamale-Suape- Kintampo-Techiman- Offinso- Kumasi Accra road- Amasaman- Pokuase- St. Johns- Dome market	Disrespect from drivers due to not finding suitable place to park and offload	Find a land close to the market and designate it for offloading goods	
Constance	500.0	800.0	Oranges	Agona Swedru	3	10ghc per bag	10 bags		Swedru- Akoti- Broku-Kasoa- Awoshie-Anyaa market	None, this is because we get here at dawn and the place is free by then so don't encounter any challenges	None	
Mama Akos	400.0	480.0	Salad vegetables	Agbobloshie	4	40 cedis	rots 1 basket of Spring onions	KIA Macho	Agbobloshie - Odorkor - Awoshie - Anyaa market	Parking along the road blocks others' market	Market complex should be constructed properly	
Charlotte	600.0	280.0	Sweet apples/Guava	Akurakese (Suhum)	2	dis / 1 bag 10 cedis / 1 ba	4 bags 2 baskets		Akurakese - Suhum / Accra road - Achimota - Awudome - Abossey Okai - Korle-bu - Mamprobi Tuesday market	None		
Yaa Linda	500.0	160.0	Oranges/Tangerines	Anum-Apampam	2	10 cedis / bag	4 bags	KIA Rhino	Anum- Apampam --- Suhum / Accra road - Achimota - Circle - Abossey Okai - Korle-Bu - Mamprobi Tuesday market	Truck parks right in of of shed and it arrives in the night so I do not have a problem	Those who come from the hinterlands to sell need restrooms and storage facilities whenever they come around	
Mrs. Barnes	400.0	400.0	Pawpaw/Kontomire	Suhum coalter	others specify	100 cedis	ets of Pawpaw 4 bags of Kont	KIA Rhino	Suhum Coalter - Accra /Suhum road - Achimota - Circle / Accra - Agbobloshie - Mamprobi Circle - Mamprobi	None		
Musa Atinga			Poultry	Kumasi Winneba/Mankessim Agona-Swe	2	is Mankessim - 250 - 500000-1500 fowls/Off-season -10		KIA Rhino	Mankessim - Kasoa - Cicle - Kokomlemle - Mallam Atta market	None		
Ruth	500.0	1200.0	Plantains	Suhum	3	3ghc per bunch	50 bunches	Kia rhino	Kumasi - Accra / Kumasi road - Achimota - Alajo - Mallam Atta market	Trucks arrives at when market is closed.	None	
Naa Ayeley Mensah	800.0	840.0	Garden eggs	Agbobloshie	2	6 ghc per bag	35 bags	Kia bongo	Suhum- Teacher Mante- Accra nsawam road- kwabe	Waiting in turns to offload goods since space is too small and not in good condition	Stagger receivers' or market women from the hinterland delivery hours	
Stella	1500.0	2000.0	Pawpaw	Nsawam	3	250ghc per full load	250 crates	Kia rhino	Agbobloshie market- Abossey okai- Korle bu road- Mamprobi, Tuesday market	None, we offload along the road shoulders at night so don't encounter any challenges	None	
									Nsawam- Pokuase- Amamorley- Ablekuma- Anyaa market			
									Kade- Asamankese- Adeiso- Nsawam-Kwabeny- Madina New market			

Dzibordi	600.0	1040.0	Onion	Agbobloshie		2	13 cedis / bag	20 bags	KIA Bongo	Agbobloshie – Abossey-Okai – Circle – 37 – Tetteh Quarshie roundabout – Madina market	Vendors have taken over the road making trucks parked to offload narrow the road thereby creating congestion	Vendors selling in the streets should be relocated
Pomaah	1300.0	3200.0	Pineapple	NsawamMankessim		3	sim (Average monthly exp	3000 pieces 5000 pieces	KIA Mighty	Nsawam – Pokuase – Kwabenya – Haatso – Madina market Mankessim – Apam junction – Winneba-Kasoa – Mallam – Awoshie – Lapaz – Tetteh Quarshie roundabout – Legon – Madina market	None	
Akuia Gifty	400.0	1800.0	Palm oil	Akyem Tafo		2	30ghc (15 ghc per jerrica	30 jerricans	Kia Rhino	Akyem Tafo- Apedwa-Achimota-kingsway-UTC-Agbobloshie	There is no challenge. We only have to pay for tickets from AMA to be able to offload	Provide space big enough for parking
Adwoa Opere	500.0	280.0	Cassava	AdeisoAsamang		2	7 cedis / bag	10 bags	KIA Mighty	Adeiso – Nsawam – Ofankor – St. John's – Dome market Asamang – Nkurakan – Nankese – Suhum – Nsawam – Ofankor – St. John's – Dome market	Small space not enough for all traders One has to wait till there's enough space to park	The Assembly should finish with the construction of the market and segregate all vendors according to items being sold Traders from the hinterlands need restrooms
Margaret Narh	1000.0		Tomatoes	AnlogaNvrongoBurkina-Faso		2	cedis / box – Kumasi (Ave	30 boxes 100 boxes	A Bongo Heavy truck	Anloga – Sogakope – Ada – Sege – Dawanya – Tema Motorway – Tetteh Quarshie roundabout – N1- Achimota – St. John's – Dome market Kumasi – Accra/Kumasi road – St. John's – Dome market Burkina-Faso – Accra/Burkina-Faso road – St. John's – Dome market	None but would wish goods couldn't be offloaded close to shed.	The market complex should be constructed properly with the needed facilities including a discharging bay.
Elizabeth Quarshie	500.0	120.0	Pepper	Agbobloshie		2	6ghc per bag	5 bags	(Abossey Okai mac	Agbobloshie market- Circle- Achimota- St. John's- Dome market	Vehicles run over goods, as offloaded on the road and being conveyed to point of sale	Provide appropriate parking space for us
Akosua AsantewaaAgbo	600.0	480.0	Palm oil	Kade		3	0 cedis 15 cedis / 1 drum	4 drums		Kade - Asamankese - Nsawam - Accra - Agbobloshie	Vehicles get clamped	AMA should exercise a little bit patient.
Hellen Owusu Agboblo	1500.0	14400.0	Tomatoes	AdaTakyimantiaBurkina-Faso		3	ymantia - 2800Burkina-Fa	60 boxes		Ada - Motorway - Spintex road - Texpo Market Takyimantia - Bechem - Mankraso - Mfensi - Kumasi - Accra road - Achimota - Tetteh Quarshie roundabout - Spintex road - Texpo Market Burkina-Faso – Bolgatanga - Tamale - Kintampo - Offinso - Kumasi-Accra road - Achimota - Tetteh Quarshie roundabout - Spintex road - Texpo Market	Vehicles get clamped	A big parking lot should be constructed to contain all vehicles
OsofomaamaAgboblo	400.0	900.0	Corn flourCorn dough	Bimbilla	others_specify		cedis / 1 bag 1800 cedis	60 bags		Bimbilla - Kpasa - Nkwanta - Ho - Kejebi - Jasikan - Worawora - Kpando - Accra - Spintex road - Texpo Market	Vehicle gets clamped	A big and well-structured parking lot should be provided to contain all vehicles.
AwuduAgbobloshie Hi	3000.0	3600.0	Onions	Niger	others_specify		1800	300 bags of onions		Niger - Burkina-Faso – Bolgatanga -Accra- Tamale road - Agbobloshie	When space is occupied, trucks park on the shoulders of the road and it berates traffic.	A bigger parking space should be provided to contain all vehicles.
Awudu MajidKusasi On	3000.0	3750.0	Onions	Amartey (Afram Plains)	others_specify		cedis / 1 bag 3750 cedis	75 bags	KIA Rhino	Amartey (Afram Plains) -Begoro - Bunso Junction - Suhum - Nsawam - Agbobloshie	None	

Florence Armah Agbobl	1000.0	3200.0	Pineapple	Breku Samsam Poteng Obuom	3	400	Full load of KIA Mighty	KIA Mighty	Breku - Buduburam - Kasoa - Amanfrom - Mallam Junction - Odokor - Kaneshie - Agbobloshie Samsam - Pokuase - Circle - Agbobloshie Poteng Obuom - Kasoa - Amanfrom - Mallam Junction - Odokor - Kaneshie - Agbobloshie	None		
Maa Tee Hausa Onion n	800.0	800.0	Onions	Afiac Dafienu	2	0 cedis / 1 bag 200 cedis	20 bags		Accra-Afiac road - Agbobloshie Dafienu - Motorway - Agbobloshie	None		
Momo Sackey/Tema cc	1200.0	800.0	Cassava	Suhum Akirabo	3	200	16 bags	Kia Bongo	Anloga - Sogakope - Ada - Motorway - Agbobloshie Suhum-Achimota-Motorway-Tema community 1 market	We offload along the road shoulders because there is no parking space and as a result of that TMA officers tend to cease our goods	We should be given a market annex and a parking space to offload goods without going through situations of goods being taken from us	
Cecelia Maaku Aryeh/Ti	1500.0	5000.0	Garden eggs	Atebubu	3	2,250ghc	150 bags		Yeji - Atebubu-Ejira - Asante Mampong-kumasi - Nsawam-Motorway - Tema community 1 market	Since we don't have space given to us at the discharging bay and we have to offload at the open space we suffer because we have no where to keep our goods when we arrive and offload. We keep shifting goods from one place to the other when owners of the space come around until we are able to convey all goods to our point of sale and distribution	Creating a parking space close to the market and designating part of it as where garden eggs market women should offload will help	
Mabel Ankamah (Tema	600.0	210.0	store (Fish, meat, frozen chik	Tema Harbour	others_specify	210ghc	300 boxes		Harbour to community 1 market	Taxi station has taken over front of shop so truck to offload goods as well as customers with vehicles have a hard time accessing the shop. And when you ask them to make way so your truck can access and offload goods they feel reluctant and claim the Assembly gave them that space to operate meanwhile they have blocked our access	TMA should relocate the taxi station so there will be peace	
Cecelia Boahemaa Tem	600.0	250.0	Yam	Bimbilla	others_specify	50 cedis /100 tubers	500		Bimbilla - Dambila - Hohoe - Kpando - Adome - Kpong - Afiencya - Motorway - Tema	None	No issues	
Lawrencia Mensah	600.0	800.0	Plantain	Goaso/Kumasi/Agogo	2	200 cedis	1 pole		Kumasi - Konongo - Nkawaw - Nsawam - Accra - Motorway - Tema Agogo - Nsawam - Ofankor - Motorway - Tema Goaso - Kokofu - Hwidiem - Wiso - Mankraso - Mfensi - Kumasi - Konongo - Nkawaw - Suhum - Nsawam - Motorway - Tema	Sometimes the plantain ripes before it is offloaded	Vendors who taken over the discharging bay should be relocated	
Lagos lady		1200.0	Tomatoes	Anloga/Ada	2	150/box	20 boxes		Ada - Sege - Dawenya - Tema Kumasi - Nkawaw - Nsawam - Motorway - Tema Anloga - Sogakope - Dawenya - Tema	None		

