【添付資料－5】1 回目テクニカル・ノート

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TECHNICAL NOTES

ON

THE PREPARATORY SURVEY ON THE PROJECT FOR

THE IMPROVEMENT OF THE TEMA MOTORWAY ROUNDABOUT

IN THE REPUBLIC OF GHANA

The Preparatory Survey Team commissioned to undertake the Outline Design (hereinafter referred to as "The Team"), under Japan International Cooperation Agency (JICA) conducted field surveys and review of existing documents and held several discussions on the scope and basic policies with the implementing agency and other relevant agencies on the technical aspect for "The Project for the Improvement of the Tema Motorway Roundabout in the Republic of Ghana".

This note is signed between The Team, Ministry of Roads and Highways (hereinafter referred to as "MRH") and Ghana Highway Authority (hereinafter referred to as "GHA") to share mutual understandings and agreement on the matters mentioned in Appendix-1.

Accra, 20 May, 2015

Mr. Michael A. Abbey
Chief Executive
Ghana Highway Authority (GHA)
Ministry of Roads and Highways

Mr. Ryohei Watanabe
Chief Consultant
Preparatory Survey Team
Japan International Cooperation Agency (JICA)

WITNESS:

Mr. Godwin J Brocke
Chief Director
Ministry of Roads and Highways

Appendix -1

1. Project Background

Roads contribute to 95% of transport in the Republic of Ghana. Although remarkable progress has been made recently in improving the road network in Ghana, the existing road network is still in poor condition.

The Greater Accra Region, is located at the nodal point of two international transit corridors - Abidjan-Lagos Corridor and the Eastern Corridor. The Tema Motorway Roundabout is a vital junction that connects these corridors including the access road from the Tema Port and the communities in Tema Town through the Tema-Hospital Road. The roundabout has been experiencing severe traffic jams and is becoming an impediment to smooth and safe movement of people and traffic. The expansion plan of the port is anticipated to further contribute to significant increase of traffic volume in this region. In order to remedy such situation and to enhance smooth and safe traffic flow (logistics) both within the country and the West African Region, it is utterly and urgently important to undertake the improvement of the roundabout.

Under such circumstances, the Government of Ghana (GOG) made a request to the Government of Japan (GOJ) for a Grant Aid Assistance to implement "the Project for the Improvement of the Tema Motorway Roundabout (Project) in 2013. The GOJ decided to conduct the preliminary survey and examine the viability of the project and entrusted the Survey to Japan International Cooperation Agency (JICA).

2. General Items

2.1 Inception Report

MRH and GHA basically agreed on the contents of the Inception Report submitted by The Team on April 15, 2015, except for the part regarding the configuration of the intersection. Understanding regarding this item shall be as according to the contents mentioned in the sub-clause 4-4 of the Minutes of Discussions signed between the Ghana side and Japan side on April 17, 2015.

2.2 Project Scopes, Survey Objectives and Objective section

1) Project Scopes

The requests made by the GOG are to construct a flyover, improvement of the Tema Motorway Roundabout and carry out the detailed design of a flyover and construction supervision.

2) Survey Objective

The objective of the Survey is to;

- Understand the background, purpose, and scope of project under the Grant Aid Assistance Scheme of Japan,
- Study the feasibility of the project in terms of effectiveness, technical and economic justification,
- Conduct outline design for minimum but optimal scope and scale of the project required for achieving the outcome of the assistance,
- Estimate project cost, and
- Propose the contents, implementation and maintenance plan as well as critical points to

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be undertaken by the GOG in order to achieve the outcome and targets set for the project.

3) **Objective Section**

The objective section of the project will cover the construction limits (affected stretch) on each arms of the roundabout that are required for the improvement and not beyond those limits.

2.3 Consistency with Relevant Plans

The Ghana side will provide detailed information of all development plans relevant to this Project to The Team to maintain harmony with its improvement plan, particularly the expansion plan of Tema Harbour Road. Detailed information should be shared with The Team no later than June 2015, such that the improvement plan can be made consistent with these development plans. In case no information is made available by the above stipulated time, The Team will adjust its improvement plan to the existing condition. Other plans will have to be made consistent with this improvement plan.

2.4 Coordination with Relevant Authorities

Among the five roads (arms) of the roundabout, Tema Harbour Road and Tema Hospital Road lie under the jurisdiction of the Department of Urban Roads (DUR). Also, there are various service lines and utilities along the roads belonging to different authorities, some of which are buried. The improvement of the roundabout may necessitate relocation of some service lines. GHA assured it will initiate coordination with these authorities.

3. Technical Items

3.1 Road Classification

The Functional classification of the roads (arms) based on the Ghana Road Design Guide 1991 are as follows;

Motorway	: Accra-Tema Motorway (Responsible Agency is GHA)
National (Primary)	: Aflao Road and AkosomboRoad (Responsible Agency is GHA)
Urban	: Tema-Harbour Road, Tema-Hospital Road (Responsible Agency is Department of Urban Roads)

3.2 Standards and Guidelines to be Applied

Following standards/guidelines would apply for planning/design of roads, structures and road ancillaries. GHA confirmed that these Standards apply for urban roads also.

i) Highway Design: Ghana Road Design Guideline, Survey & Design Division, 1991
(Items not covered in the guideline will be referred from British standards (BS) 5400 or" A Policy on Design of Highways and Streets, 2004" (AASHTO: American Association of State Highway and Transportation Officials) or Japan Road Structure Ordinance (Japan Road Association or the British Standards (BS) 5400 or The Ministry of Roads and Highway Standard details for Urban and Trunk Road)

ii) Roundabout: An informational guide, Second Edition (Federal Highway Administration) or the BS 5400

iii) Pavement Design: AASHTO Guide for Design of Pavement Structure, 1993 or GHA Pavement Guide or BS 5400

iv) Bridge Design: Guide for Bridge Design Vol. 1, Design Guide 1991 (GHA), BS 5400, or Specifications for Highway Bridges (Japan Road Association) or equivalent

v) Structural Design (Retaining Walls, Culverts): Japanese Standard or AASHTO or BS 5400 or other equivalent

3.3 Target Year

The design target year is set to year 2035 in accordance with the recommendation of AASHTO. AASHTO mentions that it is general practice to use a period of 20 years for the forecast of traffic as it cannot be usually predicted with any degree of accuracy beyond this period because of probable changes in the general regional economy, population and land development in the area.

3.4 Number of Lanes

The improvement plan will take into consideration the ECOWAS proposal for Accra-Tema Motorway and Aflao Road. However, the actual number of lanes to be constructed by Japan side will be determined by the results of the traffic demand forecast being undertaken by The Team. The number of lanes on ramps or service roads to be constructed will also be determined following the results of the traffic demand forecast.

If widening to the Motorway is required, 10m width will be maintained in accordance with the guideline with an exception to the transition section between the Motorway and the Aflao Road.

The existing number of lanes on each arm as mentioned in Table-1 will be maintained if the forecast does not require increase of lanes.

Table-1 Number of Lanes of Existing Roads (Arms)

Existing Roads	No. of Lanes	Remarks
Accra-Tema Motorway	4	Dual carriage, non-curbed (non-mounted) median
Tema-Hospital Road	2	Undivided single carriageway
Tema-Harbour Road	4	Dual carriageway, curbed(mounted) median
Tema-Aflao Road	4	Dual carriageway, curbed (mounted) median
Tema-Akosombo Road	2	Undivided single carriageway

3.5 Design Speed and Level of Service

Design speed of the arms is set in accordance with the Ghana Road Design Guideline. The level of service for each leg is set based on the recommendation of AASHTO. Design speed for ramps will be 50km/h

Table-2 Proposed Design Speed and Level of Service

Existing Roads	Design Speed (km/h)	Level of Service	Remarks
Accra-Tema Motorway	100	B	AASHTO recommendation for rural area
Tema-Hospital Road	40	D	
Tema-Harbour Road	80	C	
Tema-Aflao Road	100	B	AASHTO recommendation for rural area
Tema-Akosombo Road	100	B	AASHTO recommendation for rural area

3.6 Geometric Condition

Parameters of geometric condition to be applied for design are shown in **Table-3**

Table-3 Geometric Condition

HIGHWAY / ROAD CLASSIFICATION				Motorway	National	Inter-regional	Regional	Urban
GENERAL								
Min. Design Speed (km/hr)	Flat Terrain (inside bracket for urban area)			120 (100)	100 (80)	80 (60)	60 (40)	80 (60)
	Rolling Terrain (inside bracket for urban area)			100 (80)	80 (60)	60 (40)	50 (30)	60 (40)
	Mountenous (inside bracket for urban area)			80 (60)	60 (40)	50 (30)	40 (20)	50 (30)
Level of Service				*C or above*	*C*	*C*	*D*	*D*
CROSS-SECTION ELEMENTS								
Road Cross Section Width	ROW Width (m)		Urban	90	90	60	-	-
	Min. Median (m)		Rural	10	10	2- 4	4	4
			Urban	2- 4	2- 4	2- 4	2- 4	2- 4
	Median Shoulder			0.5-0.75	0.3 - 0.5	0.3 - 0.5	0.3 - 0.5	0.3 - 0.5
	Vehicle Lane		Flat/Rolling	3.65	3.65-3.25	3.65 - 3.25	3.5-3.0	3.65-3.25
			Mountenous	3.50	3.5-3.25	3.5 - 3.0	3.0-2.75	
	Ramp width (m)			3.65 - 3.5				
	Right Shoulder (m)		Flat/Rolling	3.00	2.50	2.50	1.50	2.0 - 3.0
			Mountenous	3.00	3.00	2.00	-	-
VERTICAL ELEVATION CONTROLS								
Minimum Vertical Clearance (m)		Carriageway		5.5	5.5	5.5	5.5	5.5
		Sidewalk		2.5	2.5	2.5	2.5	2.5
TRAFFIC VOLUME								
Design Traffic Volume (ADT)				>10,000	>10,000	3,000-10,000	1,000-3,000	<150
STRUCTURE LOADING								
Structure Live Loading (Minimum)				BS 5400 or Equivalent (B-load Japan)				
PAVEMENT STRUCTURE								
Pavement	Surface Type			Flexible Pavement				
	Crossfall (%)			1.5 - 2.0	1.5 - 2.5	1.5 - 2.5	1.5 - 2.5	1.5 - 2.5
GEOMETRIC CONDITIONS								
HORIZONTAL ALIGNMENT				**Design Speed**				
				120	**100**	**80**	**60**	**40**
Min. Horizontal Curvature	Desirable (5% SE)		m	1030	700	420	220	100
	Minimum (9%SE)		m	540	370	230	130	50
Maximum Superelevation			%	Urban Areas: Desirable 5% ,Acceptable 9%				
Min. Curvature Length			m	200	170	140	100	70
Min. Transition Curve Length			m	67	56	44	33	22
Radius not requiring Transition Curve			m	1310	910	580	330	150
Values of Superelevation with respect to Radius of Curvature			6%	996	694	441	249	174
			5%	1206	849	540	302	212
			4%	1527	1091	674	395	273
			3%	1910	1348	880	498	347
			Reverse (2%)	3510	2560	1710	1030	525
Min. Radius not requiring Superelevation			m	7500	5000	3500	2000	800
Superelevation Run-off				1/200	1/175	1/150	1/125	1/100
VERTICAL ALIGNMENT								
Max. Gradient		Standard	%	2	3	4	5	7
		Gradient with limitations	% (m)	3% (800m)	4% (700m)	5%(600m)	6% (500m)	8% (400m)
			% (m)	4% (500m)	5% (500m)	6% (500m)	7% (400m)	9% (300m)
			% (m)	5% (400m)	6% (400m)	7% (400m)	8% (300m)	10% (200m)
Sight Distance		Stopping	m	210	160	110	75	40
		Passing	m	780	620	500	360	210
Min. Radius Crest Curve		K-Value		111	64	30	14	4
		Radius	m	11000	6400	3000	1400	400
Min. Radius Sag Curve		K-Value		40	28	18	10	5
		Radius	m	4000	3000	2000	1000	500
Min. Vertical Curve Length			m	100	85	70	50	35
Widening not requiring Radius			m	-	*500*	*400*	*400*	-

Note: Those not provided in GRDG is referred from AASHTO's Standard as shown by the italic figures

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3.7 Horizontal Alignment

Horizontal alignment will be planned in accordance with the geometric condition to be applied. The alignment will basically follow the existing alignment with improvement near the existing roundabout to satisfy the geometric requirements. The alignment of the roads including that of the ramps will be planned to the possible extent within the existing right-of-way reserve. Consideration will be taken to avoid the control points such as large buildings, gas stations. Also, the alignment will be made consistent with other existing plans, if any and given that the related data is provided on time.

3.8 Cross Section Elements

Right of way and lane widths of the objective roads will be based on the Ghana Road Design Guideline or in accordance with the existing parameter. **Table-4** indicates the proposed cross section element of each arm. The width of outer shoulders provided can be reduced to a minimum of 0.6m along structures (flyover).

1.5m to 3.0m wide sidewalks for facilitating pedestrians to cross the roads shall be provided where suitable along the ramps. However, sidewalks will not be provided along the Motorway and flyover section of the Harbour Road.

Table-4 Proposed Cross Section Elements

Existing Roads	Median Width (m)	Shoulder (m)		Lane(s) (m)	ROW
		Inner	Outer		
Accra-Tema Motorway	10	0.5	3.0*	3.65	45
Tema-Hospital Road	-	-	1.5	3.65	N/A
Tema-Harbour Road	4.0	0.5	2.0	3.65	N/A
Tema-Aflao Road	4.0	0.5	2.5	3.65	45
Tema-Akosombo Road	4.0	0.5	2.5	3.65	N/A
*: The 3.0m wide consists of 0.5m wide unpaved shoulder (verge).					

Source: Ghana Road Design Guideline

3.9 Traffic Control System

Interchange allowing free flow to all directions might be difficult to be implemented under Japan's Grant Aid Scheme framework. It will also require relatively high amount for acquisition of land and to compensate for the project affected people, which will have to be undertaken by the GOG. Also, whether or not this type of interchange will be implemented under the grant aid of the project will have to be discussed and decided in Japan. GHA requested to study several options in this survey. The Team basically agreed on this request but also explained that consideration of these options takes time and might affect the progress of the project.

3.10 Type of Pavement

Ghana Highway Authority requests application of flexible pavement on all roads (flyover sections exceptional) although the Motorway and a portion of Harbour Road are surfaced with rigid

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pavement (concrete pavement).

Pavement design calculation will be carried out using both the AASHTO's Pavement Design Guideline, 1993 and Japan's Pavement Guideline (Japan Pavement Association) and the result that is superior will be applied. GHA agreed on this matter.

3.11 Relocation of Weigh Station

GHA agreed to undertake relocation of the existing weigh station in Tema if the intersection improvement plan is likely to affect the facility.

3.12 Axle Weight

Axle load is a major element of pavement design. The prevailing regulation (law) for axle load is being reviewed by the GOG and is likely to be modified to meet the requirement of ECOWAS Standard. If modified, the allowable gross weight (axle load) will be less than the present weight regulation. If the axle load is officially modified or is very much likely to be modified before the commencement of the outline design, then pavement design will adopt the revised axle regulation else the present regulation will prevail.

3.13 Design Vehicle

Vehicle to be considered for the design will be WB-20 as defined by AASHTO.

3.14 Configuration of Grade Separation

Configuration of the grade separation will be determined following incorporation of results obtained from various surveys, investigation and analyses after returning to Japan. The Survey Team will select alternatives including 3-tier multilayer flyover, conduct comparative analysis and select the optimum alternative taking into consideration cost effectiveness, urgency, social and environmental aspects, construction efficiency, traffic safety, among others.

4. Environmental and Social Consideration

Ghana side assured that environmental and social consideration procedures will be carried out in accordance with the EPA Act 490 and LI 16542. In addition the following MRH Frameworks shall also guide in the preparation of the reports;

i) Environmental and Social Management Framework (Road Sector), January 2007

ii) Road Sector Resettlement Policy Framework, January 2007

5. Others

5.1 Submission of Interim Report

JICA Survey Team will submit the Interim Report to GHA two weeks prior to its 2nd field survey, which is scheduled from beginning of September. As request by MRH, The Team will make a presentation to explain the contents of the Interim Report at the technical level with GHA/MRH.

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5.2 Temporary Bench Marks

Concrete stakes have been placed in and around the roundabout for temporary bench marks for use during construction. The outline of these bench marks are provided in the Attachment hereunder.

5.3 Request for Provision of Other Data

The Team expresses its gratitude for the information/documents made available to The Team and further requests GHA to share remaining documents that the Team had requested in the questionnaire attached to the Inception Report before or by the next study phase in September.

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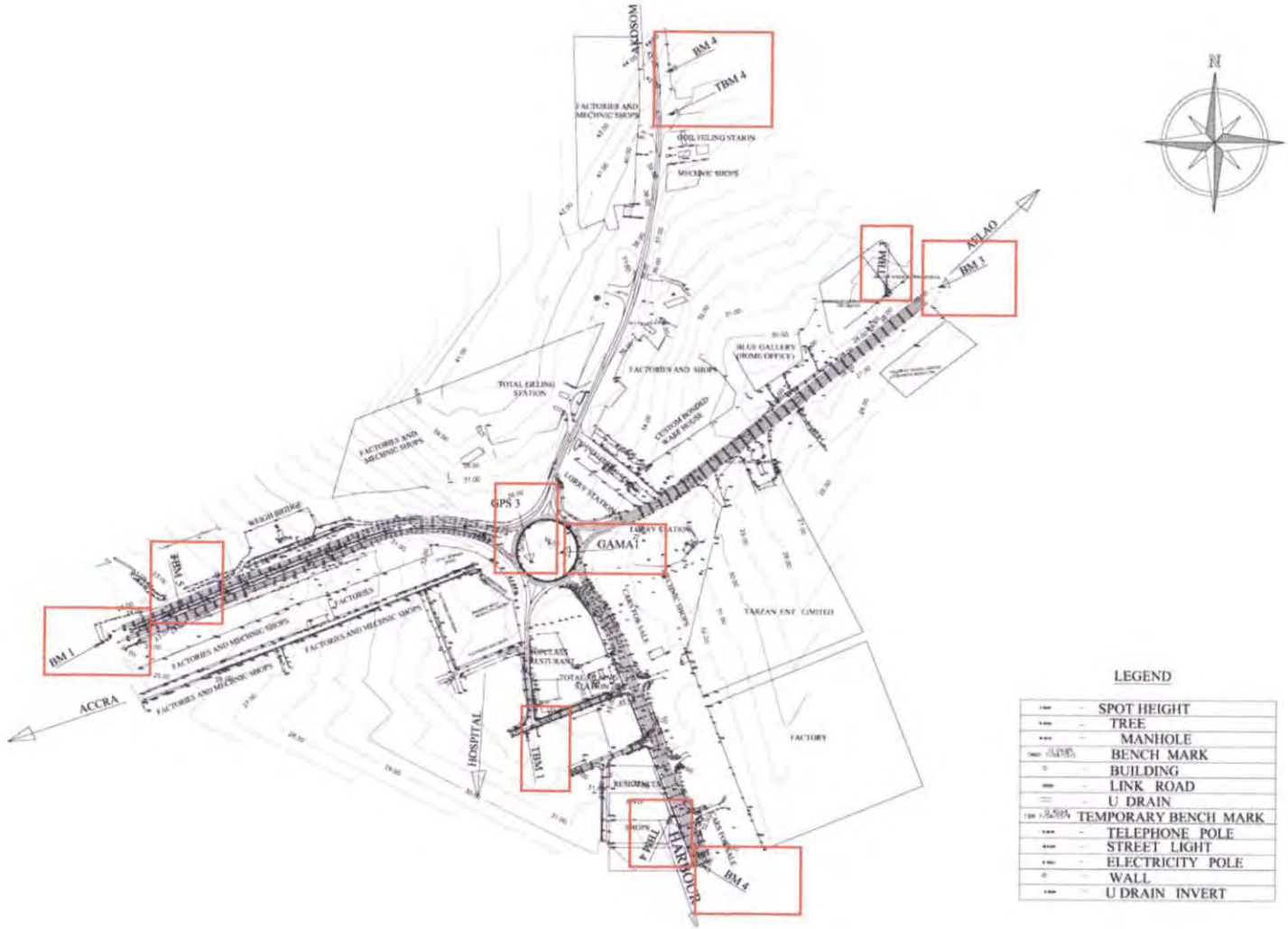
Location of Bench Marks



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Bench Mark Coordinates

Bench marks	ID	Abbreviation on the map	Ghana Grid		WGS84		Elevation / Height (m)
			Northing (m)	Easting (m)	Northing (m)	Easting (m)	
National Benchmarks	SS66	-	101849.410	364862.714	618654.342	812175.92	51.452
	SG/11/01/GPS3	GPS3	112354.665	383339.21	629233.633	830634.81	35.294
	GAMA/T/11/11/1	GAMA1	112374.167	383399.017	629253.324	830694.53	35.524
Project Benchmarks	TMRP/T/04/15/1	BM1	112195.225	382521.283	629071.14	829816.50	24.842
	TMRP/T/04/15/2	BM2	111779.614	383670.685	628659.08	830968.55	32.596
	TMRP/T/04/15/3	BM3	112882.703	384116.274	629764.87	831410.78	28.546
	TMRP/T/04/15/4	BM4	113288.864	383593.825	630169.65	830886.37	42.018
Temporary Benchmarks	TBM/T/04/15/1	TBM1	112029.785	383332.938	628908.34	830629.58	33.465
	TBM/T/04/15/2	TBM2	111873.468	383607.266	628752.81	830904.73	32.186
	TBM/T/04/15/3	TBM3	112864.716	384011.312	629746.50	831305.77	29.226
	TBM/T/04/15/4	TBM4	113206.962	383597.121	630087.67	830889.95	40.669
	TBM/T/04/15/5	TBM5	112259.604	382672.034	629136.11	829967.19	24.522

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Pictures of Benchmarks on Project

Picture No. 1: National Benchmark	
Picture No.2: National Benchmark	

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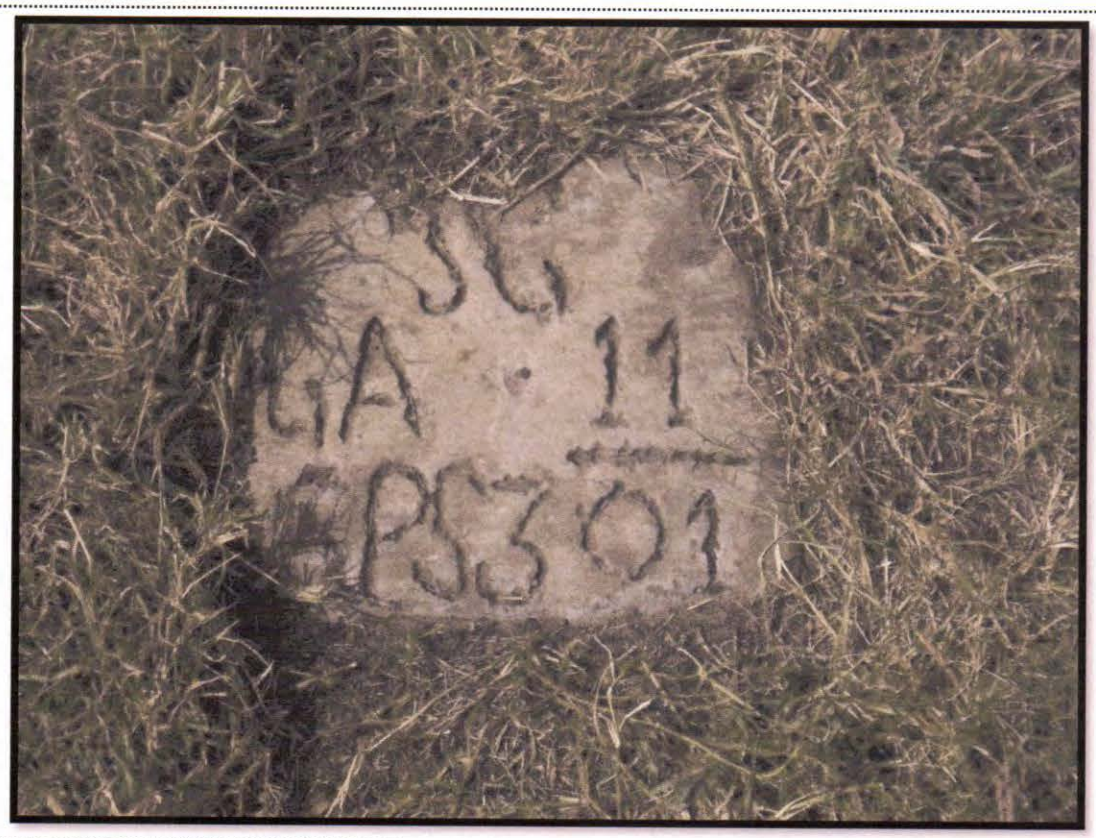
Pictures of Benchmarks on Project

