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EGYPTIAN REFINING COMPANY
ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT
ERC HYDRO-CRACKING COMPLEX PROJECT AT MOSTOROD
APPENDIX 12.3 - TRANSPORT MANAGEMENT PLAN

ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT

ERC Hydro-Cracking Complex Project at Mostorod
FINAL VERSION

Appendix 12.3 - Transport Management Plan

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APPENDIX 12.3 - TRANSPORT MANAGEMENT PLAN

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1. INTRODUCTION

1.1 Purpose

The objective of the Transport Management Plan (TMP) is to define transport management procedures to ensure that sound practices relating to, and resulting from, transport components of the Project are incorporated into Project management policies and procedures in accordance with legal national requirements, International and European Financial Institution standards and ERC's requirements and commitments.

1.1.1 Construction Phase

As described in Chapter 12, the final version of the construction phase TMP will be prepared by the Contractor around the time of mobilising to Egypt. However, a preliminary draft TMP is presented here to enable a clear understanding of the approach and content of the Plan. At mobilisation, the Contractor will prepare all the necessary inspection procedures, transport licences and consignment notes in discussion with and as required by the relevant Egyptian Governmental Authority for Roads and Vehicles and other relevant Regulators. At this early stage, information has not been finalised for traffic flow and control measures by the Contractor and associated sub-contractors.

However, it is also the intention of the Contractor to minimise impacts on surrounding communities, minimise congestion and promote road safety in all transport related activities.

The Contractor operates Environmental Management Systems in accordance with the ISO 14000 principles and requirements (refer to Appendix 9 and 14 for additional details). Subsequently, in order to maintain certification, the Contractor must show continuous improvement in reducing their impact on the environment, including the impact associated with transport and traffic.

1.1.2 Operational Phase

During the construction phase, transport impacts will peak given the greater volumes of construction traffic in relation to the expected numbers of vehicles during Project operations. The actions and procedures adopted by the Contractor will form the basis, where relevant, to be adopted by ERC when conducting the operational phase of the Project.

1.2 Scope

The Transport Management Plan provides guidance relating to all transport activities undertaken by the Contractor in implementing this Project. All transport issues arising from the works shall be managed in accordance with the company Transport Management Plan, the requirements of the relevant Egyptian Governmental Authority for Roads and Vehicles and ERC requirements.

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The final plan will cover:

- Policies and procedures;
- Traffic management;
- Vehicle management and maintenance;
- Driver training;
- Road maintenance; and
- Community safety and liaison.

1.3 Responsibilities

1.3.1 Project Director/Project Managers

The Project Director/Project Managers are specifically responsible for:

- Ensuring the preparation and implementation of the Project Environmental Management Plan together with any Procedures and Method Statements and complies with all legislative and contract requirements.
- Representing matters relating to the Project with the Client, Project Management Consultants and the Regulatory Authorities.
- Ensuring sufficient resources (people time and money) to plan, execute and monitor environmental aspects of the contract, specifically the management of transport.
- Co-operating with internal and external audits of transport management; deciding on and implementing appropriate actions resulting from environmental audits, environmental incidents and complaints.
- Managing the relationships between the Contractor, external environmental organisations/agencies and the general public.

1.3.2 Environmental Control Supervisor

The Environmental Control Supervisor is site-based and specifically responsible for:

- Ensuring that line management is aware of its obligations and responsibilities. Co-ordinating all environmental input to the Project.
- Preparation and maintenance of the Project Environmental Management Plan (PEMP) and Transport Management Plan.
- Ensuring the Transport Management Plan, Procedures and Instructions are in place and comply with national legislation and international requirements.



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- Liaison with ERC, EEAA, transport sub-contractors, Statutory & Non-Statutory Authorities and Third Parties on all transport matters.
- Liaison on a day-to-day basis with Project Management and in particular the Construction Department at the workplace.
- Carrying out Weekly Site Inspections, transport management awareness and assisting with ERC's Road Safety Campaign.
- Development and provision of induction training and tool-box talks.