AbaTema Comm. 1 Ma	600.0	480.0	Smoked fish	Tema Harbour	1	20 cedis	4 boxes	Taxi	Harbour – Mankoad road – Comm. 1	TMA tends to clamp vehicles that park on the shoulders of the road to offload goods.	A parking space should be provided to enable such vehicles park and offload goods
NakitaTema Comm. 1 M	1500.0	1200.0	Cabbage Carrot/Lettuce	Agboghoshie	3	150	bags of carrots 3 bags of lettuce 2	Tricycle	Agboghoshie – beach road – Tema	None	Vehicle arrives at dawn
Ataa	700.0	240.0	Pepper	Tudu	4	6 cedis per bag	10 bags		Tudu – Motorway – Tema	Shell management compels trucks to leave the place quickly though monies have been paid to them as parking charges	Shell management should exercise a little patience
Frank Okyere	700.0	64.0	Wax Prints	Accra	2	16 cedis	10		Accra - Motorway - Tema	None	
Dede	700.0	240.0	Bags (school and luggage)	Accra	2	60 cedis	4 sets (soft fabric) 10 backpacks		None	Space is overcrowded	Space should be expanded
Rebecca Owusu	400.0	30.0	PlasticwareCooking utensils	Accra	others_specify	15 cedis	5 boxes	Taxi/ pick-up truck	Accra - Motorway - Tema	Sometimes the station is full when a vehicle arrives.	Parking lot should be relocated Current one should be expanded
Martha	600.0	100.0	MortarPestleClay pots	Somanya	others_specify	200	0 mortars 10 pots 20 pestles		Somanya - Kpong - Tema	Goods have to be conveyed to shop by porters	Vendors encroaching on shoulders of the road should be relocated.
Atsu	1000.0	640.0	OnionsOkra	Anloga	2	bag of onions 20/basket of	bags of onions 1 basket of okra		Anloga - Sogakope - Sege - Dawenya - Tema	One has to pay for utilizing space since it's a discharging bay for yam vendors	A new parking lot should be made available to accommodate us
ServaaTema Comm. 1	600.0	600.0	Oranges	Mankessim	2	150	Full truck of oranges		Mankessim- Ekumfi Essuahyia- Gomaa Antaadze- Ajumako - Kasoa - Lapaz- Motorway - Tema	Trucks have no where to park when goods are not offloaded	A parking lot should be made available for freight vehicles
Alhassan IssahTema C	700.0	1200.0	Meat	am regions Burkina- FasoMail	others_specify	/ 1 full cow 1500/100 cow	1 full cow		Tema Oil Refinery Road	Fish vendors have taken over the parking lot thereby narrowing it	Monies shouldn't be collected from vendors so as to allow them sell there
Enam Comfort	2200.0	300.0	DisposablesTissue	Accra	others_specify	150	of tissue 150 packs of takeaway packs 10 packs o		Accra - Motorway - Tema	Commercial vehicles occupy front of shop so it becomes difficult for freight vehicles to park there thereby leaving you faraway to convey goods to shop	Owning a freight vehicle and parking close to shop would designated that spot for me thereby curbing this problem
Lydia	1500.0	6000.0	Cabbage Carrots	Togo	4	500	50 bags		Togo - Sogakope - Sege - Tema	One has to convey goods to market again	Market should be extended so some vendors here can move there to prevent overcrowding
DaaviTema Community	1000.0	450.0	Rice	Togo	others_specify	450	30 bags		Accra - Afia road - Tema Community 1	One is compelled to hurry up since others might want to park and discharge goods	Some of the spots should be reserved for freight vehicles
Ama AntwiTema Comm	800.0	800.0	Rice	Tongo	others_specify	400	20 bags		Tongo to Accra - Tamale highway to Motorway to Community 1 Market	None	
DoraTema Community	600.0	100.0	Gari	Bawtrase	others_specify	100	10 bags		Kasoa - Achimota - Lapaz - Motorway - Tema Community 1 Market	None	
Gifti NtowTema Comm	800.0	225.0	Ground-nuts	Togo	others_specify	225	15 bags		Accra - Afia road	When trucks arrive in the mornings, sometimes they have a hard time finding a parking spot close to the market	Spots close to the market should be dedicated to freight vehicles only.
Dela	800.0	540.0	Beans	Togo	others_specify	540	36 bags 15 cedis per bag		Accra - Afia road	Vehicles get clamped while they park along shoulders of road as they wait for spots to offload	More spots should be provided
Sister Maame	1200.0	520.0	Maize	Ejura (Jato - Zongo)	others_specify	260	22 bags		Ejura - Mampong - Kumasi - Accra - Motorway - Tema Community 1 market	The space is usually occupied by taxis and trotros	TMA should ensure some of the spots are reserved for freight drivers
Cynthia GyamfiTema C	700.0	1056.0	Maize	Nkoranza - Bomini	others_specify	24 per bag	22 bags		Accra - Kumasi road - Motorway - Tema	On- street parking spots are usually occupied when freight vehicles arrive . One is compelled to park somewhere else that might result in clamped vehicles	Taxis shouldn't be allowed to load there so that other vehicles can utilise spots

Donor/Community	000.0	100.0	Don	Donor	Others Specify	100	10 bags		Community 1 Market	None	
Gifty NtowTema Comm	800.0	225.0	Ground-nuts	Togo	others_specify	225	15 bags		Accra - Afiaa road	When trucks arrive in the mornings, sometimes they have a hard time finding a parking spot close to the market	Spots close to the market should be dedicated to freight vehicles only.
Dela	800.0	540.0	Beans	Togo	others_specify	540	36 bags 15 cedis per bag		Accra - Afiaa road	Vehicles get clamped while they park along shoulders of road as they wait for spots to offload	More spots should be provided
Sister Maame	1200.0	520.0	Maize	Ejura (Jato - Zongo)	others_specify	260	22 bags		Ejura - Mampong - Kumasi - Accra - Motorway - Tema Community 1 market	The space is usually occupied by taxis and trotros	TMA should ensure some of the spots are reserved for freight drivers
Cynthia GyamfiTema C	700.0	1056.0	Maize	Nkoranza-Bomini	others_specify	24 per bag	22 bags		Accra - Kumasi road - Motorway - Tema	On-street parking spots are usually occupied when freight vehicles arrive. One is compelled to park somewhere else that might result in clamped vehicles	Taxis shouldn't be allowed to load there so that other vehicles can utilise spots
Laura AmponsahTema	1000.0	400.0	Beans	Togo	others_specify	200	20 bags		Accra - Afiaa road - Tema	Taxis have taken over the on-street parking spots and load there.	The on-street parking spots close to the market should be dedicated to freight vehicles only
Emelia BorteyoTexpo n	600.0	320.0	Smoked fish	Tema Fishing Harbour	3	40	8 cartons	Taxi	Beach road - Texpo market	On market days, it's very difficult to offload goods since the road becomes busy.	A wide parking lot should be provided to accommodate all freight vehicles
Akromah	400.0	480.0	Dried Fish(Amane Sewaa)	Apam, Senya-brekuDuring off season Cote d'Ivoire	3	120ghc (20ghc per pan)	3 big pans		Anomabo-Mankesim-Esuahyia-Apam junction-Winneba-Kasoa-Kaneshie-Agbogbloshie market	Loading boys charge absurd price to convey goods to point of sale just because it is not close to our shed. We don't have Restrooms to sleep so we sleep at the transport terminal or our sheds till we are done selling and have to return to our origin	Provide some Restrooms for us with adequate facilities
Mr. David	1500.0	5400.0	Cassava dough	Nkwanta and Bawijase	others_specify	400 ghc (18 ghc per bag)	300 bags		Nkwanta-Dambai-Kpando-Adome-Ashaiman-Tema motorway-Adabraka-Graphic road -Agbogbloshie market	Since there is no designated place for freight drivers to offload goods we end up parking along the road and this narrows the road since it becomes double parking creating traffic congestion for the lanes to be used by vehicles	
Akua	300.0	20.0	Second - hand clothes	Katamanto	others_specify	105/1 bale	2 bails	Trotro	Accra - Motorway - Community 1 Market	Transport terminal is just not big enough to contain all commodities trooping in daily and once your goods delay and you park on the road too AMA will clamp the vehicles and fine you	If we are provided a parking space just for freight operators close to the market then this problem will be resolved
Kwadio Owusu	700.0	100.0	Second-hand shoes	Accra - Katamanto	others_specify	50	3 bags of shoes	Taxi	Accra - Beach road - Tema Community 1	Sometimes, I don't get a spot close to where I sell to park	More parking spots should be made available for customers
Amankwa	600.0	40.0	Footwear	Accra	others_specify	20 cedis	1 bale	Taxi	Accra - Motorway - Community 1 Market	When vehicles park faraway from shop one has to hire the services of the porters which is another cost	The on-street parking should be a temporal parking lot so as to get rid of commercial vehicles that park there to load.
Mawena	1500.0	1200.0	Rice	Togo north	others_specify	30 cedis per bag	30 bags		Togo north - Afiaa - Tema	They're sometimes occupied when truck arrives especially in the afternoons	Spots close to the market should be reserved for freight vehicles delivering goods to the market.
VictoriaTexpo Market	400.0	42.0	Second-hand clothes	Spintex Warehouse	others_specify	21 cedis	1 bale	Taxi	Manet- Spintex road - Texpo Market	None Vehicle arrives early so it doesn't cause any congestion.	All vendors on the outside should be relocated into the market so that vehicles can park on the outside.
Isaac Owusu AnsahTex	600.0	200.0	Kumasi footwear	Kumasi	others_specify	100 cedis	100 pairs	VIP busTaxi	Accra - Kumasi road - Kaneshie-Spintex road - Texpo market	When goods arrive on a market day, it becomes difficult to offload since people hail insults at you.	A parking space should be provided to accommodate all vehicles.