Picture No.3: National Benchmark	
Picture No.3: Established Benchmark	

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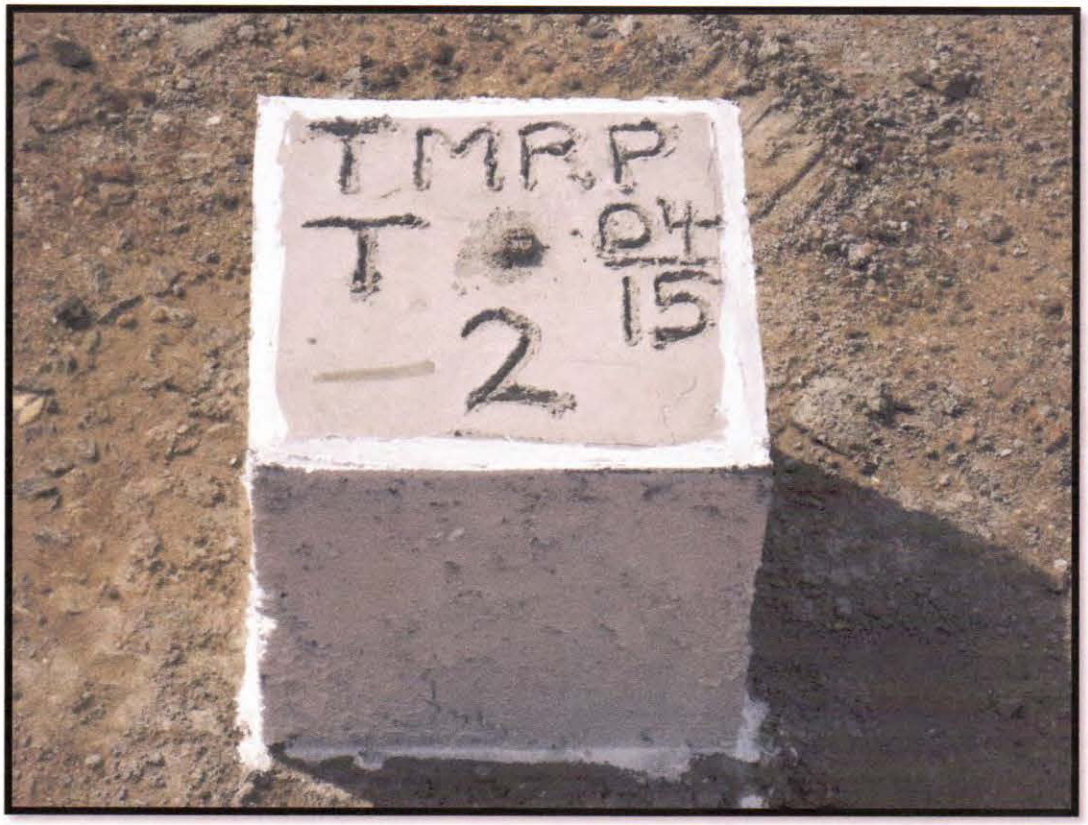
Pictures of Benchmarks on Project

Picture No.5: Established Benchmark	
Picture No.6: Established Benchmark	

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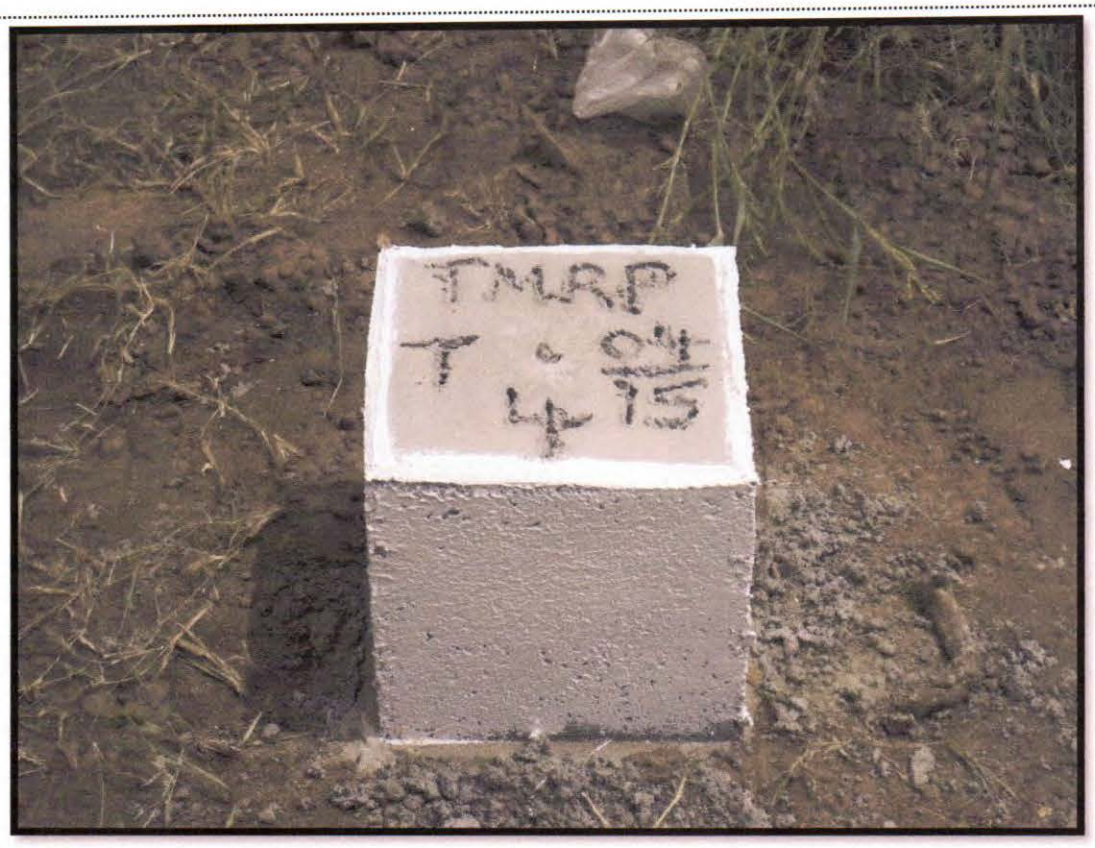
Pictures of Benchmarks on Project

Picture No.7: Established Benchmark	
Picture No.8: Temporary Benchmark	

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Pictures of Benchmarks on Project

Picture No.9: Temporary Benchmark	
Picture No.10: Temporary Benchmark	

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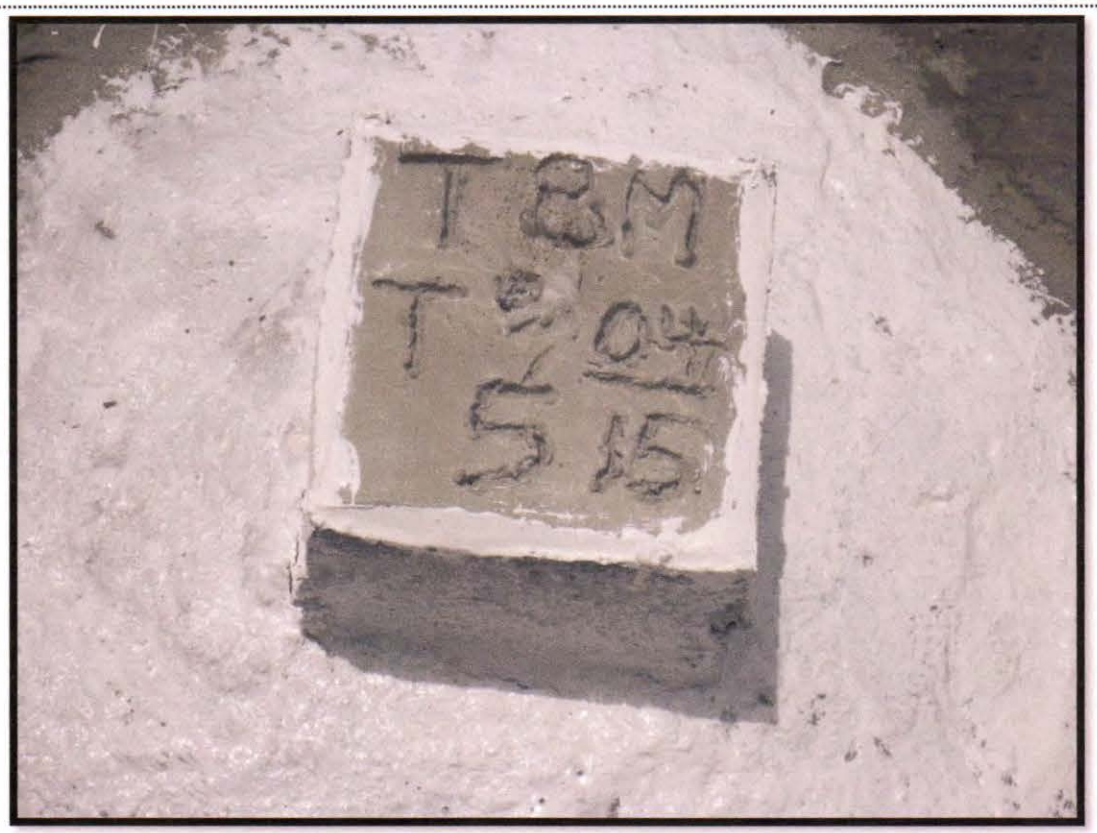
Pictures of Benchmarks on Project

Picture No.11: Temporary Benchmark	
Picture No.12: Temporary Benchmark	

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【添付資料－6】2 回目テクニカル・ノート

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TECHNICAL NOTES

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THE IMPROVEMENT OF THE TEMA MOTORWAY ROUNDABOUT

IN THE REPUBLIC OF GHANA

The Preparatory Survey Team commissioned to undertake the Outline Design (hereinafter referred to as "the Survey Team"), under Japan International Cooperation Agency (JICA) conducted additional field surveys and review of existing documents and held several discussions on the scope and basic policies with the Ghana Highway Authority (GHA), the implementing agency including other relevant agencies on the technical aspect for "The Project for the Improvement of the Tema Motorway Roundabout in the Republic of Ghana".

This note is signed between The Team and Ghana Highway Authority (hereinafter referred to as "GHA") to share mutual understandings and agreement on the matters mentioned in Appendix-1.

Accra, 18 December, 2015

Mr. Michael A. Abbey
Chief Executive
Ghana Highway Authority (GHA)
Ministry of Roads and Highways

Mr. Ryohei Watanabe
Chief Consultant
Preparatory Survey Team
Japan International Cooperation Agency (JICA)

Appendix -1

1. Survey Background

The Survey Team has been conducting an outline design since April, 2015 under the Japan International Cooperation Agency (JICA), following the request from the Government of Ghana (GoG) to the Government of Japan (GoJ) for undertaking improvement of Tema Motorway Roundabout under the Japanese Grant Aid Scheme.

The survey commenced in April. The Survey Team conducted the First (1st) Site Survey between April and May where it undertook various engineering surveys and held several meetings and discussions including hearings with relevant authorities. A technical note was signed May 20, 2015 between the Survey Team, the MRH and the GHA on the basic technical conditions for planning/design of the project. The observations and findings of engineering surveys including information obtained through meetings and hearings with concerned authorities were taken back to Japan for further analysis. After about five months of rigorous analysis, alternatives for the improvement of the existing intersection were selected, compared and the technical and economic viability of the alternatives were examined.

The result of the analysis was compiled in the Interim Report, hard copies of which were submitted to the Ghana Highway Authority 16 October. In addition to the submission of the report, the Survey Team made a presentation followed by meetings to highlight the important topics of the report. A memorandum was signed by the GHA agreeing to the contents of the report, mainly regarding the configuration type, phase wise construction method and requested items to be undertaken by the GoG.

The Survey Team is at present conducting the second site survey. The major tasks conducted during the survey are additional engineering surveys (topography, geo-technical, well observation etc.) and additional discussions with GHA including other related authorities.

2. General Item

2.1 Project Scope

The limits of improvement will be as dictated either by the horizontal re-alignment or the vertical re-alignment and not further. This means that the extent that is affected by the improved configuration of the intersection will be the scope of the project. Widening of the roads, provision of structures, provision of road ancillaries etc. will be limited to this extent. Components, such as the scope of service roads, pedestrian (foot) bridge, street lights, traffic signs, kilometer posts, and other road furniture will be undertaken by the project with respect to the priority and the available budget.

2.2 Priority of Components

The priority of the project components are as follows;

(a) Improvement of the intersection

(b) Reflectors (studs, cat's eye, delineator etc.)

(c) Service roads
(d) Foot bridge
(e) Prohibitory and warning traffic signs
(f) Crash Barrier or guardrails
(g) Fences for avoiding crossing at ramps and the main road
(h) Kilometer posts

2.3 Maintenance Responsibility

The GHA will undertake timely and adequate maintenance of all the roads and facilities constructed under this project.

2.4 Technical and Traffic Safety Review

- 15 sets of outline design drawings will be submitted to GHA for technical and traffic safety review.
- The tentative schedule for the submission is in June, 2016.
- The Survey Team will submit the Outline Design Drawings at least 10 days prior to the Teams arrival in Accra.

3. Technical Items

3.1 Standards and Guidelines

- Design of flyover will be based on Japanese Standards or AASHTO as the Ghanaian Standard is not available.
- Design of ramps and service roads will also be based on these above standards as this is not covered in the Ghana Road Design Guideline (GRDG).
- Intersection will be designed based on Japanese standard or AASHTO standard..

3.2 Road Reserve

- The existing road reserve (ROW) of each corridor is shown in the figure below. These ROWs prevail to the ones provided by GHA to the Survey Team in around May, 2015. The ROW provided then was actually a prospective one and not the existing ROW.
- ROW of Harbour Road is tentative and needs to be confirmed with the DUR. However, the present alignment at the Harbour Road will remain unchanged regardless of how the ROW is.

Road Name	ROW Width (m)	Remarks
Motorway, Tema-Akosombo, Tema Aflao	90	45m each side from existing center line
Tema - Harbour	90	
Tema - Hospital	33	
Roundabout	150	From the center of existing RA

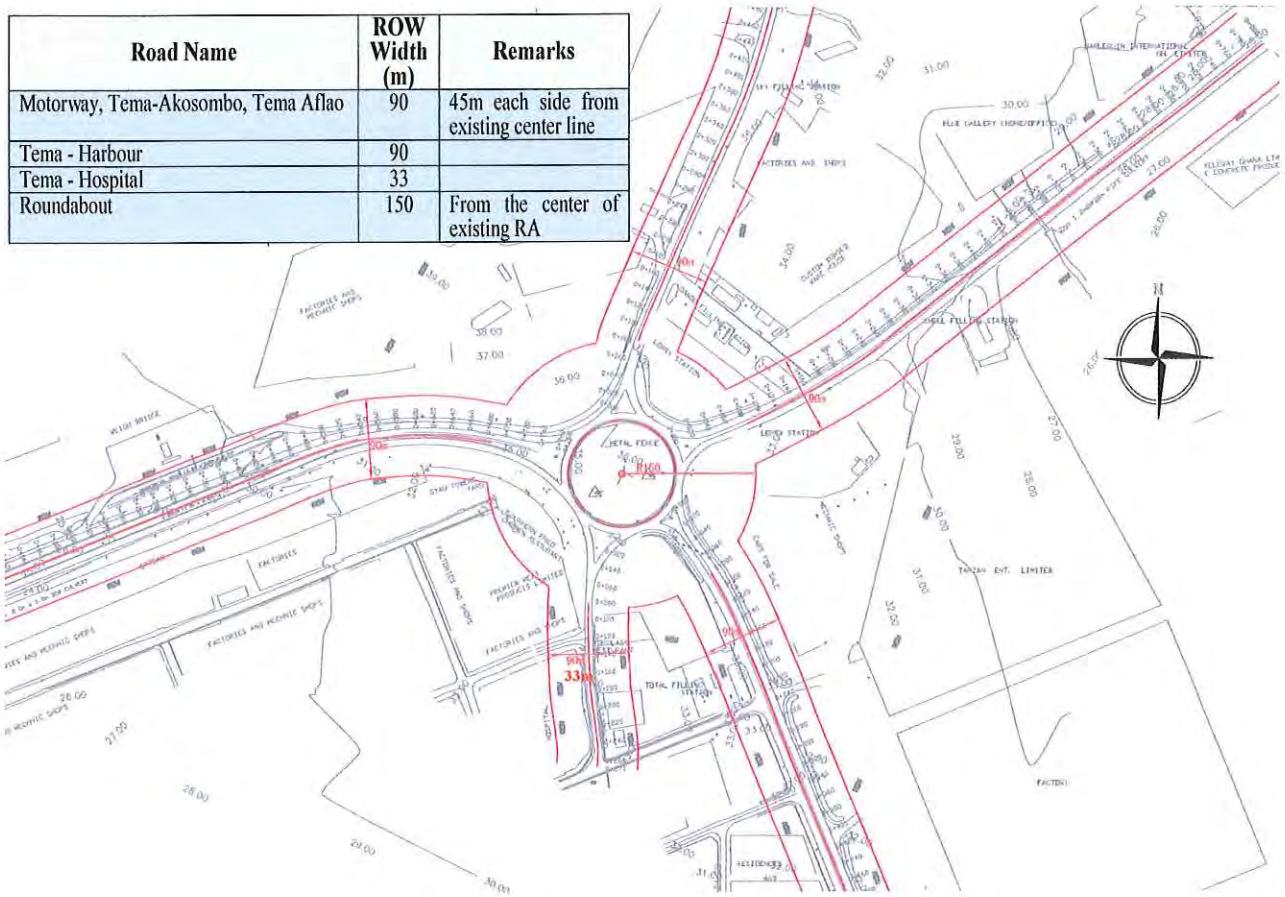

Figure – Road Reserve (ROW)

3.3 Horizontal Alignment

The present plan is anticipated to affect approximately five houses along the west side of the Harbour Road. However, shifting of alignment to the east side is not desirable as the alignment will be poor and may also affect the economic viability of the project.

3.4 Vertical Grade

- A 4.0% or gentler grades will be applied along the flyover.
- GHA standard limits the minimum vertical grade to 0.4% and should be followed. However, if this grade cannot be maintained for specific reasons, the vertical grade of 0.3% may be applied as the minimum.

3.5 Cross Section of Objective Roads

- Outer shoulders along the structures (depressed section and flyover) will be 2.5m wide. Inner shoulder will be 0.5m
- A space 1m wide will be provided next to the outer shoulder inside the depressed section for inspection purpose of the structures. This will also be used for providing drainage facilities. The space will be curbed and mounted to a height of 0.25m or follow the standards of Ghana.

3.6 Structure of Median and Traffic Island

- Median and traffic island will be curbed and mounted based on the standards of Ghana.
- Crash barrier or guard rails where provision is deemed necessary for traffic safety will be covered by the project.

3.7 Superelevation

- Maximum superelevation to be applied will be 6% considering urban design.

3.8 Drainage Planning

- A return period of 5 years will be applied in accordance with the Ghana Standard.
- The stream located nearby the existing roundabout will be candidate discharge points of the surface water collected at the depressed section.
- Gravity drainage will be given priority. Provision of pump for draining out the rain collected in the ditch inside the depressed section will be adopted if all other options prove ineffective.

3.9 Road Ancillaries (Furniture)

- Road ancillaries will be fundamentally designed based on the standards of Ghana. Where a standard is not available, either Japanese Standard or AASHTO will be referred.
- Prohibitory signs and warning signs will be provided under the project.
- Given that the budget can afford, fences for avoiding disorderly and perilous crossings will be provided along the service roads to be constructed under this project.
- Street lights will be provided inside the box culvert in the depressed section.
- For other section, upon request by the GHA, facilities such as foundation, brackets and ducts etc. will be provided to avoid potential damages of the constructed road during the installation in the future. These facilities will be provided based on the existing layout (40m interval).
- Traffic signals at the intersection will be installed under this project.
- Power supply (designated line) up to the control switch board will be undertaken by the GoG for the street lights and traffic signals.

3.10 Bus Laybys and Bus Terminals

- Design and construction of new bus laybys and bus terminals are out of the project scope. However, the layby about 700m south from Tema Roundabout along the Harbour Road will be relocated under the project, if it is impacted. The shelter will be out of the project scope.
- Candidate locations for shifting the existing bus terminal will be studied and suggested to GHA for reference.

3.11 Pedestrian Bridge (Foot Bridge)

Foot bridges for crossing the roads safely are deemed necessary at least at four locations – one over each road.

3.12 Earthwork Conditions

The slopes to be applied for cut and fill sections are as follows;

- 1:3 (V:H) for slopes with H<2m
- 1:2 (V:H) for slopes with 2m<H<3m
- 1:1.5 (V:H) for slopes with H>3m

This applies to both fill and cut slopes. For cut slopes which have a grade 1:1.5 (or whose height is more than 3m, provision of crash barrier (guard rail) might be considered)

3.13 Design Conditions of Ramps

Direct access from the abutting facilities (residence, shops etc.) will not be allowed to/from the ramps. Also, the following conditions will apply for the design of ramps.

Design speed	:	50km/h
Lane width	:	3.65m
Horizontal alignment	:	Shall follow the Ghana Road Design Guideline (GRDG)
Standard cross-fall	:	2.5%
Superelevation (maximum)	:	6.0%
Vertical alignment	:	The maximum vertical grade will be 6% (gentler grades will be applied to the possible extent to secure smooth flow of heavy vehicles). Other items will be based on the GRDG
Shoulders	:	1.2m (inner), 2.0 (outer)
Pavement type	:	Asphalt concrete
Pedestrian crossings	:	Not provided (not allowed)

3.14 Design Conditions of Service Roads

- Service roads to facilitate access from abutting facilities will be designed under this project with respect to the priority and budget constraint.
- The designed condition of service road is as follows;

Design speed	:	40km/h (GHA requests 50km/h, if technically feasible)
Lane width	:	3.0m
Shoulder :		1.5m (Inner), 1.5 (Outer)
Horizontal alignment	:	Shall follow the Ghana Road Design Guideline
Standard cross-fall	:	2.5%
Superelevation (maximum)	:	6.0%
Vertical alignment	:	The maximum vertical grade will be 6% (gentler grades will be applied to the possible extent)
Pavement type	:	Asphalt concrete

The tentative area where consideration for provision of service road will be taken is shown by the yellow lines in the figure below.

Figure – Areas Provision of Service Roads are Recommended

3.15 Connecting Roads

The scope of work on connecting roads (roads connecting with service roads) will be governed either by distance required for corner cutoff or the distance required for vertical transition. Whichever is longer will be applied.

3.16 Temporary Works

- Traffic during construction will be controlled by providing a roundabout, similar to but slightly smaller (inner diameter 80m) than the existing roundabout.
- The roundabout will be planned within the available ROW to the possible extent.
- The temporary road will have a design speed of 40km/h.
- Spiral curves or clothoid will not be introduced to the horizontal curvatures.

- Zebra crossings will not be provided at the temporary roundabout.
- GoG will acquire land temporarily if it is required for temporary roads, construction yard, and contractor's site office.
- Water supply and power supply at the construction site and contractor's office will be arranged by the GoG.

3.17 Request for Additional Documents

The Survey Team requested GHA to provide the following documents by January 15, 2016.

- Planning and Maintenance budget of GHA for 2014
- Design standards/guidelines (standard drawings) of road ancillaries (road furniture)
- Traffic accident data

R.W

【添付資料－7】3 回目テクニカル・ノート

JICA Survey Team
CTI Engineering International Co., Ltd.

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TECHNICAL NOTES

ON

TECHNICAL REVIEW OF

THE PREPARATORY SURVEY ON THE PROJECT FOR

THE IMPROVEMENT OF THE TEMA MOTORWAY ROUNDABOUT

IN THE REPUBLIC OF GHANA

The Preparatory Survey Team (hereinafter referred to as "the Survey Team") on the Preparatory Survey on the Project for the Improvement of the Tema Motorway Roundabout in the Republic of Ghana (hereinafter referred as "the Project") commissioned to undertake the Outline Design, under Japan International Cooperation Agency (hereinafter referred to as "JICA") visited Ghana from June 23, 2016 till July 15, 2016 for technical review of the outline design drawings and traffic safety to be conducted by GHA (hereinafter referred to as "GHA"). During the course, the Survey Team held several meetings with the GHA, the implementing agency including other relevant agencies.