1.3.3 Yard Supervisor(s)

The Yard Supervisor(s) is responsible for:

- Ensuring Construction Site Bases (North and South Plots and Laydown areas) are kept clean and tidy at all times, as is practicable.
- Ensuring that all vehicles leaving the work site(s) are clean according to the TMP.
- Ensuring that all loads are covered and secured where necessary and that vehicles are not overloaded.
- Ensuring that all vehicles used for Project related activities are in good condition.



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2. OBJECTIVES

The Transport Management Plan has the following objectives:

- Mitigation of negative impacts resulting from transport related components of the Project's construction and operational phases.
- Enhancement of benefits that will arise from construction and operation of the refinery.
- Compliance with Egyptian legislation, lenders' requirements, as well as international guidelines and good international industry practice.
- Ongoing maintenance of goodwill and good relations with communities, civil society and the government, especially at the local level but also nationally.

To meet these objectives, ERC's (and therefore the Contractor's) strategy is to develop a plan that will involve transport management initiatives under six broad categories, as follows:

- Policies and procedures;
- Traffic management;
- Vehicle management and maintenance;
- Driver training;
- Road maintenance; and
- Community safety and liaison.

These mitigation measures are primarily aimed at reducing disturbance caused to neighbouring communities but also establish strategies for improving overall environmental performance in the context of current directives on climate change.



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3. LEGAL FRAMEWORK AND INTERNATIONAL STANDARDS

The ESIA report has been prepared to meet Lender expectations in terms of compliance with a number of environmental and social legislative requirements and guidelines, including but not limited to:

- Egyptian Legislation:
 - Egyptian Traffic Law;
 - Egyptian Environmental Affairs Agency (EEAA) Law 4 of 1994 and its Executive Regulations (ER) issued via Decree No. 338 of 1995 and amended via Decree No. 1741 of 2005; and
 - EEAA publication: “Environmental Impact Assessment (EIA) guidelines for Oil and Gas sector” (October 2001/January 2005).
- Lender requirements, which include adherence to good international industry practice including:
 - International Finance Corporation (IFC), World Bank guidelines, including the Pollution Prevention and Abatement Handbook (PPAH), (World Bank Group, April 2007) and international/European financial institution standards; and
 - Equator Principles (EP) (July 2006).
- ERC and the Contractor’s business principles and corporate commitments.

3.1.1 Company Policies and Procedures

The Project will also be governed by the policies and procedures defined by the proponent (ERC) and the EPC Contractor. As a certified ISO14001 company, the Contractor’s policies and procedures should be consistent with good international industry practice.

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4. TRANSPORT RELATED PROCEDURES

The personnel identified in Section 1.3 will be responsible for implementing the following measures together with, where applicable, the ERC Community Relations Manager and the Contractor's Induction Training Manager;

4.1 Policies and procedures

Both ERC and the Contractor will establish appropriate policies and procedures to manage transport issues including, but not limited to, vehicles, driving, labour and employment and operational health, safety and security. These documents will clearly identify the objectives and responsibilities for carrying out the actions identified by all environmental management plans, including the TMP.

The Contractor will establish policies and procedures in relation to the vehicles, and the operation thereof, that will be used by the Project. The Contractor's HSSE Division will manage the implementation of transport policies and procedures and will take primary ownership for ensuring compliance with the Transport Management Plan during the construction phase.

Control and maintenance of the Contractor's vehicles will be undertaken by the Project's Transport Department. Adherence to driver and vehicle safety standards presented in policies of the Contractor and procedures will be mandatory, as will compliance with relevant laws and regulations. All sub-contractors undertaking activities for the Contractor will be required to comply with transport and vehicle policies and procedures developed by the Contractor. All sub-contractors will be responsible for maintenance of their vehicles to the standards and requirements specified by the Contractor.

4.1.1 Affected Vehicles

Appropriate standards and policies will need to be developed for the various vehicle categories that will be used by the Contractor and its sub-contractors for project related construction activities. It is anticipated that the following classes of vehicle will be used in connection with the Project:

- Building material transport vehicles – it is anticipated that this category will consist of tippers and articulated semi-trailers delivering steel, pipes and other hardware. This will also include vehicles removing demolition debris from the site.
- Construction vehicles – these include vehicles such as dozers, graders, trucks, cranes and forklifts whose use will be restricted to activities at the building sites.
- Buses and coaches – these vehicles will vary in size from more than 12 adults to 65 adults and will be used for transporting various employment categories.