Lydia Addy	400.0	80.0	Snails	Agbobloshie		2	20 cedis	2 baskets	KIA Macho	Agbobloshie - Beach road - Texpo Market	Vehicle parks in front of shed which is along the road within the market so it causes traffic and generates insults.	The market should be constructed and well-structured.
Esi FeliciaTexpo Marke	700.0	1200.0	Tomatoes	Anloga		2	300	30 baskets		Anloga-Ashaiman - Spintex road - Texpo Market	None It's a weekly market so there's enough space for vehicles to park only if it's a non-market day.	
Diana ObenwaaTexpo	900.0	1400.0	Yam	Dambai		2	is 70 cedis / 100 tubers	500 tubers		Dambai-Akosombo-Tema - Ashaiman - Spintex road - Texpo market	It's a weekly market so there's enough space for vehicles to park only if it's a non-market day.	
Comfort BoatemaaTex	300.0	240.0	Tomatoes	Agbobloshie		2	60 cedis	2 boxes	KIA Macho	Agbobloshie - Beach road - Texpo Market	None It's a weekly market so there's enough space for vehicles to park if only it arrives before the market day.	
Lilian TeyeTexpo Marke	500.0	240.0	Onions	Agbobloshie		2	60	10 bags	KIA macho	Agbobloshie - Beach road - Texpo market	None It's a weekly market so there's a lot of space when vehicle arrives before the	
Auntie SerwaaTexpo M	800.0	1200.0	Plaintain	Domeabra Konongo		2	300	300 bunches		Domeabra - Accra-Nsawam road - Achimota - Tetteh Quarshie roundabout - Spintex road - Texpo Market	When there are 2 trucks offloading, there isn't enough space to contain others so they have to park somewhere and wait.	Provide a well-structured parking lot for freight vehicles.
Felicia	1500.0	480.0	Garden eggs	Klo-Agogo - Somanya - Ashaiman - Spintex		2	120	15 bags		Klo-Agogo - Somanya - Ashaiman - Spintex road - Texpo	When there are about 3 or 4 trucks offloading, it becomes very difficult for other trucks to get space to park	If a terminal for trucks is constructed, this problem would be curbed.
EstherTexpo market	1000.0	160.0	Garden eggs	Klo-Agogo - Somanya - Ashaiman - Spintex		2	40	4 bags		Klo-Agogo - Somanya - Ashaiman - Spintex road - Texpo	None	
Gifti SoyoTexpo Marke	1500.0	400.0	arden eggs pepper palm-nuts	Klo-Agogo (Koforidua)		2	100	eggs1 basket of palm-nuts1 bag of pepper		Klo-Agogo - Somanya - Aahaiman - Spintex road - T	There are sometimes quarrels when more trucks come in to offload due to lack of space	A big and well-structured parking lot should be constructed.
Nana YawTexpo Marke	800.0	200.0	Fruits	Asante - Akyem Pekiye		2	5/1 bag50 cedis	10 bags		Accra-Kumasi road - Achimota - Spintex road - Texpo	Truck causes traffic when it arrives later than the scheduled time.	The market should be properly constructed and well-structured.
Juliana OkiyereTexpo m	700.0	1200.0	Banana	AsesewaAgomanya		2	300	Full van		Agomanya - Aseseiso - Adukrom - Awukugua - Mampong - Aburi - Tetteh Quarshie roundabout - Spintex road - Texpo market	When vehicle doesn't arrive on time, it parks faraway from shed.	The market should be constructed and well-structured so that things would be done properly.
Mamle	900.0	800.0	Cassava	Nkurakan		2	1 bag of cassava200 ced	20 bags		Nkurakan - Somanya - Aahaiman - Spintex road - Texpo	When vehicle does not arrive on time, it parks faraway from shed. As a result, one has to carry goods by herself or has to pay loaders to do that thereby incurring an extra cost.	The market should be well-structured with a proper parking lot.
Faustina Dedaa		720.0	Maize	Afram plains, Ejura, Sunyani Odum	others_ specify		720ghc (24ghc per bag)	30 bags	Kia Rhino	Afram plains-Nkawkaw-Accra-Kumasi road-Achimota-Kaneshie-Agbobloshie market	Parking space is not big enough to contain us all	When the parking lot is properly allocated to each commodity, it will bring about peace
Faustina Mensah	600.0	420.0	Dried mud fish	Adabraka		1	15 cedis	2 baskets	Taxi	Adabraka - Graphic road - Agbobloshie	There's congestion there and driver has a hard time parking Due to lack of parking space, customers prefer buying from the roadsides and that is killing the business.	A parking space should be provided for both customers and freight vehicles

Mary Asamoah Agboblshie	480.0	Smoked fish	Senya-Breku/Edina Abidjan	2	30 cedis / basket	4 baskets	Abidjan - Elubo - Takoradi - Cape Coast Junction - Winneba - Kasoa - Mallam - Agboblshie	We do not have places to sleep so we sleep at the Lorry station	We need a place to sleep that's safe.
							Kpandai - Worawora - Kpando - Have - Asikuma - Atimpoku - Kpong - Juapong - Shai Hills - Afienya - Tema - Motorway - Tetteh Quarshie roundabout - 37 - Circle /Makola - Agboblshie (Eastern corridor)	Yams get spoil when trucks have to wait by the roadside to offload which results in a loss.	
							Krachi - Eastern corridor - Agboblshie	Thieves steal from trucks as they park by roadside at night.	A parking lot should be provided .
Naomi Agboblshie	1700.0	10500.0	Yams	Kpandai/Krachi/Kamaule	others_specify	pandai/ Krachi 80 cedis /	5000 pieces	KIA Rhino	
							Kamaule - Eastern corridor - Agboblshie		A storage facility should be provided.
							Yendi - Nkwanta - Worawora - Kpando - Have - Asikuma - Atimpoku - Kpong - Juapong - Shai Hills - Afienya - Tema - Motorway - Tetteh Quarshie roundabout - 37 - Circle /Makola - Agboblshie (Eastern corridor)		
							Chamba - Nkwanta - Worawora - Kpando - Have - Asikuma - Atimpoku - Kpong - Juapong - Shai Hills - Afienya - Tema - Motorway - Tetteh Quarshie roundabout - 37 - Circle /Makola - Agboblshie (Eastern corridor)		
							Bimbilla - Nkwanta - Worawora - Kpando - Have - Asikuma - Atimpoku - Kpong - Juapong - Shai Hills - Afienya - Tema - Motorway - Tetteh Quarshie roundabout - 37 - Circle /Makola - Agboblshie (Eastern corridor)		
							Zabzugu - Northern regional towns - Nkwanta - Worawora - Kpando - Have - Asikuma - Atimpoku - Kpong - Juapong - Shai Hills - Afienya - Tema - Motorway - Tetteh Quarshie roundabout - 37 - Circle /Makola - Agboblshie (Eastern corridor)		
							Tatale - Nkwanta - Worawora - Kpando - Have - Asikuma - Atimpoku - Kpong - Juapong - Shai Hills - Afienya - Tema - Motorway - Tetteh Quarshie roundabout - 37 - Circle /Makola - Agboblshie (Eastern corridor)	Thieves steal from trucks as they park on the road shoulders.	We need a parking lot for trucks to park till it's their turn to offload
James Tabanti Agbobo	5000.0	16000.0	Yams	Yendi/Zabzugu/Tatale/Bimbilla/Chamba	others_specify	10/80 cedis per 100 tubers	10,000 tubers		The heat destroys the yam as trucks wait to offload.
							Nyanpala - Tamale - Tamale/ Accra road - Achimota - Kaneshie - Agboblshie	Peppers get destroyed as moving vehicles squashes them.	
							Gatuyili - Tamale - Tamale / Accra road	AMA clamps vehicles when the assigned time for offloading has expired	A parking space should be provided.
Abuzaku Zenabu Agbok	1800.0	20000.0	Peppers	Nyanpala/Gatuyili/Tolon	3	10 cedis per bag	250 bags		
							Oti regional towns - Worawora - Kpando - Have - Asikuma - Atimpoku - Kpong - Juapong - Shai Hills - Afienya - Tema - Motorway - Tetteh Quarshie roundabout - 37 - Circle /Makola - Agboblshie (Eastern corridor)	Parking space within market is small and the	