This note is signed between GHA and the Survey Team to share the major items discussed including understanding and agreement reached upon during the meetings, which are as mentioned in Appendix-1.

Accra, July 14, 2016

Mr. Michael A. Abbey
Chief Executive
Ghana Highway Authority (GHA)
Ministry of Roads and Highways

for

Dr. Takayuki Tsuchida

Mr. Ryohei Watanabe
Chief Consultant
Preparatory Survey Team
Japan International Cooperation Agency (JICA)

Appendix-1

1. Survey Background

The Survey Team has been conducting an outline design since April, 2015 under the JICA, following the request from the Government of Ghana (hereinafter referred to as "GoG") to the Government of Japan (hereinafter referred to as "GoJ") for undertaking improvement of Tema Motorway Roundabout under the Japanese Grant Aid Scheme.

The Survey Team conducted the First (1st) Site Survey between April and May where it undertook various engineering surveys and held several meetings and discussions including hearings with relevant authorities. A Technical Note was signed on May 20, 2015 between GHA and the Survey Team, witnessed by Ministry of Roads and Highway (hereinafter referred to as "MRH") on the basic technical conditions for planning/design of the Project. The observations and findings of engineering surveys including information obtained through meetings and hearings with concerned authorities were taken back to Japan for further analysis. After about five months of rigorous analysis, alternatives for the improvement of the existing intersection were selected, compared and the technical and economic viability of the alternatives were examined.

The result of the analysis was compiled in the Interim Report, hard copies of which were submitted to the GHA on October 16, 2015. In addition to the submission of the report, the Survey Team made a presentation followed by meetings to highlight the important topics of the report. A memorandum was signed by the GHA agreeing to the contents of the report, mainly regarding the configuration type, phase wise construction method and requested items to be undertaken by the GoG.

Outline design on the components were carried out based on the mutual understanding and agreement shared during the previous surveys. The design drawings were submitted to the GHA June 11, 2016 for its review, which is followed by the visit by the Survey Team for explanation of the technical aspects of the drawings and traffic safety the design has adopted.

2. General

2.1 Design Drawings

- 10 sets of A3 sized hard copies of the drawings of the outline design were submitted to the GHA on June 11, 2016.
- The drawings consisted output of outline design for the components of Phase 1, general drawings of underpass section, intersection plan and temporary detour plan during construction.
- The drawings for Phase 2 are for reference purpose only.

2.2 Major Meetings

- Courtesy Call on GHA on June 24, 2016 (Friday) 15:00-15:30
- Courtesy Call on MRH on June 27, 2016 (Monday) 9:00-9:40
- Outline design explanation to GHA (Power Point Presentation) on June 27, 2016 (Monday) 10:00-12:00, at GHA board room (Room 313).
- Outline design explanation to Department of Urban Roads (hereinafter referred to as "DUR") on June 29, 2016 (Wednesday) 15:30–16:30, at DUR Tema.
- Traffic safety plan explanation to GHA (Power Point Presentation) on July 8, 2016 (Friday) 10:00-12:00, at GHA board room (Room 313).
- Traffic safety pan explanation to DUR on July 11, 2016 (Monday) 15:00–16:00, at DUR Tema.

3. Major Items Discussed and Agreed Upon

3.1 Components of Phase 1 and Phase 2 and Its Commencement Dates

- The outline design includes the components of Phase 1 only (design of 2-tier intersection), although the general concept of Phase 2 has been taken into consideration for its design. Detailed design of Phase 1 will commence after the final report on the outline design has been approved by the GoJ.
- JICA Tokyo Headquarter is still making arrangements and is yet to come up with a specific commencement date for the implementation of Phase 1, but is hopeful that it will commence within 2017.
- Phase 1 would be able to manage the congestion situation at the intersection until 2023, by which time implementation of phase 2 would be required.

3.2 Provision of Electric Power for Traffic Signal and Road Lighting in Box Culvert

Ghana side will provide electric power for traffic signal and road lighting in box culvert. Required electric power would be approximately 7.0 kW (2.0 kW for traffic signal and 5.0 kW for road lighting in box culvert). Exact value will be specified at the Detailed Design Stage. And also Ghana side has responsibility to connect an electric cable up to a lead-in pole which will be installed by Japan side in the Project. Location of lead-in pole will be decided by Ghana side, where is not affected to the Project.

3.3 Acquisition of Land

In connection to the items to be undertaken by the Ghana side, MRH assured any land needed for the Project would be secured by GoG appropriately to ensure a smooth running of the Project.

3.4 Relocation of Utilities

MRH pointed out that the cost for relocation of utilities should normally be covered by the Project as relocation work is more effective if it is conducted in line, step-by-step with respect to the progress of the construction work.

The Survey Team explained that one of the prerequisites for the Japanese Grant Aid Projects is that the Recipient Country shall provide area required for the Project completely cleared of all obstacles, both overhead and underground.

Although MRH insisted it is not pointing toward the policy but simply suggesting that consideration on the practicality of the relocation work should be taken, it seemed consent with the requirement.

3.5 Relocation/Removal of Weigh Station

GHA agreed it will undertake removal/relocation of the existing weigh station near the toll gate prior to the commencement of construction as it is seen to be affected by the improvement plan.

3.6 Progress of Motorway Improvement Project under Public-Private Partnership

GHA explained that the Motorway Improvement Project under Public-Private Partnership (hereinafter referred to as "PPP") is still not commenced yet. However, GHA confirmed that 3-lane road both directions from Accra to Tema is required to correspond with the future improvement plan from Lagos to Abidjan corridor by Economic Community of West African States (hereinafter referred to as "ECOWAS").

3.7 Design Review on the Drawings and Traffic Safety Measures

GHA basically agreed the outline design and traffic safety plan, which was submitted by the Survey Team.

3.8 Comments from GHA on the Drawings and Traffic Safety Measures

- GHA presented on July 4, 2016 all its concern and comments collated from the relevant departments of GHA after studying the outline design drawings submitted by the Survey Team.
- GHA presented on July 13, 2016 all its concern and comments collated from the relevant departments of GHA after studying the traffic safety plan submitted by the Survey Team.
- The answer to the questions will be provided by the Survey Team and will reply to GHA.

- The concerns and comments from GHA will be discussed with JICA, Tokyo necessarily and incorporated in the drawings/plan accordingly.

4. Others

- The outline design drawings with the comments from GHA incorporated will be submitted to the GHA as an attachment of the Draft Final Report (hereinafter referred to as "DF/R").
- The Survey Team is tentatively scheduled to come to Accra in the middle of August, 2016 for the explanation of the DF/R to the GHA and concerned agencies.
- 10 sets of hard copies of the DF/R will be submitted to the GHA 10 days prior to the date of explanation of the DF/R to the GHA.
- The Survey Team explained the outline of the Project including its progress and subsequent schedule of the Project to DUR taking into consideration the fact that DUR is one of the main stakeholders of the Project. It had a couple of concerns which were cleared upon clarification from the Survey Team.

【添付資料－8】Minutes of Discussion

(8 November 2016)

Minutes of Discussions
on the Preparatory Survey for the Project for
Improvement of the Tema Motorway Roundabout
in the Republic of Ghana
(Explanation on Draft Preparatory Survey Report)

With reference to the minutes of discussions signed between the Ministry of Roads and Highways (hereinafter referred to as "MRH"), Ghana Highway Authority (hereinafter referred to as "GHA"), Ministry of Finance and the Japan International Cooperation Agency (hereinafter referred to as "JICA") on 17 April 2015 and in response to the request from the Government of the Republic of Ghana (hereinafter referred to as "Ghana") dated 22 July 2013, JICA dispatched the Preparatory Survey Team (hereinafter referred to as "the Team") for the explanation of Draft Preparatory Survey Report (hereinafter referred to as "the Draft Report") for the Project for Improvement of the Tema Motorway Roundabout (hereinafter referred to as "the Project"), headed by Mr. Ishiguro, Acting Director, Team 1, Transportation and ICT Group, Infrastructure and Peacebuilding Department from 1 to 15 November 2016.

As a result of the discussions, both sides agreed on the main items described in the attached sheets.

Accra, 8 November 2016

Jitsuya Ishiguro
Leader
Preparatory Survey Team
Japan International Cooperation Agency

Edmund Offei-Annor
Director Policy & Planning
Ministry of Roads and Highways

Yvonne Quansah
External Resource Mobilization (Bilateral) Division
Ministry of Finance

M. A. Abbey
Chief Executive
Ghana Highway Authority

ATTACHMENT

1. Responsible authority for the Project

Both sides confirmed the authorities responsible for the Project are as follows:

1-1. The Ghana Highway will be the executing agency for the Project (hereinafter referred to as "the Executing Agency"). The Executing Agency shall coordinate with all the relevant authorities to ensure smooth implementation of the Project and ensure that the undertakings for the Project shall be taken care by relevant authorities properly and on time.

1-2. The line ministry of the Executing Agency is the Ministry of Roads and Highways responsible for supervising the Executing Agency on behalf of the Government of Ghana.

2. Contents of the Draft Report

After the explanation of the contents of the Draft Report by the Team, the Ghanaian side agreed to its contents.

3. Cost estimate

Both sides confirmed that the cost estimate described in Annex 1 is provisional and will be examined further by the Government of Japan for its approval. The contingency would cover the additional cost against natural disaster, unexpected natural conditions, etc.

4. Confidentiality of the cost estimate and technical specifications

Both sides confirmed that the cost estimate and technical specifications in the Draft Report should never be duplicated or disclosed to any third parties until all the contracts under the Project are concluded.

5. Timeline for the project implementation

The Team explained to the side that the expected timeline for the project implementation is as attached in Annex 2.

6. Expected outcomes and indicators

Both sides agreed that key indicators for expected outcomes are as follows. The Ghanaian side will be responsible for monitoring agreed key indicators targeted in year 2020 and shall monitor the progress based on those indicators.

[Quantitative Effect]

Indicators	Base year 2015	Target year 2020 (Project completion)
Annual Average Daily Traffic Volume (Roundabout Entry Traffic) (veh./day)	62,000	113,000
Travel time (minutes) Accra→Aflao (2.0km) AM Peak Time	8.2	2.0

[Qualitative Effect]

Enhanced convenience of the road network

Improved safety for pedestrians and vehicles

7. Undertakings of the Project

Both sides confirmed the undertakings of the Project as described in Annex 3. With regard to exemption of customs duties, internal taxes and other fiscal levies as stipulated in 1. (1) of Annex 3, both sides confirmed that such customs duties, internal taxes and other fiscal levies include VAT, commercial tax, income tax and corporate tax, which shall be clarified in the bid documents by GHA during the implementation stage of the Project.

The Ghanaian side assured to take the necessary measures and coordination including allocation of the necessary budget which are preconditions of implementation of the Project. It is further agreed that the costs are indicative, i.e. at Outline Design level. More accurate costs will be calculated at the Detailed Design stage.

Both sides also confirmed that the Annex 3 will be used as an attachment of G/A.

8. Monitoring during the implementation

The Project will be monitored by the Executing Agency and reported to JICA by using the form of Project Monitoring Report (PMR) attached as Annex 4. The timing of submission of the PMR is described in Annex 3.

9. Project completion

Both sides confirmed that the project completes when all the facilities constructed and equipment procured by the grant are in operation. The completion of the Project will be reported to JICA promptly, but in any event not later than six months after completion of the Project.

10. Ex-Post Evaluation

JICA will conduct ex-post evaluation after three (3) years from the project completion, in principle, with respect to five evaluation criteria (Relevance, Effectiveness, Efficiency, Impact, Sustainability). The result of the evaluation will be publicized. The Ghanaian side is required to provide necessary support for the data collection.

11. Items and measures to be considered for the smooth implementation of the Project

Both sides confirmed the items and measures to be considered for the smooth implementation of the Project as follows:

- Relocation of utilities before the tender as per (1) of Annex 3
- Tax exemption described in (2) 5 of Annex 3 is approved by the parliament before the commencement of the work

- Construction safety secured with reference to the "Guidance for the Management of Safety for Construction Works in Japanese ODA Projects"
- The Tema Roundabout improvement works being implemented under MPS Corporate Social Initiative is only temporary remedial measures and will have no negative impact on the Project.

12. Schedule of the Study

JICA will finalize the Preparatory Survey Report based on the confirmed items. The report will be sent to the Ghanaian side around February 2017.

13. Environmental and Social Considerations

13-1 General Issues

13-1-1 Environmental Guidelines and Environmental Category

The Team explained that 'JICA Guidelines for Environmental and Social Considerations (April 2010)' (hereinafter referred to as "the Guidelines") is applicable for the Project. The Project is categorized as B because the project is not considered as a large-scale road and bridge project, is not located in a sensitive area, and has none of the sensitive characteristics under the Guidelines, it is not likely to have significant adverse impact on the environment.

13-1-2 Environmental Checklist

The environmental and social considerations including major impacts and mitigation measures for the Project are summarized in the Environmental Checklist attached as Annex 5. Both sides confirmed that in case of major modification of the content of the Environmental Checklist, the Ghanaian side shall submit the modified version to JICA in a timely manner.

13-2 Environmental Issues

13-2-1 Environmental Impact Assessment (EIA)

Both sides confirmed that the EIA report will be approved by the Environmental Protection Agency (EPA) in May 2017.

13-2-2 Environmental Monitoring Plan

Both sides confirmed the Environmental Monitoring Plan (EMoP) of the Project is as Annex 6. Both side agreed that environmental mitigation measures and monitoring shall be conducted based on the EMoP, which may be updated during the detailed design stage.

13-3 Social Issues

13-3-1 Land Acquisition and Resettlement

Both sides confirmed the 8,354m2 of land would be aquired and 14 Households /56people would be relocated/affected due to the implemenation of the Project.

Such land acquisition and resettlement shall be implemented based on the (Abbreviated) Resettlement Action Plan (RAP) as Annex 8 which was prepared

in line with the Guidelines and expected to be authorized by the Environment Protection Agency in August 2017.

13-3-2 Indigenous People

Both sides confirmed that there is no indigenous people affected by the Project.

13-3-3 Other specific social issues which need to be confirmed/agreed between the parties

Both sides confirmed that resettlement and compensation of PAPS will be done in compliance with Ghana's legislation and JICA's environmental and social considerations guidelines.

13-4 Environmental and Social Monitoring

13-4-1 Environmental Monitoring

Both sides agreed that the Ghanaian side will submit results of environmental monitoring to JICA with PMR by using the monitoring form attached as Annex 7.The timing of submission of the monitoring form is described in Annex 5.

13-4-2 Social Monitoring

Both sides confirmed that the Ghanaian side will implement social monitoring about land acquisition and resettlement proposed in the ARAP. The Ghanaian side and the Team agreed that GHA will submit results of social monitoring to JICA with PMR by using the monitoring form attached as Annex 7.

13-4-3 Information Disclosure of Monitoring Results

Both sides confirmed that the Ghanaian side will disclose results of environmental and social monitoring to local stakeholders through their website / in their field offices.

The Ghanaian side agreed JICA will disclose results of environmental and social monitoring submitted by the Ghanaian side as the monitoring forms attached as Annex 7 on its website.

14. Other Relevant Issues

14-1 Disclosure of Information

Both sides confirmed that the Preparatory Survey Report from which project cost is excluded will be disclosed to the public after completion of the Preparatory Survey. The comprehensive report including the project cost will be disclosed to the public after all the contracts under the Project are concluded.

14-2 Tema Roundabout Improvement Project funded by MPS

There is another project for improving the Tema Roundabout which is funded by Meridian Port Serivice (MPS) and was commissioned in October 2016. GHA said that the MPS project is a temporary remedial measure for the roundabout to enhance its traffic capacty and will not affect the Project. The Team pointed out that, among others, relocation of utilities for the MPS project needs to be coordinated with the Project so that it should not affect the implementation of the Project.

Annex 1 Project Cost Estimation
Annex 2 Project Implementation Schedule
Annex 3 Major Undertakings to be taken by the Government of Ghana
Annex 4 Project Monitoring Report (template)
Annex 5 Environmental Checklist
Annex 6 Environmental Monitoring Plan
Annex 7 Environmetal and Social Monitoring Form
Annex 8 Abbrevated Ressettlement Action Plan

Annex 1 Project Cost Estimation

CONFIDENTIAL

(1) Cost Borne by the Government of Japan

Total: JPY6,745 million

- Civil Work: JPY6,217 million
- Detailed Design and Construction Supervisory Service: JPY207 million
- Contingency: JPY321 million

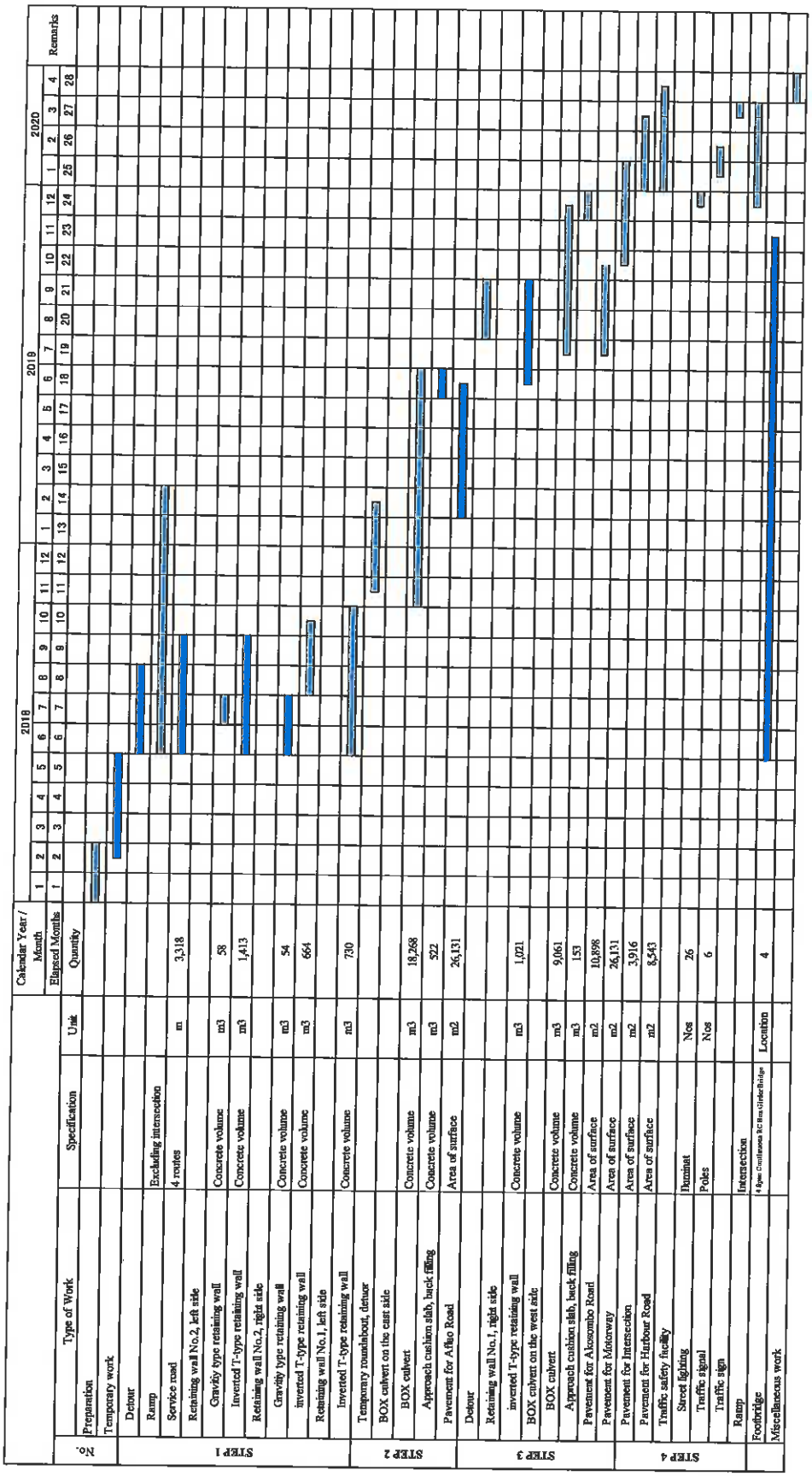
(2) Cost Borne by the Government of the Republic of Ghana

- Relocation of Utility and Environmental Monitoring, etc.: GH¢6.6million

(3) Conditions of Cost Estimation

- Estimated timing: December 2015
- Exchange rates: USD 1.00 = JPY 121.93
  GH¢ 1.00 = JPY 32.26
- Others: The project is implemented in accordance with the system of Japan's Grant Aid. The above cost estimation does not assure the ceiling cost on the E/N and shall be reviewed by GOJ before signing of the E/N between the two Governments.

