REPUBLIC OF LEBANON

COUNCIL FOR DEVELOPMENT AND RECONSTRUCTION

Consultancy Services For

Roads Routine Maintenance

And Rehabilitation of Remaining Roads

For Lot3 (Nabatieh, Marjayoun, West Bekaa, Rachaya, Hasbaya, Jezzine & Saida Cazas)

CDR Contract No. 20836

Final Environmental & Social Management Plan (ESMP) For Roads Routine Maintenance in Saida Caza

(Stage 1.2.b of Task 1)

January 2023

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ASSOCIATED CONSULTING ENGINEERS

B.P. 11 - 3446 BEIRUT- LEBANON

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LIST OF ACRONYMS

AASHTO	American Association of State Highway and Transportation Officials
ACE	Associate Consulting Engineers
CBD	Convention on Biological Diversity
CDR	Council of Development and Reconstruction
CO	Carbon Monoxide
CoM	Council of Ministers
EHS	Environmental, Health and Safety
ESMP	Environmental and Social Management Plans
GBV	Gender Based Violence
GRM	Grievance Redress Mechanism
IBA	Important Bird Area
ILO	International Labor Organization
LARI	Lebanese Agriculture Research Institute
MoE	Ministry of Environment
MoPWT	Ministry of Public Works and Transportation
NGOs	Nongovernmental Organizations
PIU	Project Implementation Unit
REP	Road and Employment Project
SEA	Sexual Exploitation and Abuse
UNFCCC	United Nations Framework Convention on Climate Change
VAC	Violence Against Children
WB	World Bank
WBG	World Bank Group
WHO	World Health Organization

EXECUTIVE SUMMARY – NON-TECHNICAL SUMMARY

ES1. Introduction

The Council for Development and Reconstruction (CDR) acting as an executing agency on behalf of the Lebanese Council of Ministers (CoM) awarded a contract to Associated Consulting Engineers (ACE), hereinafter the Consultant, to prepare an Environmental and Social Management Plan (ESMP) for roads routine maintenance for primary roads (including International roads/ Highways) in Saida (Lot 3) under Roads and Employment Project (REP) – Road Routine Maintenance & Rehabilitation of Remaining Roads Project. This project is funded by the World Bank (WB).

The project will be implemented over a period of five years and was extended one additional year. The Project's main objectives are to enhance transport connectivity along selected paved road sections, create short-term job opportunities for the Lebanese and Syrian communities, and support farmers engaged in crop and livestock production.

This report represents the Environmental and Social Management Plan (ESMP) for Roads Routine Maintenance activities in Saida Caza (Lot 3) in line with WB safeguard Operational Policies, guidelines and national legislation. Noting that the Project was signed before October 2018, date of effectiveness of the Environmental and Social Framework (ESF). It is worth mentioning that some roads under the REP are already under rehabilitation and that the roads presented in this ESMP are new roads eligible for maintenance.

ES2. Existing Policies, Legal and Administrative Framework

The governmental public institutions involved in the different stages of implementation of the roads project as well as its different components are CDR, Ministry of Public Works and Transportation (MOPWT), Ministry of Environment (MOE), Ministry of Labor (MOL), Ministry of Interior and Municipalities (MOIM), and the Ministry of Culture (MOC).
The various laws and regulations that road projects must abide by:

- Labor Law/1946: The Lebanese Labor Code
- Law No. 335/2001: Pursuant to the International Labor Organization ILO Convention No 128
- Law No. 400/2002: Pursuant to ILO Convention No 138
- Decree 8987/2012 Prohibition of employment of minors under the age of 18 in work that may harm their health, safety or morals
- Decree 9129/2022 - Cost of living allowance for employees and workers
- Decision 29/1/2018 - Businesses, professions, trades, and jobs that should be restricted to Lebanese only
- Decree 2761/1933 on the prohibition of wastewater discharge into water streams
- Decree 8735/1974 on the Conservation of Public Hygiene
- Law 558/1996 – Protection of forests
- MoE Decision 52/1/1996 -Requirements to protect air, water, and soil pollution
- MoE Decision 16/1/2022 – Emissions Limits Values for Air Emissions
- Law 444/2002 – Framework Law for Environmental Protection
- Decree 8803/2002 and its amendments – Organizes the activity of quarries and crushers, licensing procedures, as well as the operation, management
- Law 77/2018 – Water Law and rehabilitation of quarries.
- Law 78/2018 – Air Quality Law

- Law 80/2018 – Integrated Solid Waste Management
- Decree 11802/2008 – Occupational prevention, safety, and health in all enterprises subject to the Code of Labor
- Law 166/1933 – Antiquity Law amended by law 37/2008
- Decree-Law 118/1977 – Municipal Act
- Law 37/2008 – Cultural Policy Law
- Law 243/2012 – New Traffic Law
- Legislative Decree 340/1943 – Penal Code
- Law 58/1991 – Expropriation Law
- Law 53/2017 – Amendment of Penal Code

The World Bank Policies and Procedures: Compliance with OP/BP 4.01 on Environmental Assessment and OP/BP 4.12 on Involuntary Resettlement. According to OP/BP 4.01, a public consultation with project-affected people and local nongovernmental organizations (NGOs) must be conducted for all projects under Category A and Category B.

The WB Group (WBG) Environmental, Health and Safety (EHS) Guidelines are mandatory and need to be adopted throughout the project duration.

In addition, some international conventions and treaties are relevant to the project and are as follows: The United Nations Framework Convention on Climate Change (UNFCC), Convention on Biological Diversity (CBD), Convention 120 concerning Hygiene in Commerce and Offices, Convention 136 concerning Protection against Hazards of Poisoning Arising from Benzene, and Convention 139 concerning Prevention and Control of Occupational Hazards caused by Carcinogenic Substances and Agents.

ES3. Description of the Proposed Project

The routine maintenance works of this project will be undertaken to roads located in the Caza of Saida of the South Governorate. The total number of the proposed roads to be maintained under this project will be a representative 25% of the total Primary Roads (including International roads/ Highways) Roads in the Caza with an estimated total length of 90,000 m of primary roads in Lot 3.

The routine maintenance is targeting in the first place the primary roads, including International roads ranging from one lane in each direction with low Traffic Volume to multiple lanes in each direction with high traffic density known as Highways within the Caza of Saida and the secondary roads where and when the funds permit. The total primary roads length as per i-RAP road classification in the Caza of Saida is 80 km.

One of the road selection criteria is that the selected road should have a good condition taking into consideration that roads or section of the road that needs rehabilitation or reconstruction should be excluded.

The required maintenance activities for the proposed project will cover Incidental Repair Works, Pavement Repair Works, Concrete Repair Works, installation of Traffic control devices and maintain/repair the damaged expansion joints of highway bridges.

ES4. Baseline Environmental and Social Conditions

Topography, Geology and Hydrogeology

The Caza of Saida is located in the Governorate of South Lebanon and it is about 45 km away from the capital of Beirut. The caza of Saida is surrounded by the Mohafazah of Mount Lebanon from the north, the Cazas of Tyr and Nabatiye from the South and Southeast, and by the Cazas of Jezzine and Nabatiye from the East and Northeast. Its altitude varies between the maritime coast and the limit of the Caza of Jezzine to the east, where it reaches 500 meters. The main geological formation within the study belong to the following: Sannine Limestone, of Cenemonain age unit (C4), Dolomitic Limestone (C4a), Bluish marl and shale (C4b), Limestone and dolomitic limestone (C4c), Miocene - marly conglomerates and reef limestones (m2), White marl and marl-limestones (C6), Maameltain or Ghazir Limestone, of Turonian agre (C5), Pleistocene (Q)-(qta, qd, qcpb, qaa) and Eocene (E).

The Caza of Saida is surrounded by the Awali River from the north and the Litani River from the south. The Awali River crosses a secondary road and many streams cross the proposed secondary roads. Two streams are few meters away from PRI 055 and PRI 057. The Caza of Saida also comprises of some springs distributed at higher elevations including Ain Abou Younes (near road PRI 057), Nabaa El Qobaiaa (near road PRI 057) and Ain El Daiaa (near road PRI 057).

Climate and Meteorology

The results of Saida weather data conditions are used to describe the climate of the Caza. The lowest average temperature is 10°C, while the highest average temperature is 35°C. In Saida, most rain events fall in the winter during the months of December, January and February. However, the driest months are July and August. The wind rose for Saida indicates that the wind direction with the highest frequency within the study area is from the west to east with a speed of greater than 5 km/h.

Additional data on climate in the area was obtained from the Lebanese Agriculture Research Institute (LARI) from its station in Saida. This data represents the average temperatures and average precipitation of the year 2018.

As for the wind data, wind speed and direction data were also obtained from LARI's station in Sour which was the nearest station to the Caza.

Air Quality and Noise

In 2018, a study used the National Air Quality Monitoring Network (AQMN) data of 2014, as well as data from a long-term monitoring campaign, to assess an air quality modelling system. The study simulated air quality over Lebanon and Greater Beirut for key gas pollutants including Nitrogen Dioxide (NO2) and Particulate Matter (PM). At the time of the study, the AQMN that was installed and operated by the MoE consisted of five stations, four of which were used in the study, including two urban stations in Beirut. The long-term monitoring campaign was conducted simultaneously by the University of Saint Joseph at an urban site within Beirut City, and at a suburban location outside Beirut. The modelled annual concentration map showed that NO_2 annual concentration at Saida is around 50 $\mu g/m^3$ whereas the annual PM_{10} is around 72 $\mu g/m^3$.

Land Use/Land Cover

In Saida caza, both types of land cover are present. Some areas are urban and densely populated while others are agricultural lands. Due to the rise in urbanization and development, green spaces in the Saida Caza have declined. However, few cultivation practices still remain that range from loquat, citrus, and banana to legumes and table vegetables.

Biological Environment and Ecologically Sensitive Areas

Flora: According to a study that was conducted to define Important Plant Areas (IPAs) with exceptional botanical richness in Lebanon, the area within Saida Caza shows relatively low species richness the

value of the species richness ranges between 1 and 37 species per cell within Saida Caza. This is considered low with respect to other regions of Lebanon.

Fauna: The fauna in the Caza include marine turtles that nest on the beaches of Saida, as reported by local fishermen. Even though the area is suitable for nesting, the nesting potential is low due to increased human interferences. In addition, a species of crane has been spotted in Saida.
According to Birdlife International, there are fifteen important bird and biodiversity areas (IBAs) in Lebanon, none of which are located in the Caza of Saida.

Demographic Profile

The Caza of Saida is part of South Lebanon Governorate which has around 390,728 inhabitants (including Syrian and Palestinian refugees). The total number of Syrian Refugees in Saida Caza is 35,424. Moreover, there are 96,060 Palestinian Refugees in Saida Caza with two Palestinian refugee camps: Ain El Hilweh camp and Mieh w Mieh camp located along a secondary road. As for informal settlements, several informal settlements for refugees were established in Saida Caza. Moreover, the unemployment rate in Saida Caza is estimated at 14.3%. These informal settlements are located at proximity of the proposed primary and secondary roads and most of them are along the secondary road. In addition, some of the Syrian refugees resides in residential dwellings/apartments within the caza.