Ibrahim ZenzaBuzanga	7000.0	70560.0	Onions	Niger/Burkina-Faso	2	63 cedis / bag	280 bags	Burkina-Faso -- Paga - Bolgatanga - Accra / Tamale road - Achimota - Kaneshie - Agbobloshie	AMA clamps trucks when assigned times for parking by roadside have expired.	A parking lot should be provided or existing one should be expanded.
Madam NancyAgboblo	700.0	4800.0	OrangesTangerine	Assin-Breku/Nkwantanang/Offinso	others_specify	N kwantanang - 800 cedis	20,000 pieces	N kwantanang - Kade - Asamankese - Adeiso - Nsawam - Accra /Kumasi road - Achimota - Kaneshie - Agbobloshie Offinso - Accra /Kumasi road - Achimota - Kaneshie - Agbobloshie Assin-Breku - Mankessim - Winneba - Kasoa - Mallam - Agbobloshie	Loaders take a lot of money from us when trucks park far from sheds Sometimes trucks park at a private parking lot close to she's and each track is charged 10 cedis.	A big parking lot with accomadation should be provided.
Ataa MaameAgboblo	700.0	4800.0	OrangesTangerine	Kukwae (Effutu)/Kumasi/Offinso	2	Kumasi - 800 cedis Offi	20,000 pieces	Kukwae - Buduburam - Kasoa - Agbobloshie Kumasi - Nsawam - Accra /Kumasi road - Achimota - Kaneshie - Agbobloshie Offinso - Accra /Kumasi road - Achimota - Kaneshie - Agbobloshie	When trucks arrive and sroad shoulders is occupied, we pay 10 cedis for parking at a private parking lot. Sometimes, it parks faraway from shed and loaders take a lot of money from us to convey goods to shed.	A well-structured parking lot with accomadation should be provided.
Patricia			Potatoes	Afram plains	2	25 cedis per bag	40 bags	Afram Plains -- Nkwaw - Accra /Nsawam - Circle - Achimota - Agbobloshie	Private parking lot which comes at a charge It's small and can't contain all freight drivers so they come at a charge	A parking lot should be provided.
Madam AnointingAgbol	600.0	4800.0	OrangesTangerine	Sehwi/Kade/Offinso	2	- 4000 cedis (20,000 pie	20,000 pieces	Offinso -- Accra /Kumasi road - Achimota - Kaneshie - Agbobloshie Kade -- Asamankese -- Adeiso -- Nsawam - Accra /Kumasi road - Achimota Kaneshie - Agbobloshie	When road shoulders is occupied, trucks have to park at a parking lot that is close to shed and we are charged 10 cedis.	A parking lot with accomodation should be provided.
Theresa TakyiAgboblo	2000.0	10500.0	Gari	Togo	others_specify	25 cedis/ bag	210 bags	Togo -- Accra /Afioa road - Kaneshie - Agbobloshie	Vehicles are charged 10 cedis since it's a private land. Trucks park somewhere till the lot is available before you can offload. Trucks delaying in offloading drives away customers since they asked to come the following day.	We need a storage facility A parking space should be provided.
Mama MawusiAgboblo	1500.0	560.0	Gari/Maize	Togo	others_specify	28 cedis / 1 bag	20 bags	Togo -- Accra - Afioa road - Motonway - 37 - Kaneshie - Agbobloshie Atabubu - Ejura - Mampong (Asante)- Asonomaso - Junction - Anita Hotel - Achimota - Alajo - Kaneshie - Agbobloshie Asamankese - Adeiso - Accra / Nsawam road - Achimota - Kaneshie - Agbobloshie	When assigned space is occupied, trucks park faraway and wait for free space which takes about 6 to 7 hours sometimes. Loading boys overcharge. Trucks delaying in offloading drives away customers.	A well-structured parking lot should be provided. A storage facility is needed since sheds are small.

APPENDIX 5

INDUSTRIAL SURVEYS

INDUSTRIAL SURVEYS				
Company	Commodity Production	Total Quantity	Vehicle Type	Companies Supplied with GAMA
				Ghacem
				Wang Heng Ghana Limited (Sol Cement)
				CBI Ghana (Supacem)
				Everpack
Fine Print limited	Cement bags -- 300,000 bags/ week	Cement bags -- 300,000 bags	Heavy Truck	Amanex Company
	Labels -- 50, 000 pieces / week	Labels -- 50,000 pieces	Heavy Truck	Ghacem -- Tema
	Core board -- 10, 000 tonnes /week	Core board -- 5,000 tonnes	Heavy Truck	Wang Heng Ghana Limited (Sol Cement) -- Tema
	News print -- 500 Reams/ week	News print -- 300 Reams	Heavy Truck	CBI Ghana (Supacem) -- Tema
	Other paper products	Other paper products	Heavy Truck	Everpack -- Tema
				Amanex Company -- Accra
Tex Styles Ghana Limited (GTP)	Textile Fabric -- Printed or Dyed (2577 tonnes/ month)	Textiles fabrics (103 tonnes/ month)	Medium Truck	Customers in GAMA
				Various Cloth Sellers
				VOA Ltd. -- Makola
				Friendsco Ltd. -- Makola
				Woodin Shops -- Accra Mall, Osu, High Street
				GTP Depot
Bamson Company Limited (Sikkens Ghana Limited)	Paint (HCS, Bamtex Emulsion) -- 1 tonne / n	Paint -- 60%	Medium Truck	Korle-bu Teaching Hospital La-Palm Hotel Alisa Hotel Jai Enterprise Glo Engineering Imperial Homes
				Korle-bu Teaching Hospital -- Korle-bu

Bamson Company Limited (Sikkens Ghana Limited)	Paint (HCS, Bamtex Emulsion) -- 1 tonne / n	Paint -- 60%	Medium Truck	Korle-bu Teaching Hospital La-Palm Hotel Alisa Hotel Jai Enterprise Glo Engineering Imperial Homes
				Korle-bu Teaching Hospital -- Korle-bu
				Alisa Hotel -- North Ridge
				La-Palm Hotel -- LA
				Imperial Homes -- Airport Residential
				Jai Enterprise -- Labone
				Glo Engineering -- Achimota
				S and J Ventures
				Maria Enterprises
				Global Kissi
				Tonifel Enterprises
Multipro Private	This company only distributes already manufactured goods from outside. (Warehouse)	Indomie Noodles / 750 tonnes	Medium Truck	Kaysens
				S and J Ventures -- Madina
				Maria Enterprises -- Nima
				Global Kissi -- Ashaiman
				Tonifel Enterprises -- Nungua
				Kaymens -- Tema
				NB. Answer to question 4 also includes Medium trucks as well as Semi-trailer (light)
Sika Kroabea Company Limited	Distributes already manufactured goods from outside. (Warehouse)	Rice -- 3500 kg / day	Semi - Trailer	Sika Kroabea depots within GAMA
		Sugar -- 1.500 kg / fat	Semi - Trailer	Sika Kroabea depot -- South Industrial Area

				Kaymens -- Tema NB. Answer to question 4 also includes Medium trucks as well as Semi-trailer (light)
Sika Kroabea Company Limited	Distributes already manufactured goods from outside. (Warehouse)	Rice -- 3500 kg / day	Semi - Trailer	Sika Kroabea depots within GAMA
		Sugar -- 1,500 kg / fat	Semi - Trailer	Sika Kroabea depot -- South Industrial Area
		Oil -- 1,500 cartons / day	Semi - Trailer	Sika Kroabea depot -- North Industrial Area
		Beverages -- 2,000 cartons / day	Semi - Trailer	Sika Kroabea depot -- Madina
		Tomato paste -- 1,500 cartons / day	Semi - Trailer	Kasoa
				Dome
				Kaysens Arise
				Perfect Personal
				Power Hydraulics Ltd.
				Fio Enterprise
				J. A. Lord
				J.Y.I.
				Aerogram
Wilmar Africa Limited	Oil (27,309 tonnes) / Month	Oil / 3,568 tonnes	Truck Trailers	Cas Enterprise
	Soap (683 tonnes) / Month	Rice / 678 tonnes	Truck Trailers	Kaysens Arise -- Tema
	Margarine (273 tonnes) / Month	Soap / 122 tonnes	Truck Trailers	Perfect Personal -- Lashibi
	Seasoning (27 tonnes) / Month	Margarine / 23 tonnes	Truck Trailers	Power Hydraulics Ltd. -- Kasoa
	Rice (2,730 tonnes) / Month	Seasoning / 5 tonnes	Truck Trailers	Fio Enterprise -- Agboblshie
				J.A. Lord -- Adabraka
				f. J.Y.I. -- Nima

				f. J.Y.I. -- Nima
				g. Aerogram -- Ashaiman
				a. Raapa limited
				b. Quality Life
				c. Many Means
				d. Kaysens Gaisie
Conserveria Distribution Limited (Warehouse)	Tomato Mix Quantity -84 Tonnes -20ft Containers per week	Tomato MixQuantity -3520ft Containers	Truck Trailers	e. Jaa Missions Limited
	RiceQuantity -10Tonnes - 20ft Containers per	Rice Quantity - 420ft Containers	Truck Trailers	Kaysens Gaisie - Tema
	Condensed Milk	Condensed Milk		
	Quantity - 2 Tonnes - 20ft Containers per week	Quantity 5 20ft Containers	Truck Trailers	Raapa Limited - Okaishie
				Many Means - Nima
				Jaa Missions - Kasoa
				Lesfam Limited - Madina
Amani Manufacturing Co. Ltd	Domestic Plastics - 30 tonnes per week	Domestic Plastics- 5 tonnes per week	Medium Truck	Confidential
				Circle and Okaishie
				Kaneshie
				Kasoa
				Dansoman
				Pokuase and Nsawam
Metalex Group Ltd.	Aluzinc sheets (7 tonnes) /Month	Aluzinc Sheets / 5 tonnes	Medium Truck	WayleadSeedcoMy Turn
	Aluminium sheets (5 tonnes) / Month	Aluminium Sheets / 3 tonnes	Medium Truck	Waylead - Lashibi
	Trusses (metal) - 2 tonnes / Month	Trusses (Metal) / 1.5 tonnes	Medium Truck	Seedco - Tarkwa
	T & G (Plastic) - 1 tonne / Month	T & G (Plastic) / 0.7 tonnes	Medium Truck	My Turn - Accra
	Duratile - 2 tonnes / Month	Duratile / 2 tonnes	Medium Truck	
				CBG Bank
				GIMPA
				ICAG