Annex 2 Project Implementation Schedule



No.	Type of Work	Specification	Unit	Quantity	Calendar Year / Month	2018												2019												2020				Remarks
					Elapsed Months	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	
						1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	
	Preparation																																
	Temporary work																																
STEP 1	Detour																																
	Ramp	Excluding intersection																															
	Service road	4 routes	m	3,318																													
	Retaining wall No.2, left side																																
	Gravity type retaining wall	Concrete volume	m3	58																													
	Inverted T-type retaining wall	Concrete volume	m3	1,413																													
	Retaining wall No.2, right side																																
	Gravity type retaining wall	Concrete volume	m3	54																													
	inverted T-type retaining wall	Concrete volume	m3	664																													
	Retaining wall No.1, left side																																
	Inverted T-type retaining wall	Concrete volume	m3	730																													
STEP 2	Temporary roundabout, detuor																																
	BOX culvert on the east side																																
	BOX culvert	Concrete volume	m3	18,268																													
	Approach cushion slab, back filling	Concrete volume	m3	522																													
	Pavement for Affao Road	Area of surface	m2	26,131																													
STEP 3	Detour																																
	Retaining wall No.1, right side																																
	inverted T-type retaining wall	Concrete volume	m3	1,021																													
	BOX culvert on the west side																																
	BOX culvert	Concrete volume	m3	9,061																													
	Approach cushion slab, back filling	Concrete volume	m3	153																													
	Pavement for Akosombo Road	Area of surface	m2	10,898																													
	Pavement for Motorway	Area of surface	m2	26,131																													
STEP 4	Pavement for Intersection	Area of surface	m2	3,916																													
	Pavement for Harbour Road	Area of surface	m2	8,543																													
	Traffic safety facility																																
	Street lighting	Illuminat	Nos	26																													
	Traffic signal	Poles	Nos	6																													
	Traffic sign																																
	Ramp	Intersection																															
	Footbridge	4.0pm Continuous RC Box Girder Bridge	Location	4																													
	Miscellaneous work																																

Annex 3 Major Undertakings to be taken by the Government of Ghana

1. Specific obligations of the Government of Ghana which will not be funded with the Grant

(1) Before the tender

NO	Items	Deadline	In charge	Estimated Cost	ref
1	To open bank account (B/A)	within 1 month after the signing of the G/A	GHA	N/A	
2	To issue A/P to a bank in Japan (the Agent Bank) for the payment to the consultant	within 1 month after the signing of the contract	GHA	GH¢3,480.00	
3	To approve IEE/EIA(Conditions of approval should be fulfilled, if any) and secure the necessary budget for implementation.	within 1 month after the signing of the G/A	EPA		
4	To secure the necessary budget and implement land acquisition and resettlement (including preparation of resettlement sites), and compensation with full replacement cost in accordance with RAP	before start of the construction	GHA	GH¢5,177,000.00	
5	1) To implement social monitoring, and to submit the monitoring results to JICA, by using the monitoring form, on a quarterly basis as a part of Project Monitoring Report	till land acquisition and resettlement complete	GHA		
6	To secure and clear the following lands 1) Motorway: left side of Sta. 6+80 -7+70 2) Aflao Road: left side of Sta. 9+25 -14+00, right side of Sta. 9+80 - 10+30 3) Habour Road: right side of Sta. 2+70-3+55, left side of Sta. 2+50 -3+50 (extension of Hospital Road) 4)Akosombo: right side of Sta. 4+40 – 5+70, left side of Sta. 10+20 – 10+80	before notice of the bidding document	GHA	GH¢31,000.00	
7	To obtain the planning, zoning, building permit	Not applicable			
8	To clear, level and reclaim the followings; 1) remove street light poles on Motorway and the roundabout (68 poles) 2) remove electrival poles on the roundabout (38 poles) 3) relocate underground utilities (MTN. TIGO, AIRTEL, VODAFON, GLO and GWCL), total of 7,262m 4) remove exisiting facilities (9 advertisement signboards/bill boards, 45 trees around the roundabout)	before notice of the bidding document	GHA	GH¢961,000.00	
9	To submit Project Monitoring Report (with the result of Detail Design)	before preparation of bidding documents	GHA		

(B/A: Banking Arrangement, A/P: Authorization to pay, N/A: Not Applicable)

(2) During the Project Implementation

No.	Items	Deadline	In charge	Estimated Cost	Ref.
1	To issue A/P to a bank in Japan (the Agent Bank) for the payment to the Supplier(s)	within 1 month after the signing of the contract(s)	GHA		
2	To bear the following commissions to a bank in Japan for the banking services based upon the B/A				
	1) Advising commission of A/P	within 1 month after the signing of the contract(s)	GHA	GH¢165,600.00	
	2) Payment commission for A/P	every payment	GHA	GH¢251,400.00	
3	to ensure prompt unloading and customs clearance at ports of disembarkation in recipient country and to assist the Supplier(s) obtain necessary permits or permission	during the Project	GHA		
4	To accord Japanese and other expatriate staff whose services may be required in connection with the supply of the products and the services such facilities as may be necessary for their entry into the country of the Recipient and stay therein for the performance of their work	during the Project	GHA		
5	To ensure that customs duties, internal taxes and other fiscal levies which may be imposed in the country of the Recipient with respect to the purchase of the products and/or the services be exempted. Such customs duties, internal taxes and other fiscal levies mentioned above include: 1) Income tax and corporate tax of Japanese and other expatriate staff 2) Custom duties, VAT 15%, NHIL 2.5% in accordance with the master list to be submitted by the contractor.	during the Project			
6	To bear all the expenses, other than those covered by the Grant, necessary for the implementation of the Project	during the Project			
7	1)To submit Project Monitoring Report	every month	GHA		
	2) To submit Project Monitoring Report (final)	within one month after signing of Certificate of Completion for the works under the contract(s)	GHA		
8	To submit a report concerning completion of the Project	within six months after completion of the Project	GHA		
9	To remove the existing Weigh Station	before notice of			

	on Accra Tema Motorway 1) Near the Tema Roundabout	the bidding document			
10	To provide facilities for distribution of electricity, water supply				
	facilities necessary for the implementation of the Project inside the site(s)				
	1) Electricity a) The distributing line to the temporary site yard b) Permanent power supply (Primary line:AC220V, 50Hz) for traffic signal and road lighting	before start of the construction	GHA	GH¢7,000.00	
	2) Water Supply The city water distribution main to the temporary site yard	before start of the construction	GHA	GH¢3,000.00	
11	Provide necessary assistance and advice to ensure safety at the site including traffic control	during the construction	GHA		
12	To implement EMP and EMoP	during the construction			
13	To submit results of environmental monitoring to JICA, by using the monitoring form, on a quarterly basis as a part of Project Monitoring Report	during the construction			
14	To implement RAP (livelihood restoration program, if needed)	for a period based on livelihood restoration program			
15	To implement social monitoring, and to submit the monitoring results to JICA, by using the monitoring form, on a quarterly basis as a part of Project Monitoring Report - Period of the monitoring may be extended if affected persons' livelihoods are not sufficiently restored. Extension of the monitoring will be decided based on agreement between GHA and JICA.	- until the end of livelihood restoration program (In case that livelihood restoration program is provided) *- for two years after land acquisition and resettlement complete (In case that livelihood restoration program is not provided)*			

(3) After the Project

NO	Items	Deadline	In charge	Estimated Cost	Ref.
1	To implement EMoP	for a period based on EMoP			
2	To submit results of environmental monitoring to JICA, by using the monitoring form, semiannually - The period of environmental monitoring may be extended if any significant negative impacts on the environment are found. The extension of environmental monitoring will be decided based on the agreement between GHA and JICA.	for three years after the Project			
3	To maintain and use properly and effectively the facilities constructed under the Grant Aid. Regarding maintenance, it is utterly important to keep the drainage facilities fully functional, particularly within the depressed section. 1) Allocation of maintenance cost 2) Operation and maintenance of structure 3) Routine check/Periodic inspection	After completion of the construction		GH¢173,700.00 (Annuarly)	

Annex 4 Project Monitoring Report (template)

Project Monitoring Report
on
Project Name
Grant Agreement No. XXXXXXX
20XX, Month

Organization Information

Authorized signatory of the G/A	_____ Person in Charge _____ (Division) _____ Contacts Address: _____ Phone/FAX: _____ Email: _____
Executing Agency	_____ Person in Charge _____ (Division) _____ Contacts Address: _____ Phone/FAX: _____ Email: _____
Line Agency	_____ Person in Charge _____ (Division) _____ Contacts Address: _____ Phone/FAX: _____ Email: _____

Outline of Grant Agreement:

Source of Finance	Government of Japan: Not exceeding JPY _____ mil. Government of (_____): _____
Project Title	
E/N	Signed date: Duration:
G/A	Signed date: Duration:

1: Project Description

1-1 Project Objective

1-2 Necessity and Priority of the Project

- Consistency with development policy, sector plan, national/regional development plans and demand of target group and the recipient country.

1-3 Effectiveness and the indicators

- Effectiveness by the project

Quantitative Effect (Operation and Effect indicators)		
Indicators	Original (Yr)	Target (Yr)
Qualitative Effect		

2: Project Implementation

2-1 Project Scope

Table 2-1-1a: Comparison of Original and Actual Location

Location	**Original:** *(M/D)* **Attachment(s):Map**	**Actual:** *(PMR)* **Attachment(s):Map**

Table 2-1-1b: Comparison of Original and Actual Scope

Items	Original	Actual
(M/D) 'Soft component' shall be included in 'Items'.	*(M/D)*	*(PMR)* Please state not only the most updated s chedule but also oth er past revisions chro nologically. All change of design shal l be recorded regardless of its degree.

(Sample)Table 2-1-1b: Comparison of Original and Actual Scope

Items	Original	Actual
1. Bridges (No.1, 4, 7, 10) 2. Approach Road		

2-1-2 Reason(s) for the modification if there have been any.

(PMR)

2-2 Implementation Schedule

2-2-1 Implementation Schedule

Table 2-2-1: Comparison of Original and Actual Schedule

Items	Original		Actual
	DOD	G/A	
【M/D】 'Soft component' shall be stated in the column of 'Items'. Project Completion Date*	*(M/D)*		*(PMR)* As of (Date of Revision) Please state not only the most updated schedule but also other past revisions chronologically.

*Project Completion was defined as _____ at the time of G/A.

(Sample)Table 2-2-1: Comparison of Original and Actual Schedule

Items	Original		Actual
	DOD	G/A	
Cabinet Approval E/N G/A Detailed Design Tender Notice Tender (Lot1) Construction Period (Lot2) Installarion of Equipement Project Completion Date Defect Liability Period			

*Project Completion was defined as __Check-out of Construction work__ at the time of G/A.

2-2-2 Reasons for any changes of the schedule, and their effects on the project.

2-3 Undertakings by each Government

2-3-1 Major Undertakings

See Attachment *.

2-3-2 Activities

See Attachment *.

2-3-3 Report on RD

See Attachment *.

2-4 Project Cost

2-4-1 Project Cost

Table 2-4-1a Comparison of Original and Actual Cost by the Government of Japan

(Confidential until the Tender)

Items			Cost (Million Yen)	
	Original	Actual	Original	Actual
Construction Facilities (or Equipment)	'Soft component' shall be included in 'Items'.			Please state not only the most updated schedule but also other past revisions chronologically.
Consulting Services	- Detailed design -Procurement Management -Construction Supervision			
Total				

Note: 1) Date of estimation:

2) Exchange rate: 1 US Dollar = Yen

Table 2-4-1b Comparison of Original and Actual Cost by the Government of Ghana

Items			Cost (Million USD)	
	Original	Actual	Original	Actual
				Please state not only the most updated schedule but also other past revisions chronologically.
Total				

Note: 1) Date of estimation:

2) Exchange rate: 1 US Dollar = (local currency)

2-4-2 Reason(s) for the wide gap between the original and actual, if there have been any, the remedies you have taken, and their results.

(PMR)

2-5 Organizations for Implementation

2-5-1 Executing Agency:

- Organization's role, financial position, capacity, cost recovery etc,
- Organization Chart including the unit in charge of the implementation and number of employees.

Original: *(M/D)*
Actual, if changed: *(PMR)*

2-6 Environmental and Social Impacts

- The results of environmental monitoring as attached in Attachment * in accordance with Schedule * of the Grant Agreement.
- The results of social monitoring as attached in Attachment * in accordance with Schedule 4 of the Grant Agreement.
- Information on the disclosed results of environmental and social monitoring to local stakeholders, whenever applicable.

3: Operation and Maintenance (O&M)

3-1 O&M and Management

- Organization chart of O&M
- Operational and maintenance system (structure and the

number ,qualification and skill of staff or other conditions necessary to maintain the outputs and benefits of the project soundly, such as manuals, facilities and equipment for maintenance, and spare part stocks etc)

Original: *(M/D)*
Actual: (*PMR*)

3-2 O&M Cost and Budget

- The actual annual O&M cost for the duration of the project up to today, as well as the annual O&M budget.

Original: *(M/D)*

4: Precautions (Risk Management)

- Risks and issues, if any, which may affect the project implementation, outcome, sustainability and planned countermeasures to be adapted are below.

Original Issues and Countermeasure(s): *(M/D)*	
Potential Project Risks	Assessment
1.	Probability: H/M/L
(Description of Risk)	Impact: H/M/L
	Analysis of Probability and Impact:
	Mitigation Measures:
	Action during the Implementation:
	Contingency Plan (if applicable):
2.	Probability: H/M/L
(Description of Risk)	Impact: H/M/L
	Analysis of Probability and Impact:
	Mitigation Measures:
	Action during the Implementation:
	Contingency Plan (if applicable):

3. (Description of Risk)	Probability: H/M/L Impact: H/M/L Analysis of Probability and Impact: Mitigation Measures: Action during the Implementation: Contingency Plan (if applicable):
Actual issues and Countermeasure(s)	
(PMR)	

5: Evaluation at Project Completion and Monitoring Plan

5-1 Overall evaluation

Please describe your overall evaluation on the project.

5-2 Lessons Learnt and Recommendations

Please raise any lessons learned from the project experience, which might be valuable for the future assistance or similar type of projects, as well as any recommendations, which might be beneficial for better realization of the project effect, impact and assurance of sustainability.

5-3 Monitoring Plan for the Indicators for Post-Evaluation

Please describe monitoring methods, section(s)/department(s) in charge of monitoring, frequency, the term to monitor the indicators stipulated in 1-3.

Attachment

1. Project Location Map
2. Undertakings to be taken by each Government
3. Monthly Report
4. Report on RD
5. Environmental Monitoring Form / Social Monitoring Form
6. Monitoring sheet on price of specified materials (Quarterly)
   Report on Proportion of Procurement (Recipient Country, Japan and Third Countries) (Final Report Only)

Annex 5 Environmental Checklist

Category	Environmental Item	Main Check Items	Yes: Y No: N	Confirmation of Environmental Considerations (Reasons, Mitigation Measures)
1 Permits and Explanation	(1) EIA and Environmental Permits	(a) Have EIA reports been already prepared in official process? (b) Have EIA reports been approved by authorities of the host country's government? (c) Have EIA reports been unconditionally approved? If conditions are imposed on the approval of EIA reports, are the conditions satisfied? (d) In addition to the above approvals, have other required environmental permits been obtained from the appropriate regulatory authorities of the host country's government?	(a) N (b) N (c) N (d) N	(a) The EIA report is preparing and will be submitted to Environmental Protection Agency in March, 2017. (b)(c) If the amendment of the EIA report is not required, the report will be approved within 50 days after the submission. (d) The other permissions related to environmental management are not required.
	(2) Explanation to the Local Stakeholders	(a) Have contents of the project and the potential impacts been adequately explained to the Local stakeholders based on appropriate procedures, including information disclosure? Is understanding obtained from the Local stakeholders? (b) Have the comment from the stakeholders (such as local residents) been reflected to the project design?	(a) Y (b) Y	(a) Two stakeholder meetings, one public hearing and interview survey were conducted in December, 2015 and the understanding has been obtained from local stakeholders. (b) The results of interview survey to the local people and stakeholder meetings with the other relevant organizations were reflected in the design policy and mitigation measures for environmental impacts during constriction phase.
	(3) Examination of Alternatives	(a) Have alternative plans of the project been examined with social and environmental considerations?	(a) Y	(a) Several alternative plans on the structure of the intersection have been examined with social and environmental considerations at the preparatory study.
2 Pollution Control	(1) Air Quality	(a) Is there a possibility that air pollutants emitted from the project related sources, such as vehicles traffic will affect ambient air quality? Does ambient air quality comply with the country's air quality standards? Are any mitigating measures taken? (b) Where industrial areas already exist near the route, is there a possibility that the project will make air pollution worse?	(a) - (b) -	(a)(b) Because the project site is located in industrial area, considerable air pollution is feared. However, continuous monitoring of the air quality is not conducted. It is unknown whether the air quality exceeds the environmental standards or not. In the future, total amount of air pollutant caused by vehicle exhaust gas will increase. However, because of improved traffic efficiency, the amount may be reduced compared to without project.

Category	Environmental Item	Main Check Items	Yes: Y No: N	Confirmation of Environmental Considerations (Reasons, Mitigation Measures)
	(2) Water Quality	(a) Is there a possibility that soil runoff from the bare lands resulting from earthmoving activities, such as cutting and filling will cause water quality degradation in downstream water areas? (b) Is there a possibility that surface runoff from roads will contaminate water sources, such as groundwater? (c) Do effluents from various facilities, such as parking areas/service areas comply with the country's effluent standards and ambient water quality standards? Is there a possibility that the effluents will cause areas not to comply with the country's ambient water quality standards?	(a) N (b) N (c) N	(a) Turbid water will generate in the construction works. The turbid water will be disposed into existing drainage ditches along the roadside and not drain into the surrounding area. There are no intake facilities in and down the site. (b) Because drainage facilities have been constructed along the road, impact on water resources of runoff from road surface will not occur. (c) Development of parking or service areas which generate waste water in operation phase are not included in the project.
	(3) Wastes	(a) Are wastes generated from the project facilities, such as parking areas/service areas, properly treated and disposed of in accordance with the country's regulations?	(a) N	(a) Development of parking or service areas are not included in the project.
	(4) Noise and Vibration	(a) Do noise and vibrations from the vehicle and train traffic comply with the country's standards?	(a) N	(a) The noise level on the borderline of the right of way exceed the environmental standards at present. However, because the project site is located in commercial or industrial area, the impact on general population will not be serious. In the future, noise level caused by vehicle driving will increase. However, because flyover bridges will be installed in central part of the right of way as main driving lanes, the level on road side may be reduced compared to without project. To prevent increase in noise and vibration level, GHA should maintain favorable road surface condition.
3 Natural Environment	(1) Protected Areas	(a) Is the project site located in protected areas designated by the country's laws or international treaties and conventions? Is there a possibility that the project will affect the protected areas?	(a) N	(a) There are no protected areas in the site and project affected areas.

Category	Environmental Item	Main Check Items	Yes: Y No: N	Confirmation of Environmental Considerations (Reasons, Mitigation Measures)
	(2) Ecosystem	(a) Does the project site encompass primeval forests, tropical rain forests, ecologically valuable habitats (e.g., coral reefs, mangroves, or tidal flats)? (b) Does the project site encompass the protected habitats of endangered species designated by the country's laws or international treaties and conventions? (c) If significant ecological impacts are anticipated, are adequate protection measures taken to reduce the impacts on the ecosystem? (d) Are adequate protection measures taken to prevent impacts, such as disruption of migration routes, habitat fragmentation, and traffic accident of wildlife and livestock? (e) Is there a possibility that installation of roads will cause impacts, such as destruction of forest, poaching, desertification, reduction in wetland areas, and disturbance of ecosystems due to introduction of exotic (non-native invasive) species and pests? Are adequate measures for preventing such impacts considered? (f) In cases the project site is located at undeveloped areas, is there a possibility that the new development will result in extensive loss of natural environments?	(a) N (b) N (c) N (d) N (e) N (f) N	(a) There are no ecological valuable habitats in and around the site. (b) The habitats of endangered species have not been identified in and down the site. (c) Significant ecological impact will not occur. (d) Wild animals migrating through the site have not been identified. (e)(f) The project will not cause destruction of forest and poaching because of construction works along existing road in urban area.
	(3) Hydrology	(a) Is there a possibility that alteration of topographic features and installation of structures, such as tunnels will adversely affect surface water and groundwater flows?	(a) N	(a) Alteration of topographic features and tunnel construction are not included in the project.

Category	Environmental Item	Main Check Items	Yes: Y No: N	Confirmation of Environmental Considerations (Reasons, Mitigation Measures)
	(4) Topography and Geology	(a) Is there any soft ground on the route that may cause slope failures or landslides? Are adequate measures considered to prevent slope failures or landslides, where needed? (b) Is there a possibility that civil works, such as cutting and filling will cause slope failures or landslides? Are adequate measures considered to prevent slope failures or landslides? (c) Is there a possibility that soil runoff will result from cut and fill areas, waste soil disposal sites, and borrow sites? Are adequate measures taken to prevent soil runoff?	(a) N (b) N (c) N	(a)(b) Small-scale cutting and filling works are included in the construction. However, there are no steep slope areas to occur slope failures or landslides in and around the site. (c) Adequate cutting and filling prevent accidental and sufficient soil runoff.
4 Social Environment	(1) Resettlement	(a) Is involuntary resettlement caused by project implementation? If involuntary resettlement is caused, are efforts made to minimize the impacts caused by the resettlement?(b) Is adequate explanation on compensation and resettlement assistance given to affected people prior to resettlement?(c) Is the resettlement plan, including compensation with full replacement costs, restoration of livelihoods and living standards developed based on socioeconomic studies on resettlement?(d) Are the compensations going to be paid prior to the resettlement?(e) Are the compensation policies prepared in document?(f) Does the resettlement plan pay particular attention to vulnerable groups or people, including women, children, the elderly, people below the poverty line, ethnic minorities, and indigenous peoples?(g) Are agreements with the affected people obtained prior to resettlement?(h) Is the	(a)Y (b)Y (c)Y (d)Y (e)Y (f)Y (g)Y (h)Y (i)Y (j)Y	(a) The project is likely to require involuntary resettlement of about 14 households or 50 persons.(b) Explanations of basic policy on compensation and resettlement assistance have been conducted in the local stakeholder meetings.(c) The Abbreviated Resettlement Action Plan (ARAP) involves the result of socioeconomic survey including the inventory of losses owned by Project Affected Persons (PAPs), compensation with replacement costs and livelihood restoration plan.(d) The compensations will be paid prior to the resettlement.(e) The compensation policies are mentioned in the ARAP.(f) The ARAP considers particular attention to vulnerable people such as owners of small shops.(g) The agreement formation has been conducted in a series of the stakeholder meetings.(h) The organizational framework according to the ARAP has been established to properly implement resettlement. The capacity and budget will be secured to implement the plan.(i) The monitoring and evaluation are mentioned in the ARAP.(j) The grievance redress mechanism is mentioned in the ARAP.

Category	Environmental Item	Main Check Items	Yes: Y No: N	Confirmation of Environmental Considerations (Reasons, Mitigation Measures)
		organizational framework established to properly implement resettlement? Are the capacity and budget secured to implement the plan?(i) Are any plans developed to monitor the impacts of resettlement?(j) Is the grievance redress mechanism established?		
	(2) Living and Livelihood	(a) Where roads are newly installed, is there a possibility that the project will affect the existing means of transportation and the associated workers? Is there a possibility that the project will cause significant impacts, such as extensive alteration of existing land uses, changes in sources of livelihood, or unemployment? Are adequate measures considered for preventing these impacts? (b) Is there any possibility that the project will adversely affect the living conditions of the inhabitants other than the target population? Are adequate measures considered to reduce the impacts, if necessary? (c) Is there any possibility that diseases, including infectious diseases, such as HIV will be brought due to immigration of workers associated with the project? Are adequate considerations given to public health, if necessary? (d) Is there any possibility that the project will adversely affect road traffic in the surrounding areas (e.g., increase of traffic congestion and traffic accidents)? (e) Is there any possibility that roads will impede the movement of inhabitants? (f) Is there any possibility that structures associated with	(a) N (b) Y (c) N (d) Y (e) Y (f) N	(a) Because of improvement project of existing arterial road in developed area, the project will not cause significant adverse changes and impacts on the livelihood of the local people and road traffic in operation phase. (b) The project is likely to require replacement of about 150 shops or offices. The adequate compensations will be paid to the affected owners. (c) Because of improvement project of existing arterial road in developed area, mass immigration from other areas is unlikely to occur. (d) Traffic congestion and control, and relocation of bus stops will be inevitable in construction phase. The proper construction planning and traffic management will mitigate the impact. (e) Due to the improvement of the intersection structure, the project is likely to impede the movement of local inhabitants. Installation of pedestrian bridges will be included in the project. (f) Because the distance between newly constructed bridges and road side is too long and there are no residents around the project site, impact on sun shading and radio interference will not occur.

Category	Environmental Item	Main Check Items	Yes Y No N	Confirmation of Environmental Considerations (Reasons, Mitigation Measures)
		roads (such as bridges) will cause a sun shading and radio interference?		
4 Social Environment	(3) Heritage	(a) Is there a possibility that the project will damage the local archeological, historical, cultural, and religious heritage? Are adequate measures considered to protect these sites in accordance with the country's laws?	(a) N	(a) There is no heritage in the site and project affected areas.
	(4) Landscape	(a) Is there a possibility that the project will adversely affect the local landscape? Are necessary measures taken?	(a) N	(a) There are no valuable landscape sites in and around the project sites.
	(5) Ethnic Minorities and Indigenous Peoples	(a) Are considerations given to reduce impacts on the culture and lifestyle of ethnic minorities and indigenous peoples? (b) Are all of the rights of ethnic minorities and indigenous peoples in relation to land and resources to be respected?	(a) N (b) N	(a)(b) The project site is not area where ethnic minorities and indigenous people having unique culture and lifestyle are living.
	(6) Working Conditions	(a) Is the project proponent not violating any laws and ordinances associated with the working conditions of the country which the project proponent should observe in the project? (b) Are tangible safety considerations in place for individuals involved in the project, such as the installation of safety equipment which prevents industrial accidents, and management of hazardous materials? (c) Are intangible measures being planned and implemented for individuals involved in the project, such as the establishment of a safety and health program, and safety training (including traffic safety and public health) for workers etc.?	(a) Y (b) Y (c) Y (d) Y	(a) Construction works will comply with the laws and ordinances associated with the working conditions. (b) Because construction works on higher ground are included, tangible safety considerations to prevent labor accidents will be involved in the project. (c)(d) Because the construction works are conducted along existing arterial road in urban area , health program and safety training to construction workers, and considerations to local residents will be included in the environmental management plan.

Category	Environmental Item	Main Check Items	Yes: Y No: N	Confirmation of Environmental Considerations (Reasons, Mitigation Measures)
		(d) Are appropriate measures being taken to ensure that security guards involved in the project not to violate safety of other individuals involved, or local residents?		
5 Others	(1) Impacts during Construction	(a) Are adequate measures considered to reduce impacts during construction (e.g., noise, vibrations, turbid water, dust, exhaust gases, and wastes)? (b) If construction activities adversely affect the natural environment (ecosystem), are adequate measures considered to reduce impacts? (c) If construction activities adversely affect the social environment, are adequate measures considered to reduce impacts?	(a) Y (b) Y (c) Y	(a) The adequate mitigation measures including coordination of construction time and methods and monitoring plans to reduce impacts of pollution during the construction will be prepared. (b) The construction activities will not adversely affect the natural environment. (c) Because the construction works are conducted along existing arterial road in urban area, countermeasures against traffic jam will be included in the execution scheme.
	(2) Monitoring	(a) Does the proponent develop and implement monitoring program for the environmental items that are considered to have potential impacts? (b) What are the items, methods and frequencies of the monitoring program? (c) Does the proponent establish an adequate monitoring framework (organization, personnel, equipment, and adequate budget to sustain the monitoring framework)? (d) Are any regulatory requirements pertaining to the monitoring report system identified, such as the format and frequency of reports from the proponent to the regulatory authorities?	(a) Y (b) Y (c) Y (d) Y	(a) The monitoring plans mentioned in the EIA report will be implemented during the construction and operation phase. (b)(c)(d) Because the EIA report is in progress, the specific monitoring plans have not been prepared yet. JICA survey team has submitted the draft monitoring plan to Ghana Highway Authority.
6 Note	Reference to Checklist of Other Sectors	(a) Where necessary, pertinent items described in the Forestry Projects checklist should also be checked (e.g., projects including large areas of deforestation).(b) Where necessary, pertinent items described in the Power	(a)N (b) N	(a) Deforestation is not included in the project.(b) Relocation of existing power transmission lines will be limited in the right of way and has no serious environmental impacts.