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- Light vehicles – defined as having four or more wheels (excluding four-wheeled motorcycles), a maximum seating capacity of 12 adults (including the driver) and not exceeding 4.5 tonnes gross vehicle weight rating.
- Motorcycles – this includes two-wheeled and four-wheeled (quad) motorcycles.
- Non-motorised vehicles – bicycles.

All classes of vehicles may include the following categories of vehicles being used for work related activity, and which must therefore comply with the relevant standards and policies for the class of vehicle:

- Contractor owned or leased vehicles.
- Hire vehicles (short-term and long-term).
- Sub-contractor or supplier vehicles operating on property controlled by the Contractor or project related activities.
- Private vehicles used for work related activity.

4.1.2 Required Documents and Standards

The Contractor will develop a series of standards and documents that will present the company's transport policies and procedures. The documents will describe the minimum acceptable requirements for operating the different class vehicles for work related activities of the Contractor. All employees and sub-contractors of the Contractor will be briefed on the policies and procedures and will be expected to fully comply with them. Information and standards contained within the documents will include:

- Driver qualifications and requirements.
- Maps of Project approved traffic routes and instructions prohibiting shortcuts through neighbouring communities.
- Plant and equipment requirements – this will include roll-over protection structures for certain vehicles, cargo barriers, high visibility colour, reflective taping, lighting equipment, etc.
- Driving safety – this will include compliance with local law, specific company required speed limits, night driving, incident procedures, acceptable journey times, mobile phone / radio usage, etc.
- Identification signage, which can be magnetic in cases where it may be impractical to apply permanent adhesive identification signage.
- First aid kit and safety equipment requirements for vehicles.

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It is expected that these documents and standards will be constantly revised and updated throughout the life of the project and that as and when required new ones will be produced and implemented.

4.1.3 Generic Documents and Standards

Many of the required documents and standards will be relevant to all classes of vehicles and all drivers; these will be regarded as generic policies and standards for all vehicles and drivers. All drivers and all classes and categories of vehicles being used for work related activity will be required to comply with the following documents and standards which will be developed:

- The Contractor's Driver Permit;
- The Contractor's Driving Safety Standard;
- The Contractor's Driver Code of Conduct;
- The Contractor's Passenger Code of Conduct;
- The Contractor's Road Safety Standard;
- The Contractor's Incident Reporting Procedures; and
- The Contractor's Vehicle Policy.

4.1.4 Category Specific Vehicle Documents and Standards

In addition to the generic documents and standards for vehicles and drivers, all vehicles and drivers will be subject to additional standards to be outlined in the Contractor's guidelines for each specific category of vehicle as follows:

- The required manufacturing specifications of the vehicles including vehicle colour and vehicle safety standards.
- Safety and emergency equipment requirements in vehicles.
- Lighting equipment requirements and locations.
- Reflective tape and chevron requirements and locations.
- Required identification signage.
- First aid kit requirements for each category of vehicles.

Traffic management aims to manage Project transport so as to reduce the negative impacts and enhance the positive impacts associated with the Project. This is achieved through minimising Project personnel's exposure to risk and minimising disruption to non-project use of existing roads.



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4.2 Traffic Management

During the construction phase, Project travel can be categorised as follows:

- Six entry points to the local road network have been identified. They include;
 - Ring Road West.
 - Cairo Ismailia Agricultural Regional Road North.
 - Ring Road East.
 - South East.
 - South.
 - South West.
- Routes from each of these points to the Plots and Laydown Area have been chosen. In addition, routes between the Plots and the Laydown Area have also been chosen. These routes follow the shortest paths to the destination, avoiding awkward movements and sensitive areas.
- The Northern Plot will be accessed via an existing gate from the East Bank Road.
- The existing CORC access will be used for Southern Plot traffic from the north, and a gate in the south east corner of the Plots will be used for traffic from the south.
- A preliminary site access design for the south east access has been designed to accommodate a 16.5m large articulated vehicle, and a 15 m coach, the two largest vehicles expected to access the plots. Link 13 will be used for inbound traffic from the north, whilst Link 8 will be used for outbound traffic from the north in order to minimise vehicle conflict.
- The Laydown Area also has two access links, the north one will be entry only and the south one will be exit only, to ease circulation of traffic.
- Heavy goods arrivals to be staggered as much as possible to minimise the frequency of deliveries.
- Levels of traffic to be managed as far as possible so no significant peaks occur.