Economic Activities and Infrastructure

The main economic activities in Saida are distributed as follows: 29.6% in the wholesale, retail trade and repair sectors, 16.4% in the construction sector, 18.6% in the production of food and the manufacturing of other products, 2.2% in the agriculture and fishing sector and 1.3% in touristic sector (hotels and restaurants). Saida houses large traditional industries namely furniture and bakeries. The city also houses one of the four main and busiest commercial ports in Lebanon.

The main source of drinking water in Saida is the non-piped water supply with 76.5% connectivity
As for the public electricity network, almost all households in Saida Caza are connected to the public network (99.7%).

Education

A total of 29 schools (12 public and 17 private) are currently available in Saida. In Saida Caza, the illiteracy rate was reported to be 6% which is lower than the national rate (7.4%). This rate was found to be higher for women with an illiteracy rate of 7.2% compared to men which is 4.6%. In addition, the illiteracy rate among the elderly group was found to be greater when compared to younger age groups. The American University of Science and Technology (AUST) is at a close proximity from a secondary road, Saint Joseph University is few meters away from a secondary road and from road PRI 055, Jinan University, Lebanese University and Lebanese International University are also located near different secondary roads. In addition, The Phoenicia University is close from a secondary road.

Health Services

Saida is considered to be an important hub for health services not only for the South of Lebanon, but for the country as a whole. There are many private and public hospitals in the Caza. The Turkish Trauma and Emergency hospital is near a secondary road. Kasab Hospital and Jubeily hospitals are at few meters from a secondary road and near road PRI 055. Abed El Rahman Al Nakib Hospital is at few meters from road PRI 055. HHUMC Hammoud Hospital University Medical Center is located along a secondary road. Dalla'a General Hospital is near a secondary road. Labib Medical Center is present at proximity from a secondary road. Health Medical Center Hospital is near a secondary road. Al Janoub Hospital is far from a secondary road and from road PRI 056. Al Hamshari Hospital is along

a secondary road while Sidon Governmental Hospital is at few meters away from a secondary road. Raee Hospital is near a secondary road. Fakih Hospital and Alaa Eddine Hospital are far away from a secondary road.

Cultural Heritage

Saida city is a coastal historic city with a strategic location on the Mediterranean coast which made it a target for many civilizations and empires; each left their own trace and made Saida rich and diverse with its cultural heritage. Archeological sites and monuments in Saida include the sea castle, Khan Al-Franj (few meters away from road PRI 056), the Debbaneh palace Museum (few meters away from a secondary road) and the Audi soap Museum (few meters away from a secondary road). In addition, the area includes the Phoenician harbor and a fortress, a number of caves and the presence of Al-Nabi Sari Shrine.

Summary of Baseline

The main sensitive receptors within the Saida Caza include several rivers including El Litani River and Al Awali River, and several springs distributed at different elevations within the Caza including Ain Abou Younes (near road PRI 057), Nabaa El Qobaiaa (near road PRI 057) and Ain El Daiaa (near road PRI 057). The Awali River crosses a secondary road and many streams cross the proposed secondary road. Two streams are few meters away from PRI 055 and PRI 057.

The Caza does not include any ecologically sensitive areas nor protected areas. Moreover, there are two Palestinian refugee camps in Saida Caza (Ain El Hilweh and Mieh w Mieh camps). Ain El Hilweh camp and Mieh w Mieh camp are located along a secondary road. In addition, there are informal settlements in the Caza of Saida that are located at proximity of the proposed primary and secondary roads and most of them are along the secondary road. Many universities and educational colleges were present in the Caza too and the distances of these institutions to the proposed roads are such as The American University of Science and Technology (AUST) is at few meters away from a secondary road, Saint Joseph University is far from a secondary road and near road PRI 055, Jinan University, the Lebanese University and the Lebanese International University are few meters away from a secondary road. The Phoenicia University is far from a secondary road.

As for the health centers, The Turkish Trauma and Emergency hospital is near a secondary road. Kasab Hospital and Jubeily hospitals are few meters away from a secondary road and near road PRI 055. Abed El Rahman Al Nakib Hospital is at few meters from road PRI 055. HHUMC Hammoud Hospital University Medical Center is located along a secondary road. Dalla'a General Hospital is near a secondary road. Labib Medical Center is close to a secondary road. Health Medical Center Hospital is near a secondary road. Al Janoub Hospital is near a secondary road and road PRI 056. Al Hamshari Hospital is along a secondary road while Sidon Governmental Hospital is at few meters away from a secondary road. Raee Hospital is near a secondary road.

Moreover, there are several archaeological sites that are identified in the Caza. Khan El Franj is few meters away from road PRI 056, the Dabane Palace is at few meters away from a secondary road and near road PRI 056. The Audi soap museum is at proximity of a secondary road and slightly far from road PRI 056. In addition, the caves found in the Kharab area, are far from a secondary road.

ES5. Summary of Potential Environmental and Social Impacts during Maintenance activities

Summary of Impacts during Maintenance activities

Receptor	Impact Description	Rating	Mitigation Measure
Environmental			
Air, nearby communities and workers	Air pollution from emissions of machinery, trucks or open burning activities Potential impact on: Ain El Hilweh camp and Mieh w Mieh camp along a secondary road Informal settlements at proximity of the proposed primary and secondary roads and the ones along a secondary road The American University of Science and Technology (AUST) at 75 meters away from a secondary road Saint Joseph University at 412 meters away from a secondary road and at 271 meters away from road PRI 055 Jinan University at 70 meters away from a secondary road Lebanese University at 87 meters away from a secondary road Lebanese International University at 29 meters away from a secondary road Phoenicia University at 714 meters away from a secondary road Turkish Trauma and Emergency hospital at 170 meters away from a secondary road Kasab Hospital and Jubeily hospitals at 20 meters away from a secondary road and at 78 meters away from road PRI 055 Abed El Rahman Al Nakib Hospital at around 35 meters from road PRI 055 HHUMC Hammoud Hospital University Medical Center located along a secondary road Dalla'a General Hospital at around 180 meters away from a secondary road Labib Medical Center at 22 meters away from a secondary road Health Medical Center Hospital at 185 meters away from a secondary road	N	Prepare and abide by **Pollution Prevention Plan** that includes: **Atmospheric Emissions and Dust Management Provisions (Annex 9)** Water the ground when extremely windy Mix material in an enclosed space Cover material when transporting Prepare and abide by Emergency Preparedness and Response Plan (Annex 9) **Specific Measures Near Sensitive Receptors (Refer to Annex 3)** Speed limit for project vehicles and machinery within working areas shall not exceed 20 Km/h Ensure optimal traffic routes. Use wet suppression in the dry season, where unpaved roads, the working strip, raw material stockpiles are located <200 m from settlements

Receptor	Impact Description	Rating	Mitigation Measure
	Al Janoub Hospital at 245 meters away from a secondary road and at 270 meters away from road PRI 056 Al Hamshari Hospital along a secondary road Sidon Governmental Hospital at 15 meters away from a secondary road Raee Hospital at 250 meters away from a secondary road The Dabane Palace at 37.5 meters away from a secondary road and 107 meters away from road PRI 056 The Audi soap museum at 15 meters away from a secondary road and at 286 meters away from road PRI 056 Caves at 250 meters away from a secondary road Near densely populated urban areas Refer to Annex 3		
Air, nearby communities	Dust pollution from maintenance and excavation activities Potential impact on: Ain El Hilweh camp and Mieh w Mieh camp along a secondary road Informal settlements at proximity of the proposed primary and secondary roads and the ones along a secondary road The American University of Science and Technology (AUST) at 75 meters away from a secondary road Saint Joseph University at 412 meters away from a secondary road and at 271 meters away from road PRI 055 Jinan University at 70 meters away from a secondary road Lebanese University at 87 meters away from a secondary road Lebanese International University at 29 meters away from a secondary road Phoenicia University at 714 meters away from a secondary road Turkish Trauma and Emergency hospital at 170 meters away from a secondary road Kasab Hospital and Jubeily hospitals at 20 meters away from a secondary road and at 78 meters away from road PRI 055 Abed El Rahman Al Nakib Hospital at around 35 meters from road PRI 055	N	

Receptor	Impact Description	Rating	Mitigation Measure
	HHUMC Hammoud Hospital University Medical Center located along a secondary road Dalla'a General Hospital at around 180 meters away from a secondary road Labib Medical Center at 22 meters away from a secondary road Health Medical Center Hospital at 185 meters away from a secondary road Al Janoub Hospital at 245 meters away from a secondary road and at 270 meters away from road PRI 056 Al Hamshari Hospital along a secondary road Sidon Governmental Hospital at 15 meters away from a secondary road Raee Hospital at 250 meters away from a secondary road The Dabane Palace at 37.5 meters away from a secondary road and 107 meters away from road PRI 056 The Audi soap museum at 15 meters away from a secondary road and at 286 meters away from road PRI 056 Caves at 250 meters away from a secondary road Near densely populated urban areas Refer to Annex 3		
Nearby communities and workers	Noise pollution a result of transportation or delivery of raw materials, trucks movement, concrete mixing, drilling, construction and operation of heavy vehicle movement such as excavators Potential impact on: Ain El Hilweh camp and Mieh w Mieh camp along a secondary road Informal settlements at proximity of the proposed primary and secondary roads and the ones along a secondary road The American University of Science and Technology (AUST) at 75 meters away from a secondary road Saint Joseph University at 412 meters away from a secondary road and at 271 meters away from road PRI 055 Jinan University at 70 meters away from a secondary road Lebanese University at 87 meters away from a secondary road	N	Maintenance of vehicles and machinery Excavation and any other noisy activity only to be conducted during working hours In the case where it is absolutely necessary to conduct some activities outside the normal working hours (i.e. at night), prior approval of the concerned municipality and CDR will be obtained Set traffic speed limits **Specific Measures Near Sensitive Receptors (Refer to Annex 3)** Verify drivers' behavior with respect to driving speed Plan vehicle routes to avoid settlements where possible

Receptor	Impact Description	Rating	Mitigation Measure
	Lebanese International University at 29 meters away from a secondary road Phoenicia University at 714 meters away from a secondary road Turkish Trauma and Emergency hospital at 170 meters away from a secondary road Kasab Hospital and Jubeily hospitals at 20 meters away from a secondary road and at 78 meters away from road PRI 055 Abed El Rahman Al Nakib Hospital at around 35 meters from road PRI 055 HHUMC Hammoud Hospital University Medical Center located along a secondary road Dalla'a General Hospital at around 180 meters away from a secondary road Labib Medical Center at 22 meters away from a secondary road Health Medical Center Hospital at 185 meters away from a secondary road Al Janoub Hospital at 245 meters away from a secondary road and at 270 meters away from road PRI 056 Al Hamshari Hospital along a secondary road Sidon Governmental Hospital at 15 meters away from a secondary road Raee Hospital at 250 meters away from a secondary road The Dabane Palace at 37.5 meters away from a secondary road and 107 meters away from road PRI 056 The Audi soap museum at 15 meters away from a secondary road and at 286 meters away from road PRI 056 Caves at 250 meters away from a secondary road Near densely populated urban areas Refer to Annex 3		
Biodiversity and sensitive habitats	Disturbance of nearby areas and animal escape through noise and vibrations	N	
Water resources, soil, nearby communities	Contamination of surface water and pollution of ground water from improper disposal of wastewater from workers and of wash water coming from cleaning of machines and equipment Potential impact on:	N	Prepare and abide by **Pollution Prevention Plan** that includes: **Effluent Management Provisions** **Rainwater run-off Management Provisions (Annex 9)** Prepare and abide by Emergency Preparedness and Response Plan (Annex 9)