Category	Environmental Item	Main Check Items	Yes: Y No: N	Confirmation of Environmental Considerations (Reasons, Mitigation Measures)
		Transmission and Distribution Lines checklist should also be checked (e.g., projects including installation of power transmission lines and/or electric distribution facilities).		
	Note on Using Environmental Checklist	(a) If necessary, the impacts to transboundary or global issues should be confirmed, if necessary (e.g., the project includes factors that may cause problems, such as transboundary waste treatment, acid rain, destruction of the ozone layer, or global warming).	(a) N	(a) Impacts to transboundary or global environmental issues will not occur.

1) Regarding the term "Country's Standards" mentioned in the above table, in the event that environmental standards in the country where the project is located diverge significantly from international standards, appropriate environmental considerations are required to be made. In cases where local environmental regulations are yet to be established in some areas, considerations should be made based on comparisons with appropriate standards of other countries (including Japan's experience).

2) Environmental checklist provides general environmental items to be checked. It may be necessary to add or delete an item taking into account the characteristics of the project and the particular circumstances of the country and locality in which it is located.

Annex 6 Environmental Monitoring Plan

Category	Environmental Item	Monitoring Item/ Parameter	Responsible Person and Organization	Location	Method	Frequency
Pollution	Air pollution	**Construction Phase:** ・Dust ・PM10、PM2.5、NOx、SOx	Supervising Consultant Contractor	Construction site	Visual observation and interview to pedestrians Instrumental analysis	Visual observation: Daily Interview: Monthly or as needed Instrumental analysis: Pre-Construction Phase 1 time Construction Phase 5 times Total 6 times
		Operation Phase: ・PM10、PM2.5、NOx、SOx	GHA	Around Tema intersection.	Instrumental analysis	1 time in dry season and 1 time in rainy season per year for 2 years after completion Total 4 times
	Water pollution	**Construction Phase:** ・Turbid water and drainage conditions	Supervising Consultant Contractor	Construction site	Visual observation	During rainfall
	Waste	**Construction Phase::** ・Disposal methods of construction and general waste	Supervising Consultant Contractor	Construction site and disposal site	Visual observation and meeting with contractor	Visual observation: Daily Meeting: Monthly or as needed
	Noise and vibration	**Construction Phase:** ・Noise level ・Vibration level	Supervising Consultant Contractor	Construction site	Interview to local residents and pedestrians Instrumental measurement	Interview: Monthly or as needed Instrumental measurement: Pre-Construction Phase 1 time Construction Phase 5 times Total 6 times
		Operation Phase: ・Noise level ・Vibration level	GHA	In and around Tema intersection	Instrumental measurement	1 time per year for 2 years after completion Total 2 times
Social Environment	Resettlement/ Land Acquisition	**Pre-Construction Phase:** ・Progress of resettlement action plan	GHA	Around Tema intersection and relocation sites	Site survey and meeting with PAPs	Monthly or as needed

Category	Environmental Item	Monitoring Item/ Parameter	Responsible Person and Organization	Location	Method	Frequency
	Poor people	**Construction Phase:** ・ Activity conditions of street venders	Supervising Consultant Contractor	Construction site	Visual observation	Daily
	Local economies, such as employment, livelihood, etc.	**Pre-Construction Phase:** ・ Progress of resettlement action plan	GHA	Around Tema intersection and relocation sites	Site survey and meeting with PAPs	Monthly or as needed
		Construction Phase: ・ Business activity around construction site ・ Employment situation of unskilled labor	Supervising Consultant Contractor	Construction site	Site survey and interview to local people and unskilled labors	Monthly or as needed
	Land use and utilization of local resources	**Pre-Construction Phase:** ・ Progress of resettlement action plan	GHA	Around Tema intersection and relocation sites	Site survey and meeting with PAP	Monthly or as needed
		Operation Phase: ・ Condition of land use ・ Condition of business activity	GHA TDC	In and around Tema intersection	Site survey and interview to local people	Monthly or as needed for 2 years after completion
	Existing social infrastructures and services	**Pre-Construction Phase:** ・ Relocation status of existing infrastructure facilities	GHA	In and around Tema intersection	Site survey and meeting with facility owners	Monthly or as needed
		Construction Phase: ・ Condition of traffic congestion around construction site	Supervising Consultant Contractor	Construction site	Visual observation	Daily
		Operation Phase: ・ Crossing conditions of pedestrians	GHA	In and around Tema intersection	Site survey and interview to local people	Monthly or as needed for 2 years after completion

Category	Environmental Item	Monitoring Item/ Parameter	Responsible Person and Organization	Location	Method	Frequency
	Misdistribution of benefits and damages	**Pre-Construction Phase:** ・ Progress of resettlement action plan	GHA	Around Tema intersection and relocation sites	Site survey and meeting with PAPs	Monthly or as needed
		Operation Phase: ・ Living situations of Project Affected Persons (PAPs)	GHA	Around Tema intersection and relocation sites	Site survey and meeting with PAPs	Monthly or as needed for 2 years after relocation
	Local conflicts of interest	**Pre-Construction Phase:** ・ Progress of resettlement action plan	GHA	Around Tema intersection and relocation sites	Site survey and meeting with PAPs	Monthly or as needed
		Operation Phase: ・ Living situations of Project Affected Persons (PAPs)	GHA	Around Tema intersection and relocation sites	Site survey and meeting with PAPs	Monthly or as needed for 2 years after relocation
	Landscape	**Construction Phase:** ・ Status of tree felling ・ Status of Planting works	Supervising Consultant Contractor	Construction site	Visual observation and meeting with contractor	Daily
	Working conditions (including occupational safety)	**Construction Phase:** ・ Workplace situations ・ Implementation status of accident prevention measures	Supervising Consultant Contractor	Construction site	Visual observation and meeting with contractor	Daily
Other	Accidents	**Construction Phase:** ・ Implementation status of accident prevention measures	Supervising Consultant Contractor	Construction site	Visual observation and meeting with contractor	Daily
		Operation Phase:: ・ Number of traffic accident	GHA	In and around Tema intersection	Site survey and traffic accident data	Monthly or as needed for 2 years after completion

Annex 7 Environmental and Social Monitoring Form

Draft Environmental Monitoring Form

Item	Parameter	Location	Frequency	Responsible Agency	Result
Construction Stage					
Air quality	PM10, PM2.5, NO, SOx	Construction site	1 time/half year	Supervising Consultant Contractor	
Noise and Vibration	Noise level Vibration Level	Construction site	1 time/half year	Supervising Consultant Contractor	
Water Quality	Turbid water	Construction site	Rainfall time	Supervising Consultant Contractor	
Waste	Waste disposal	Construction site	Every day	Supervising Consultant Contractor	
Operation Stage					
Air quality	PM10, PM2.5, NO, SOx	Tema Intersection	2 times/year	GHA	
Noise and Vibration	Noise level Vibration Level	Tema Intersection	2 times/year	GHA	

Draft Monitoring Form of Land Acquisition and Resettlement

Preparation of Resettlement Site

No.	Explanation of the Site	Status Completed (date) or not)	Details	Expected Date of Completion
1.				
2.				

Public Consultation

No	Date	Place	Contents of the construction / Main comments and answers
1.			
2.			

Resettlement Activity	Planned Total	Unit	Progress in Quantity			Progress in %		Expected Date of Completion	Responsible Organization
			During the Quarter	Till the Last Quarter	Up to the Quarter	Till the Last Quarter	Up to the Quarter		
Preparation of ARAP*									GHA
Employment of Consultants		Man-Month							
Implementation of Census Survey									
Approval of ARAP	Date of Approval :								
Finalization of PAPs List		No. of PAPs*							
Progress of Compensation Payment (All Lots)		No. of HHs*							

Resettlement Activity	Planned Total	Unit	Progress in Quantity			Progress in %		Expected Date of Completion	Responsible Organization
			During the Quarter	Till the Last Quarter	Up to the Quarter	Till the Last Quarter	Up to the Quarter		
Lot 1		No. of HHs							
Lot 2		No. of HHs							
Progress of Land Acquisition (All Lots)		ha							
Lot 1		ha							
Lot 2		ha							
Progress of Asset Replacement (All Lots)		No. of HHs							
Lot 1		No. of HHs							
Lot 2		No. of HHs							
Progress of Relocation of People (All Lots)		No. of HHs							
Lot 1		No. of HHs							
Lot 2		No. of HHs							

* : ARAP : Abbreviated Resettlement Action Plan, PAPs : Project Affected Persons, HHs : Households

JAPAN INTERNATIONAL COOPERATION AGENCY

IMPROVEMENT OF THE TEMA MOTORWAY ROUNDABOUT

ENVIRONMENT AND SOCIAL SURVEY WORKS FOR THE TEMA MOTORWAY ROUNDABOUT IN TEMA

ABBREVIATED RESETTLEMENT ACTION PLAN

February 2016

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ANNEX 8

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ABBREVIATION

ARAP	Abbreviated Resettlement Action Plan
EPA	Environmental Protection Agency
EI	Executive Instrument
ESC	Environmental and Social Considerations
GHA	Ghana Highway Authority
GoG	Government of Ghana
GoJ	Government of Japan
JICA	Japanese International Cooperation Agency
LVB	Land Valuation Board
MRH	Ministry of Roads and Highways
PAPs	Project Affected Persons
PAH	Project Affected Households
PMU	Project management Unit
RMC	Resettlement Monitoring Committee
ROW	Right of Way
RPF	Resettlement Policy Framework

EXECUTIVE SUMMARY

1.0 INTRODUCTION

The Tema Motorway Roundabout forms part of the national road network. It links Route N1 which starts from Aflao on the Ghana-Togo border on the east and ends at Elubo on the Ghana Cote d'Ivoire border on the West. The Roundabout also links National Route N2 which starts from the roundabout through Akosombo to Kulungugu, North-eastern border with Burkina Faso. Lastly the Roundabout links the Tema Port.

Despite its importance in the road network, locally and internationally, the Tema Roundabout has been experiencing constant traffic jams and causing a lot of inconveniences including increase in travelling time and air pollution in surrounding communities.

To improve the situation, the Government of Ghana (GoG) is seeking a Grant Assistance from the Government of Japan (GoJ) through the Japanese International Cooperation (JICA) to reconstruct the roundabout.

2.0 IMPLEMENTATION OF THE PROJECT

The project when implemented will result in demolition and removal of properties of people living and working at the project site and as a result there will be the need for a resettlement plan.

3.0 RATIONALE FOR ABBREVIATED RESETTLEMENT ACTION PLAN (ARAP)

Initial inspection and referencing of the affected properties revealed that less than 200 assets in the ROW will be affected.

JICAs New Guidelines for Environmental and Social Considerations (ESC) April 2010 which is in conformity with the World Bank's Operational Policies 4.12: Involuntary Resettlement requires that an Abbreviated Resettlement Action Plan should be prepared to manage the resettlement of the affected persons. This ARAP is to satisfy the requirements of JICA.

4.0 LEGAL AND REGULATORY FRAMEWORK

The relevant Policy, legal and regulatory framework within which this ARAP is prepared includes the following:

- The 1992 Constitution of the Republic of Ghana;
- Ghana Land Policy 1999;
- The State Lands Act (Act 125 as Amendment);
- The Administration of Lands Act 1962, Act 123;
- Lands Statutory Wayleaves Act 1963, Act 186; and
- World Bank's Operational Policy 4.12: Involuntary Resettlement .(This policy is in conformity with JICA's New Guidelines for Environmental and Social Considerations, April 2010)

5.0 EXECUTIVE INSTRUMENT (EI)

The GHA started the process in November 2015 to obtain Executive Instrument that would serve as the legal document to authorize them to enter the project site and take possession of the land to be acquired. It is anticipated by October 2016, the EI will be ready and published in the National Newspapers.

6.0 CENSUS AND SOCIO-ECONOMIC SURVEY

A Valuation Census and Socio-Economic Survey of affected persons began on 8th December and ended on 22nd December, 2015.

Whereas the Valuation Census involved enumeration of affected assets, the Socio-economic Survey was about interviewing of affected households, by skilled interviewers, using questionnaire, to collect data on socio-economic characteristics of the affected persons and their household members. Data Collected were analyzed using SPSS statistical package.

7.0 OUTCOME OF THE CENSUS

In all 160 properties were identified to be affected by the project. These included 5 buildings, 68 metal containers, 15 wooden structures, 47 wooden kiosks, 21 sheds, and 4 wooden tables. The Table below shows the categories of affected properties at the project site.

Road Name	Type of Structure						Total
	Building	Metal Container	Wooden Structure	Wooden Kiosk	Shed	Wooden Table	
Tema Harbour Road	1	-	-	4	-	-	5
Tema-Aflao Road	1	55	5	42	19	2	125
Tema-Akosombo Road	3	13	10	1	2	2	30

Total	5	68	15	47	21	4	160

8.0 SURVEY RESULTS

One hundred and fifty-three (153) households were identified to have their properties affected by the project. However, (107) households were available during the period of the socio-economic survey from the 8th to 22nd November 2015. The survey revealed the following:

- Out of the 107 respondents, 57% were males while 43% were females
- About 57% of household heads and 49% of household members were in their prime active age i.e. 21- 40 years.
- 67% of household heads and 57% of household members have had education up to at least JHS level. Also 13% of household heads and 10% of household members have had tertiary education.
- Occupational status of the household heads showed that about 53% of them were traders while 13% were Caterers. Drivers, Artisans, Watchmen and retired persons formed about 30%.
- The average number of persons per household was 7, an indication that most of the household heads had dependents.
- Majority of householders, 36%, received, on the average, GH¢ 20,000.00 per month while 50% received between GH¢6,000-10,000 from their sales.
- PAHs spent an amount of GH¢ 3100.00 per month of which, about 65%, went into food and education, while about 9% each was spent on transport, medical and funeral. About 7% was spent on electricity and water.

9.0 PUBLIC CONSULTATION

JICA's Environmental and Social Considerations (ESC), the World Bank OP4.12 and the RPF of the Ministry of Transportation (2006) all stress the need for public consultation. In view of these guidelines, two forums were held in connection with the project.

Firstly, the GHA/Consultant held a Key Stakeholder's Consultative Forum at Hotel Joecarl in Tema on the 11th December 2015. The GHA introduced the project to the participants while the Consultant made presentation to highlight the stages of the project.

The GHA Valuation Officer also took the opportunity to inform the participants about the compensation procedure for the affected persons and the need for an Executive Instrument that would allow the GHA to take possession of the site and acquire the affected properties.

Secondly, consultative meetings were held on the 15th and 17th December, 2015 for the project affected persons at the project site. They were also introduced to the project, the process of land acquisition and procedures for compensation. Questions and concerns raised by the PAPs were addressed by the Sociologist and the Resettlement Specialist who organized the meeting on behalf of the consultant.

10.0 INSTITUTIONAL RESPONSIBILITIES

Assistance of various Institutions would be needed in the implementation of the ARAP. Such Institutions would include GHA's PMU and RMC, LVB, EPA to mention only a few. Their responsibilities would range from coordination of implementation of the ARAP to monitoring and evaluation of programme to ensure successful implementation of the resettlement plan.

11.0 COMPENSATION PROCEDURES

In compliance with the JICA's ESC which is in agreement with OP.4.12 of the World Bank Involuntary Resettlement Policy, valuation of and compensation for losses of permanent structures will be done on the basis of full replacement cost.

Temporary structures that need to relocate will be paid supplemental assistance to enable affected persons to move their structures and reconnect power if need be.

12.0 ELIGIBILITY

All assets which were captured during the Census Survey from 8th to 22nd December, 2015 are eligible for compensation. Survey of PAPS will be considered for compensation and supplemental assistance.

13.0 GRIEVANCES AND REDRESS SYSTEM AND PROCEDURES

Cash Compensation will be paid to all PAPs whose asset (temporary or permanent structure) is affected. Each individual PAP has the right to refuse the compensation rate proposed and could take his case to the law court of his choice if previous negotiations with him by GHA failed.

The main purpose of the grievance procedure seeks to avoid the need to resort to judicial proceedings which in turn could delay the project.

14.0 BUDGETS FOR THE ARAP

The overall resettlement budget for this ARAP (i.e. compensation and supplemental assistance costs) is **THREE MILLION ONE HUNDRED AND TWELVE THOUSAND SEVEN HUNDRED AND EIGHTY SIX GHANA CEDIS**

(GH₵3,112,786) and it excludes cost for administration, monitoring and evaluation. The budget is presented in the Table the below.

Road Name	Type of Structure						Total
	Building	Metal Container	Wooden Structure	Wooden Kiosk	Shed	Wooden Table	
Tema Harbour Road	1	-	-	4	-	-	5
Tema-Aflao Road	1	56	5	42	19	2	125
Tema-Akosombo Road	3	12	10	1	2	2	30
Total	5	68	15	47	21	4	160
Estimated Cost GH₵	2,155,223	200,810	65,890	33,360	33,946	1,000	-
Total Cost	GH₵ 2,490,229						

An additional 25% **(GH₵622,557)** of the total cost will be allocated to administration, monitoring and evaluation. This will sum up to give a grand total of **THREE MILLION ONE HUNDRED AND TWELVE THOUSAND SEVEN HUNDRED AND EIGHTY SIX GHANA CEDIS (GH₵3,112,786).** The implementation cost of this ARAP will be borne by Ghana Government.

15.0 MONITORING AND EVALUATION

The Implementation of the ARAP will be monitored in three stages. There will be an internal monitoring which will be done by GHA's Resettlement Monitoring Committee (RMC). There will also be an external (Independent) Monitoring by a Consultant to be hired by GHA. Finally the GHA will evaluate the whole project after its completion. The main objective of the monitoring and evaluation is to ensure that the entire resettlement management instrument has been achieved.

16.0 DISCLOSURE

This Abbreviated Resettlement Action Plan will be disclosed in Ghana by GHA. Copies will be made available at the Head office and at its website. Finally copies of the report will be distributed to the affected District Assemblies. GHA will allow JICA to disclose the ARAP electronically on its website prior to processing of the project.

CHAPTER ONE

1.0 INTRODUCTION

1.1 Background

The Tema Motorway Roundabout forms part of the National Road Network. It links the Route N1 which starts from Aflao on the Ghana-Togo border on the east, through Accra the capital of Ghana and ends at Elubo on the Ghana – Cote d'Ivoire on the west.

The Eastern Corridor Trunk Road which is a National Route N2 also starts from Tema Roundabout through Akosombo and ends at Kulungugu, North-Eastern border with Burkina Faso. Finally the roundabout links the Tema Port.

The roundabout has been experiencing constant traffic congestion especially in the rush hours of the morning and in the evening. At such peak hours the traffic level becomes intense that personnel from the Motor Transport and Traffic Unit (MTTU) of the Police Service and traffic wardens from the National Youth Employment (NYEP) are brought in to direct the traffic.

The traffic congestion does not only increase travelling time but also affects negatively, air quality on the surrounding communities. To address these challenges, the Government of Ghana (GoG) is seeking a Grant Assistance from the Government of Japan (GOJ) through the Japanese International Cooperation Agency (JICA) to reconstruct the roundabout.

Implementation of the project will result in demolition and removal of properties of some people living and working at the project site, hence the need for planning of resettlement for those who are likely to be affected.

1.2 Rationale for Abbreviated Resettlement Action Plan (ARAP)

Initial inspection and referencing of the affected properties of the project site undertaken by a licensed Valuer in November 2015 showed that less than 200 properties will be affected. In view of the fewer number of properties involved, it is required by the JICAs Environmental and Social Considerations (April 2010) which is in conformity with the World Bank's Operational Policy 4.12: Involuntary Resettlement Policy that Abbreviated Resettlement Action Plan should be prepared. This report thus, fulfills JICA's ESC/ World Bank's OP4.12 requirement.

1.3 Objective of the ARAP

The main objectives of preparing the ARAP are:

a) To identify the Project Affected Persons and properties that will be affected ; and
b) To develop compensation framework that will propose compensation of full replacement cost to persons whose assets will be acquired to provide right of way for the project

1.4 Scope of Work

The scope of work as stated in the Terms of Reference (TOR), include the following:

- Data collection and analysis for Resettlement and land acquisition based on local laws and regulations and justification as to land acquisition;
- Undertake population census survey of shops and houses that would be affected by the project as well as socio-economic survey of affected households;
- Preparation of Abbreviated Resettlement Action Plan with reference to requirements in accordance with the JICA Environmental and Social Considerations/ World Bank Involuntary Resettlement Policy OP 4.12;
- Development of compensation procedures based on full replacement cost and compensation cost and fiscal resources;
- Description of entitlement matrix for compensation;
- Development of a conflict resolution mechanism i.e. grievance redress system and grievance procedures;
- Organisation responsibilities including local government and NGO's.
- Preparation of Executing Schedule;
- Development eligibility criteria and compensation cut-off date and fiscal resource;
- Development of Monitoring Evaluation Methodology,
- Keeping Record of local stakeholder meetings

1.5 Structure of the Report

The report is organized into eleven chapters as presented below;

Chapter 1: Introduction;
Chapter 2: Project Description;
Chapter 3: Legal and Regulatory Framework;
Chapter 4: Census and Socio-economic survey;
Chapter 5: Public Consultations;
Chapter 6: Compensation Procedures;
Chapter 7: Institutional Responsibilities;
Chapter 8: Grievance Redress Systems and Procedures;
Chapter 9: Monitoring and Evaluation; and
Chapter 10: Budget
Chapter 11: Executing Schedule and Disclosure

CHAPTER TWO

2.0 PROJECT DESCRIPTION

2.1 Project Location

The Tema Roundabout is about 25km from Accra and about 5km from the Tema Port. Administratively the roundabout is under the jurisdiction of Kpone Katamanso District Assembly (KKDA) the capital of which is Kpone, about 38km from Accra.

The existing roundabout has 120m diameter Central Island with 135 inscribed circle diameter (ICD) and has five approach-roads, namely:

- The Accra-Tema Motorway;
- Tema Habour Road;
- Tema Hospital Road;
- Tema-Aflao Road; and
- Tema-Akosombo Road

Fig 2.1 shows the project area location map while Fig 2.2 shows the satellite image of the project location.

Figure 2.1: Project Area Location Map

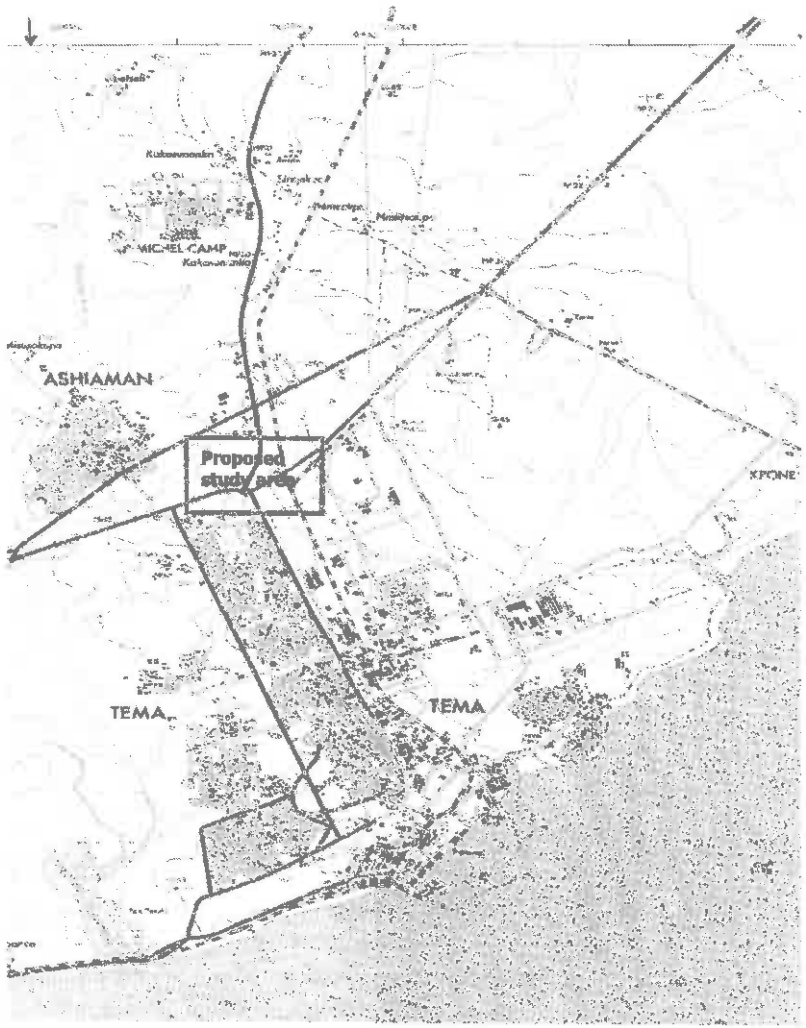


Figure 2.2: Area Map (Image) of the Project Site

2.2 Description of the Proposed Works

Under the proposed design, a flyover is to be constructed at the roundabout while the approach-roads will be improved to enhance the level of service.