During the operational phase, ERC will ensure that:

- The majority of materials and products in the operational phase will be transported by pipeline. Where transportation of workers or materials is required, it will be crucial to ensure that these transport operations are efficiently managed to reduce the numbers of unnecessary trips. This can be achieved by good project management and by ensuring vehicles are fully loaded before they travel.

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4.2.1 Traffic Control Measures

ERC and the Contractor recognise that they are a member of the wider neighbouring community and as such are committed to ensuring not only the safety of their employees but also that of the wider community in which they operate. To achieve this ERC and the Contractor will work with the relevant Egyptian authorities to prioritise traffic management controls aimed at minimising disruption and risk to other road users. ERC and the Contractor will take appropriate steps to enhance the effectiveness of these measures. The suggested controls include:

- The junction of Links 11, 12 and 14 to be controlled using traffic police at the times when the peaks of the bus traffic are expected.
- Strict driver control in regards to speed limits. These will serve to lower the speed of vehicles thereby improving the traffic environment for other road users, including pedestrians and cyclists.
- Warning signs aimed at both drivers and other road users will be erected along all routes in the project area that will be significantly impacted by the Project in order to highlight hazards.
- Demarcated pedestrian crossings will be established at appropriate points along the route to the Laydown Area.
- School zones in the vicinity of schools that operate along routes near the Project will be implemented. These crossings will have the appropriate warning signs and ERC will encourage/support manning by trained school staff at the start and finish of the school day.
- Barriers to separate vulnerable road users (pedestrians and cyclists) from vehicle traffic in high risk areas will be considered.

4.2.2 Minimising Exposure to Risk

ERC and the Contractor is committed to ensuring the safety of its workforce and as such minimising employee's exposure to risk whilst travelling is regarded as a high priority. A recent World Health Organisation (WHO) World Report on Road Traffic Injury Prevention revealed that motor vehicle crashes are the leading cause of death in the workplace in the United States, and contribute substantially to road fatality burden in other industrialised nations. Although comparable data from Egypt and other low and middle-income countries is limited, travel and vehicle use has been identified as a risk. Due to traffic conditions in Cairo, and the lack of reliable public transport, commuting to and from work poses a significant risk to the company's employees.

Factors contributing to travel and vehicle use posing a risk include:

- Poorly maintained road surfaces and road signage.
- Poor quality of other road-user vehicles.
- Limited emergency medical and recovery facilities.

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- General lack of safety measures and awareness by other road users, including pedestrians.
- Lack of enforcement of road servitudes by the authorities, resulting in commercial activity in proximity to traffic, and the absence of pavements.

Road traffic deaths and serious injuries are believed to be, to a great extent, preventable since the risk of incurring injury in a crash is largely predictable and numerous counter measures, proven to be effective, exist (WHO World Report on Traffic Injury). ERC and the Contractor will strive to minimise the exposure risk of its employees through implementation of the measures recommended in the World Health Organisation's report and detailed below.

4.2.3 Trip Reduction Measures

Reducing the amount of time spent travelling and the number of trips undertaken is an effective means of reducing exposure to risk. ERC and the Contractor will implement systems aimed at achieving this, these will include:

- Greater use of electronic means of communication as a substitute for delivering communication by road.
- Scheduled trips for regular business (including banking, purchasing, postage collection, etc.) so as to avoid unnecessary additional trips.
- Co-ordination of all trips to town centres so as to ensure they are kept to a minimum.
- Co-ordination of trips between the sites so as to avoid unnecessary travel.
- Management of commuter transport for employees to and from work to optimise the number of trips required.
- Ride sharing and carpooling to be encouraged amongst employees and incentives offered.
- Ensure trucks bringing building materials to site operate with full loads to minimise unnecessary journeys and where possible allow for direct delivery to the construction sites to minimise the need to transfer material from the Laydown Area.
- Ensure trucks removing demolition debris or operational waste are fully loaded.