Receptor	Impact Description	Rating	Mitigation Measure
	Awali river along a secondary road Many streams crossing a secondary road River at 800 m away from PRI 055 River at 400 m away from PRI 057 Ain Abou Younes at 300 m away from road PRI 057 Nabaa El Qobaiaa at 230 m away from road PRI 057 Ain El Daiaa at 100 m away from road PRI 057		**Specific Measures Near Sensitive Receptors (Refer to Annex 3)** On-site concrete pouring shall be done in a way to avoid leaching to nearby water bodies. Onsite mixing of concrete shall be performed at least 40 meters away from nearby water bodies Prohibit the disposal of excess concrete mix into the environment or near water bodies
Water resources, soil, nearby communities	Water pollution due to accidental spill of oils and chemicals from trucks and from transportation of chemicals and oils Potential impact on: Awali river along a secondary road Many streams crossing a secondary road River at 800 m away from PRI 055 River at 400 m away from PRI 057 Ain Abou Younes at 300 m away from road PRI 057 Nabaa El Qobaiaa at 230 m away from road PRI 057 Ain El Daiaa at 100 m away from road PRI 057	N	Prepare and abide by a **Spill Prevention and Management Plan** under **Pollution Prevention Plan (Annex 9)** Minimize soil exposure time Minimize the use of chemicals Regular maintenance of vehicles Prepare and abide by **Waste Management Plan** and **Hazardous Materials Management Plan (Annex 9)** Prepare and abide by **Emergency Preparedness and Response Plan (Annex 9)** **Specific Measures Near Sensitive Receptors (Refer to Annex 3)** Fuel, oil or hazardous materials required to be temporarily stored onsite shall be stored within secondary containment located further than 100m from a watercourse or water body Fuel and hazardous chemical storage areas shall not be allowed within 30m of a minor watercourse, within 100m of a major watercourse, or where there is the potential for spilled fuel to enter groundwater Keep the area free of litter and garbage and prevent random disposal of waste Specific locations shall be designated for consuming food and snacks away from sensitive receptors.
Water resources	Improper disposal of cut volume may cause contamination of water bodies in rainy weather Potential impact on: Awali river along a secondary road Many streams crossing a secondary road River at 800 m away from PRI 055 River at 400 m away from PRI 057 Ain Abou Younes at 300 m away from road PRI 057 Nabaa El Qobaiaa at 230 m away from road PRI 057 Ain El Daiaa at 100 m away from road PRI 057	N	
Water resources, soil, subsoil and land	Contamination of soil and surface water bodies from the improper disposal of solid waste generated from workers and the used materials, construction waste from excavation and drilling activities Potential impact on:	N	Prepare and abide by **Waste Management Plan (Annex 9)** Reuse or recycle the generated waste whenever possible Prepare and abide by Emergency Preparedness and Response Plan (Annex 9)

Receptor	Impact Description	Rating	Mitigation Measure
	Awali River along a secondary road Many streams crossing a secondary road River at 800 m away from PRI 055 River at 400 m away from PRI 057 Ain Abou Younes at 300 m away from road PRI 057 Nabaa El Qobaiaa at 230 m away from road PRI 057 Ain El Daiaa at 100 m away from road PRI 057		**Specific Measures Near Sensitive Receptors (Refer to Annex 3)** Waste bins shall be located at a distance of over 100 m from any natural sensitive area or water bodies and over 500 m from any socioeconomic sensitive area
Energy resources	High consumption rates of electricity, fossil fuel, etc. contributing to overconsumption and depletion of fuel	N	Maintenance of the generators and trucks Light in the site offices shut down during the night Construction workers must be trained and provided with awareness sheets on efficient energy use Machinery and equipment must be turned off when not in use
Water resources	High consumption rates of water for construction related activities	N	Use water in the most efficient way and reduce wastage Regular site inspection to detect water leakages Whenever possible, use dry-cleaning instead wet cleaning Training and awareness should be raised to workers concerning water usage best practices and water conservation Proper disposal of construction waste
Water resources, soil, nearby communities	Reduction in overall ground and surface water quality due to improper disposal of construction waste	N	
Water resources, soil, subsoil and land	Depletion of natural resources due to the unsustainable extraction of borrowing material (sand, aggregates, …)	N	Ensure that the borrow material are extracted from legal sites Avoid agricultural lands to extract borrowing material
Biodiversity and sensitive habitats	Potential damage of existing flora	N	Prepare and abide by **Pollution Prevention Plan (Annex 9)** In case of any tree removal, ensure that the contractor will get a permit from the MoA
Social			
Local workers, socio-economic activities	Creation of job opportunities for local communities	P	Workers are paid their wages in full and on time
Nearby communities, socio-economic activities	Local garages will benefit from the equipment oil maintenance and residents will benefit from the rent fees of the offices and the equipment parking area.	P	
Shop owners/renters	Small snack shops and coffee stations are expected to benefit from workers buying food and drinks	P	
Foreign Workers	Temporary potential Labor Influx	N	Priority hiring to qualified local community

Receptor	Impact Description	Rating	Mitigation Measure
			GRM for local communities (public notice including GRM to be posted at relevant municipalities and on project sign boards)
Shop owners/renters	Economic Activities and its effect on the livelihood of the shop owners	N	Install overpass structures from the road to the shops Maintain a passing corridor within the alignment to grant access to nearby properties Ensure that access to small snack and coffee stations is not blocked by installing wooden boards where necessary Inform the shops' owners ahead of time about maintenance date and coordinate with relevant municipalities Regularly inform road users and local communities in relation to changed traffic conditions or access Proper installation of sign boards in culturally appropriate languages that are clear and understandable to the public Timely completion of the maintenance activities Ensure access to external GRM (public notice including GRM to be posted at relevant municipalities and on project sign boards) Prepare and abide by Traffic Management Plan (Annex 9)
Foreign workers influx	Discrimination from the local community against the potential influx of foreign workers	N	Prevent discrimination at the workplace Conduct awareness campaigns for the local community regarding foreign workers influx Inform the local community that worker will sign code of conduct before starting the work GRM for local communities and all relevant stakeholders
Locals and foreign, skilled and unskilled)	Possible unequal wage benefits between local and foreign workers	N	Ensure that all workers (locals and foreign, skilled and unskilled) shall be compensated and are contracted equally as per the scale of market price rates, have equal contractual benefits and working conditions, and have access to internal GRM
Local and foreign children	Possible recruitment of children who are under the legal age as workers on the site, especially in the case of the day laborers	2N	Daily registrations of workers and verification of their age to prevent child labor Abide by the National Labor Law Ensure the contractor is aware of the penalties that Labor Law imposes in the case of child labor Oblige the contractor to strictly abide by the Labor Law through the CDR tender documents that should include prohibition of child labor
Nearby communities, socio-economic activities	Disruption of local community to access services due to maintenance activities and temporal road closures	N	Prepare and abide by **Traffic Management Plan (Annex 9)** Traffic shall be secured via alternative routes to reach relevant destinations in case the works imply the temporary closure of this road

Receptor	Impact Description	Rating	Mitigation Measure
			Inform the local community about the location of detours, road blockages or diversions through public announcements and proper diversion signage Ensure access to external GRM (public notice including GRM to be posted at relevant municipalities and on project sign boards)
Existing infrastructure and nearby communities	Damage of existing infrastructure	N	Regular coordination with relevant municipalities Conducting trial pits Ensure access to external GRM (public notice including GRM to be posted at relevant municipalities and on project sign boards)
Nearby communities	Potential occurrence of gender-based violence and sexual exploitation and abuse incidents and all forms of GBV incidents Potential impact on: Ain El Hilweh camp and Mieh w Mieh camp along a secondary road Informal settlements at proximity of the proposed primary and secondary roads and the ones along a secondary road	N	Draft Codes of Conduct and the guidelines for a GBV and VAC Action Plan Conduct training sessions for workers on Sexual Exploitation and Abuse and/or Sexual Harassment All workers should understand, and sign codes of conduct written in their native language Respond to the reported incidents of sexual abuse exploitation as a matter of priority Regular training on gender-based aspects, internal and external GRM that includes an anonymous channel for protection of complainants' identity and confidentiality Availability of a GRM with multiple channels to initiate a GBV complaint, which ensures confidential reporting with safe and ethical documenting of GBV cases, including Sexual Exploitation and Abuse and Sexual Harassment GRM will be sensitive to complaints related to SEA/SH grievances and ensure implementation of the necessary referral pathways Ensure that there is a survivor centric approach for SEA/SH complaints and trained personnel handling these calls
Nearby communities	Slight increase in traffic due to the transport of construction materials or due to the material that may fall Potential impact on: Near densely populated urban areas Ain El Hilweh camp and Mieh w Mieh camp along a secondary road Informal settlements at proximity of the proposed primary and secondary roads and the ones along a secondary road The American University of Science and Technology (AUST) at 75 meters away from a secondary road	N	Prepare and abide by **Traffic Management Plan (Annex 9)** Ensure traffic is not blocked during transportation Inform residents and place signs near the working areas in culturally appropriate languages and written in clear and understandable manner Ensure communities have access to GRM Cover transported material Abide by traffic regulations Operate well maintained vehicles

Receptor	Impact Description	Rating	Mitigation Measure
	Saint Joseph University at 412 meters away from a secondary road and at 271 meters away from road PRI 055 Jinan University at 70 meters away from a secondary road Lebanese University at 87 meters away from a secondary road Lebanese International University at 29 meters away from a secondary road Phoenicia University at 714 meters away from a secondary road Turkish Trauma and Emergency hospital at 170 meters away from a secondary road Kasab Hospital and Jubeily hospitals at 20 meters away from a secondary road and at 78 meters away from road PRI 055 Abed El Rahman Al Nakib Hospital at around 35 meters from road PRI 055 HHUMC Hammoud Hospital University Medical Center located along a secondary road Dalla'a General Hospital at around 180 meters away from a secondary road Labib Medical Center at 22 meters away from a secondary road Health Medical Center Hospital at 185 meters away from a secondary road Al Janoub Hospital at 245 meters away from a secondary road and at 270 meters away from road PRI 056 Al Hamshari Hospital along a secondary road Sidon Governmental Hospital at 15 meters away from a secondary road Raee Hospital at 250 meters away from a secondary road The Dabane Palace at 37.5 meters away from a secondary road and 107 meters away from road PRI 056 The Audi soap museum at 15 meters away from a secondary road and at 286 meters away from road PRI 056 Caves at 250 meters away from a secondary road Refer to Annex 3		
Nearby communities	Traffic congestion in the town due to temporal road closure Potential impact on:	N	