2.2.1 Proposed Design Speed and Level of Service

Table 2.1 shows the proposed design speed and Level of Service for the project

Table 2.1: Design Speed and Level of Service

Existing Roads	Design Speed (km/hr)	Level of Service
Accra – Tema Motorway	100	B
Tema Hospital Road	40	D
Tema Harbour Road	80	C
Tema-Aflao Road	100	B
Tema-Akosombo Road	100	B

2.2.2 Cross-Section Elements

The proposed cross-section elements for the roundabout are shown in Table 2.2

Table 2.2: Cross Section Elements for the proposed project

Existing Roads	Median Width (m)	Shoulder		Lanes (m)
		Inner (m)	Outer(m)	
Accra-Tema Motorway	10	0.5	3.0	3.65
Tema Hospital Road	-	-	1.5	3.65
Tema Harbour Road	4.0	0.5	2.0	3.65
Tema-Aflao Road	4.0	0.5	2.5	3.65
Tema-Akosombo Road	4.0	0.5	2.5	3.65

2.2.3 Pavement Design

The pavement design being considered for all the approach roads and the flyover is flexible pavement which will involve the use of bituminous materials.

2.3 Objectives of the Project

The objectives of the project are:

i) To improve the capacity of the Tema Motorway Roundabout and the approach-roads;
ii) To improve safety and efficiency of transport in the Greater Accra Region; and
iii) To provide uninterrupted traffic flows to facilitate trade and transit in the West African sub-region.

CHAPTER THREE

3.0 LEGAL AND REGULATORY FRAMEWORK

3.1 Ghana Land Policy

The Government of Ghana in 1999 put in place the land policy to serve as a broad framework and policy guidelines for land administration and utilization. The policy seeks to give protection to proprietary rights and promote the concept of prompt payment of adequate compensation for compulsorily acquired lands.

3.2 Ghana Laws on Compulsory Acquisition

The under-listed laws are relevant as far as acquisition of land in Ghana is concerned:

- The Constitution of the Republic of Ghana (1992);
- The State Lands Act 1962 (Act 125 as Amendment);
- The Administration of Lands Act 1962 Act 123; and
- Lands Statutory Wayleaves Act 1963 Act 186

3.2.1 The Constitution of the Republic of Ghana (1992)

The 1992 Constitution of the Republic of Ghana Article 20 provides for the protection from deprivation of property that may be compulsorily taken possession of or acquired by the state unless:

Section 1(a) Taking of possession or acquisition is necessary in the interest of defense, public safety, public health, town and country planning or the development or utilization of property in such a manner as to promote public benefit; and

Section 1(b) The necessity for the acquisition is clearly stated as to provide reasonable justification for causing any hardship that may result to any person who has interest in or right over the property;

Section 2(a) states that, sufficient provision must be made for the prompt payment of fair and adequate compensation;

Section 2(b) Aggrieved persons must have the right of access to the High Court for redress. It also stipulates that where compulsorily acquisition involves the displacement of any inhabitants, the state shall resettle affected persons on suitable alternative site having regard to their socio-cultural values and economic well-being.

3.2.2 The State Lands Act 1962 (Act 125 as Amended)

This is the principal Law under which private lands could be compulsorily acquired. The Act emphasizes the payment of compensation to the victims of acquisition made under the Act. The basis of the said compensation should be either the market value or Replacement value. Cost of disturbance and incidental expenses or other damages suffered are to be considered in compensation payment.

3.2.3 Administration of Lands Act 1962 Act 123

By Section 7 of the Act 123, the President or the Republic may by Executive Instrument declare any stool land to be vested in trust and accordingly the state could administer such land as a trustee for the stool involved. Persons whose interest is affected by reasons of disturbance as a result of the authorization so made are entitled to be paid.

This Act is probably the most relevant Act in place with regards to land acquisition for road construction. Section 1 of this Act empowers the President whenever, in his opinion, it is in the public interest to:

- Provide for entry on any land for construction and maintenance of public interest;
- Provide for entry on any land for construction of public works and for the creation of ROWs and other similar rights with respect to such works.
- If this means of compulsory acquisition is undertaken, an application is made to Lands Commission, which then consults with the Minister of Lands and Forestry to continue with the transfer process.

3.2.4 Statutory Wayleaves Instrument, Act1963, Act186

This Act is probably the most relevant Act in place with regards to land acquisition for road construction. Section 1 of this Act empowers the President whenever, in his opinion, it is in the public interest to:

- Provide for entry on any land for construction, and maintenance of public interest.
- Provide for entry on any land for construction and maintenance of public works and for the creation of ROWs and other similar rights with respect to such works. Works are to be provided by the Local Authority or any Statutory Organisation, Corporation or Department.

If this means of compulsory acquisition is undertaken, an application is made to the Lands Commission, which then consults with the Minister of Lands and Forestry to continue with the transfer process.

3.2.5 Resettlement Policy Framework (RPF)

The Road Sector Resettlement Policy Framework (RPF) of the Ministry of Transportation(2007) states that no one is to be denied compensation because he/she is not the holder of a legal document. It proposes payment of supplemental assistance to non-holders of legal titles.

It also states that the land and/or property affected would be taken only when PAPs are satisfied with the compensation arrangements.

3.3 World Bank Policy on Involuntary Resettlement (OP4.12)

The World Bank Involuntary Resettlement (i.e. World Bank Operational Policy OP4.12) is intended to assist displaced people arising from development projects, in order not to impoverish any affected persons as a result of a project.

The Banks policy (in paragraph 2) therefore advocates that where feasible involuntary resettlement must be conceived and executed as a sustainable development programme, providing sufficient investment resources to enable persons displaced by the project share in the project benefit. Persons displaced must be:

i) Meaningfully consulted and should have opportunity to participate in the planning and execution of the resettlement;

ii) Compensated for their losses at full replacement cost prior to civil works;

iii) Assisted with the move and supported during the transitional period in the resettlement site;

iv) Assisted in their effort to improve their former living standards, income earning capacity and production levels or at least to restore them.

3.4 The Executive Instrument

GHA has started the process of acquiring an Executive Instrument (EI) for the project. The process was started in November 2015 and it is expected to be completed by the middle of 2016. The acquisition of the EI by the GHA, will authorize them to enter the project area and take possession of the land to be acquired.

All persons in the corridor will then be duly notified of the government's intention to acquire the land in the project area for the national interest of reconstructing the Tema Motorway Roundabout. Finally all owners of affected properties will be served with notice and be requested to tender in property documents for valuation of assets.

3.5 Comparative Analysis of World Bank Policy and Ghanaian Laws

Table 3.1 shows some comparisons between the Ghanaian laws and World Bank Involuntary Resettlement Policy.

Table 3.1 Comparative analysis of World Bank OP4.12 and Ghanaian Laws

Topic	Ghanaian Laws	World Bank Policy Requirement
Timing of Compensation payment	Prompt	Prior to displacement
Calculation of compensation	Fair and adequate	Full replacement cost
Squatters	No provision; they are deemed not be eligible	Affected persons who are physically displaced are to be provided with residential housing sites, or as required, agricultural sites, at least equivalent to old site. Preference to be given to land based resettlement for displaced persons, whose livelihoods are land-based.
Resettlement Assistance	No specific provision with respect to additional assistance and monitoring	Affected persons are to be offered support after displacement, for a transitional period.
Information and Consultation	The owner/tenants on the land must be formally notified at least a week in advance of the intent to enter, and be given 24hrs notice before actual entry	Displaced persons and their communities are provided timely and relevant information consulted on resettlement options, and offer opportunities to participate in the planning, implementation and monitoring of resettlement.
Grievances	Informal mechanism and formal access to court of law	Appropriate and accessible grievance mechanisms to be established.

CHAPTER FOUR

4.0 CENSUS AND SOCIO-ECONOMIC SURVEYS

4.1 Introduction

An important aspect of ARAP preparation is a detailed understanding of the impacts of the project on affected persons, because payment of compensation and livelihood restoration depends on such impacts. In view of this situation, two sets of surveys were conducted to obtain baseline data on impacted assets. The first was a census of affected properties and the second was a survey of socio-economic profile of affected households and their members.

4.2 Census of Affected Properties

The census of affected assets was carried out from 8th December to 22nd December 2015 by a team of valuation officers. The scope of the census included identification, clarification and valuation of the assets in the ROW at full replacement cost.

In all 160 properties were identified to be affected. These included 5 buildings, 68 metal containers, 15 wooden structures, 47 wooden kiosks, 21 sheds, and 4 wooden tables. Table 4.1 below shows the categories of affected properties at the roundabout and on the various approaches of the roundabout.

Table 4.1: Number of Affected Structures

Road Name	Type of Structure						Total
	Building	Metal Container	Wooden Structure	Wooden Kiosk	Shed	Wooden Table	
Tema Harbour Road	1	-	-	4	-	-	5
Tema-Aflao Road	1	56	5	42	19	2	125
Tema-Akosombo Road	3	12	10	1	2	2	30
Total	5	68	15	47	21	4	160

The List of property owners are shown in Annex 4. Rough images of the affected structures along the affected road approaches of the Tema Roundabout are presented in Annex 6. The distribution of the affected properties, however, is shown in Table 4.1.

Table 4.2: Distribution of Affected Structures

4.3 Socio-economic Profile of Affected Households

Alongside the census of the affected properties, socio-economic survey was conducted at the same period that the census was undertaken. The purpose of the survey was to assess socio-economic characteristics of the affected households and their members. The survey involved the use of skilled interviewers to collect the required data by using questionnaires. The data was analyzed, using SPSS statistical package.

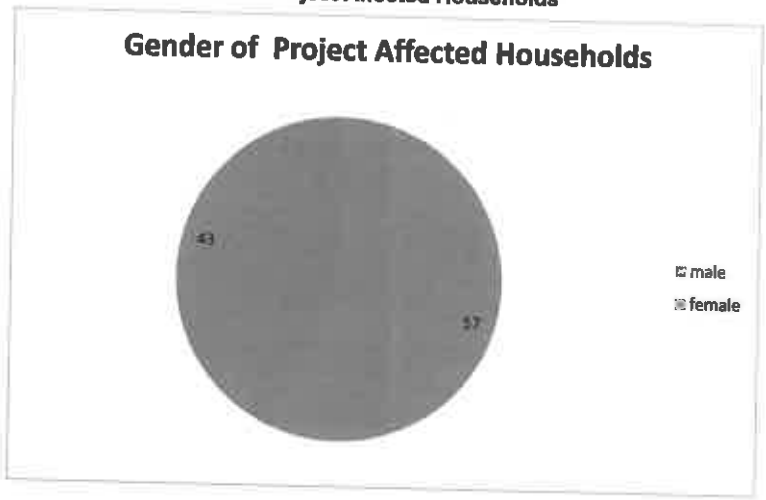
4.4 Survey Results

There were 153 persons whose properties were identified to be affected by the project. Out of this number, 107 persons were available during the period of the survey and they were interviewed. The results of the survey are presented below:

4.4.1 Gender Project Affected Households

Figure-1 shows that out of the 107 project affected households 57% were males while 43% were females.

Figure 4.2 Gender of Project Affected Households



4.4.2 Marital Status

Table 4.2 shows that sixty-four 64 household heads representing about 60% were married, 25% were single, and those divorced or widowed were about 6% each.

Table 4.2: Marital Status of Project Affected Households

Marital Status of Respondents	Frequency	Percent
Married	64	59.8
Single	27	25.2

Divorced	6	5.6
Widowed	6	5.6
Separated	4	3.7
Total	**107**	**100**

4.4.3 Occupational Status

Occupational status of the household heads as presented in Table 4.3 depicts that about 53% of them were traders while 13% were caterers. Drivers, Artisans, Watchmen and retired persons formed about 30%.

Table 4.3: Occupation/Profession Project Affected Households

Occupation	Frequency	Percent
Farming	1	0.9
Petty Trader	23	21.5
Small/Medium Trader	30	28.0
construction	0	0
Large Trader	3	2.8
Oil & Gas	2	1.9
Other mining	0	0
Artisans	5	4.7
Religious leader	0	0
Driver	4	3.7
Health worker	0	0
Teacher	0	0
Caterer	14	13.1
Government employee	0	0
Still Schooling	1	0.9
Other Formal Employee	1	0.9
None/unemployed	0	0
Too young	0	0
Retired	0	0
Other	23	21.5
Total	107	100

4.4.4 *Age of Heads of households and Household Members*

Table-4.4 indicates that no head of household was less than 16 years. The Table shows that about 57% household heads were between 21 and 40 years which means that majority of the household heads were in the prime active years. In a similar vein, the number of household members in the prime active years was about 49%. Heads of households and members of households above 65 years was 3% for each group.

Table 4.4: Age of Head of Household and Household Members

Age	Head of households	Percent (%)	Household Members	Percent (%)	Total	Percent (%)
less than 16	0	0	97	17.4	97	14.6
16-20	1	0.9	73	13.1	74	11.2
21-30	16	15.0	172	30.9	188	28.4
31-40	45	42.1	102	18.3	147	22.2
41-50	30	28.0	47	8.5	77	11.6
51-60	12	11.2	49	8.8	61	9.2
65+	3	2.8	16	2.9	19	2.9
Total	107	100	556	100.0	663	100

4.4.5 *Education*

Table 4.5 shows that about 67% of household heads and 57% of household members have had up to minimum of JHS education. In a similar vein, about 14% of household heads and about 11% of household members have had tertiary education, indicating appreciable level education of household heads and their members.

Table 4.5: Educational level of Household Heads and Members

Level of Educational Attainment	Head of households	Percent (%)	Household Members	Percent (%)	Total	Percent (%)
Never	20	18.7	43	7.7	63	9.5
Too Young	0	0.0	42	7.6	42	6.3
Primary	16	15.0	154	27.7	170	25.6
JHS	38	35.5	163	29.3	201	30.3
SHS	19	17.8	95	17.1	114	17.2
Tertiary	14	13.1	57	10.3	71	10.7

Adult Education	0	0	0	0.0	0	0.0
Koranic	0	0	2	0.4	2	0.3
Total	107	100.0	556	100.0	663	100.0

4.4.6 *Household Size*

The average number of persons per household was 7. This indicates that most of the affected household heads had dependents.

Table4.6: Household size

Household Size	Frequency	Members	Percent	Total Household Members	percent
0	6	0	0	6	0.9
1	6	6	1.1	12	1.8
2	8	16	2.9	24	3.6
3	12	36	6.5	48	7.2
4	23	92	16.5	115	17.3
5	4	20	3.6	24	3.6
6	11	66	11.9	77	11.6
7	12	84	15.1	96	14.5
8	3	24	4.3	27	4.1
9	8	72	12.9	80	12.1
10	14	140	25.2	154	23.2
Total	**107**	**556**	**100.0**	**663**	**100.0**

4.4.7 *Income of Project Affected Households*

Table 4.7 shows average income of household heads from their daily sales. Majority of household heads, on the average, received GH₵20,000.00 per month representing 36.4% and about 50% received between GH₵6,000-10,000.

Table 4.7: Average Income per month of Project Affected Households*

Average Income Per Month	Frequency	Percent (%)
2,000.00	6	5.6
6,000.00	34	31.8

10,000.00	19	17.8
20,000.00	39	36.4
No idea	9	8.4
Total	**107**	**100**

*Estimated from daily sales for 20 working days

4.4.8 Expenditure

Table 4.8 shows that PAPs spent an amount of GHC3,100 per month, of which about 65% was spent on food and education, while about 9% each was spent on transport, medical and funeral. About 7% was spent on electricity and water.

Table 4.8: Average household expenditure

Item	Average Expenditure GHC	Percent (%)
Food	1,000.00	32.3
Transport	300.00	9.7
Education	1,000.00	32.3
Electricity	100.00	3.2
Water	100.00	3.2
Medical	300.00	9.7
Funeral	300.00	9.7
Total	**3,100.00**	**100.0**

4.4.9 Property owned Households

Table 4.9 shows that out of the 107 PAPs interviewed, 17.8% had private cars, 14% had commercial cars and 42% had their own houses. Almost all of the PAPs, about 95%, had mobile phones.

Table 4.9: Property owned by Project Affected Households

Property	No. of Household	Percent (%)
Private Vehicle	19	17.8
Commercial Vehicle	15	14.0
Motor Bike	14	13.1
Bicycle	17	15.9
House	45	42.1
Land	37	34.6

Laptop	28	26.2
Mobile Phone	101	94.4
Generator	10	9.3
Other	2	1.9

4.4.10 Business Expenditure

Table 4.10 shows that greater percentage of business expenditure, about 53% was spent on wages and salaries while telephone and transport received the least, 5% each.

Table 4.10 Business Expenditure of Project Affected Households

Item	Average Expenditure In GHC	Percent (%)
Electricity	150.00	7.8
Water	200.00	10.4
Telephone	100.00	5.2
Transport	100.00	5.2
Tax	168.00	8.8
Wages And Salary	1,000.00	52.1
Other	200.00	10.4
Total	**1,918.00**	**100.0**

4.4.11 Language spoken by Project Affected Households

Table 4.11 shows that Ewe, Akan and Ga/Dangme were mostly spoken by the affected persons at the project site representing about 27%, 24% and 22% respectively. Other languages like Nzema, Krobo, Hausa, Dagomba, and Frafra were also spoken and represented about 26%.

Table 4.11: Languages spoken by households Project Affected Households

Language Spoken By Households	Frequency	Percent (%)
Akan	26	24.3
Ga/Adangme	24	22.4
Ewe	29	27.1
Other	28	26.2

Total	**107**	**100.0**

4.4.12 Mode of transport used by Households

The most frequently used mode of transport by respondents as shown in Table 4.12 was taxi followed by trotro (mini bus) and motor bike. Almost 50% of the affected household heads used taxi frequently at the project site.

Table 4.12: Most frequently used mode of transport

Most Frequent Mode Of Transport	Frequency	Percent (%)
Taxi	53	49.5
Trotro (Mini Bus)	31	29.0
Trotro (Large Bus)	7	6.5
Motor Bike	9	8.4
Walking	7	6.5
Other	0	0.0
Total	**107**	**100.0**

4.4.13 Occupation of Project Affected Households at the project site

About 47% of the affected households were into trading, while 16% were in the catering service as indicated in Table 4.13.

Table 4.13: Work done by Project Affected Households

Respondents occupation	Frequency	Percent (%)
Trader-Small	23	21.5
Trader –Medium	24	22.4
Trader-Large Container	4	3.7
Artisan	9	8.4
Large Company/ Formal Business	1	0.9
Hospitality Services	17	15.9
School	0	0.0
Clinic	4	3.7

Hospital	0	0.0
Other	25	23.4
Total	**107**	**100.0**

4.4.14 Use of Structure

About 70% of the structures were used as shops, 6% were used as permanent residence and multi-use accounted for 10% as shown in Table 4.14.

As to facilities available in the structures, 43% had electricity, 2% had pipe-borne water, and 18% had other items such as fan, fridge and television. About 37 % had none of the facilities mentioned.

Table 4.14: Use of structure

Use Of Structure	Frequency	Percent (%)
Residence	6	5.6
Shop	75	70.1
Office	6	5.6
Multi Use (Shops/Residence)	4	3.7
Multi Use (Shop/Offices)	2	1.9
Multi (Shop/Office/Residence)	2	1.9
Multi (Office And Residence)	2	1.9
Other	10	9.3
Total	**107**	**100.0**

Table 4.14b: Use of Structure showing number of family members and Number of staff/assistants in shops

Structure Identification	Name of User	Household Members	No of staff/ Assistants	Contact Number	Location
			Residence		
TMR H1B	Kingsley Adams	4	NIL	0244770549	Harbour Road
TMR-A 9	Daniel Kisseh	8	NIL	0246521289	Aflao Road
SA-A 35	George Osei Sekyi	5	NIL	0277946413	Aflao Road
SA-A 5	Caleb Faigo	4	NIL	0247817200	Harbor Road
TMR- A 17	Samuel Morkeh	1	NIL	0248988501	Aflao Road
SA-A18	Adam Niger	3	NIL	0241074189	Aflao Road
			Residence and Shop		
SA-A21	Doumor Elijah T Mensah Pilatho	6	NIL	0249327478	Aflao Road
SA-A 20	Karimu Niger	3	NIL	NIL	Aflao Road
SA-A 51	Hassan Eliasu	7	NIL	02571110845	Aflao Road
SA-H3	Millicent Annobil	4	3	0241574788	Harbour Road
			Residence and Office		
TMR-A8	Francis Ackatiah	6	1	0554104600	Aflao Road
SA-A41	Saac Tetteh Botwey	3	NIL	0275200478	Aflao Road
			Residence, Shop and Office		
TMR -H1A	Kingsley Adams	4	1	0244770549	Harbour Road
TMR- H1	Comfort Twum Baah	1	NIL	NIL	Harbour Road

CHAPTER FIVE

5.0 PUBLIC CONSULTATION

5.1 Introduction

The World Bank OP4.12 and RPF of the Ministry of Transportation (2006) all stress the need for public consultation and participation. The purpose of consultation is to ensure that both key stakeholders and project affected persons receive all the relevant information in timely manner.

This Chapter discusses the public consultations undertaken in connection with the project.

5.2 Consultation with Key stakeholders

The GHA/Consultant held a Key Stakeholders Consultative Forum on the 11th December in Tema. At the forum the GHA's Coordinating Officer of the Project introduced the project to the participants and introduced M/S CTi/Engineering International Co. Ltd., of Japan in association with M/s ABP Consult Ltd., a local Ghanaian firm. The former is undertaking the design of the project and the latter is conducting environmental and social surveys.

After the introduction, a presentation was made by the Project Designers. The presentation highlighted the stages of the project and conceptual Image of the Improvement Plan of the existing roundabout.

The GHA Principal Valuer also took the opportunity to explain to the participants at the forum the processes of acquiring the right-of-way for the project and compensation procedure for the affected persons.

The number of participants at the forum was 34. The minutes recorded at the forum and the attendance sheets are presented in Annex 1 and Annex 2 respectively.

5.3 Consultation with PAPs

Besides the Key Stakeholders' Forum, two meetings were held with a cross section of the affected persons at the project site on the 15th and 17th December 2015, by a team made up of a Sociologist and Resettlement Specialist. The purpose of the meeting was to introduce the project to the affected persons and to seek their opinions and concerns regarding the implementation of the project.

Various issues were discussed including the following:

- Resettlement related surveys

- Proposed road alignments;
- Relocation of businesses;
- Impacts on economic activities and personal incomes;
- Resettlement and compensation; and
- Cut-off Date and Executing Schedule

Participants were allowed to ask questions concerning the project and the questions were answered by the team.

Table 5.1 shows the key questions, concerns raised and answers provided by the team at the meeting. Annex 3 shows pictures taken during the meetings with affected persons at the project site.