4.2.4 Encouraging Use of Safer Modes of Transport

Encouraging employees to utilise safer modes of transport will minimise their exposure to risk. Although cycling and walking can bear relatively high risks, cyclists and pedestrians pose less risk to other road users when compared to drivers. ERC and the Contractor will encourage safer modes of transport by:

- Encouraging use of the company's commuter transport in preference to public transport or private transport.

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- Discouraging the use of motorcycles on public roads where the company's commuter transport is available.

4.2.5 Restricting Access to High Risk Zones

Sections of the site will be classified as High Risk Zones; these are areas in which heavy vehicles will be operating. Access to these areas will be restricted. Vehicles that are required to operate in the designated high risk zones will be equipped with the necessary safety equipment and will include:

- Flashing strobe lights mounted on the top of the light vehicle authorised to enter high risk zones.
- Telescopic poles with reflective warning flags attached mounted on light vehicle authorised to enter high risk zones.

4.2.6 Minimising Disruption to Non-Project Road Users

Recognising its part in the wider neighbouring community within which it operates ERC and the Contractor is committed to minimising the disruption caused to surroundings communities and non-project road users by its activities.

To achieve this ERC and the Contractor will implement the following measures:

- Construction-employee shifts must begin at 6.30 am so that employee bus traffic occurs at a time when low traffic is expected in the Mostorod area as other operations begin at 7.30 am.
- The routing for workers and vehicles shall remain for the operational phase as recommended for the construction phase. In addition, all sulphur and coke trips will enter and exit the local road network via the ring road, in order to minimise impact on the congested links to the south and east.
- All Project vehicles will be required to adhere to speed limits determined by ERC and the Contractor or the legal speed limit, whichever is lower, and these will be enforced and subject to monitoring.
- Reduced speed limits will be set for night driving.
- Dust suppression mechanisms, such as water spraying, will be in operation along the gravel/dirt internal roads to reduce the amount of dust created by Project vehicles travelling along the route.
- All Project related vehicles will have ERC and the Contractor's signage affixed on them.
- All Project-related vehicles will be fitted with enhanced vehicle visibility aids.

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- Driver training and the ERC and the Contractor's Driver Code of Conduct will ensure that ERC and the Contractor's drivers are at all times considerate to other road users. This will be monitored and penalties will be in place in case of a breach of code.

4.3 Vehicle Management and Maintenance

Proper management and maintenance of vehicles can mitigate impacts and reduce risks in relation to safety of drivers, passengers and other road users by reducing accident rates, reducing fuel consumption, and minimising the impacts on the environment.

4.3.1 Vehicle Maintenance Requirements

ERC will ensure that the company's vehicle fleet is maintained in accordance with the manufactures' specifications. Contractors will also be required to ensure that all their vehicles involved with the Project are maintained in accordance with manufactures' specifications. Compliance by ERC and the Contractor and its sub-contractors will include:

- All safety related specifications for vehicles must be adhered to; these include the fitting of correct tyres, with adequate tread, inflated to the manufacturers recommended pressures. Wheel washing and debris maintenance is required as part of the safety management procedures
- Routine maintenance will be of a high standard to ensure that the vehicles are safe.
- Vehicles cannot be modified in any manner that may alter the integrity of the vehicle and therefore affect the functioning of the vehicle's safety components or the vehicle's performance abilities.

4.3.2 Noise and Emission Standards

Pollutants from petrol, diesel and alternative engine fuels include carbon dioxide (CO₂), carbon monoxide (CO), nitrogen oxides (NO_x), un-burnt hydrocarbons (HC) and fine particles. CO₂ is a major contributor to greenhouse gases and consequently climate change. Vehicle pollutant levels are largely dependent on vehicle technology and maintenance. Other factors, including driving style and driving conditions, also affect vehicle pollutant emissions, but to a much lesser extent. Internationally, vehicle emissions are being reduced by improving fuel quality and setting increasingly stringent emission limits for new vehicles. ERC and the Contractor are committed to minimising its vehicle emissions.