Receptor	Impact Description	Rating	Mitigation Measure
	Near densely populated urban areas Ain El Hilweh camp and Mieh w Mieh camp along a secondary road Informal settlements at proximity of the proposed primary and secondary roads and the ones along a secondary road The American University of Science and Technology (AUST) at 75 meters away from a secondary road Saint Joseph University at 412 meters away from a secondary road and at 271 meters away from road PRI 055 Jinan University at 70 meters away from a secondary road Lebanese University at 87 meters away from a secondary road Lebanese International University at 29 meters away from a secondary road Phoenicia University at 714 meters away from a secondary road Turkish Trauma and Emergency hospital at 170 meters away from a secondary road Kasab Hospital and Jubeily hospitals at 20 meters away from a secondary road and at 78 meters away from road PRI 055 Abed El Rahman Al Nakib Hospital at around 35 meters from road PRI 055 HHUMC Hammoud Hospital University Medical Center located along a secondary road Dalla'a General Hospital at around 180 meters away from a secondary road Labib Medical Center at 22 meters away from a secondary road Health Medical Center Hospital at 185 meters away from a secondary road Al Janoub Hospital at 245 meters away from a secondary road and at 270 meters away from road PRI 056 Al Hamshari Hospital along a secondary road Sidon Governmental Hospital at 15 meters away from a secondary road Raee Hospital at 250 meters away from a secondary road The Dabane Palace at 37.5 meters away from a secondary road and 107 meters away from road PRI 056		

Receptor	Impact Description	Rating	Mitigation Measure
	The Audi soap museum at 15 meters away from a secondary road and at 286 meters away from road PRI 056 Caves at 250 meters away from a secondary road Refer to Annex 3		
Nearby communities, socio-economic activities	Material falling from vehicles during transport may cause traffic accidents or congestion Potential impact on: Near densely populated urban areas Ain El Hilweh camp and Mieh w Mieh camp along a secondary road Informal settlements at proximity of the proposed primary and secondary roads and the ones along a secondary road The American University of Science and Technology (AUST) at 75 meters away from a secondary road Saint Joseph University at 412 meters away from a secondary road and at 271 meters away from road PRI 055 Jinan University at 70 meters away from a secondary road Lebanese University at 87 meters away from a secondary road Lebanese International University at 29 meters away from a secondary road Phoenicia University at 714 meters away from a secondary road Turkish Trauma and Emergency hospital at 170 meters away from a secondary road Kasab Hospital and Jubeily hospitals at 20 meters away from a secondary road and at 78 meters away from road PRI 055 Abed El Rahman Al Nakib Hospital at around 35 meters from road PRI 055 HHUMC Hammoud Hospital University Medical Center located along a secondary road Dalla'a General Hospital at around 180 meters away from a secondary road Labib Medical Center at 22 meters away from a secondary road Health Medical Center Hospital at 185 meters away from a secondary road	N	

Receptor	Impact Description	Rating	Mitigation Measure
	Al Janoub Hospital at 245 meters away from a secondary road and at 270 meters away from road PRI 056 Al Hamshari Hospital along a secondary road Sidon Governmental Hospital at 15 meters away from a secondary road Raee Hospital at 250 meters away from a secondary road The Dabane Palace at 37.5 meters away from a secondary road and 107 meters away from road PRI 056 The Audi soap museum at 15 meters away from a secondary road and at 286 meters away from road PRI 056 Caves at 250 meters away from a secondary road Refer to Annex 3		
Health and Safety			
Workers	Accident and injuries to workers and public because of maintenance activities	2N	Develop a site-specific **Public Health and Safety Plan and Occupational Health and Safety (Annex 9)**
Nearby communities	Dust generation and noise may cause health related problems for workers and disturbance to residents Potential impact on: Near densely populated urban areas Ain El Hilweh camp and Mieh w Mieh camp along a secondary road Informal settlements at proximity of the proposed primary and secondary roads and the ones along a secondary road The American University of Science and Technology (AUST) at 75 meters away from a secondary road Saint Joseph University at 412 meters away from a secondary road and at 271 meters away from road PRI 055 Jinan University at 70 meters away from a secondary road Lebanese University at 87 meters away from a secondary road Lebanese International University at 29 meters away from a secondary road Phoenicia University at 714 meters away from a secondary road Turkish Trauma and Emergency hospital at 170 meters away from a secondary road	N	

Receptor	Impact Description	Rating	Mitigation Measure
	Kasab Hospital and Jubeily hospitals at 20 meters away from a secondary road and at 78 meters away from road PRI 055 Abed El Rahman Al Nakib Hospital at around 35 meters from road PRI 055 HHUMC Hammoud Hospital University Medical Center located along a secondary road Dalla'a General Hospital at around 180 meters away from a secondary road Labib Medical Center at 22 meters away from a secondary road Health Medical Center Hospital at 185 meters away from a secondary road Al Janoub Hospital at 245 meters away from a secondary road and at 270 meters away from road PRI 056 Al Hamshari Hospital along a secondary road Sidon Governmental Hospital at 15 meters away from a secondary road Raee Hospital at 250 meters away from a secondary road Visitors of the Dabane Palace at 37.5 meters away from a secondary road and 107 meters away from road PRI 056 Visitors of the Audi soap museum at 15 meters away from a secondary road and at 286 meters away from road PRI 056 Caves at 250 meters away from a secondary road Refer to Annex 3		

ES6. Environmental and Social Management and Monitoring Plans

Continuous monitoring during the implementation of the maintenance activities will be required to ensure the effectiveness of the proposed mitigation measures. Monitoring shall include:

- Observe dust dispersion and measure total suspended particles, PM10, PM 2.5, SOx, NOx and CO when a significant amount of air pollutants are generated
- Check for leakages in the connections between the porta cabin toilets and the existing network or polyethylene tank
- Check the discharge endpoint of the pumped wastewater from the polyethylene tank
- Ensure an active solid waste management plan
- Ensure active spill prevention and management plan
- Inspect the quantities and types of the used fuel and oils
- Inspect water quantities
- Monitor the different drilling and construction activities

- Ensure active spill and accident prevention plan
- Check the infrastructure locations and that excavation works do not interfere with it
- Ensure Site Observation
- Check traffic conditions during transportation of materials
- Ensure traffic is not blocked
- Ensure traffic is relocated properly
- Ensure all safety precautions are abided by
- Ensure the proportion of Lebanese vs Syrian workers
- Check Worker's age
- Check GRM log
- Ensure that all workers are committed to prevent and report sexual abuse and exploitation incidents
- Ensure signs are in place before works begin
- Ensure that all workers are wearing their PPEs
- Record injuries and accidents within the workers
- Ensure the installation of pedestrian and vehicular passages near residential areas
- Ensure road diversion and construction attention signs are in place before works begin
- Record injuries and accidents with passers-by
- Ensure the development of a site-specific Occupational and Public Health and Safety Plan, and that the best practices are applied

ES7. Consultation, Disclosure and GRM

The purpose of conducting public consultation is to inform the stakeholders and the local NGOs about the proposed project and the routine maintenance activities that will be executed in Saida Caza and to take into account their concerns and feedback. Due to the Covid-19 situation in Lebanon at the moment and high level of community transmission, public consultation was held virtually on Monday, 7 February 2022 using Zoom Application. In addition to the unions and municipalities, local and international NGOs were invited to the public hearing but did not attend the session. A total of 24 participants attended the session out of which 7 were women. The proceedings which describe in detail the raised concerns and complaints by the participants and how all have been addressed are presented in this ESMP.

In addition, a formal grievance readiness mechanism (GRM) will be implemented during maintenance activities. The purpose of a GRM is to ensure that all feedback and complaints received from stakeholders, customers, employees, contractor staff and the public in general are documented, considered and addressed in an acceptable and timely manner. It is important to note that this mechanism will be shared with the participants and two mechanisms are used for filing a grievance, one for the surrounding communities and one for the workers. Moreover, GRM will be disseminated to the affected municipalities prior to roads routine maintenance works. The GRM will also be responsible for tracking and resolving worker grievances and maintain records about grievances/complaints received, recommendations and resolutions made and notice of resolution of grievance to the complainant. In addition, the GM will be sensitive to complaints related to SEA/SH grievances and ensure implementation of the necessary referral pathways. The online GRM form that is designed for the REP at the CDR level can be used in the meantime.

1. INTRODUCTION

1.1 Project Background

The Council for Development and Reconstruction (CDR) acting as an executing agency on behalf of the Lebanese Council of Ministers (CoM) awarded a contract to Associated Consulting Engineers (ACE), hereinafter the Consultant, to prepare an Environmental and Social Management Plan (ESMP) for roads routine maintenance for primary roads in Saida (Lot 3) under Roads and Employment Project (REP) – Road Routine Maintenance & Rehabilitation of Remaining Roads Project. This project is funded by the World Bank (WB). *See more about the Project in Section 3.*

The Roads and Employment Project covers classified roads[1] in 25 Cazas[2] throughout Lebanon with an expected total length of 835 km and grouped in six (6) lots. The project will be implemented over a period of five years and was extended one additional year. The Project's main objectives are to enhance the transport connectivity along selected paved road sections, to create short-term job opportunities for the Lebanese and Syrian communities and to support farmers engaged in crop and livestock production.

This report represents the Environmental and Social Management Plan (ESMP) for Roads Routine Maintenance activities in Saida Caza (Lot 3) in line with WB safeguard Operational Policies, guidelines and national legislation. Noting that the Project was signed before October 2018, date of effectiveness of the Environmental and Social Framework (ESF). It is worth mentioning that some roads under the REP are already under rehabilitation and that the roads under this ESMP are new roads eligible for maintenance.

1.2 Project Rationale

Lebanon has a total of around 21,705 km of roads including international, primary and secondary roads (World Bank, 2017) along with a highway network linking the country with Syria (WFP, 2016). Despite this large road network coverage, a significant percentage of these roads is in poor condition. This situation hinders local and economic development mainly in rural and lagging regions, where the condition of the main network is worse than the national average. Moreover, this state has been aggravated by the influx of Syrian refugees which has significantly increased traffic and the utilization of the road network (CDR, 2018). As such, the proposed project aims to improve the efficiency of road sector expenditures through the prioritization of road works and the improvement of road asset management techniques (CDR, 2018).

The objectives of Component 1 of this assignment, which is Roads Rehabilitation and Maintenance are to (1) Carry out a program of activities to rehabilitate, upgrade and maintain selected roads, including road safety and spot improvements ("Sub-projects") and (2) Provide technical assistance for the design, procurement and supervision of said Sub-projects and for preparation of Safeguards Instruments for the Project. This ESMP will only cover the planned routine maintenance works for classified primary roads (including International roads/ Highways) in Saida Caza.

1.3 Report Objectives

This ESMP has the following objectives:

[1]Classified roads are based on the official Ministry of Public Works road classification which classifies the roads in Lebanon as primary, secondary or tertiary.

[2]Lebanon is divided administratively into three levels: Governorates (محافظات), cazas or districts (أقضية), and municipalities (بلديات). There are eight governorates, 26 districts, and 1,029 municipalities in the country (as of the 2016 municipal elections).