				Pokuase and Nsawam
Metalex Group Ltd.	Aluzinc sheets (7 tonnes) /Month	Aluzinc Sheets / 5 tonnes	Medium Truck	WayleadSeedcoMy Turn
	Aluminium sheets (5 tonnes) / Month	Aluminium Sheets / 3 tonnes	Medium Truck	Waylead - Lashibi
	Trusses (metal) - 2 tonnes / Month	Trusses (Metal) / 1.5 tonnes	Medium Truck	Seedco - Tarkwa
	T & G (Plastic) - 1 tonne / Month	T & G (Plastic) / 0.7 tonnes	Medium Truck	My Turn - Accra
	Duratile - 2 tonnes / Month	Duratile / 2 tonnes	Medium Truck	
				CBG Bank GIMPA
				ICAG Ghana Law School
Special Ice Company Limited	Bottled Water (1.5 ml) - 50,000 cartons / month	Bottled Water (1.5 ml) - 6,091 cartons	Heavy Truck	Erata Hotel
	Bottled Water (500 ml) - 50, 000 cartons / month	Bottled Water (500 ml) - 38, 893 cartons	Heavy Truck	Attaa Lapaz - Lapaz
	Bottled Water (350 ml) - 50,000 cartons / month	Bottled Water (350 ml) - 10,603 cartons	Heavy Truck	Grace Has Found Us - Dansoman
	Carbonated soft drinks - 450,000 cartons / month	Carbonated soft drinks - 120,000 cartons	Heavy Truck	Kate Laryea - Mataheko
	Sachet water Bags - 500,000 bags / month	Sachet water - 500,000	Heavy Truck	Dominion - Obeyeyie Amasaman
				P.K. Consumables - Tantra Hill
Muus Timber Market				All and sundry
Volta Aluminium Company Limited (VALCO)	Primary Aluminium - 3,333 Metric tonnes per month	Molten Metal - 566.6 Metric tonnes per month	Heavy Truck	Aluworks, Western Rod, Golden Milan and Success Aluminium
				Aluworks - Tema
				Western Rod - Tema
				Success Aluminium- Tema
				Golden Milan- Spintex
				ALCOA- Europe
				a. Olivia Oku
	Household Plastics	Household Plastics		b. Shidha Aha
Decorplast Limited	Tonnes - 180 MT per week	30.40% of the total production	Medium Truck	c. Jema dos Enterprise
				Olivia Oku - Accra
				Shidha Aha - Accra

APPENDIX 6

MARKET QUEEN'S SURVEYS

MARKET QUEEN'S SURVEY				
Commodity	Origin	Service Rate	Parking	Recommendation
Yam	Dambai, Kpasa, kpandai, Banda, Sibi	10 trucks- off season 20 trucks - on season	When the place is occupied by trucks truck arriving would have to Wait in turns to offload goods.	Designate a well structured parking space for offloading within the market
Cassava dough	Obuom (Kasoa)	2 or 3 trucks	Not spacious to contain all commodities that troop in	If an appropriate parking space can be provided it will be helpful
Yam, plantain, cassava, cassava dough	Dambai, krakyl, Takyiman (Volta north), suhum, adeeso	Domi is an everyday market and trucks come everyday	No parking space. The trucks find space within any available space to offload	The new plan has taken care of the situation.
Maize	EjuraTechiman SunyaniKumasi	About four truck	The place is too small And if it rains the place looks muddy	The existing parking space/ discharging bay should be tarred.
Yam	Agboghloshie, Haatso, Dambai, kpasa	3	Transport terminal operators run their businesses so it's always congested	The new market at redco should be structured properly so we can offload there
Cassava dough	Koforidua -kwamosu and krachie	5	Because we offload at night, the place is usually free and empty	If a space for just freights operators can be provided and offloading can be done at scheduled times, the general problem for most of us will be
Charcoal	Mamprong, Afram plains, Wa and Techiman	We don't offload on market days due to congestion we will create in the market and our work too is a dirty one so offloading during market days will pollute the atmosphere. But on sundays and mondays which are days we offload there are about 3 trucks	The truck parks at an entrance behind the market complex to offload goods Challenges: Due to not having an appropriate parking place to offload, other market women always pick up fights with us due to air pollution so we decide to offload at night but that can't always be achieved since the truck may go faulty and might not arrive at the scheduled time	Provide suitable parking space for offloading goods close to the market.
Tomatoes	Derma, Kumasi, Ho, Ouagadougou, Begoro	2	Since there is no parking space for us, trucks park along road shoulders creating congestion Question 6. Challenges: We used to offload at the park but it has been given to vendors by the Council so we were sacked, we started parking at the parking lot but were sacked again since the space is usually given out to companies for promotions so the place gets occupied with them as well as vendors selling at the car park so we have no choice than to park along roads to offload	If the council can make provision for a spacious parking space close to the market will help and also if the vendors running their businesses at the car park can be moved into the market so that the car park will be free for freight operators who supply goods to the various stores and shops
Eggs	Dorma, kumasi, Drogo, Sunyani ba, Maledjo and Abokobi	5	Have to wait till those offloading at the parking lot finish before we can offload. Vendors have also encroached parking space so it not big enough to serve its purpose	Designate parking space for only freight vehicles without vendors encroaching on it will solve this issue
Watermelon	Walensi, Burkina Faso, Bawko, Wa, Ada, Agogo, Takyiman, Afram plains, Nkoranza, Ayensudo, etc	5 trucks per week	There's no designated place of offloading for us. We offload our goods after 5pm or dawn when the orange sellers are not there.	
Banaana	Kwahu, Koforidua, Awukugua and Somanya to Recco market	3 trucks per day	They arrive mostly at dawn to offload	There's no parking problem since the market is not fully operational.
Mango	Somanya, Agomeda and Kintampo to Recco market	2trucks per day at lean season	The market is not congested so there are alot of spaces that our trucks park and offload	

Commodity	Origin	Volume per day	Offloading area	Remarks
Mango	Somanya, Agomeda and Kintampo to Recco market	2 trucks per day at lean season	The market is not congested so there are a lot of spaces that our trucks park and offload	
Oranges	Nkawkaw, Kumasi, Kade, Oda, Akyease and Aprade to Recco market	2 to 3 trucks a day.	We have dedicated section of where we sell the orange as offloading bay.	We the orange sellers have already provided a place for the trucks
Pineapple	Nsawam, Amasaman, Bodwease	8 trucks per day. 1 kia truck takes 2000 pieces of pineapples.	There's no a designated place for parking even though this Recco market is very large and there's a lot of unused sessions.	As this market is not very active now, a large plot should be earmarked for general freight offloading bay before the situation gets off hand.
Tomatoes	Kumasi, Navrongo, Burkina Faso, Angloga, Ashanti Akyem Agogo	4 trucks	Not spacious enough which get trucks piling to offload in turns	The number of trucks that arrive in a day should be regulated up to a certain number so it prevents congestion or piling of trucks.
Onions	Agbogbloshie	5	We create congestion which we are not happy about but we also do not have an option than to park there. We get verbal attacks from other vendors which is not nice	If a land close to the market can be acquired and be used for a parking space, it will be appropriate
Cassava	Tepa, Asamankese, Nsawam, Adeiso, Suhum, Asaman	4	Vendors selling along road shoulders verbally attack us because we block their businesses. Congestion is also created when we park to offload but we have no choice than to park there Sometimes on arrival, the road shoulders will be occupied by other trucks delivering goods to other vendors who have their shops along the road so we have to struggle to find suitable places to park and offload.	Stagger receivers delivery hours Somebody should be assigned to monitor and direct freight truck parking
Garden eggs	Klo Agogo, Nkrakan, Aseseiso	3	Gutters at market lack culvert which have become prone to floods, resulting in muddy areas and accessing road to park becomes almost impossible	If a land close to the market can be acquired to be used as a parking space for only freight trucks, will be suitable The drainage system of the market should be looked at
Onions	Agbogbloshie	Can't tell	Most vehicles park along road shoulders or a very small space within the market	A parking space should be provided close to the market or the market should be constructed properly with a discharging bay and a parking lot for customers
Foodstuff/Plantain	Domeabra Konongo	5 trucks	Trucks which arrive later than the scheduled time cause congestion	The market should be properly constructed and well-structured with a big parking lot.
Fruits (Oranges)	Suhum, Nkawkaw and Kumasi	5	Since the parking spaces in this market can't contain us all we are forced to park along the road to offload	A well structured parking lot with accommodation should be provided
Maize	Techiman, Amantin and Nkenkenso	10	Transport Terminal has been taken over by the trotros leaving a small space for freight trucks which is always occupied by other commodities especially plantains Congested and not spacious since market women have occupied the entire space leaving small portion for trucks to park and offload Question 6. a. We run losses when other trucks have to park at the Oninku school drive to wait till trucks that have occupied the discharging bay move out.	Designate a parking space to serve us all 1. The market women here at the discharging bay should be moved to a market annex established by the Assembly so only the freight operators can park at the discharging bay for us to come and offload our goods and convey them to our point of sale.

Maize	Techiman, Amantin and Nkenkenso	10	<p>especially plantains</p> <p>Congested and not spacious since market women have occupied the entire space leaving small portion for trucks to park and offload</p> <p>Question 6.</p> <p>a. We run losses when other trucks have to park at the Oninku school drive to wait till trucks that have occupied the discharging bay move out.</p> <p>b. Congestion and the place is too crowded since other market women have occupied the place marketing their produce so the trucks are not able to occupy their space reserved for them. If we had a market annex, we would appreciate so that all of us selling here and along the road shoulders will move there to market our produce and leave this place for only the trucks to offload then we can convey them to our point of sale.</p>	<p>Designate a parking space to serve us all</p> <p>1. The market women here at the discharging bay should be moved to a market annex established by the Assembly so only the freight operators can park at the discharging bay for us to come and offload our goods and convey them to our point of sale.</p> <p>2. Since some of the freight operators have to go and park at the Oninku drive school when the discharging bay is occupied by other trucks, they usually get attacks from weed smokers around the school and sometimes get robbed while waiting on their turn to offload at the discharging bay when a truck moves out. So once the freight operators have a place on their own, their safety can be fully secured.</p>
Plantains(Tema Community 1 market)	Ahafo, Gorso, Aboum, Sehwi,Dadesoaba and Ashanti Akyem Agogo	5		
Meat (Goat, Cow and Sheep)(Tema community 1	Burkina Faso, Benin, Tamale,Yendi and Bolgatanga	Trucks do not come to the market with our livestock because we don't have parking space	There hasn't been space provided for that by the A	Once a parking space is constructed close to the market, they wouldn't even waste much time offloading our livestock
Fruits - (bananas, oranges, dried coconuts and Pe	Kade, Nkawkaw and Central Region	3	<p>The discharging bay is meant for goods to be brought and offloaded there but some market women have taken over the place and run their businesses there. This has gotten the place very crowded making it difficult for trucks to have enough space for produce to be offloaded. In the end, some trucks have to go all the way to the Oninku school to wait for other trucks to move out before they can come and this is so inconvenient to some of us when this happens</p>	<p>Most of the market women have sold their sheds and are selling at the discharging bay meant for trucks and others are selling along the shoulders of the road making patronage in the market difficult since customers have access to them first so I think those market women should be moved out to enable trucks to have free space to offload goods and return</p>
Yams	Wulensi, Nkpayili, Chamba, Damanko, Sibi ,Banda,Kpasa, Nkwanta, Buya, Kpandai,Naburu	30	<p>Not spacious enough to contain the trucks so some have to park on road shoulders and this creates traffic congestion leaving people to think our actions are deliberate</p> <p>Congestion there and we end up being sacked by the trotro drivers as they claim ownership of the place.</p> <p>When the place is occupied on your return, trucks have to wait in turns to get an opportunity to offload.</p> <p>Sometimes you have no choice than to offload close to a refuse dump at the terminal since that's the only available space and this is food being talked about</p>	<p>The mayor should get the plot ready for use so trucks move there and park.</p> <p>The road is small and if it can be expanded will solve this issue because day in day out people working in the market have outgrown it.</p> <p>Clear women selling on table tops at night along the road shoulders</p>
Plantains	Nkra-nkwata, Sehwi, Goaso	40 trucks	Trucks park along the shoulders of the road	The drivers are charged hugely just for parking at private parking lots so if a parking lot is provided for just freight operators to bring our goods and offload it will be good