International regulations (including WHO and the World Bank) specify an average ambient noise level of 55 dBA and 45 dBA during the day and at night, respectively, as the maximum average ambient noise levels to which residential premises should be exposed (this excludes residential premises located in industrial areas). ERC, the Contractor and its sub-contractors will ensure that these standards are adhered to wherever practicable, taking into account existing activities in the Mostorod area.

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The following issues in respect to vehicle maintenance, noise and emission standards will be addressed by ERC and the Contractor and its sub-contractors:

- All vehicles will be maintained to a standard such that their noise and emissions do not cause unnecessary and avoidable nuisance to the workforce and local communities.
- Emission levels will be considered as a factor in new vehicle selection by both ERC and the Contractor and its sub-contractors.
- ERC and the Contractor and its sub-contractors will produce Method Statements to address vehicle and equipment emission measurements and routine maintenance.
- Driving techniques that contribute to minimising vehicle emissions will be covered in ERC and the Contractor's driver training programme.

Monitoring of Project emissions will be undertaken during project operation. Details pertaining to emissions monitoring are provided in the Project Monitoring Plan (Appendix 11). In addition ERC and the Contractor will periodically undertake Project vehicle noise studies along sections of the access routes. The purpose of these studies will be to ensure that the noise emissions from Project vehicles fall within the standards set by the WHO and the World Bank.

4.3.3 Reduced Fuel Consumption

CO₂ emissions from vehicles have been demonstrated to be directly proportional to fuel consumption. As such, reducing fuel consumption is an operational cost saving mechanism and contributes to reducing vehicle emissions. ERC and the Contractor and its sub-contractors will aim to reduce fuel consumption by:

- Mechanically maintaining vehicles to manufacturer specifications so as to minimise fuel consumption.
- Driving techniques that contribute to reducing fuel consumption will be covered in ERC and the Contractor's driver training programme.
- Fuel consumption of vehicles will be monitored.

4.4 Driver Training

The purpose of Driver Training is to ensure that all Project drivers and driver trainers are suitably trained in accordance with ERC and the Contractor's driver training requirements and policies. Project drivers are regarded as all employees (including management) who utilise a vehicle for work related activities or who drive to and from work. The primary aim of driver training is to improve the safety of drivers and their ability to manage an emergency situation. All ERC and the Contractor's drivers and drivers of sub-contractors involved with the Project will be required to comply with ERC and the Contractor's driver requirements and training.

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Within one month of the implementation of the driver training programme all current employees regarded as Project drivers will be required to complete the programme. Thereafter all new drivers will be required to participate in the programme on commencement of working for ERC and the Contractor and prior to being allowed to operate any company vehicle and entering the driving work force. Sub-contractors' drivers will be required to participate in ERC and the Contractor's driver training programme before commencing work on project related activities.

Regular refresher courses will be run and attendance will be mandatory for all Project drivers.

Issues and documents that will be covered in ERC and the Contractor's driver training will include:

- ERC and the Contractor's health, safety and security standards and practices;
- ERC and the Contractor's vehicle standards and documents;
- Journey management planning;
- Better driving practices instruction;
- Pre-operation inspection;
- Vehicle safety equipment inventory and usage;
- Requirements for ERC, the Contractor and sub-contractor's drivers;
- What to do in the case of an emergency or accident;
- Roadside assistance in the case of witnessing an emergency or accident; and
- Drug and alcohol use and associated company testing policy and procedures.

All ERC and the Contractor's employees and employees of sub-contractors authorised to drive a project related vehicle will be required to:

- Provide evidence, and be in possession, of a driving licence valid in Egypt; and
- Be in possession of a valid ERC and the Contractor's Driver Permit.

ERC and the Contractor's Driver Permits will be issued by ERC and the Contractor to drivers who have met ERC and the Contractor's driver requirements and are therefore authorised to drive a project related vehicle. They will be issued to each driver and for each vehicle type after assessment and approval of driver's qualifications, skills and competency. Personnel will not be allowed to drive a vehicle on Project business if, in the option of ERC and the Contractor's HSSE representative, a driver is declared unqualified, unfit or unsuitable to drive.

No unauthorised passengers may be carried in vehicles that belong to ERC, the Contractor and its sub-contractors. All employees travelling, as a driver or passenger, will be required to adhere to the requirements of ERC and the Contractor's Driver Code of Conduct and Passenger Code of Conduct.