- Describe all activities of the project;
- Identify relevant environmental and social national, international and WB policies and regulations;
- Conduct public consultation to identify public concerns regarding the project and to feed into project design to the extent possible;
- Describe baseline environmental and socio-economic conditions within the study area;
- Identify the significant positive and negative environmental and social impacts associated with the implementation of the proposed project;
- Propose mitigation / enhancement measures for the identified impact whenever possible;
- Facilitate informed decision making, including setting the environmental terms and conditions for implementing the proposed project;
- Develop a plan to monitor the identified impacts and their associated mitigation measures;
- Develop an institutional setup along with capacity building requirements.
- Develop a Grievance Redress Mechanism (GRM) for the Project.

1.4 Methodology

This ESMP of the Road Routine Maintenance & Rehabilitation of Remaining Roads Project in Saida Caza (Lot 3) was prepared to cover Roads Routine Maintenance of Component 1 "Roads Rehabilitation and Maintenance" during maintenance and to assess the likely environmental and social consequences of these activities and identify mitigation/enhancement measures. As such, the task was initiated by conducting literature review in order to define the current environmental and social conditions, along with relevant local and WB legislations, guidelines, and standards. In addition, the environmental team communicated closely with the technical team in order to obtain the necessary information the proposed maintenance activities, thus describing the proposed project in a thorough manner. In terms of the assessment, negative and positive impacts were identified and mitigation measures were proposed to address the negative ones. As such, an ESMP was developed and included a monitoring plan, which is needed to ensure compliance of the project with environmental and social conditions and regulations.

Based on the current institutional setup of the Roads and Employment Project, the institutional setup and the requirements for capacity development was described to ensure that project implementers have sufficient technical and human resources available to effectively undertake the environmental and social management and monitoring tasks. As for the participation of the public and concerned entities, this was done through conducting public consultation to which stakeholders and local community were invited to participate. Consultation was held on February 7, 2022 virtually and results are included in this report.

2. POLICY, LEGAL & ADMINISTRATIVE FRAMEWORK

2.1 National Environmental and Social Legal Framework

The maintenance works of roads involve a variety of activities that need to abide by national legislations. Table 2-1 describes a legal framework governing the routine maintenance activities for Saida Caza that is part of Lot 3.

Table 2-1: National Legal Framework related to Project

Law / Decree / Decision	Relevant Provisions
Labor	
Labor Law/1946 - The Lebanese Labor Code	The Labor Law covers the industrial accident prevention and compensation. It regulates the minimum wage, the minimum age of employment based on their ages and the workplaces, resting periods and vacations for adolescent workers. It also sets the working hours, and the penal code regulation of strikes and lock out in essential employments
Law No. 335/2001 - Pursuant to International Labor Organization (ILO) Convention No 128	This ratified convention addresses the minimum age of employment
Law No. 400/2002 - Pursuant to the ILO Convention No 138	Elimination of the worst form of child labor
Decree 8987/2012 - Prohibition of employment of minors under the age of 18 in work that may harm their health, safety or morals	This Decree restricts the employment of minors under the age of 18 in activities and works that can be harmful to their health, morals and that can limit their education
Decree 9129/2022 - Cost of living allowance for employees and workers	This Decree sets the minimum wage of the cost of living allowance for employees and workers subject to the Labor Law
Decision 29/1/2018 - Businesses, professions, trades, and jobs that should be restricted to Lebanese only	Restricts significant number of jobs to Lebanese only and allows Syrians to occupy jobs that are not restricted to Lebanese especially in the construction sector
Environment	
Decree 2761/1933 - The prohibition of wastewater discharge into water streams	States the characteristics of channels and reservoirs where wastewater is discharged. In addition to the prohibition of its discharged into natural environment
Decree 8735/1974 - Conservation of Public Hygiene	Solid waste management including collection and disposal is under the control of the municipality. It restricts dumping of wastes in public or private lands adjacent to roads and residential districts
Law 558/1996 - Protection of forests	Classifies protected forests and defines the prohibited activities and works into the mentioned forests. It also contains offences and penalties.
MoE Decision 52/1/1996 -Requirements to protect air, water, and soil pollution	Allowable noise level according to type of areas and the permissible duration of exposure
MoE Decision 16/1/2022 - Emissions Limits Values for Air Emissions	Sets limits for air emissions and specify the parameters that need be measured according to the sector and the facilities
Law 444/2002 - Framework Law for Environmental Protection	Protect the national environment against all forms of degradation, air and water and soil pollution, and the promotion of sustainable use of natural resources and conservation of biodiversity
Decree 8803/2002 and its amendments - Organizes the activity of quarries and crushers, licensing procedures, as well as the operation, management and rehabilitation of quarries.	Ensures the provision of construction material and the disposal of construction waste comply with the decree
Law 77/2018 - Water Law	Tackles protection of water resources from pollution and management and monitoring of public wastewater treatment facilities
Law 78/2018 - Air Quality Law	The investment in any facility or establishment that emanate foul or toxic odors should abide by the different environmental conditions issued by a decision from MoE
Law 80/2018 - Integrated Solid Waste Management	Covers the management of non-hazardous and hazardous waste, and responsibilities and penalties related to violations of waste management laws

Law / Decree / Decision	Relevant Provisions
Health and Safety	
Decree 11802/2008 - Occupational prevention, safety, and health in all enterprises subject to the Code of Labor	Provides the general regulations for the prevention of occupational hazards and accidents, and the promotion of health and safety in all industrial establishments subject to the Labor Law. These cover prevention and safety, occupational health, the safe use of chemicals at work, as well as occupational noise standards
Cultural and Municipal	
Law 166/1933 - Antiquity Law amended by law 37/2008	This law defines heritage and antiquity, identifies its ownership, states legislation for excavation and judicial procedures due to violation
Decree-Law 118/1977 - Municipal Act	Defining the responsibilities of municipalities
Law 37/2008 - Cultural Policy Law	Any archaeological artefact located in Lebanon and deemed to be of historical, artistic, architectural or anthropological significance by the Ministry of Culture must be protected
Traffic	
Law 243/2012 - New Traffic Law	Provide general driving rules and defines the penalties upon violation of the law
General	
Legislative Decree 340/1943 - Penal Code	The law defines the type of crimes such as rape; lewd acts by threat, violence, or against minors; and other similar crimes. It also states punishments and legality of penalties
Law 58/1991 - Expropriation Law	States general and specific provisions for land acquisition. Also is includes improvement tax resulting from the implementation of public works. Despite that no expropriation activities will be done; this law is added because OP 4.12 was triggered by the project
Law 53/2017 - Amendment of Penal Code	Under sexual violence Article 522 of the Penal Code exonerated a perpetrator of kidnapping and adultery who married his victim. This was repealed in this law

In terms of the national legal requirements for maintenance, Lebanon uses the American Association of State Highway and Transportation Officials (AASHTO) 4th edition "Maintenance Manual for Roadways and Bridges" of 2007.

Numerous governmental public institutions will be involved in the different stages of the ESMP of the REP. These include:

- Council for Development & Reconstruction
- Ministry of Public Works and Transportation
- Ministry of Environment
- Ministry of Agriculture
- Ministry of Labor
- Ministry of Interior and Municipalities / Municipalities
- Ministry of Culture

2.2 Word Bank Policies

The WB policies that are applicable to this project are represented in Table 2-2. Furthermore, additional information will be provided for each World Bank policy.

Table 2-2: World Bank Policies

WB Policies	Description
Safeguards Policies	Compliance with OP/BP 4.01 on Environmental Assessment and OP/BP 4.12 on Involuntary Resettlement
Access to Information	The WB allows access to any information in its possession that is not on a list of exceptions

WB Policies	Description
Consultation and Disclosure Policy	According to OP/BP 4.01, a public consultation with project-affected people and local nongovernmental organizations (NGOs) must be conducted for all projects under Category A and Category B
Guidelines and Manuals	The WB Group (WBG) Environmental, Health and Safety (EHS) Guidelines are mandatory and need to be adopted throughout the project duration. In addition, the WB has developed guidelines and manuals that need to be adopted during the ESMP implementation phase of the project

2.3 International Treaties and Conventions

Table 2-3 presents the international conventions that Lebanon is a signatory to whose provisions may be relevant to the project.

Table 2-3: Relevant International Treaties and Conventions

Convention	Ratification
United Nations Framework Convention on Climate Change (UNFCCC) - 1992	Ratified through Law No. 359 (1994)
Convention on Biological Diversity (CBD) - 1992	Ratified through Law No. 360 (1/8/1994)
Convention 120 concerning Hygiene in Commerce and Offices	Ratified by Lebanon in 1977
Convention 136 concerning Protection against Hazards of Poisoning Arising from Benzene	Ratified by Lebanon in 2000
Convention 139 concerning Prevention and Control of Occupational Hazards caused by Carcinogenic Substances and Agents	Ratified by Lebanon in 2000

2.4 Environmental Health and Safety (EHS) Guidelines of the WB

Table 2-4 showed the EHS guidelines of the WB as well as the national regulations that must be abided by for wastewater and ambient water quality, air emissions and ambient air quality and noise management.

Table 2-4: WBG EHS Guidelines and National Regulations

General EHS Guidelines	National Regulations
World Health Organization (WHO) Guidelines for Ambient Air Quality of 2005	National Ambient Air Quality Standards of MoE Decision 52/1/1996
WHO Noise Level Guidelines	Noise Standards as per MoE Decision 52/1/1996

3. DESCRIPTION OF THE PROPOSED PROJECT

3.1 Location

The routine maintenance works of this project will be undertaken to roads located in the Caza of Saida of the South Governorate. The total number of the proposed roads to be maintained under this project will be a representative 25% of the total Primary Roads including International roads ranging from one lane in each direction with low traffic volume to multiple lanes in each direction with high traffic density known as Highways, in the Caza with an estimated total length of 90,000 m of primary roads in Lot 3.

The routine maintenance is targeting in the first place the primary roads (including. International Roads/ Highways) within the Caza of Saida, and the secondary roads where and when the funds permit. The total primary roads length as per i-RAP road classification in the Caza of Saida is 80 km (Table 3-1).

Table 3-1: Primary Roads in Saida Caza

Caza Saida		
Road Code	**i-RAP Classification**	**Length [Km]**
PRI 055	Primary Road	6.7
PRI 056	Primary Road	4.2
PRI 057	Primary Road	7.1
INT 003	International	32.5
INT 005	International	7.6

The map below (Figure 3-1) shows the primary including. International Roads/ Highways) and secondary roads eligible for maintenance in the Caza of Saida.