Plantains	Nkra-nkwata, Sehwi, Goaso	40 trucks	<p>When the place is occupied on your return, trucks have to wait in turns to get an opportunity to offload.</p> <p>Sometimes you have no choice than to offload close to a refuse dump at the terminal since that's the only available space and this is food being talked about</p>	The drivers are charged hugely just for parking at private parking lots so if a parking lot is provided for just freight operators to bring our goods and offload it will be good
Foodstuff(Tomato Queen - Agbobloshie)	TuobodomKetaBurkina-FasoDormaa	About 7 trucks everyday	<p>Trucks park along the shoulders of the road</p> <p>When trucks don't arrive on scheduled times, AMA clamps them.</p>	A big parking lot should be provided close to market.
Foodstuffs - Cabbage, Carrots, Cucumber, Spring onions, Lettuce, Cauliflower etcetera. Agbobloshie	TogoAsante - Mampong AfloaAnloga	10 trucks -- Togo7 trucks -- Asante M	The discharging bay has been taken over by vendors thereby narrowing the space.	Vendors at station should come into the sheds and sell.
Foodstuff (Watermelon and Mangoes Queen - Agbobloshie)	AdaKintampoNorthern region villages	20 Trucks	It's also a station so it easily gets full.	The parking lot should be expanded.
Foodstuff(Banana Queen - Agbobloshie)	Apesika	4 trucks every day	Trucks arrives on Sundays so market is virtually empty	A very big and well-structured parking lot close to the market should be constructed.
Onions (Hausa Onion Market- Agbobloshie)	Niger,Burkina Faso, Nigeria, Afiao, Afram plains, Anloga	25	<p>When trucks come in their numbers, the parking space is unable to occupy them all so others have no option than to park on road shoulders. This action results in narrowing of the road making mobility for pedestrians and especially our head porters and loading boys very difficult in that moving vehicles usually knock them down. This I believe is lack of speed ramps on the road</p> <p>Along the road because we don't have a designated parking lot so that's why we bring them at night because during the day we will block access to the market especially during Saturdays which are market days</p>	The Assembly should consider our proposal so we work hand in hand to resolve this problem
Onions(Agbobloshie Buzanga Onion market)	Niger, Burkina Faso, Nigeria, Ashaiman, Afram	15	<p>We have to park along road shoulders and this creates traffic congestion and narrowing of the road to be used by pedestrians.</p> <p>When trucks come in their numbers, the parking space is unable to occupy them all so others have no option than to park on road shoulders. This action results in narrowing of the road making mobility for pedestrians and especially our head porters and loading boys very difficult in that moving vehicles usually knock them down. This I believe is lack of speed ramps on the road</p>	Clear vendors behind us and use their space for parking or better still construct a new one close to us and segregate space amongst us
Poultry(Mallam Atta market)	Atatsi, Asesewa, Kumasi ,Cape Coast	A day before market day is when we bring them and it's usually at night so can't tell	Along the road because we don't have a designated parking lot so that's why we bring them at night because during the day we will block access to the market especially during Saturdays which are market days	Vendors have sheds to sell in but during market days, they decide to cross borders and extend their business onto the little road which is accessed by all so they should be warned not to extend business onto road and sanctioned when they go contrary.
Plantain	AgogoSunyani Adawso	16	<p>The discharging bay has been taken over by vendors who refuse to pave way for freight vehicles when they want to deliver goods</p> <p>It is always muddy most worse now that it usually rains.</p> <p>When the place is occupied by other vehicles, the trucks would have to wait in turns since the space is not big enough.</p>	Vendors who have encroached the discharging bay should be relocated.

Foodstuff(Banana Queen - Agbobloshie)	Apesika	4 trucks every day	Trucks arrives on Sundays so market is virtually empty	A very big and well-structured parking lot close to the market should be constructed.
Onions (Hausa Onion Market- Agbobloshie)	Niger,Burkina Faso, Nigeria, Afiao, Afram plains, Anloga	25	When trucks come in their numbers, the parking space is unable to occupy them all so others have no option than to park on road shoulders. This action results in narrowing of the road making mobility for pedestrians and especially our head porters and loading boys very difficult in that moving vehicles usually knock them down. This I believe is lack of speed ramps on the road	The Assembly should consider our proposal so we work hand in hand to resolve this problem
Onions(Agbobloshie Buzanga Onion market)	Niger, Burkina Faso, Nigeria, Ashaiman, Afram	15	Along the road because we don't have a designated parking lot so that's why we bring them at night because during the day we will block access to the market especially during Saturdays which are market days	Clear vendors behind us and use their space for parking or better still construct a new one close to us and segregate space amongst us
Poultry(Mallam Atta market)	Atatsi, Asesewa, Kumasi ,Cape Coast	A day before market day is when we bring them and it's usually at night so can't tell	The discharging bay has been taken over by vendors who refuse to pave way for freight vehicles when they want to deliver goods	Vendors have sheds to sell in but during market days, they decide to cross borders and extend their business onto the little road which is accessed by all so they should be warned not to extend business onto road and sanctioned when they go contrary.
Plantain	AgogoSunyani Adawso	16	It is always muddy most worse now that it usually rains.	Vendors who have encroached the discharging bay should be relocated.
Gari	Adeiso, Asesewa,Volta region-Mamfe, Agbo	1	When the place is occupied by other vehicles, the trucks would have to wait in turns since the space is not big enough.	The designated space should be renovated and the vendors along the road selling should be moved back into the market to free up the road
Fish	River fish: Yeji, Kpanda, Banda, Anlo and Dambai Sea fish: Volta Region, keta , Ada, Anyamam, Goi, Aprenaye, Lolonya. Accra, Tema ,Nungua,Teshie, Chorkor Central Region: Apam, Winneba, Cape coast, Axim, Takoradi Shrimps: Benin, Ivory Coast	10 trucks	Due to insufficient space, waiting on trucks to finish offloading before others can, creates lot of inconveniences for us and also results in offloading sometimes along the road shoulders causing misunderstandings between residents and us	Entry of freight vehicles should be prohibited to several areas mainly within around the market. They should be allowed for offloading goods only at night or in early morning as an efficient model of controlling unauthorised parking along road shoulders along the stretch of the market
				The vendors made to relocate to the new market. It would create enough space for freight vehicles to park and offload goods.

				would create enough space for freight vehicles to park and offload goods.
Frozen meat and fish	Tema	6	Discharging bay has been encroached upon by vendors and their umbrellas	The various commodities should be told where they are to offload goods .
			Vendors along road shoulders pick up fights with us when trucks arrive to offload.	
Cassava and plantain	Begoro, Nyankumase fosu	5	Commercial (Taxi) drivers around also come to park around where we offload creating	Don't have authority as an association but if our queen mother can be authorised to acquire a land from the chief to be used as parking space will help
			The facilities within the market is really poor. Unable to access market during rainfalls since there are no fillings and it's eroded.	
Cabbages	Agbogbloshie	5	There are no designated parking space so we have to find any available spot to park and offload goods.	Use currently wasted areas such as squatters who have encroached part of the market particularly appropriate for parking space
				Queen mothers and the council should talk to the various vendors and poultry sellers to allow us park and offload our goods till they find us appropriate parking spaces.
Fruits (Oranges and pineapples)	Kade, Suhum- Amanase,Kyekyerere, Adeiso,Boadua, Akwatia, Nwantanan	1	Vendors have encroached the road selling and this has resulted in narrowing of the road i	
			Because we don't have parking spaces we have no choice done to Park along convenient spots and along access roads which isn't even hygienic.	
			Residents along the stretch do not also permit us to offload around their homes and a market as big as this place shouldn't be suffering such situations	If for sure, the Assembly has indeed acquired a land to be used for parking, what I think can be done is to schedule the use of it to coordinate the timing of freight carriers and receivers during certain times of the day to enable spaces to be shared amongst various trucks
Plantains	Tepa, Bebiani, Agogo,Goaso, Sehwi Asawhinso, Akyem Sekyere	5		
			Market easily floods during rainfalls and this is due to a gutter close by which lacks culvert. When this happens, accessing the place to park is very difficult.	
			Vendors sell along roads and there are always arguments and quarrels among us just because we don't have suitable places to park	Vendors selling along access road shoulders should be moved back into the market so the road can be easily accessed to park
Groundnut	Navrongo, Dambai and Kpasa	2 trucks		
			There's no parking space available so all vehicles park along road shoulders. As a result, most at times the road shoulders are occupied making finding a spot to park frustrating.	The market should be properly constructed with all necessary facilities including a discharging bay for the various commodities or a parking terminal
Yam	Dambai, Kpasa, Nkwata, Sibi, Wulensi, Bimbila, Zabzugu,	5 trucks		
			Market has no parking lot at all so vehicles tend to park on road shoulders or the exit of the	A parking lot close to the market should be made available
Maize	Nkoranza,Techiman, Ejura, Amantin(Brong Ahafo) and Ayikan	3		