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Aspects of driver training and vehicle safety are also covered in the ERC and the Contractor's Operational Health and Safety Management Plan.

4.5 Road Maintenance

The following will be monitored and the necessary remediation measures (in collaboration with the pertinent responsible local authority) should be undertaken in a timely manner:

- Warning signs should always be visible and in good condition.
- Pedestrian crossings should always be visible and in good condition.
- Speed bumps, if any, should be maintained in good condition.
- Speed bumps should be regularly painted with appropriate warning signs in place.
- Pot-holes should be repaired as they develop.
- Road verges should be maintained and kept clear of vegetation.

ERC and the Contractor will be responsible for undertaking the following activities:

- ERC will ensure that the surface of the East Bank Road (Links 7 and 8) will be improved to an adequate quality before the construction phase can begin. The Contractor will be required to ensure that the quality of the East Bank Road remains at an adequate standard following completion of the construction phase. Improvements to this road will, therefore, provide a mitigating measure during the operational phase. In addition, the access arrangements designed to accommodate large trucks and coaches will remain, providing a benefit for the operational phase.
- The gravel/dirt internal roads will be routinely sprayed with water to suppress dust generated from Project related traffic.
- Project vehicles carrying loose, light material that could be deposited on the road during transportation will ensure that the loads are securely covered.
- Monitoring the condition of the road networks used for the Project and relaying the information to the relevant Egyptian authorities.

4.6 Community Safety and Liaison

As indicated in the Traffic Management component of this Transport Management Plan ERC and the Contractor recognise that they are members of the wider neighbouring community and as such are committed to ensuring not only the safety of their employees but also that of the wider community in which they operate. Traffic safety in the communities is therefore of high importance for ERC and the Contractor. Various activities and methods outlined below will be employed by ERC and the Contractor to address community safety initiatives applicable to the Project's transport

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issues. ERC and the Contractor's employees will also be exposed to traffic safety awareness programmes and campaigns in accordance with the corporate health and safety policies.

4.6.1 Construction Activity

ERC, the Contractor and its sub-contractors undertake to ensure that affected communities are informed in advance of any construction activity on the roads, or in the vicinity of roads, that will be undertaken by them and could impact on the communities. ERC and the Contractor's Community Liaison Officers will be responsible for relaying information to the communities.

Information pertaining to construction will include:

- Timing of construction work (start, duration and finish);
- Ongoing community engagement during planning of non-routine oversized deliveries to minimise disruption; and
- Anticipated impacts on communities and road users.

4.6.2 Traffic Management Measures

Appropriate traffic management control measures will be installed along the route between the various construction sites and the Laydown Area to facilitate traffic management. These may include presence of traffic police, warning signs, speed bumps (if necessary) and pedestrian crossings. Prior to installation of these measures communication with the affected communities will take place. This communication will address:

- The need and purpose of traffic control measures.
- Types of traffic controls that will be put in place.
- Planned location of traffic control measures.
- Use and functioning of the traffic controls.

Warning signs should be put in place prior to the installation of any traffic control measures. These signs should indicate the introduction of traffic control measures at specified locations.

4.6.3 Road Safety Campaign and Awareness Programmes

ERC and the Contractor will undertake a Road Safety Campaign in the affected communities. These programmes will be largely targeted at Community Based Organisations, women's groups and school children. The primary purpose of these programmes will be to educate vulnerable road users, such as cyclists and pedestrians, on the dangers of roads and traffic with an emphasis on Project-related traffic. Traffic awareness programmes will also be delivered to ERC, the Contractor and the Contractor's employees.

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ERC and the Contractor will investigate the effectiveness of various communication methods and will implement those found to be effective. Traffic safety campaigns that will be considered include:

- Pamphlets;
- Posters;
- Road side notice boards; and
- Information desks at ERC Community Information Centres.

4.7 Monitoring

ERC and the Contractor will monitor Project transport issues and compliance with the Transport Management Plan. This includes compliance by ERC and the Contractor's sub-contractors. ERC, the Contractor and its sub-contractors are responsible for managing the impacts associated with Project transport and taking the necessary actions to mitigate against any negative impacts resulting from Project transport. Various parameters have been identified to monitor Project transport issues and compliance.