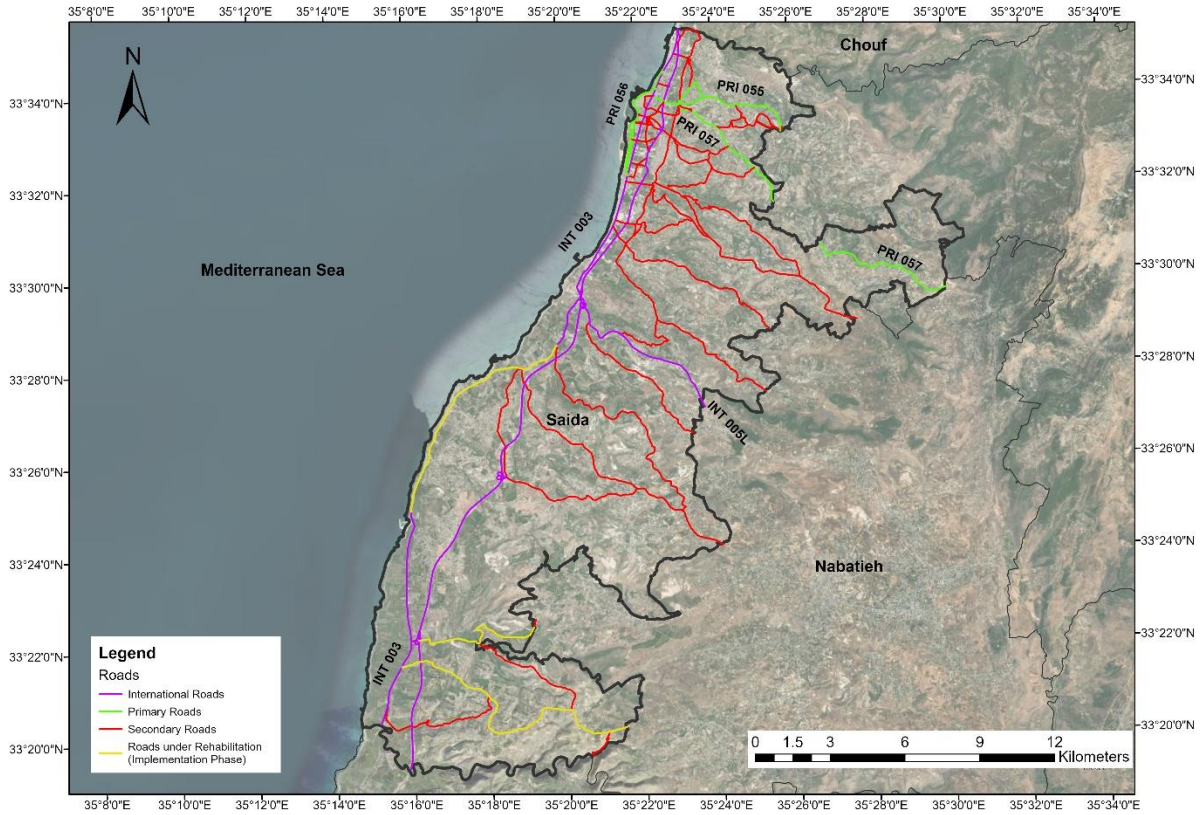


Figure 3-1: Primary and Secondary Roads Eligible for Maintenance in Saida Caza

The following criteria are proposed for the selection of representative roads:

1) Road Category: The selected road(s) should be classified as primary roads including. International Roads/ Highways)
2) Road Design Characteristics: The existing road design characteristics, horizontal and vertical alignments, cross-section(s), shall comply with the characteristics of primary road as specified in the international design standard.
3) Road Usage: The selected road(s) should be of high traffic volume compared to other roads and ensure the connection with the main secondary roads and popular areas.
4) Road Overall Condition: The selected road should have a good condition taking into consideration that roads or section of the road that needs rehabilitation or reconstruction should be excluded
5) Total Length: the total length of the selected representative roads shall be not less than 25% of the total length of the primary roads.

3.2 Project Activities

In order to identify the required maintenance and repair works for this project, a site inspection will be conducted by an experienced highway engineer who will visually inspect various roads characteristics and features including surface condition, shoulders, roadside drainage and protection works, road signage and road safety elements. Moreover, a reconnaissance of the selected 25% of the total primary roads must be executed.

The required maintenance activities for the proposed project will cover Incidental Repair Works, Pavement Repair Works, Concrete Repair Works and installation of Traffic control devices, all their components are described in the following sections.

3.2.1 Incidental Repair Works

Incidental repair works will include the following:

- Clearing and grubbing comprising the removal of all vegetation, surface debris and scattered stones and rocks within the limits of working area.
- Repairing of damaged manhole covers completed as specified and to the Engineer's satisfaction.
- Cleaning of waterways, hydraulic structures, drainage pipes, and box culverts.
- Removing damaged Galvanized Steel Guardrail and replace by new one as specified and shown on drawings.
- Repairing of Masonry wall.

3.2.2 Pavement Repair Works

The repair works that will be undertaken for the pavement will be as follows:

- Shallow Patching works: surface patch including milling and re-instating wearing asphalt course (5cm) and a full asphalt removal and repair with maintaining base course layer and applying one layer asphalt binder course (5 cm) and one layer asphalt wearing course of (5cm) as specified and shown on drawings.
- Deep Patching works including excavation, base course (30cm), asphalt binder course (one layer 5cm) and asphalt wearing courses (one layer 5cm).

- Crack sealing.
- Milling & overlay for sunken but stable trench width less than 1m.
- Removal and reinstatement of damaged trench. Width less than 1m.

3.2.3 Concrete Repair Works

The maintenance and repair works to be implemented for the concrete are represented as follows:

- Cast in situ Reinforced concrete, Class 250/20 (B25) for repair box culverts, headwalls and wingwalls, concrete channels, safety barriers and retaining walls (all types and shapes).
- Plain concrete patching for deteriorated concrete in culverts, channels, walls and safety barriers.
- Cast in situ Reinforced concrete, Class 250/20 (B25) for cover channel.

3.2.4 Traffic Control Devices

The installation of traffic control devices will cover the following activities:

- Thermoplastic reflectorized road paint lines width 20 cm (Thickness 3 mm) including surface preparation and removal of existing paint lines (where needed).
- Thermoplastic reflectorized special road marking including speed limit marking (Thickness 3 mm).
- Cats eye Pavement Studs as specified and to the Engineer satisfaction (3-cluster type).
- Bituminous speed humps completed all as specified and shown on drawings and to the Engineer's satisfaction.
- Rumble strips (TPR materials) completed all as specified and shown on drawings and to the Engineer's satisfaction.
- Delineators and Makers Posts Type J4.
- Small Signs (not exceeding 1 m^2 area).
- Temporary Signing and Channelizing Devices for Protection of Traffic:
  - Barricade with flashers type k5c.
  - Rectangular sign type KCI.
  - Sign, size greater than or equal to one square meter including posts, supports, foundations and all related works, type K2.
- Temporary Channelizing Devices:
  - Plastic Barrier, 145 cm long and 40 cm wide, type K16.
  - Removable single face concrete safety barrier, 200 cm long and 38 cm wide.
  - Removable double face concrete safety barrier, 200 cm long and 60 cm wide.

3.2.5 Maintenance/ Repair of the Highway Bridge Expansion Joints

The Maintenance/ Repair of the existing highway expansion joint on Al Zahrani Interchange. This will be subject to the state of defect which is described based on two folds:

- In case of slight defect: the repair of existing joints consists of replacing the damaged parts of joint and restoring/repairing the deteriorated parts of anchorage systems without full replacement of existing joints.

- In case of complete defect: the rehabilitation of deck expansion joints includes mainly replacing the existing one by a similar type of joint according to the method statement presented hereafter.

The majority of highway joints under this scope of work are reinforced elastomeric joints and the required maintenance works consist mainly of fully/partially replacing the damaged joint with a new one having similar technical specifications.

The execution of required works can be classified as a simple construction activity that will be carried out with a limited number of labourers (between 5 & 8 workers for each joint bridge), light construction machine (pick-up truck, bobcat), and in a quick time (not to exceed two weeks per bridge). It will include the following activities:

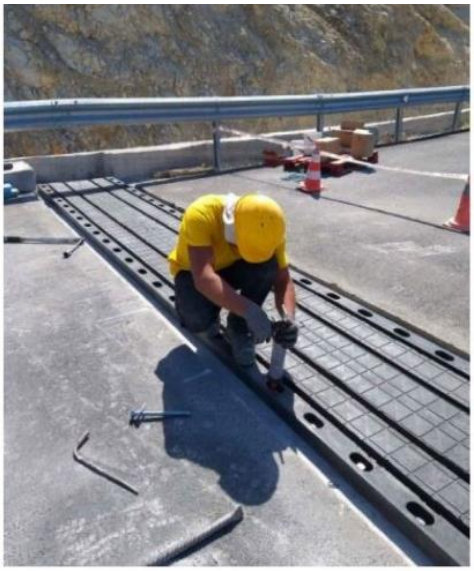
1) Install as necessary the temporary signing and channelizing devices for the traffic control plan in the working area.
2) Removing of the existing expansion joints, all related materials and accessories.
3) Repairing as required the area below the expansion joint (Utilization of Epoxy mortar for steel anchor).
4) Joint installation including drill and fixation of anchor bolts by Epoxy resin.
5) Surface asphalting from both sides (max. of 1 meter) of the expansion joint as needed.
6) Clean and fill the transition strip on both sides of the expansion joints.

The following photos illustrate the main activities in the maintenance of reinforced elastomeric joints (from other projects similar to this scope of works):

Photo 1 - Existing condition of one damaged Highway Bridge Joint

Photo 2 - Levelling of surface below the expansion joint (step 3 above)

Photo 3 - Joint Installation (step 4 above)



3.3 Material and Equipment

Typical equipment used for routine maintenance activities will be used for the maintenance of roads in Saida Caza, including but not limited to:

- Steel-wheeled Rollers
- Asphalt Distributor or paver
- Concrete mixing trucks
- Dumper Trucks oTrucks
- Excavators
- Loaders
- Asphalt Milling Machines
- Thermoplastic Road Marking Machines
- Liquid Asphalt Spraying Tanks
- Guardrail Post Driving Machines
- Asphalt Cutters

As for the main material needed for the routine maintenance activities, this include but not limited to:

- Aggregates (fine and coarse)
- Asphalt mix
- Liquid Asphalt
- Concrete mix
- Water
- Fuel
- Thermoplastic Paint Material

- Steel Guardrails
- Stones (for stone pitching)
- Reinforcing Steels
- Manhole Covers
- Rubber Bitumen
- Cat Eyes
- Delineators
- Traffic Signals

3.4 Site Construction Staffing and Facilities

The total number of workers for the roads routine maintenance activities project shall be based on the total volume of each activity as per the bill of quantities of the tender documents, as well as the independent assessment of the awarded contractor subject to the project duration and the planner's effort to produce a relevant program of work to cover all project activities. Accordingly, all maintenance activities will need the involvement of a certain number of workers ranging from unskilled labors to equipment drivers to foremen/engineers. Thus, the number of workers will be determined for each project activity. An estimated number of 6 workers (on average) will be designated for each maintenance activity (4 for application and 2 for safety). Furthermore, the project site will not include any facilities to be installed on-site. The usage of material and equipment for this project will be limited only for the duration of maintenance works.

4. DESCRIPTION OF THE ENVIRONMENT AND SOCIAL CONTEXT

To properly assess the potential impacts of the road routine maintenance activities, an environmental and socioeconomic baseline needs to be developed. The baseline will also play a prominent role in developing and implementing mitigation and monitoring plans. This section presents a description of the baseline information. The description of the baseline conditions was based on literature review within Saida Caza and is divided into three sections covering the physical, biological and socioeconomic environment.