Table 5.1: Questions /Concerns raised and answers provided at the meeting

Question No.	Question/Concern	Answers Provided
1	When will the project take-off:	The project may be started late in 2016
2	Some of us are in the right-of-way. What will be our fate:	Properties in the right-of-way will be valued and compensation or supplemental assistance paid to affected persons depending on the type of property.
3	Who will be responsible for the payment of the compensation/supplemental Assistance:	GHA
4	Are we going to be relocated:	No. The District Assemblies and the TDC are aware of this project. They probably allocated the lands to you and you may go and discuss the issue with them.
5.	If we have any complaints about the project where do we lodge them?	Any complaints about the project should be sent to GHA head office, Environmental Unit Accra to be addressed.
6.	Who are the Contractors for the project: Some of us would like to apply for employment?	The project is in the design stage. When the design is accepted by the government then, it would be awarded on contract. So there is no contractor yet.
7	What about those people who will enter the project site to put new structure in order to get compensation?	There is a date, i.e. 22nd December 2015 where the census of all properties was concluded. Assets are numbered and pictures taken. No

		compensation/supplemental assistance will be paid to any person who was not captured at the end of the exercise.
8	When would we be informed to leave this place?	The project authorities, GHA/Assemblies will definitely inform all affected persons at appropriate time by notices and by use of public information vans.

The number of participants at the meeting was 23 comprising 11 males and 12 females. Annex 3 depicts pictures of meetings held with PAPs at the project site.

CHAPTER SIX

6.0 COMPENSATION PROCEDRUES

6.1 Gulding principles

The guiding principles upon which the GHA will follow in respect of payment of compensation are as follows:

- Resettlement and compensation of Project Affected persons will be done in compliance with Ghana's legislation and World Bank Policies and Procedures OP4.12 on Involuntary Resettlement on Involuntary Resettlement which is in compliance with JICA's ESC;
- Project Affected persons will be assisted in restoring their livelihoods and will be provided assistance to improve on at least to restore their pre-project living standards; and
- Compensation eligibility will be limited by cut-off date, the date which detailed census of assets will be completed at the project area. For this ARAP, the interim date was 22nd December 2015.

6.2 Valuation Methodology

In fulfillment of the provision Of OP4.12, resettlement documentation should present information related to valuation of properties for compensation on the basis of full replacement cost.

With regards to houses which are affected, the full replacement cost is defined as follows:

- The market cost of the materials to build a replacement structure with an area and quality similar to or better than those of affected structure, or to repair a partially affected structure plus the cost of transporting building materials to the construction site plus the cost of labour and construction fees plus cost of any registration and transfer taxes.
- Cost of disturbance has also been taken into consideration. It is defined as reasonable expenses, incidentals to any necessary change of residence of place of business by any person having right or interest in the land.
- Temporary structures that need to relocate will be paid supplemental assistance that will enable affected persons to move their structure, reconnect power if need be, pay their District Assembly Annual License fee and have some income until their business get back on its feet.

6.3 Ellgibility

The assets enumerated during the census survey basically included residential accommodation, business premises and temporary structures. These properties were captured on 22nd December, 2015 when the census was completed. These are eligible for compensation.

New settlement, improvement or starts of activity in the project area afterwards will not be eligible for compensation.

6.4 Entitlement Matrix

The entitlement matrix for compensation describes compensation and related assistance for each category of project affected persons to enable them move from the ROW and continue with their businesses.

Table 6.1 shows the entitlement matrix for compensation for PAPs in respect of this project.

Table 6.1: Entitlement Matrix

		Entitlements				
		Compensation for loss of Land and structures	**Compensation for loss of assets**	**Compensation for loss of income**	**Moving allowance**	**Other assistance**
Business Owner	Loss of Land Loss of structure	Compensation at on-going market price Compensation at full replacement cost value	Pay full cost of removal and fixing of removable	Loss of income based on provision of business accounts. If business accounts are provided, replace loss of profits for period within which he/she relocates	-	- 10% for inconvenience and disturbance
Business Tenant	No loss of land Loss of rental accommodation	No loss of structure so no compensation	-		Cover full cost	10% for inconvenience and disturbance
Residence Owners	Loss of Land Loss of Structure	Compensation at-going market price Compensation at full replacement cost value	-	-	-	5% for inconvenience and disturbance
Residence Tenant	No loss of land Loss of rental accommodation	Relocate to location of choice	Six months rents	-	Coverage of full cost of transport expenses	5% for inconvenience and disturbance
License squatters and Encroachers	Loss of use of land	-		Payments in lieu of wages while moving	Coverage of full cost of transport expenses	Full cost of disconnection and reconnection of utility services. Payment for loss of connectivity

CHAPTER SEVEN

7.0 INSTITUTIONAL RESPONSIBILITIES

There are various statutory institutions that will be needed in the project with respect to land acquisition and resettlement management of the project affected persons. These institutions will include the following:

7.1 The Land Valuation Board (LVB)

The Land Valuation Board (LVB) is the statutory institution responsible for assessing and approving compensation amount to Project Affected Persons. The LVB will receive, value, and verify documentation on affected properties. This is to ensure that payments are not made to people who are not adversely affected and also compensation offered to affected persons are reasonable.

7.2 Land Commission

It is the state agency charged with the management and administration of stated vested lands. It is responsible for advising on policy frameworks for development of particular areas so as to ensure that the development of such areas is coordinated. The functions of the Land Commission are spelt out in Article 256 of the 1992 Constitution and the Lands Commission Act (Act 483) 1994.

7.3 Attorney Generals Department and the Ministry of Justice

The Attorney Generals Department of the Ministry of Justice has redress mechanism in place for aggrieved persons. The organisation will encourage all individual PAPs who will not be satisfied with the compensation offered them to seek redress in a court of law as empowered by the constitution, starting from the Magistrate to the High Court.

7.4 Ministry of Finance/Accountant Generals Department

This institution is the agency that manages the Central government's budget the Ministry of Finance is responsible for releasing money to be paid to victims of projects undertaken by state agencies. On request the Ministry of Finance will authorize and release to GHA, funds required to implement the ARAP and pay supplemental assistance and compensation.

7.5 The Ghana Highway Authority (GHA)

GHA is the road agency implementing the reconstruction of the Tema Motorway Roundabout. It will implement the project and also monitor the plan. GHA will be responsible for ensuring that every PAP entitled to compensation is adequately paid and on time. The environmental Unit and the Accounts section of the GHA are directly responsible for the implementation of the ARAP.

7.6 GHA Project Management Unit

The GHA will set up project Management Unit (PMU). The PMU will comprise of representatives from the Environmental Unit, Planning and Development Sections. The main task of the PMU is to oversee the effective implementation of the resettlement plan.

7.7 The District Assemblies

The Tema Motorway Improvement Project is under the jurisdiction of the Kpone Katamanso District Assembly (KKDA). The Assembly will undertake monitoring role to ensure that PAPs receive their entitlements.

7.8 The Environmental Protection Agency (EPA)

The EPA will be responsible to ensure compliance with any laid down environmental impact assessment procedures. It will also undertake monitoring activities in order to ensure compliance with regulations especially on environmental Standards and mitigation commitments as stated in the ARAP.

CHAPTER EIGHT

8.0 GRIEVANCES AND REDRESS SYSTEMS AND PROCEDURES

8.1 Likely Grievances and Disputes

Grievances and disputes that are likely anticipated during the implementation of the project are as follows:

- Mis-identification of assets or mistakes in valuing them;
- Disputes over plot limits either between affected persons and the project or between neighbours;
- Disputes over ownership of a given asset (two individuals claim to be the owner of the asset);
- Disagreement over valuation of an asset;
- Potential PAPs who were completely left out during the census and valuation process; and
- Disputed ownership of a business (for example where the owner and the operator are different persons) which give rise to conflicts over the compensation sharing.

8.2 Procedures for Redress

Grievance Redress Committee will be put in place by the GHA. The Committee which will work under the Project Management Unit (PMU) will comprise of representatives from the environmental Unit of GHA, Planning and Development Sections of GHA, a representative each from the Tema Development Corporation (TDC), Tema Metropolitan Assembly (TMA), Kpone Katamanso District Assembly (KKDA) and representatives of the PAPs. The Committee's task, among others, is to settle amicably compensation issues.

All PAPs will be informed about grievance procedures and about the Grievance Redress Committee.

In all situations as listed in section 8.1 a two-stage approach for redressing grievances is as follows:

- Stage 1: The affected PAP may first seek recourse through GHA which has set up a Grievance Redress Committee under PMU.

- Stage 2: If the PAP is still not satisfied with the decision of GRC the PAP as a last resort may submit his or her case to the Law court (i.e. from the Magistrate Court to High Court).

8.3 Objective of the Grievance Redress System

Objective of the grievance procedure stated above seeks to address the following:

- Provide PAPs with avenues for making complaint or resolve any dispute that may arise in the course of land, structure and any assets acquisition, including the process of moving homes;
- Ensure that appropriate and mutually acceptable corrective actors are identified and implemented to address the complaints;
- Verify that complainants are satisfied with outcomes of corrective action; and
- Avoid the need to resort to judicial proceedings and there by avoid delay of the project.

CHAPTER NINE

9.0 MONITORING AND EVALUATION

9.1 Monitoring

Monitoring is a key component of the ARAP. In line with the RPF (2006) by MRH, implementation of this ARAP will be monitored regularly and will be the responsibility and obligation of Resettlement Monitoring Committee (RMC) to be set up by GHA. The Committee will comprise representatives from GHA, EPA, LVB and PAPs. The objectives of the monitoring programme are:

- To verify that project activities have been effectively completed;
- To establish how many people have successfully relocated;
- To establish what problems they are facing currently in their new locations; and
- To verify how these problems have been resolved/could be resolved.

9.2 Internal Monitoring

Internal monitoring of the implementation of the ARAP will be the responsibility of the RMC. They will oversee the resettlement preparation and implementation through regular progress reports. The main indicators that will be monitored regularly are:

- Payment of compensation to PAPs in various categories according to the compensation policy stated in RPF (2006);
- Delivery of technical assistance, relocation, payment of supplemental assistance for moving;
- Delivery of income restoration and rehabilitation assistance and entitlements;
- Public information dissemination and rehabilitation assistance entitlement; and
- Adherence to grievance procedures and issues requiring RMC's attention.

9.3 External (Independent) Monitoring

RMC will hire suitably qualified external Consultant with significant experience in resettlement for the independent monitoring resettlement plan implementation.

The objective of the external monitoring is to provide an independent periodic review and assessment of achievement of resettlement objectives changes in living standards and livelihoods and organisational effectiveness.

9.4 Monitoring Methodology

9.4.1 Survey Method

A survey will be conducted using questionnaire to interview as many persons as can be located. The questionnaire will focus on identifying the following:

- Percentage of business attained;
- Structure they occupy;
- Expansion or shrinkage;
- Problems encountered; and
- General perception of shrinkage

9.4.2 Reporting

A quarterly report will be written and submitted to GHA by the RMC. These reports will be on findings of assessment of the team and will recommended ways of assisting dislocated persons gain back their level of financial and social well-being.

9.5 Evaluation

The GHA will organize project completion workshops with government agencies, NGOs and representatives of PAPs after the completion of the compensation operations before the closure of the project. The objective the evaluation is to assess progress of the operations executed, suggest corrective measures where needed and solve pending issues.

The findings of the survey and the workshops will be presented in the Project Completion Report which will be presented by the GHA. This will be in line with the World Bank Operational Directive (OP4.12) that upon completion of the project proponent shall undertake an assessment of the ARAP to determine whether the objectives of the resettlement instrument have been achieved.

CHAPTER TEN

10.0 BUDGET

Project affected households will be entitled to compensation and assistance in accordance with Ghana's legislation and JICA's ESC. The resettlement budget for this ARAP (i.e. compensation and supplemental assistance costs), which excludes cost for administration, monitoring and evaluation is presented in Table 10.1.

Table 10.1: Number of Affected Structures and estimated cost for compensation

Road Name	Type of Structure						Total
	Building	Metal Container	Wooden Structure	Wooden Kiosk	Shed	Wooden Table	
Tema Harbour Road	1	-	-	4	-	-	5
Tema-Aflao Road	1	56	5	42	19	2	125
Tema-Akosombo Road	3	12	10	1	2	2	30
Total	5	68	15	47	21	4	160
Estimated Cost GH₵	2,155,223.00	200,810.00	65,890.00	33,360.00	33,946.00	1,000.00	-
Total Cost	**GH₵ 2,490,229.00**						

An additional 25% (GH₵622,557) of the total cost will be allocated to administration, monitoring and evaluation. This will sum up to give a grand total of **THREE MILLION ONE HUNDRED AND TWELVE THOUSAND SEVEN HUNDRED AND EIGHTY SIX GHANA CEDIS (GH₵3,112,786)** as the estimated budget to implement the ARAP. The implementation cost of this ARAP will be borne by Ghana Government.

CHAPTER ELEVEN

11.0 EXECUTING SCHEDULE AND DISCLOSURE

11.1 Executing Schedule

Table 11.1 depicts the Resettlement Action Plan schedule for major activities relating to both permanent and temporary structures.

Table 11.1 Executing Schedule for major Activities of the Resettlement Action Plan

Major Activities	Responsibility	Date/Status
Forum for stakeholders	GHA/Consultant	November 2015
Formation of Project Implementation Committee (PMU)	GHA	November 2015
Inventory of Affected persons in ROW	Consultant	November 2015
Detailed Census Survey of PAPs Declaration of Cut-off Date	GHA	2017
Review of Compensation by LVB	LVB	2017
Establish Resettlement Monitoring Committee (RMC)	GHA	2017
Payment of compensation for both permanent and temporary structures	GHA/LVB	2017
Grievance Redress measures	GHA	2017
Disclosure	GHA	2018
Completion of Report Writing	GHA	2018
Consultation with PAPs	GHA/Consultant	Completed 2018

11.2 Disclosure

This Abbreviated Resettlement Action Plan will be disclosed in Ghana by GHA. Copies will be made available at the Head office and at its website. Finally copies of the report will be distributed to the affected District Assemblies. GHA will allow JICA to disclose the ARAP electronically on its website prior to processing of the project.

REFERENCES:

- Ministry of Transportation; Ghana (2006): Resettlement Policy Framework for the Transport Sector Development Program.
- Republic of Ghana, (1999) Environmental Assessment Regulations LI1652
- Republic of Ghana, (1994) Environmental protection Agency Act 490
- World Bank (2000): Operational Directive (OP4.12), Involuntary Resettlement – The World Bank Operational Manual
- JICA Guidelines for Environmental and Social Considerations (April 2010)

ANNEXES

ANNEX 1: Minutes of Key Stakeholders Consultative Forum

THEPROJECT FOR THE IMPROVEMENT OF TEMA MOTORWAY ROUNDABOUT

ENVIRONMENTAL AND SOCIAL SURVEY

KEY STAKEHOLDERS' CONSULTATIVE FORUM

Date & Time	December11, 2015 (Friday) , 10:00 – 12:25	
Venue	Hotel Joe Carl (Conference Room), Tema	
Objective	Key Stakeholders' Consultative Forum	
Agenda	• Outline of Project • Compensation Framework for Affected Structures • Census and Socio Economic Survey of Affected Houses and Stores • Comments, Opinions, Suggestions and Questions	
Handouts	• Questionnaires, Program and Project Outlines	
Attendees	Other Organizations	JICA Survey Team
	Refer to attachment 1	• Mr. Prince Bio (JICA) • Mr. Ryohei Watanabe (Chief Consultant) • Mr. Kanji Watanabe • Mr. Robinson Shrestha • Mr. Nicholas AsareTieku

NOTES

1. Mr. Joseph Yeboah, the Director of Planning of GHA who was also the MC for the forum welcomed all to the meeting after which he offered the opening prayer. This was followed by a brief self-introduction of all participants.
2. In the absence of the Chairman for the occasion, the MC introduced the acting chairman in the person of Mr. Collins Donkor, the Regional Director of Highways, GHA, Greater Accra Region.
3. The chairman in his opening remarks mentioned the support that the GHA and for that matter the Government of Ghana had been receiving from JICA and noted that the project under discussion was one of many projects that had received the supports of JICA. He further explained that, the bottleneck which is been experienced at the Tema Motorway Roundabout, a section of the National Highway 1 (N1) is what had informed the decision into undertaking the project. He explained that the Survey Team had been undertaking some survey works at the roundabout since April, 2015 and had come up with a scope of the design which had been accepted by GHA and were going to explain to all participants.
4. The outline of the project was presented by Mr. Robinson Shrestha, a member of the Survey Team. As part of the presentation, a Traffic Simulation based on data received on

the current situation at the roundabout and on the future traffic situation after construction of the interchange was shown to all participants. He mentioned that pedestrians will not be allowed to cross the road and that an agreement had been reached with GHA to provide footbridges for pedestrians.

5. The following were the comments made and the responses given.

- A participant from TMA commended the Survey Team for a good work done. He also said that the interface between highways and urban roads can be complex due to the different functionalities and therefore requested that copies of reports presented to GHA be submitted to the TMA and DUR, Tema so they can also make their inputs before the detailed design be carried out and final draft report submitted.

In Response, Mr. Yeboah said that the Survey Team had so far submitted Inception Report and Prefeasibility Report or Interim Report. He also said that series of interactions had gone on between the GHA and the Survey Team before agreement on the design scope was reached. He however said that copies of the reports submitted by the Survey Team would be made available to those agencies as requested.

- A participant from the Progressive Car Dealers Association wanted to find out the provisions made for pedestrians in terms of crossing the roads.

In response, the MC explained that as mentioned in the presentation by the Survey Team, footbridges are being considered on all legs where necessary to enable easy crossing of the road by pedestrians.

The Chairman further explained that GHA is not constrained by funds when it comes to pedestrian movements and were therefore ready to provide the footbridges in accordance with proposed sections of the road by the Survey Team.

- A participant mentioned that plans are underway to expand the Harbor road to three lanes, but the design shown by the Survey Team indicated two lanes and wandered whether it was going to be possible to incorporate the design to the expansion in future.

In response, the Survey Team explained that traffic demand forecast they had undertaken indicated that the harbor road needed three lanes but because the design only captured the intersection, that was why it showed only two lanes. The Team further explained that the main section of the road could have three lanes, but the interchange and for that matter the flyover only required two lanes.

- A participant from ABP Consult, Mr. Asafo-Boakye indicated that the central depressed median on the motorway may not be there based on future improvement of the motorway. He therefore advised that GHA looked at how well the cross-section for the proposed intersection and the future development of the motorway could be incorporated.

  The MC responded that the advice was well noted and that GHA would make sure the best design was adopted.

6. The comments, questions and suggestions on the presentation was followed by a brief on the Framework for Compensation for Affected Structures and Persons, which was given by Ing. Mrs. Rita Ohene-Sarfo, Engineer in charge of Environmental and Social Issues at the GHA. In her brief, the following were noted:

   - The Resettlement Action Plan (RAP) would be prepared based on a framework prepared by the Ministry of Roads and Highways in 2007. Policy is available and interested persons could contact the GHA for copies.
   - Once the ROW for the project was determined, the GHA and the Land Valuation Division (LVD) of the Lands Commission would team up to identify all the properties affected and notify their owners and then issues of compensation and relocation be carried out from there.
   - The value for compensation would be determined by the LVD who are by law mandated to do that. Funds for compensation would be sought from the Government of Ghana. Right of ownership would be required and would have to be proven before any payments would be issued out.
   - In the identification of the Property Affected Persons (PAPs), if less than 200 people are identified, an abbreviated RAP would be prepared. However if the PAPs exceeds 200, a full scheme framework would be prepared.
   - Copies of the framework to be prepared would be given to TMA, TDC, and Ashiaman Municipal Assembly for technical reviews to be conducted.
   - JICA is aware of the framework and has approved of it.

7. An assessment of the valuation for compensation was done by the Chief Valuer of the GHA and the following were the issues he outlined:

   - An Executive Instrument is required before the land could be acquired for the project.
   - Compensation is a constitutional provision under the 1992 Constitution, Article 20 (1a and 1b) of the Republic of Ghana. It explains that any affected person under such circumstances must be compensated appropriately. The compensation must be fair, adequate and prompt. LVD determines the final values.
   - The opened-market values are those used for compensation and the various components that these compensations covers are Land, Structures, Loss of Business, Leases, etc.
   - By law, the claimants could prepare and present their own values to the LVD through their consultants and copies be sent to GHA.
   - In the events of any dispute, the affected party could seek redress at the Lands Tribunal, an equivalence of the High Court.

   The MC explained that the objective of the forum was to interact with the major stakeholders and that another forum would be conducted to involve all stakeholders including those from the grass root.

8. A brief was given by Mr. Asafo-Boakye on the Environmental and Social Impacts Survey to be conducted on behalf of the Survey Team by ABP Consults. He said that the assignment would be carried out ensuring that the Land take would be at its minimum possible level and also serve as a guide for the Survey Team so that the design could be economical as much as possible.

   He also said that registration of the supposed affected persons was underway and interviews are also been conducted to ascertain the emotional effect of the possible relocation of their properties. He further explained that, their initial study indicated that far less than 200 people would be affected and therefore hinted that an abbreviated RAP could be used.

   He assured all that in conducting the survey, the interest of the people would remain paramount.

   Mr. Yeboah advised that the exercise be conducted very well in order to achieve accurate results so that legal owners could be identified to avoid any future misunderstandings due to issues of multiple owners.

9. The following were some of the comments, questions and suggestions raised and the responses given on the environmental and social issues:

   - Participants from MTN and Airtel asked if the affected facilities included underground facilities and also kiosks and also asked about the fate of illegally placed kiosks.

     In Response to the question on the underground facilities, the chairman explained that if the utility line was laid with the consent of GHA, then compensation would be paid, otherwise payment of compensation becomes difficult. He advised that in the future such companies adhere to the law that has been passed regarding installation of underground facilities.

     On the issue of kiosks, the chairman explained that the affected persons would only be assisted to move them, but it needed to be in the road reservation otherwise such assistance would not be given.

- A participant from ABP asked why TDC had been issuing out license to small structures to operate in those areas where the land fell within road reserves.

  In response, an official from TDC explained that issuing out those license did not mean approval of ownership of the land but only to operate business so that could be dealt with by the assembly.

  Mrs. Ohene Sarfo added that only affected persons captured by ABP would be compensated.

- A participant advised that ABP collaborated with the Works Departments of the respective assemblies to get right affected persons. ABP agreed that it was a good suggestions and said they had noted that.
- A participant explained that compensation bothers only on proving of titles, otherwise only supplementary assistance would be given.
- A participant also made mention of the fact that, the assemblies are usually responsible for the issuance of temporal permits, which are usually for the operation of business and further added that it is the TDC that had to take a critical look at their data base and the issue at stake, since they provide permanent permits which could mean ownership of the land.

  He further went on to say that it was good the forum had been organized earlier. He said it would help to prevent issuing of license and permit to people to operate in the identified radii and especially now that it was known that such a project is going to be carried out.
- The chairman advised the assemblies to stop issuing permits to business to operate at unauthorized locations and road reserves to avoid payments of unnecessary compensations.
- A participant from MTN asked if the design made provisions for service ducts to avoid the road pavement being tempered with after construction.

  In response, the chairman explained that the GHA had a policy known as High Type Payment, which meant that any road or highway that had concrete finishing, asphaltic finishing or surface dressing cannot be crossed in anyway after construction.

  He said on such roads, service ducts are provided for hire or for sale. If any utility company felt the location of the service duct provided was not favorable, then that company needed to pay for the construction of a new duct at their desired location, under the approval of GHA.

10. The chairman in his closing remarks said that GHA will ensure that the needs of the society were taken care of and that GHA will ensure a successful implementation of the project. He assured all that the future development of the motorway would be tied to the project.

He thanked all present for coming and said that more comments and information would be welcomed even after the forum.

The closing prayer was offered by Mrs. Ruth Afutu-Kotey from the Planning Division of GHA and meeting ended at 12:25pm.