4.7.1 Roles and Responsibilities

The roles and responsibilities with respect to Transport Management Plan compliance by ERC and the Contractor and its sub-contractors are described below.

ERC and the contractor shall be responsible for the following:

- Ensuring that all sub-contractors are familiar with and understand their roles, responsibilities and requirements as outlined in ERC's vehicle policies and procedures and the Transport Management Plan.
- Enforcing company, contractor and sub-contractor implementation and compliance with ERC's transport and vehicle policies and standards.
- Monitoring company compliance with the Transport Management Plan.
- Monitoring sub-contractor compliance.
- Identifying contraventions of the Transport Management Plan and the transport policies and procedures and recommending corrective actions. Work stops may be enforced in the event of serious violations that could result in serious impacts on the safety of ERC employees, sub-contractors and the community in which ERC operates or on the reputation of the Project.
- Monitoring sub-contractor performance, including against Key Performance Indicators, which include safety standards and requirements.

All sub-contractors are responsible for the following:

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- Enforcing their sub-contractors implementation and compliance with ERC and the Contractor's transport and vehicle policies and standards.
- Ensuring that their sub-contractors involved in the Project are familiar with ERC and the Contractor's vehicle policies and procedures as well as the contents of the Transport Management Plan.
- Making available all employees and their sub-contractors for attendance of ERC and the Contractor's traffic awareness programmes and traffic safety campaigns. Sub-contractors will be notified by ERC and the Contractor in writing when attendance is required.
- Making available all drivers for ERC and the Contractor's driver training programmes.
- Ensuring that all drivers are familiar with the required transport and vehicle policies.
- Implementing appropriate inspections and a monitoring programme to evaluate compliance with the Transport Management Plan and the requirements contained within it.
- Maintaining records that can be reviewed and audited by ERC and the Contractor.

4.7.2 Monitoring Indicators

Monitoring indicators that will be used by ERC and the Contractor to evaluate compliance with, and the effectiveness of, the Transport Management Plan will include a variety of parameters that are detailed in Table 1. Details on the methods of monitoring and the frequency of monitoring are also provided.

Table 1 Monitoring

Parameter	Method	Frequency
Traffic Management		
Traffic control measures	Inspection of condition of speed control measures	Weekly
	Assessment of traffic control measures	Quarterly
Employee trip reduction measures	Analysis of measures to reduce employee trips and effectiveness of employee incentives	Annually
	Analysis of employee commuter transport and effectiveness of employee incentives	Annually

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Parameter	Method	Frequency
Dust suppression mechanisms	Analysis of road wetting programme records and its effectiveness	Weekly
Vehicle Management and Maintenance		
Vehicle maintenance	Review of vehicle maintenance records	Quarterly
	Spot checks on vehicles for non-compliance	Weekly
Vehicle emissions – pollutants	Analysis of air quality monitoring data	Quarterly
Vehicle emissions – noise	Project vehicle noise emissions will be determined	Quarterly
Fuel consumption	Analysis of fuel consumption records of Project vehicles	Monthly
Driver Training and Monitoring		
Driver Training Programmes	Number of new candidates taking part in programme	Monthly
	Number of drivers taking part in new programmes that are certified by ERC and the Contractor	Monthly
	Number of drivers taking part in refresher programmes certified by ERC and the Contractor	Monthly
Incident Reports	Review of incident reports relating to drivers and vehicles	Weekly
Vehicle inspection records	Audit of vehicle inspection records	Monthly
Safety equipment	Safety equipment checks	Weekly
Road Maintenance		
Road condition status	Inspection of condition of all access road to the facility	Weekly



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Parameter	Method	Frequency
Community Safety and Liaison		
Community meetings	Report on community meetings held to address traffic safety issues	Monthly
Road Safety Campaigns	Details of campaigns, number of pamphlets, posters, etc., distributed and number of attendees	Monthly
Other		
Sub-contractor compliance	Inspection, monitoring and enforcement of sub-contractor compliance with ERC and the Contractor's transport and vehicle policies and procedures	Weekly
Annual Report	An analysis and review of transport monitoring indicators will be undertaken for the annual Transport Management Report	Annually