APPENDIX 7: NATIONAL LAWS RELEVANT FOR PHYSICAL DEVELOPMENT

Local Government Act 462 of 1993	Land Use and Spatial Planning Act, 2016	National Development Planning Commission Act 479	National Building Regulations (Building Code L.I. 1630)	National Housing Policy 2015
<p>- Section 49 states that a physical development shall not be carried out in a district without prior approval in the form of a written permit granted by the district planning authority.</p>	<p>-The Assembly has the right to let an owner redevelop the land to bring the land to a required standard if the District Assembly is of the opinion that, the current use of the land is not in conformity with the general standard of the vicinity as prescribed by the District Spatial Development Framework,</p>	<p>-Section 2 (d) make proposals for ensuring the even development of the districts of Ghana by the effective utilization of available resources.</p>	<p>-The Legislative Instrument 1630 (L.I.1630) spells out in details the building permit application requirements, building densities, appropriate buildings materials to use, permissible land uses and site and spatial standards.</p>	<p>-Objective 5 which is to promote orderly human settlement growth with physical and social infrastructure, it has as one of its initiatives to ensure that all planning schemes are subject to Transport/Traffic Impact Assessment in accordance with international best practice</p>
	<p>-The Commission is supposed to ensure the control of physical development in uncontrolled or less controlled but sensitive areas such as forest reserves, nature reserves, wildlife sanctuaries, green belts, coastal wetlands, water</p>	<p>- Section 2 (c) make proposals for the protection of the natural and physical environment with a view to ensuring that development strategies and programmes are in conformity with sound environmental principles.</p>	<p>-The definition of a market includes that it should be a place where bulk-breaking takes places in the lorry park adjacent to the market showing the importance of a lorry parks.</p>	

Local Government Act 462 of 1993	Land Use and Spatial Planning Act, 2016	National Development Planning Commission Act 479	National Building Regulations (Building Code L.I. 1630)	National Housing Policy 2015
	bodies, water catchment areas, mining areas, open spaces and public parks.			
			-Regulation 176, Section 6, 7 and 9 states that, the design and drainage of a market complex shall be approved by the District Planning Authority, Sanitary conveniences shall satisfy Part XIV of these Regulations and shall be so located as to eliminate contamination to food items and Open markets and lorry parks shall be well drained and erosion checks shall be provided.	

APPENDIX 8

TRANSPORT UNION EXECUTIVES AND OPERATORS SURVEYS

TRANSPORT UNION EXECUTIVES AND OPERATORS SURVEYS							
Name	Membership No.	Year of Formation	Objectives	Challenges	Facilities for Vehicles	Recommendations	Parking
GPRTU OF TUC- Anyaa branch		2005	1. To educate drivers on road safety issues with particular reference to passengers care 2. To solve the transportation needs of passengers around the enclave 3. To take drivers through driving skill seminars. 4. To form a strong welfare for members 5. Organisations of seminars and Symposium	No. However, the station has not been opened for operations and Our challenge is the uncompleted Calvary market road. It would generate alot of congestion at the market junction when that short section is not fixed. This is because drivers may be forced to use the same market junction as both entrance and exit and this will bring horrible congestion or traffic jam at that point. We plead to the authorities to complete the market road; that section from Calvary Baptist Church that links the main road.			
Anyaa market taxi terminal branch of GPRTU	GAR8/240	2017	1. To protect passengers and their goods 2. To form a strong welfare for our members	The problem we have is that the Anyaa market bus terminal is yet to be opened for operations and as a results taxi station operates just In front of the fenced transport terminal and by the roadside . There's sometimes congestion at the taxi station but generally parking is not a problem			
GPRTU- Abokobi Area Drivers Union	36	30 years ago	1. to solve transportation needs of the Abokobi Area 2. We train competent drivers 3. We protect passengers and their goods against theft	1.Yes. Containers occupying and engulfing the station 2. Traders have over taken the roadside	A large parking place for the trucks,	1. The assembly should make nkulenu road a oneway. 2. They should clear the market women off the streets	Big yes. They are the cause of the congestion. They give permits for people to place containers everywhere and allow market women to sell on the streets and parking lots
Nkulenu taxi drivers union		2018	1.To unite as drivers and assist the patrons of the market with transport needs 2.To form a strong welfare for members	Yes. At first, the trotro drivers were not using the road in the market but as soon as they started, it has resulted a terrible traffic within the market. The traffic jam also impedes emergency situations	Yes. Provide a parking place for both the cargo and trotro cars. The trotro cars form a long queue from the council office creating alot of traffic	1. Make nkulenu road a oneway road 2. The Abokobi-madina trotro station is not large enough to contain all the cars so get extra parking place for them for waiting and let them move to the station when it's their time to load	Yes. The assembly is inefficient in enforcement of their own laws. This is because traders have taken over the road
GPRTU	Roughly 1600	1975	1. To establish a union of strong welfare for members. 2. To remunerate inactive members 3. To control diversion of goods	Yes. The union and GPHA have failed to provide a parking facilities for us. Lands were available in those days but now very scares.	Toilets, bathrooms, security, mosque, guestrooms	Since there are no large lands anywhere, TMA should develop parking facilities that will take 20, 30 40 etc trucks at respective places within the Port	
Confederation Generale des transporteurs Terrestres et fluviaux Bamaco	Over 2000	2008	1. To bail union members when faced with any challenges 2. To form a united front for easy collaboration with GPHA and our clients To control diversion of goods for transit	Yes. The transit trucks park at the GPHA truck park but woefully inadequate. We park at any available place when the place is full. GPHA security clamps our car and take GHC 300 from us for parking at unauthorized places	Toilets, bathrooms, food market, mosque etc	TMA should provide parking facilities	
Ghana drivers owners association	Over 2000	2001	1. To form a united body in order to meet the transport needs of clients of Tema port. 2. To control diversion of consignment or goods to the right destination 3. To properly identify the union members against any issues 4. To assist union members secure original drivers license	Yes. The union from the start should have secured a yard within the harbour because there were many lands available but the leadership failed. However, the Port authorities also failed to do so	Toilets, bathrooms, restrooms, restaurant, mosque etc	I believe that when all the stakeholders meet, we can come out with appropriate solution	
Madina cooperative union		2014	1. To institute a strong welfare for our members 2. We protect our clients and their goods	Yes. Drivers that load on the main road cause alot of nuisance. Also the traders who have taken over the road path of vehicle	Car park for the cargo cars	1. Sack all traders on the roads within the market 2. Fix Nkulenu and Hannah school road	I will not only blame the assembly but traders who flout the laws
					Toilets and urinals restroom, washrooms, local restaurants and washing bays if possible vulganizer		

association	Over 2000	2001	drivers license	authorities also failed to do so	restaurant, mosque etc	Solution	
Madina cooperative union		2014	1. To institute a strong welfare for our members 2. We protect our clients and their goods	Yes. Drivers that load on the main road cause alot of nuisance. Also the traders who have taken over the road path of vehicle	Car park for the cargo cars	1. Sack all traders on the roads within the market 2. Fix Nkulenu and Hannah school road	I will not only blame the assembly but traders who flout the laws
JAPTU(Joint Association of Port Transport limited	100 members (9 from Ghana and	1999	To institute internal and self regulation mechanisms that will enhance professionalism amongst transit haulage operators and sanitize the sector	Yes because there's no parking space for us	Toilets and urinals restroom, washrooms, local restaurants and washing bays if possible vulganizer electricians mechanics to provide services for us, we want to be part of management of parking facilities, good sanitation, light facilities water and mosque for the union.	When we get a parking space it will resolve issues of off street and on street parking accident.	All the lands which must be reserved for parking space have been sold and the Assembly is to be blamed
Flat body Articular Drivers Union (Tema)	500	1992	1. Adminstrate drivers from different parts of the country to work in harmony 2. Provide genuine delivery services to customers	Yes, the number of trucks now have out grown the space provided for parking and a spacious parking space to serve us and others from our neighbouring West African countries will be a better option. Commodities like cashew nut, shea nut and timber all come from the hinterland and when they arrive and the parking space around the harbour is fully occupied, they have to find somewhere to park until others move out before they can find space which creates inconvenience to us as drivers. If there was a terminal established for us I'm sure this problem will be resolved.	Restrooms, toilets, bathrooms, small food market, create small space for mechanics, vulganizers, electricians to provide services for us since they are also part of our work every where we go	1. There should be a common place for parking to segregate Ghanaian and francophone drivers because language barrier is a huge problem among us. Sometimes you need to communicate something or correct a wrongful doing to them but you are unable to. So if they have a place separately will be the best way. 2. We are aware that because of irregular parking, pavements are being defected, gutters are breaking and if we are provided a parking space, we are ready to pay some revenues to the Assembly for the maintenance and rehabilitation of these.	Yes, because we have cried out to them for so long on this issue but to no avail
Ghana National Cargo Transport Association	Over 2000	2010	To bring under control all cargo drivers at GMG, Tema	Not really		We don't have parking problem	
Haulage Transport Drivers and Training Center	About 3000	2016	1. To educate drivers on road safety and other related issues 2. To assists drivers obtain appropriate licensure in conjunction with DVLA 3. To fascillitate free movements of cargo trucks across different bordes. 4. Etc	Yes	Decent sanitary facilities, Restrooms, washing bay, a small guestrooms and restrooms	If MPS are able to push the sea then the swampy land beside the road from the harbour to Sakumono junction could be of help. Another option is that TMA should design a number of truck parks at selected spots within the enclave rather than thinking of a large area which would be difficult to aquire	The problem is not TMA alone but GPHA. GPHA has failed to provide a decent truck park
Ghana National Cargo Transport Association	Over 400	2001	To ensure safety of members To ensure safe movement of goods To ensure members abide by port rules and regulations Contribute to developing maritime To create a job network	Yes Ghana Ports and Harbours Authority has provided a parking lot but it's not big enough to accommodate all the Freight vehicles	Security Resting place e.g. sheds Portable water Union offices Proper sanitation Toilets and baths Electricity	A modern parking space should be provided so as to accommodate all freight vehicles	Yes They hardly interact with the union's otherwise this problem would have been solved a long time ago The market should be relocated only if it's suitable

Consulting Services for Study of Freight Transport in Greater Accra Metropolitan Area

APPENDIX 9:

MINUTES OF THE MINUTES OF SECOND STAKEHOLDERS' WORKSHOP HELD AT
MLGRD CONFERENCE ROOM, ACCRA ON 26TH FEBRUARY, 2021.