GLIMPSE OF THE FORUM






GLIMPSE OF THE FORUM






Annex 2: Attendance Sheet-Key Stakeholders' Consultative Forum

PROJECT FOR THE IMPROVEMENT OF TEMA MOTORWAY ROUNDABOUT
ENVIRONMENTAL AND SOCIAL STUDY

KEY STAKEHOLDERS' CONSULTATIVE FORUM
ATTENDANCE SHEET

VENUE: CONFERENCE ROOM, JOE CARL HOTEL DATE: 11TH DECEMBER, 2015 TIME: 10:00AM

	NAME	ORGANISATION	DESIGNATION	TELEPHONE NO.	SIGNATURE
1		DUR, Tema	Metro. Road Eng		
2		UR, TEMA	Maintenance Eng		
3		ABP Consult	Sociologist		
4		ABP Consult	ENGINEER		
5		GHA	Chief Env Offr		
6		GHA	Environmentalist		
7		GHA	Manager SR PJ, NE		
8		Tema Hospital	Administrator		
9		GITA	D COM		
10		GHA	Chief Eng		

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KEY STAKEHOLDERS' CONSULTATIVE FORUM
ATTENDANCE SHEET

VENUE: CONFERENCE ROOM, JOE CARL HOTEL **DATE: 11TH DECEMBER, 2015** **TIME: 10:00AM**

	NAME	ORGANISATION	DESIGNATION	TELEPHONE NO.	SIGNATURE
11		JICA	LOCAL CONSULTANT		
12		GPHA	Estate Mgr.		
13		GPHA	Fire Safety Mgr		
14		GPHA	Proj. Engineer		
15		DUR	MRE - [illegible]		
16		GHA	DOB		
17		GHA	Dol		
18		GHA	RHD-GAR		
19		MTN	SR. PLAN. MAN.		
20		GHA	CV		

PROJECT FOR THE IMPROVEMENT OF TEMA MOTORWAY ROUNDABOUT
ENVIRONMENTAL AND SOCIAL STUDY

KEY STAKEHOLDERS' CONSULTATIVE FORUM
ATTENDANCE SHEET

VENUE: CONFERENCE ROOM, JOE CARL HOTEL **DATE: 11TH DECEMBER, 2015** **TIME: 10:00AM**

	NAME	ORGANISATION	DESIGNATION	TELEPHONE NO.	SIGNATURE
21		Progressive Car Dealers Ass.	Tema Motorway Roundabout		
22		ASHMA	MCE		
23		GHA	Sr. Engineer		
24		Ash. Assembly	Assembly Member		
25		Airtel	Transmission Mgr		
26		Hon	MCE TEMA		
27		T.D.C	Frontal Officer		
28					
29		CTI (Study team)	Local Coord./Engineer		
30		GHA	Snr Engineer		

PROJECT FOR THE IMPROVEMENT OF TEMA MOTORWAY ROUNDABOUT
ENVIRONMENTAL AND SOCIAL STUDY

KEY STAKEHOLDERS' CONSULTATIVE FORUM
ATTENDANCE SHEET

VENUE: CONFERENCE ROOM, JOE CARL HOTEL DATE: 11TH DECEMBER, 2015 TIME: 10:00AM

	NAME	ORGANISATION	DESIGNATION	TELEPHONE NO.	SIGNATURE
32		GHA	Eng (Planning)		
33		GHA	Eng. (Plang)		
34		GHA	PTE (Planning)		
35		GHA	PTE (Planning)		
36		GHA	Eng (Planning)		

Annex 3: Meeting with Traders and Union Members (PAPs)

Meeting with Local GPRTU 15/12/2015

Meeting with PAPs on Akosombo Road 17/12/2015

Meeting with PAPs at Akosombo road, 15/12/2015

Meeting with PAPs at Akosombo road, 15/12/2015

Meeting with PAPS at the Aflao road, 17/12/2015

Meeting with PAPS at the Aflao road 17/12/2015

ANNEX 4: List of Persons to be Expropriated

LIST OF PERSONS TO BE EXPROPRIATED

NO.	NAME	PROPERTY NO.	TYPE OF STURCTURE	AMOUNT GH¢
		TEMA-AKOSOMBO ROAD		
1.		TMR 1	land and improvement	
2.		TMR 2	metal container	
3.		TMR3	metal container	
4.		TMR4	wooden structure	
5.		TMR5	wooden structure	
6.		TMR6	metal container	
7.		TMR 7	metal container	
8.		TMR8	wooden structure	
9.		TMR8^{A}	wooden structure	
10.		TMR9	metal container	
11.		TMR10	wooden structure	
12.		TMR11	metal container	
13.		TMR13	wooden structure	
14.		TMR14	metal container	
15.		TMR15	wooden structure	
16.		TMR16	wooden structure	
17.		TMR16^{A}	wooden structure	
18.		TMR16^{B}	wooden structure	
19.		TMR17	land and improvement	
20.		TMR22	land and improvement	
21.		TMR23	metal container	
		Tema- Aflao		
22.		TMR-A1	wooden klosk	
23.		TMR-A2	metal container	
24.		TMR-A3	metal container	
25.		TMR-A4	metal container	
26.		TMR-A5	metal container& shed	
27.		TMR-A6	metal container	
28.		TMR-A7	metal container	
29.		TMR-A8	metal container	
30.		TMR-A9	metal container	
31.		TMR-A10	metal container	
32.		TMR-A11	metal container	
33.		TMR-A12	metal container	
34.		TMR-A13	wooden kiosk	
35.		TMR-A14	metal container	
36.		TMR-A15	shed	
37.		TMR-A16	metal container	
38.		TMR-A17	metal container	
39.		TMR-A18	metal container	
40.		TMR-A19	metal container	
41.		TMR-A20	wooden kiosk& shed	
42.		TMR-A21	metal container	

43.		TMR-A22	Shed	
44.		TMR-A23	Land and improvement	
45.		TMR-A24	wooden kiosk	
46.		TMR-A25	metal container	
47.		TMR-A26	metal container	
48.		TMR-A27	metal container	
49.		TMR-A28	metal container	
50.		TMR-A29	wooden kiosk & shed	
51.		TMR-A30	wooden structure	
52.		TMR-A31	metal container	
53.		TMR-A32	metal container	
54.		TMR-A33	metal container	
55.		TMR-A34	wooden kiosk	
56.		TMR-A35	metal container	
57.		TMR-A36	wooden structure	
58.		TMR-A37	wooden structure	
59.		TMR-A38	wooden structure	
60.		TMR-A39	shed	
61.		TMR-A39^{A}	metal container	
62.		TMR-A40	wooden structure	
63.		TMR-41	metal container	
64.		TMR-42	metal container& shed	
65.		TMR-A43	Wooden kiosk &shed	
66.		TMR-A44	wooden kiosk&shed	
67.		TMR-A45	metal container	
68.		TMR-A46	Metal container	
69.		TMR-A47	metal container	
70.		TMR-A48	metal container	
71.		TMR-A49	metal container	
72.		TMR-A50	wooden structure	
73.		TMR-A51	metal container	
74.		TMR-A52	shed	
75.		TMR-53	metal container	
76.		TMR-A54	metal container	
77.		TMR-A55	metal container	
78.		TMR-A56	shed	
79.		TMR-A57	shed	
		Tema-Harbour		
80.		TMR- H1	Land and improvement	
81.		SA. 1	wooden table	
82.		SA..2	wooden table	
83.		SA. 3	metal container	
84.		SA. 4	metal container	
85.		SA. 5	wooden kiosk	
86.		SA. 6	shed	
87.		SA. 7	shed	
88.		S.A 8	metal container	
89.		SA. 9	metal container	
		TEMA –AFLAO ROAD(Supplemental Assistance)		

90.		SA-A.1	wooden kiosk	
91.		SA- A.2	wooden kiosk	
92.		SA-A.3	metal container	
93.		SA-A.4	wooden kiosk	
94.		SA-A.5	wooden kiosk	
95.		SA-A.6	metal container	
96.		SA-A.7	wooden kiosk	
97.		SA-A.8	metal container	
98.		SA-A.9	metal container	
99.		SA-A.10	metal container	
100.		SA-A.11	metal container	
101.		SA-A.12	shed with kiosk	
102.		SA-A.13	wooden kiosk	
103.		SA-A.14	wooden kiosk	
104.		SA-A.15	wooden kiosk	
105.		SA-A.16	metal container	
106.		SA- A.17	shed with wawa board enclosed	
107.		SA-A.18	wooden kiosk	
108.		SA-A.19	wooden kiosk	
109.		SA-A.20	metal container	
110.		SA-A.21	wooden kiosk	
111.		SA-A.22	wooden kiosk	
112.		SA-A.23	wooden kiosk	
113.		SA-A.24	metal container	
114.		SA-A.25	wooden kiosk	
115.		SA-A.26	metal container	
116.		SA-A.27	wooden kiosk	
117.		SA-A.28	wooden kiosk	
118.		SA-A.29	shed	
119.		SA-A.30	metal container	
120.		SA-A.31	metal container	
121.		SA-A.32	wooden kiosk	
122.		SA-A.33	wooden kiosk with shed	
123.		SA-A.34	wooden kiosk	
124.		SA-A.35	wooden kiosk	
125.		SA-A.36	wooden kiosk	
126.		SA-A.37	wooden kiosk	
127.		SA-A.38	metal container with Shed	
128.		SA-A.39	wooden kiosk	
129.		SA-A.40	metal container	
130.		SA-A.41	wooden kiosk	
131.		SA-A.42	wooden kiosk	
132.		SA-A.43	metal container	
133.		SA-A.44	wooden table	
134.		SA-A.45	wooden table	
135.		SA-A.46	wooden kiosk	
136.		SA-A.47	shed	
137.		SA-A.48	wooden kiosk	

138.		SA-A.49	wooden kiosk	
139.		SA-A.50	wooden kiosk	
140.		SA-A.51	wooden kiosk	
141.		SA-A.52	metal container	
142.		SA-A.53	metal container	
143.		SA-A.54	metal container	
144.		SA-A.55	wooden kiosk	
145.		SA-A.56	wooden kiosk	
146.		SA-A.57	shed	
147.		SA-A.58	wooden kiosk	
148.		SA-A.59	metal container	
149.		SA-A.60	wooden shed	
TEMA HARBOUR ROAD(Supplemental Assistance)				
150.		SA-.H.1	wooden kiosk	
151.		SA-H. 2	wooden kiosk	
152.		SA-H.3	wooden kiosk	
153.		SA-H.4	wooden kiosk	

TMR=Tema Roundabout; SA= Supplemental Assistance

ANNEX 5: CONTACTS OF PAPs INTERVIEWED

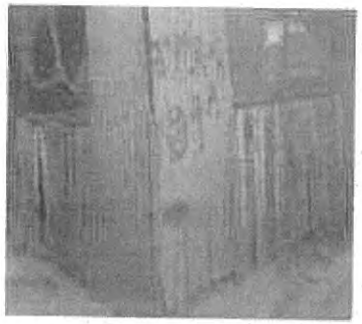
Property Identification	Owner	Contact
TMR 16A		
TMR 16B		
TMR 17		
TMR 18		
TMR 19		
TMR 1		
TMR 12		
TMR 20		
TMR 6		
TMR 5		
TMR 2		
TMR H1		
TMR H1A		
TMR 10		
TMR 3		
TMR 4		
TMR 9		
TMR 14		
TMR 15		
TMR 16		
TMR 11		
TMR A36		
TMR A37		
TMR A39		
TMR A44		
TMR A1		
TMR A 38		
TMR A46		
TMR A 41		
TMR A 42		
TMR A55		
TMR A 48		
TMR A43		
TMR A 54		
TMR A35		
TMR A51		
TMR A 14		
TMR A 27		
TMR A18		

TMR A29	
TMR A24	
TMR A 25	
TMR A21	
TMR A 17	
TMR A 16	
TMR A49	
TMR A 32	
TMR A11	
TMR A 31	
TMR A 33	
TMR A 26	
TMR A 6	
TMR A2	
TMR 13	
TMR A 10	
TMR A19	
TMR A 3	
TMR A 13	
TMR A 12	
TMR A 7	
TMR A5	
TMR A8	
TMR A4	
TMR A9	

Property Identification	Owner	Contact
SA 43		
SA 1		
SA 4		
SA 3		
SA 6		
SA 5		
SA-A 45		
SA-A55		
SA-A39		
SA-A41		
SA-A32		
SA-A49		
SA-A47		
SA-A48		
SA-A 28		
SA-A40		
SA-A51		
SA-A58		
SA-A35		
SA-A 36		
SA-A50		
SA-A38		

SA A30	
SA A12	
SA A10	
SA A15	
SA A5	
SA A21	
SA A 20	
SA A18	
SA A 16	
SA A 17	
SA A 59	
SA A 26	
SA A 29	
SA A42	
SA A7	
SA A2	
SA A 11	
SA A 8	
SA A13	
SA A5	
SA A3	
SA H1	
SA H2	
SA H3	
SA H4	

ANNEX 6 Pictures of Affected Properties Tema Roundabout




SA-A 44


SA-A 45 X


SA-A 48
X


SA-AJ6
-X


SA-A2
X


X


SA-A 22
X


X


SA-A
20
X


SA-A
20











ANNEX 7: Socio-Economic Survey Questionnaire Form

TEMA MOTORWAY ROUNDABOUT INTERCHANGE PROJECT

RESETTLEMENT ACTION PLAN

SURVEY OF PROJECT AFFECTED PERSONS

Name of District:	**Date:**	**Interviewer's Name:**
Name of Community:	**Name of Road:**	**Location of Business/Activity (Side of Road):**

A: BIO-DATA

1. **Name of Respondent:** .....
2. **Sex:** a. Male b. Female
3. **Age (in completed years)** .....
4. **Area of Residence (suburb)** ..... **House No.** ..... **Tel. No.** .....
5. **Marital Status:** a. Married b. Single c. Divorced d. Widow/er e. Separated f. Consensual Union
6. **What is the size of your household?** a. 1-3 b. 4-6 c. 7-9 d. 10-12 e. 13-15 f. 15+ **(Please fill household table on P. 2)**
7. **Are you the head of your household?** a. Yes (If yes, skip to Q. 10) b. No
8. **If no, what are you to your household head?** a. Spouse b. Father c. Mother d. Son e. Daughter f. Nephew g. Niece h. Uncle i. Aunt j. Cousin k. Other, specify .....

B. HOUSEHOLD DEMOGRAPHICS

Note. This table should be completed for all members of the household (the people who eat in the same kitchen) whether related or not. Include all immediate family members (head, spouse, parents and children) who live away for work but return home to live on a regular basis (e.g. at least once a year).

#	1. Name and Surname	2. Relation to Head of HH	3. Sex	4. Age *(estimate or actual if known)*	5. Marital Status	6. Language	7. Education	8. Occupation		9. Disabilities
								8a. Primary	8b. Secondary	
1										
2										
3										
4										
5										
6										
7										
8										
9										
10										
11										
12										

KEY TO HOUSEHOLD DEMOGRAPHICS TABLE

2. Relation to head of household	6. Language	8. Primary or secondary occupation	9. Disabilities
1. HoH 2. Spouse of HoH 3. Child of HoH 4. Spouse of child of HoH 5. Grandchild of HoH 6. Parent of HoH or of spouse of HoH 7. Other relatives living with household 8. Non-relative, living with household 9. Other *(specify)*	1. Akan 2. Ga/Adangme 3. Ewe Other (specify)	1. Farmer 2. Petty Trader (hawker, table top etc.) 3. Small/medium Trader (kiosk, 20ft container, one store) 4. Large Trader (from 40ft container, 2-room store etc.) 5. Construction 6. Oil & Gas 7. Formal employee at mining site 8. Other mining (e.g. stone or sand) 9. Artisans (wood, metal, carpentry etc.) 10. Religious leader 11. Driver (including motorbike taxi) 12. Health worker 13. Teacher 14. Caterer 15. Government employee / councillor 16. Still schooling 17. Other formal employment 18. None/unemployed (seeking formal employment) 19. Too young 20. Retired 21. Other *(specify)*	1. No disability 2. Blind 3. Physical Impairment (e.g. amputated limb, paralysis etc.) 4. Deaf / mute 5. Mental Illness 6. Other *(specify)*
3. Sex 1. Male 2. Female	**7. Education** 1. None 2. Too young 3. Primary School 4. Junior secondary School 5. Senior Secondary School 6. Tertiary (inc. university) 7. Adult education 8. Koranic School		
5. Marital Status 1. Married 2. Widowed 3. Divorced 4. Single Co-habiting			

C. INCOME, EXPENDITURE AND ASSET OWNERSHIP

1. **Average household income:**

SOURCES	AMOUNT (GH¢)			
	INCOME PER DAY	INCOME PER WEEK	INCOME PER	INCOME PER YEAR
Main				
Minor				
Rentals				
Remittances				
Other sources				

2. **Average household expenditure on the following items (GH¢):**

ITEM	AMOUNT (GHC)			
	DAILY	WEEKLY	MONTHLY	YEARLY
Food				
Transport				
Education				
Electricity				
Water				
Medicals				
Funeral				

3. **Which of these items does your household own?**

#	Type of property	Number	#	Type of property	Number
1	Private vehicle		6	Piece of Land	
2	Commercial Vehicle		7	Laptop	
3	Motorbike		8	Mobile Phone	
4	Bicycle		9	Generator set	
5	House		10	Other, specify	

D. WATER, SANITATION AND HEALTH

1. What is your source of water for domestic use? a. Pipe borne water b. Well c. borehole d. stream e. river f. lake g. Other specify .....

2. What toilet facility do you use?

a) One used by respondent's household only b) Shared with other households c) Public toilet d) Neighbour's toilet e) Bush

3. How does your household get rid of its rubbish?

a) Throw it away into the bush b) Burn it c) Bury it d) Communal Rubbish dump

e) Metal Container (skip) f. House to house collection f) other, (specify) .....

G1.2 Which 3 medical providers do you consult most frequently? 1 = first preference, 2 = second preference, 3=third preference, etc.)					
1	Community health centre/post Ranking:	2	NGO Ranking:	3	Pharmacist Ranking:
4	Public/private Hospital Ranking:	5	Traditional medicine Ranking:	6	Friend/relative Ranking:

G1.3 What is the most important reason for you selecting that medical provider as your first preference in the question above?									
1	Cost	2	Distance	3	Religious/traditional	4	Effectiveness	5	Other

G1.4 How long does it take to walk to your preferred medical provider?							
1	< 10 minutes	2	11 – 30 minutes	3	31-60 minutes	4	>1 hour

E. TRAVEL AND TRANSPORT

1. How often do you use the area proposed for the interchange?

a. Everyday b. one day per week c. once a month d. Once a quarter f. More than once a month g. Other (Specify) .....

2. What is your most frequently used mode of transport a. Taxi b. Trotro (mini bus) c. Bus (large bus eg. MMT) d. Bicycle e. Motorbike f. Walking g. Other (specify) .....

3. What is your usual destination? .....

4. What is your usual reason for using the area proposed for the interchange? a. To work b. To market (to sell) c. Business d. To shop/market e. Visit family/friends f. On errand e. other (specify) .....

5. How much does it cost your household to travel per journey per mode of transport?

Mode	Cost of passenger/journey (GHC)	Cost of luggage (large fertilizer bag) (GHC)
Taxi		
Trotro/minibus		
Large bus		
Motorbike		

6. **What is your opinion about the service provided by the following types of public transport system operating in your area? (Please tick as appropriate)**

Mode	Very	Satisfactory	Poor	No response

Taxi				
Trotro/minibus				
Large bus				
Motorbike				

F. CURRENT TRAVEL CONDITIONS

1. **What can you say about current conditions under which you travel across the area proposed for the interchange:**
   a. **Accessibility (getting in or out):**

.....

.....

   b. **Travel time (Time it takes to move in and out):**

.....

.....

2. **What are the major obstacles that happen during your journey around the proposed interchange area?**

.....

.....

3. **What are the major interventions adopted to deal with these obstacles?** .....

.....

4. **How does the current condition of the proposed interchange area affect your activities?**

.....

.....

G: STATUS/ACTIVITY

1. **What do you do here?** a. Live here b. Work here

2. **How long have you lived here?** .....

3. **What work do you do here?**

a. Trader- small ("lotto" kiosk, kiosk) b. Trader -medium (one-room store, 20ft container), c. Trader- Large concern (2+room store, 40ft container or wooden structure) d. Artisan (repairs, fabricators, hairdressers, dressmakers, etc.) e. Large company/formal business f. Hospitality services g. School

h. Clinic i. Hospital j. Other, specify .....

4. **How long have you been operating at this location?** .....

H: STRUCTURES

1. **Type of Structure:**

a. Kiosk up to (10x12ft) b. Wooden structure c. Shed d. Container (40ft) e. Container (20ft) f. Container (10ft) g. Sandcrete structure single storey h. Sandcrete structure multi-storey i. Landcrete structure j. Other (specify).....

2. **Use of Structure**
   a. Residence b. shop c. Office d. Multi use (shop/residence) e. Multi use (shops/offices)f. Multi use (shops/offices/residence) g. Multi use (offices/residence) h. Other (specify).....

3. **Ownership of Structure:**
Who owns this structure: a. Self b. Landlord/lady c. Family of user d. Don't know e. Other (specify).....

4. **Facilities available in the structure:** a. Pipe borne water b. well c. Electricity d. Telephone – Land line e. Other, specify .....

I. BUSINESS DETAILS (For businesses only)

1. **Name of Business, if any?** .....

2. **Name of Business owner** .....

2. **Name of Additional owner(s)/Users, if any**

.....

3. **How many businesses do you own in the area proposed for the interchange** .....

4. **What main products do you sell or produce or repair?** .....

5. **(For small, medium or large traders, Artisans: repairers, fabricators, hairdressers and dressmakers)**

   a. **How many good business days do you have in a week?** .....

   b. **What is your average turnover on a good day?** .....

   c. **What is your average turnover on a very bad day?** .....

   d. **What is your average daily profit?** .....

6. **(For large company, formal business, consulting firms, hospitality services)**

6a. **What is the average company turnover per month/year?** .....

6b. **How much average profit does the company make per month/year?** .....

7. How many employees, apprentices or helpers does the business have? a. None

b. No. Employees..... c. No. Apprentices..... d. No. Helpers .....

J. BUSINESS EXPENDITURE

#	ITEM	AMOUNT/DAY	AMOUNT/WEEK	AMOUNT/MONTH	AMOUNT/YEAR
1.	Electricity				
2.	Water				
3.	Telephone				
4.	Transport to work				
5.	Tax				
6.	Wages/Salaries				
7.	Other, Specify				

K.FARMLANDS/BARE LAND (for those who do not own any structure)

1. Do you own the affected farm land/Land? a. Yes B. No

2. If yes, how did you get it? a. Family land b. Out-right purchase c. Gift
d. Other (specify).....

3. If No, how did you get it? a. lease b. rent c. gift to be used for a short period d. subletting
e. Other (specify).....

4. (a) If you pay/paid cash indicate how much (in GH¢) did or do you pay for the following:

TERMS	One-time	1-Year	2-Years	5-Years	More than 10 Years
Out-right purchase/acre					
Lease/acre					
Rent/acre					

4. (b) If you pay/paid in kind, describe the arrangement:
.....

5. Farm Details (For PAPs who are using the affected land for farming)

Name of crop	Size of farm being taken by	Average Turnover	Average Profit (GH¢)
Eg. Okro	2	50 per week	15 per week

L. KNOWLEDGE ABOUT THE PROJECT

1. What have you heard about the proposed project?
.....

2. From where did you get the information .....
3. Is this your usual source of information? a. Yes (If yes, skip to section G) b. No
4. (If No), what is your usual source of information? a. Radio (station .....)
b. Friends/neighbours c. Assembly man d. Newspapers e.TV (station .....)
f. Internet Other (specify) .....

M. PROJECT IMPACTS - CONSTRUCTION PHASE (When there will be scrapping, digging of trenches, dust, noise, diversion of traffic etc.)

1. What could be the positive impacts of the project construction phase?
.....
.....
2. How can the positive impacts be enhanced?
.....
3. What could be the negative impacts of the project construction phase?
.....
.....
4. What measures should be adopted to avoid, reduce and mitigate the negative impacts?
.....
.....

N. PROJECT IMPACTS - OPERATIONS PHASE (When the speed of traffic may become faster, the view from your building may be blocked etc.)

1. What could be the positive impacts of the project operational phase?
.....
.....
2. How can the positive impacts be enhanced?
.....
3. What could be the negative impacts of the project operational phase?
.....
.....
4. What measures should be adopted to avoid, reduce and mitigate the negative impacts?
.....
.....

O. RESETTLEMENT

1. How is the relocation going to affect you and your household?

.....

2. **How should the Project make good / or compensate for the loss of your asset/business/business location?**

.....

3. **Is there alternative land available where you can relocate your activities?**

.....

4. **If yes, in which direction is it located?**

.....

5. **Who is the owner of the alternative land?**

.....

6. **How long does it take to get there?** .....
7. **How far, in kilometres, is this alternative land from your current location?** .....
8. **Apart from your current economic activity, what other ways of making an income and a living would you prefer to do?**

.....

.....

P. CONCERNS

1. **Do you have any particular concerns about the project which you will like to make known at this stage?**

.....

.....