4.1 Physical Environment

4.1.1 Topography

The Caza of Saida is located in the Governorate of South Lebanon and it is about 45 km away from the capital of Beirut. The caza of Saida is surrounded by the Mohafazah of Mount Lebanon from the north, the Cazas of Tyr and Nabatiye from the South and Southeast, and by the Cazas of Jezzine and Nabatiye from the East and Northeast. Its altitude varies between the maritime coast and the limit of the Caza of Jezzine to the east, where it reaches 500 meters. The topographic map representing this Caza is provided in Annex 1.

4.1.2 Geology

The geological formation within the Caza of Saida are presented in Annex 2. Based on the geological map, the main geological formation within the study belong to the following (Geocities Website, 2022):

- Sannine Limestone, of Cenemonain age unit (C4); this unit is divided into three subunits namely:
- Dolomitic Limestone (C4a): this formation is characterized by geodes of different sizes filled or voided and a thickness of about 300 meter. Within this unit Ammonites and fish fossils were found.
- Bluish marl and shale (C4b): this formation contains crystals of quartz, chert nodules and bands form. The thickness of this unit is in the range of 80-100 meter
- Limestone and dolomitic limestone (C4c): The Limestone of this unit is highly karstifie. The color of this formation is white to brown and its thickness is about 300 meter.
- Miocene - marly conglomerates and reef limestones (m2): weathered grey marl that was originally loose marine greenish marl. This formation is inter-bedded with marly limestone in some parts. The thickness of this outcropping is around 150 m and is known to be reach in foraminifera fossils.
- White marl and marl-limestones (C6): Cretaceous and lower Tertiary sediments indistinguishable lithologically; stiff bluish plastic Marl with glauconite, interbedded with chalky marly Limestone and nodules of black chert. This formation has a thickness that ranges from 400 m to 150 m and is rich in foraminifera fossils.
- Maameltain or Ghazir Limestone, of Turonian agre (C5): Joined with C4c except when distinguished by fossils. It is mainly composed of hard crystalline and micritic limestone to dolomitic limestone, creamish white to brown in color. The weathered color of this unit is mainly grey. Limestone / dolomitic limestone are highly karstified also within this formation, geodes of different sizes filled or voided are recorded

- Pleistocene (Q)-(qta, qd, qcpb, qaa): Belongs to the quaternary geological unit. It is composed of loose Eolian and cemented sands. Residual soil including Terra Rosa are also found in this formation. In addition, this geological unit is composed of loose alluvium, unconsolidated soil and sediments.
- Eocene (E): This rock formation belongs to the Tertiary geological period and is widespread in South Lebanon. It is composed of marly and chalky limestone with a thickness in the range of 4500 m–550 m. With a thick succession, it has a good potential to store groundwater.

4.1.3 Hydrogeology

The Caza of Saida is surrounded by the Awali River from the north and the Litani River from the south. The Litani River is the longest and most abundant river in Lebanon. The Awali River is 48 km long and originates from the Barouk Mountain at a height of 1,492m and Niha Mountain and meets at Bisri before flowing westward to discharge into the Mediterranean Sea at the north of Saida City (Korfali and Jurdi, 2011). The Awali River crosses a secondary road and many streams cross the proposed secondary roads. One river is at around 800 m away from PRI 055 and another river at 400 m away from PRI 057.

The Caza of Saida also comprises some springs distributed at higher elevations including: Nabaa Sfinta at around 1,666 meters away from road PRI 057, Ain Abou Younes (around 300 m away from road PRI 057), Nabaa El Qobaiaa (around 230 m away from road PRI 057) and Ain El Daiaa (around 100 m away from road PRI 057). A map showing the major rivers and streams along with the springs in Saida Caza is presented in Annex 3.

4.1.4 Climate and Meteorology

The results of Saida weather data conditions are used to describe the climate of the villages having low elevations in the Caza. It is considered representative as the coastline in Lebanon generally experiences similar weather patterns and this station is the closest one where data is available. Annex 4 – Figure 1 presents the averages temperatures and precipitation registered at Saida during each month of the last 30 years. It shows that the lowest average temperature, which was 10°C was registered in January, while August had registered the highest average temperature of 35°C. In Saida, most rain events fall in the winter during the months of December, January and February (100 mm of precipitations). However, the driest months are July and August, with 0 mm of rain (Meteoblue website, 2022).

Figure 2 of Annex 4 shows the wind rose for Saida representing how annual wind speed and direction are distributed. The wind rose indicates that the wind direction with the highest frequency within Saida City is from the west to east with a speed of greater than 5 km/h occurring most of the times (799 h/year). In addition, strong winds occur during winter mainly from November to February while periods of calm winds usually occur from March till October (Meteoblue website, 2022).

Additional data on climate in the area was obtained from the Lebanese Agriculture Research Institute (LARI) from its station in Saida. This data represents the average temperatures and average precipitation of the year 2018 (Annex 4, Figure 3).

As for the wind data, wind speed and direction data were also obtained from LARI from its nearest station in Sour (and having similar elevation). Annex 4 – Table 1 represents the average monthly and annual wind speed and direction for the year of 2019.

4.1.5 Air Quality

In 2018, a study (Abdallah et al., 2018) used the National Air Quality Monitoring Network (AQMN) data of 2014, as well as data from a long-term monitoring campaign, to assess an air quality modelling system. The study simulated air quality over Lebanon and Greater Beirut for key gas pollutants including Nitrogen Dioxide (NO_2) and Particulate Matter (PM). At the time of the study, the AQMN that was installed and operated by the MoE consisted of five stations, four of which were used in the study, including two urban stations in Beirut (one at the Beirut Pine Forest and the other at the Lebanese University campus in Hadath). The long-term monitoring campaign was conducted simultaneously by the University of Saint Joseph at an urban site within Beirut City at the Beirut Pine Forest, and at a suburban location outside Beirut namely the university campus in Mansourieh. The results for Lebanon simulation for NO_2 and PM_{10} are shown in Annex 5. The modelled annual concentration map showed that NO_2 annual concentration at Saida is around 50 µg/m^3 (above the WHO recommended value of 40 µg/m^3 limit) whereas the annual PM_{10} is around 72 µg/m^3 (above the WHO recommended value of 20 µg/m^3 limit) (Abdallah et al., 2018).

4.1.6 Land Use/Land Cover

In Saida caza, both types of land cover are present. Some areas are urban and densely populated while others are agricultural lands (Arnaud, 2014). This distribution of land cover can be seen in the Land Use/Land Cover (LU/LC) map of Saida Caza (Annex 6). The area also has diverse kinds of trees, fruit fields, and greenhouses in its agricultural lands. Due to the rise in urbanization and development, green spaces in the Saida Caza have declined. However, few cultivation practices still remain that range from loquat, citrus, and banana to legumes and table vegetables (Makhzoumi et al., 2013).

4.2 Biological Environment

4.2.1 Flora

According to a study that was conducted to define Important Plant Areas (IPAs) with exceptional botanical richness in Lebanon (Dagher-Kharrat et al, 2018), the area within Saida Caza shows relatively low species richness (Annex 7). In fact, the map in Annex 7 indicates that the value of the species richness ranges between 1 and 37 species per cell within Saida Caza. This is considered low with respect to other regions of Lebanon whereby the number of species ranges between 97 and 552 species per cell (Dagher-Kharrat et al, 2018).

4.2.2 Fauna

The fauna in the Caza include marine turtles that nest on the beaches of Saida, as reported by local fishermen. Even though the area is suitable for nesting, the nesting potential is low due to increased human interferences (Kasparek, 2004). In addition, a species of crane (*Anthropoides virgo Demoiselle Crane*) has been spotted in Saida (Birdlife International, 2021.). However, common animals could also be present mainly in the surrounding natural landscapes of the study area.

4.2.3 Ecologically Sensitive Areas

According to Birdlife International, there are fifteen important bird and biodiversity areas (IBAs) in Lebanon, none of which are located in the Caza of Saida.

4.3 Socio Economic Environment

4.3.1 Demographic Profile

The Caza of Saida is part of South Lebanon Governorate which has around 390,728 inhabitants (including Syrian and Palestinian refugees) (IDAL, 2017). The caza accounts for 54% of the total population in South Lebanon Governorate (IDAL, 2017). The average household size in the caza is 4 compared to the Lebanon's overall average household size of 3.8 individuals (CAS, 2019). Moreover, the unemployment rate in Saida Caza is estimated at 14.3% compared to the national average 11.4% (CAS, 2019). Concerning vulnerable groups, the number of poor Lebanese in Saida Caza is 113,022 (OCHA, 2016). In addition, there are 69 vulnerable localities in South and El Nabatieh governorates, 10 of which are classified as most vulnerable. Out of these 10 localities, some are located in Saida Caza (OCHA, 2016) (Refer to Annex 8 for the distribution of vulnerable localities in the Caza). There is no publicly available information on other groups, such as female headed households and people with disabilities. As for the elderly (seniors above the age of 65), they comprise 9.8% of the total population in the caza compared with the country's national average of 11% (CAS, 2019).

According to the Syria Refugee Response per district (UNHCR, 2021), the total number of Syrian Refugees living within communities in Saida Caza is 35,424. Moreover, there are 96,060 Palestinian Refugees in Saida Caza with two Palestinian refugee camps (Ain El Hilweh and Mieh w Mieh camps). Ain El Hilweh camp and Mieh w Mieh camp are located along a secondary road. As for informal settlements, several informal settlements for refugees were established in Saida Caza (OCHA, 2016). (Refer to Annex 8 for the distribution of informal settlement in the Caza). These informal settlements are located at proximity of the proposed primary and secondary roads and most of them are along the secondary road. In addition, some of the Syrian refugees resides in residential dwellings/apartments within the caza.

The unemployment rate in the Saida Caza is estimated at 14.3% compared to the national average of 11.4% (CAS, 2019). Out of 225,000 individuals aged 15 years and above living in the District, 115,500 were outside the labour force. In Saida the total labour force participation rate is equal to the national rate of 48.8%. However, men labour participation rates were higher than the women labour participation rates and are respectively 71% and 30% (CAS, 2020).

4.3.2 Economic Activities and Infrastructure

The main economic activities in Saida are distributed as follows:

- 29.6% in the wholesale, retail trade and repair sectors.
- 16.4% in the construction sector.
- 18.6% in the production of food and the manufacturing of other products
- 2.2% in the agriculture and fishing sector
- 1.3% in touristic sector (hotels and restaurants)

Saida houses large traditional industries namely furniture and bakeries (including Saida's famous sweets) (Arnaud, 2014). The city also houses one of the four main and busiest commercial ports in Lebanon. Saida port has 417 vessels, which constitute 15.7% of the total number of vessels in the country (MoE/UNDP, 2011).

The main source of drinking water in Saida is the non-piped water supply with 76.5% connectivity which is almost as much prevalent as at the national level which is 76.9%. Drinking water was in the form of piped supplies connected directly to only 23.4% of households compared to 22.5% nationally. As for the public electricity network, almost all households in Saida Caza are connected to the public

network (99.7%) while 93.8% were subscribed to a private electricity source or have their own generator (CAS, 2020).