MINUTES OF STAKEHOLDERS WORKSHOP

FREIGHT TRANSPORT STUDY – GREATER ACCRA METROPOLITAN AREA (GAMA)

Stakeholder Workshop : 02
 Date : 26th February, 2021
 Venue : MLGRD Conference Room

Attendance

No	Name	Stakeholder	Position
CONSULTANT (VISION CONSULT LIMITED)			
1	Dr. John Bernard Koranteng-Yorke (JBK)	Vision	Managing Director
2	Dr. Daniel Atuah Obeng (DO)	Vision	Traffic Engineer
3	Jasper Amefadzi - Katamane (JAK)	Vision	Team Member
4	Yaw Aboagye (YA)	Vision	Assistant Traffic Engineer
CLIENT (MLGRD)			
5	Pearl Vormawor	MLGRD	ADPO
6	Raymond Ohene Ofori	MLGRD	PC-GUMAP
7	Manuella Mireku	MLGRD	National Service Person
VIRTUAL			
8	Joseph Ankamah (JA)		
9	Professor Kwasi Kwafo Adarkwa (PA)	Vision	Team Leader
10	Pamela Nutsukpo (PN)		
11	Alex Johnson (AJ)		
OTHER STAKEHOLDERS			
12	Charles K Sam (CKS)	GSS	Statistician ES
13	Sulemana Amadu (SA)	GWMA	Head DOT
14	Nadrata Tahiru (NT)	DUR -GAR	Ag. Traffic Engineer
15	Asare Andrew (AA)	Swiss Embassy	Infrastructure Specialist

16	Irene Ofori Addo (IOA)	GWMA	Mun. Eng. Urban Roads
17	Marion Hoyez (MH)	Transitec	Project Facilitator
18	Alhaji Mohammed Tanko (AMT)	GRTCC/GNCTA	National President
19	Alhassan Ibrahim (AI)	GRTCC/GNCTA	General Secretary
20	Alhaji Adams Saliah (AAS)	GHATOA	General Secretary
21	Frederick Asiamah (FA)	LaNMMA	MPO/TO
22	Elizabeth Armah	GSMA	Head DOT
23	Kwasi Adarkwa	AbCMA	MPO

NO	MINUTES OF MEETING
1.0	<p><u>OPENING OF MEETING</u></p> <p>The meeting started at 10:30 am after Marion Hoyez, and Raymond Ohene Ofori arrived and held discussions with the Consultant on the mode of presentation. After deliberations, it was decided that Professor Adarkwa, who could not make it to Accra because of flight cancellation, should do the presentation via zoom.</p> <p>In order to make the participants actively involved in the Workshop, it was agreed that the Consultant should blend both English and Twi languages in the presentation.</p>
2.0	<p><u>WELCOME ADDRESS</u></p> <p>Briefing participants on the purpose of the Workshop, Raymond Ohene Ofori indicated that the Consultant was tasked to survey and collect data on freight transportation by heavy trucks as well as their related characteristics within the Greater Accra Metropolitan Area.</p> <p>He stated that the Consultant has already been to the field and engaged the various stakeholders through various means, including:</p> <ul style="list-style-type: none"> • Interviews; • Questionnaire administration; and • Discussions.
3.0	<p><u>PRESENTATION (IMPACT AREAS AND MITIGATION MEASURES)</u></p>

Following the welcome address, the Consultant was given the opportunity to take participants through their findings from the study. The data analysis and findings presented focused on the following:

- Impact Areas;
- Mitigation measures; and
- Proposed Action Plans for Freight Transport.

At the end of each thematic area, there was an interaction with participants to ask questions and make suggestions and contributions. Mr. Raymond Ohene Ofori moderated these sections.

Contribution and Suggestions

The Municipal Planning Officer for Ablekuma Central Municipal Assembly, Kwasi Adarkwa, wanted to know the relationship between road safety and the current assignment. In his reaction, the Consultant indicated that they are related because accidents involving freight vehicles cause severe damages or could be fatal and eventually hold up traffic for a long time.

In his response, the Consultant indicated that issues related to Road Safety are captured in the presentation.

From the Ghana Statistical Service, Charles Kofi Sam inquired about the average parking duration of a truck and sanitation conditions at the various parking lots or vehicle terminals.

He suggested the use of mobile toilets at the various vehicle terminals but responding to the above issue; the Consultant indicated that in as much as efforts were being made to curb sanitation issues in GAMA, settling on the mobile toilets for use in the vehicle terminals would not help solve the problem because of their temporal nature. He further indicated that the mobile toilet facility is only suitable for short term purposes. Since vehicles sometimes park for more extended periods, sanitation facilities in and around their terminals required a more permanent facility.

Alhassan Ibrahim from GNTCA pointed out that parking lots at Achimota are minimal, resulting in indiscriminate parking on the road's shoulders, with a similar situation also occurring at Dome. He further indicated that efforts had been made to resolve the challenge by various MMDAs but to no avail. Hence, he wanted to know what strategy the Consultant was recommending for such situations.

In his response, the Consultant stated that the MMDAs need the support of all and sundry, especially those in the industry, through awareness creation and dissemination of information to all stakeholders. Additionally, the Consultant indicated that the MMDAs are empowered by law to take action against traffic offenders in their areas of

	<p>jurisdiction. He also indicated that other avenues would be explored in the final report to the Client.</p> <p>The Chairman of GNCTA, Alhaji Mohamed Tanko, indicated that during the presentation, it was revealed that market women mainly in Agblogboshie, abandoned their stalls and display their wares on the shoulders of the road and similar situations can be observed at other markets within GAMA. He wanted to know why these things were happening and what was being done about the situation. Responding to the above, the Consultant stated that it is necessary to let the market women understand the need to use the stalls, which would also help decongest the streets. He further suggested that the MMDAs could use their bye-laws to enforce relevant portions to curb the situation. On a related issue, a participant indicated that since the MMDAs have several laws and bye-laws, enacting new ones would not be necessary and wanted to know what the Consultant recommends. The Consultant agreed and indicated that there are enough laws but what was needed most was their implementation. He also indicated that the MTTDs could be brought in to assist as and when the situation arises.</p> <p>Elizabeth Armah from Ga South Municipal Assembly (GSMA) acknowledged the efforts of the MMDAs in enforcing the bye-laws but attributed the high level of indiscipline to the interference by politicians. According to her, at times, when the MMDAs or the GAMA Task Forces embark on exercises to make sure market women and other hawkers adhere to the laws, usually such exercises are interfered with by politicians making it difficult for the MMDAs to work effectively. Responding to the above statement, the Consultant stated that no matter the situation, there is the need to enforce the laws and also allow the institutions to work. The Consultant, once again, emphasized the need for us to build strong institutions to help enforce the laws.</p> <p>The Chairman of Ghana National Cargo Transport Association (GNCTA), Alhaji Mohamed Tankoh, indicated that spaces allocated for their use in some areas in GAMA have been taken over by certain private and public figures in society, while other areas have been encroached on with kiosks and wooden structures. He cited examples of such areas as including Kingsway, Post Office and Makola.</p> <p>He stated again that the GAMA Taskforce, MMDAs, the Police and other law enforcement agencies are aware. Still, nothing has been done about the situation and wanted to know the Consultant's suggestion on that. In his response, the Consultant indicated the need for awareness creation and coordination involving MMDAs, the Police and all stakeholders.</p> <p>A participant inquired if there are any provisions for mandatory Rest Stops on the highways.</p> <p>In his response, the Consultant indicated that it is a regulation that after 120 miles of driving, a driver must break and take a few minutes of rest. He further stated that the Ghana Highway Authority (GHA) has provision for that, and some private developers</p>
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	<p>are also helping in this regard, including Linda Dor and others. He further indicated the need to encourage more private developers in this regard.</p> <p>Alhassan Ibrahim of GNCTA wanted to know if there are data on Origins and Destinations of vehicles to monitor their movements. Responding to the above question, the Consultant indicated that data collection had been completed on the assignment. Still, if the need arises, additional data collection can be organized and that there are data on the Origins and Destinations of all such trip makers.</p> <p>The Head of the TMA's Transport Department, who joined the Workshop via virtual means, indicated that according to the Consultant, several laws and bye-laws are in existence, and it is also a fact that MMDAs have produced many Action Plans within GAMA. He wanted to know if the MMDAs are ready to commit resources to execute this very important task, the results of which will end up on office shelves.</p> <p>In his response, the Consultant indicated that the Ministry's involvement and commitment are evident for us to see.</p> <p>In addition to the above, Raymond Ohene Ofori indicated how he is personally happy about the situation because as the first technical meeting, it is now clear that the Ministry has the oversight responsibility for the MMDAs. The Ministry will support them, especially in reviewing their various Action Plans and prioritizing them for implementation. This implies that the Ministry and the MMDAs would have to collaborate in order to achieve the desired results.</p> <p>Alex Johnson of the AMA's Transport Department, who also joined the Workshop by virtual means, also indicated that integrating the MMDAs be-laws would be very useful, so the Ministry should note that. In addition, he stated the need for the Transport Departments in MMDAs to be recognized and their visibility enhanced.</p>
4.0	<p><u>Closing</u></p> <p>In concluding the discussions, the Consultant made the stakeholders aware of the situation at hand and the need for all to be actively involved in the task. He also thanked them for honouring the invitation to attend the Workshop.</p> <p>Raymond Ohene Ofori invited Marion Hoyez to make some brief comments. She thanked the participants and urged those present to create awareness at their various institutions and asked the Consultant for his final remarks.</p> <p>Dr. John Bernard Koranteng-Yorke, a team member of the Consultant's team, thanked the Ministry and the various MMDAs and asked for total collaboration between all stakeholders to successfully implement the program.</p> <p>The meeting was adjourned until further notice at 2:10 pm.</p>

MINISTRY OF LOCAL GOVERNMENT, DECENTRALISATION AND RURAL DEVELOPMENT
GHANA URBAN MOBILITY AND ACCESSIBILITY PROJECT (GUMAP)
VALIDATION OF TRAFFIC IMPACT MITIGATION MEASURES WORKSHOP
FRIDAY FEBRUARY 26, 2021 @ MLGRD CONFERENCE ROOM

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