4.3.3 Education Services

A total of 29 schools (12 public and 17 private) are currently available in Saida (Hallaj, 2013). In addition higher education institutions in the city include the Lebanese University (LU) (degrees offered include principally Literature, Law, Social Sciences and Health), Saint Joseph University has a school for Management and Nursing, American University Of Science And Technology (AUST), LU-Faculty of Technology), which specializes in civil engineering (buildings and public works), industrial and maintenance engineering, and telecommunications and network engineering (Arnaud, 2014) Lebanese International University, Jinan University and Phoenicia University. However, the educational sector in Saida is facing major constraints such as the lack of diversity in undergraduate curriculums along with weak research courses and programs (Arnaud, 2014). Annex 3 represents the location of the universities in Saida Caza. The American University of Science and Technology (AUST) is at around 75 meters away from a secondary road, Saint Joseph University is at around 412 meters away from a secondary road and at around 271 meters away from road PRI 055, Jinan University is located at around 70 meters away from a secondary road, the Lebanese University is at 87 meters away from a secondary road and the Lebanese International University is at around 29 meters away from a secondary road. The Phoenicia University is at around 714 meters away from a secondary road.

In Saida Caza, the illiteracy rate was reported to be 6% which is lower than the national rate (7.4%). This rate was found to be higher for women with an illiteracy rate of 7.2% compared to men which is 4.6%. In addition, the illiteracy rate among the elderly group was found to be greater when compared to younger age groups (CAS, 2020).

4.3.4 Health Services

Saida is considered to be an important hub for health services not only for the South of Lebanon, but for the country as a whole (Hallaj, 2013). It is recorded that 50% of patients in Saida's hospitals are from regions outside Saida such as South, Chouf and Beirut (Arnaud, 2014). There are many private and public hospitals in the Caza including: Fakih Hospital, Alaa Eddine Hospital, Raee Hospital, Sidon Governmental Hospital, Al Hamshari Hospital, Health Medical Center Hospital, Al Janoub Hospital, Dalla'a General Hospital, Labib Medical Center, HHUMC Hammoud Hospital University Medical Center, Abed El Rahman Al Nakib Hospital, Jubeily hospital, Kasab Hospital and Turkish Trauma and Emergency Hospital. Annex 3 represents the location of the hospitals in Saida Caza. The Turkish Trauma and Emergency hospital is at around 170 meters away from a secondary road. Kasab Hospital and Jubeily hospitals are at around 20 meters away from a secondary road and at around 78 meters away from road PRI 055. Abed El Rahman Al Nakib Hospital is at around 35 meters from road PRI 055. HHUMC Hammoud Hospital University Medical Center is located along a secondary road. Dalla'a General Hospital is at around 180 meters away from a secondary road. Labib Medical Center is present at around 22 meters away from a secondary road. Health Medical Center Hospital is at around 185 meters away from a secondary road. Al Janoub Hospital is at around 245 meters away from a secondary road and at around 270 meters away from road PRI 056. Al Hamshari Hospital is along a secondary road while Sidon Governmental Hospital is at around 15 meters away from a secondary road. Raee Hospital is at around 250 meters away from a secondary road. Fakih Hospital is at around 3.12 Km away from a secondary road and Alaa Eddine Hospital that is located at around 1.77 Km away from a secondary road.

4.3.5 Cultural Heritage

Saida city is a coastal historic city with a strategic location on the Mediterranean coast which made it a target for many civilizations and empires; each left their own trace and made Saida rich and diverse with its cultural heritage. Archeological sites and monuments in Saida include the sea castle which is situated 80 m away from the coast on a small rocky island, Khan Al-Franj which is one of the important monuments that was built by the Amir Fakhreddin II, the Debbaneh palace Museum that was built in 1721 and the Audi soap Museum (Osman and Farhat, 2018). In addition, in Sarafand, antiquities include the Phoenician harbor and a fortress that was rendered into a castle for defense. In the Kharab area, some caves were found containing earthenware. Moreover, in Adloun a number of caves (Al-A'alabli Cave and Oum Al-Bzaz Cave), where the remains of a human from the Stone Age was found, in addition to the presence of Al-Nabi Sari Shrine (MoT, 2011). The main archeological sites that are present in Saida caza are represented in Annex 3. The Dabane Palace is at around 37.5 meters away from a secondary road and around 107 meters away from road PRI 056. The Audi soap museum is at around 15 meters away from a secondary road and at around 286 meters away from road PRI 056. Khan El franj is at around 26 meters away from road PRI 056.In addition, the caves found in the Kharab area, are at around 250 meters away from a secondary road while the Al-A'alabli Cave and Oum Al-Bzaz Cave in Adloun area were at around 3.12 Km away from a secondary road.

4.3.6 Road Sensitive Receptors

The main sensitive receptors within the Saida Caza include several rivers including El Litani River and Al Awali River, and several springs distributed at different elevations within the Caza including Nabaa Sfinta at around 1,666 meters away from road PRI 057, Ain Abou Younes (around 300 m away from road PRI 057), Nabaa El Qobaiaa (around 230 m away from road PRI 057) and Ain El Daiaa (around 100 m away from road PRI 057). The Awali River crosses a secondary road and many streams cross the proposed secondary road. One river is at around 800 m away from PRI 055 and another river at 400 m away from PRI 057.

The Caza does not include any ecologically sensitive areas nor protected areas. Moreover, there are two Palestinian refugee camps in Saida Caza (Ain El Hilweh and Mieh w Mieh camps). Ain El Hilweh camp and Mieh w Mieh camp are located along a secondary road. In addition, there are informal settlements in the Caza of Saida that are located at proximity of the proposed primary and secondary roads and most of them are along the secondary road. Many universities and educational colleges were present in the Caza too and the distances of these institutions to the proposed roads are such as The American University of Science and Technology (AUST) is at around 75 meters away from a secondary road, Saint Joseph University is at around 412 meters away from a secondary road and at around 271 meters away from road PRI 055, Jinan University is located at around 70 meters away from a secondary road, the Lebanese University is at 87 meters away from a secondary road and the Lebanese International University is at around 29 meters away from a secondary road. The Phoenicia University is at around 714 meters away from a secondary road.

As for the health centers, The Turkish Trauma and Emergency hospital is at around 170 meters away from a secondary road. Kasab Hospital and Jubeily hospitals are at around 20 meters away from a secondary road and at around 78 meters away from road PRI 055. Abed El Rahman Al Nakib Hospital is at around 35 meters from road PRI 055. HHUMC Hammoud Hospital University Medical Center is located along a secondary road. Dalla'a General Hospital is at around 180 meters away from a secondary road. Labib Medical Center is present at around 22 meters away from a secondary road. Health Medical Center Hospital is at around 185 meters away from a secondary road. Al Janoub Hospital is at around 245 meters away from a secondary road and at around 270 meters away from road PRI 056. Al Hamshari Hospital is along a secondary road while Sidon Governmental Hospital is at around 15 meters away from a secondary road. Raee Hospital is at around 250 meters away from a secondary road.

Moreover, there are several archaeological sites that are identified in the Caza. The Dabane Palace is at around 37.5 meters away from a secondary road and around 107 meters away from road PRI 056. The Audi soap museum is at around 15 meters away from a secondary road and at around 286 meters away from road PRI 056. In addition, the caves found in the Kharab area, are at around 250 meters away from a secondary road. A map of all these receptors can be found in Annex 3.

5. ENVIRONMENTAL AND SOCIAL IMPACT ANALYSIS AND MITIGATION

This section analyzes the potential anticipated positive and negative environmental and social impacts associated with the maintenance activities to be executed in Saida Caza and proposes measures for their mitigation.

5.1 Assessment Methodology

The evaluation of potential environmental and social impacts will be based on relevant scientific evidence, literature review and the professional judgment of the Consultant. The impact assessment approach applied is as follows:

- Identification of project-related activities (during both phases) and environmental aspects;
- Determination of potential impacts on the natural and man-made environment that might arise from these activities;
- Assessment and evaluation of potential impacts based on the criteria set out in the Environmental and Social Management Framework of the project. As such, impacts will be weighted on the scale of P, 2P, O, N, 2N to signify Positive, strongly Positive, Neutral, Negative, and Strongly Negative impacts respectively.

Due to the fact that the location of the maintenance activities will not be defined until execution of the works commence, the impact rating will be based on the presence of the defined sensitive receptors for that impact.

5.2 Potential Positive Impacts during Maintenance

The maintenance of roads in Saida Caza is considered as an economic opportunity for the selected contractor and their subcontractors. Local businesses may benefit from maintenance activities through selling raw materials, equipment, machinery and goods and the project will create jobs and could hire labors from the local community (Lebanese and Syrian). For example, small shops may potentially benefit from the maintenance activities as workers will buy food and drinks from these small shops. In addition, local garages will benefit from increased business in vehicle and equipment maintenance and residents will benefit from the rent fees of the offices and residences as well as vehicle and equipment parking area. The potential influx of workers will also increase economic activity in the area as they will likely purchase their daily requirements from the surrounding shops. This will have a ripple effect within the communities where the roads will be maintained. This impact is, however, temporary and jobs will be discontinued as soon as maintenance works are complete.

As such this impact on economic activity in the region is considered as a positive impact (P).

5.3 Impacts and Mitigation during Maintenance Activities

Table 5-1 presents the general positive and negative impacts that might arise from all maintenance activities during the execution of works.

Table 5-1: Environmental and Social Impacts during Maintenance Activities

Receptor	Activity Generating Impacts	Impact Description	Rating	Mitigation Measure
Environmental				
Air, nearby communities and workers	Removal of all vegetation, surface debris and scattered stones and rocks within the limits of working area Cleaning of waterways, hydraulic structures , drainage pipes, and box culverts Removal of damaged galvanized steel guardrail and replacing it by new ones Shallow patching works including milling and re-instating wearing asphalt course, full asphalt removal and repair with maintaining base course layer and applying one layer of asphalt binder course and one layer of asphalt wearing course Deep patching works including excavation maintaining base course and asphalt binder course and asphalt wearing courses Milling and overlay for sunken but stable trench Removal and reinstatement of damaged trench.	Air pollution from emissions of machinery, trucks or open burning activities Potential impact on: Ain El Hilweh camp and Mieh w Mieh camp along a secondary road Informal settlements at proximity of the proposed primary and secondary roads and the ones along a secondary road The American University of Science and Technology (AUST) at 75 meters away from a secondary road Saint Joseph University at 412 meters away from a secondary road and at 271 meters away from road PRI 055 Jinan University at 70 meters away from a secondary road Lebanese University at 87 meters away from a secondary road Lebanese International University at 29 meters away from a secondary road Phoenicia University at 714 meters away from a secondary road Turkish Trauma and Emergency hospital at 170 meters away from a secondary road Kasab Hospital and Jubeily hospitals at 20 meters away from a secondary road	N	Prepare and abide by **Pollution Prevention Plan** that includes: **Atmospheric Emissions and Dust Management Provisions (Annex 9)** Water the ground when extremely windy Mix material in an enclosed space Cover material when transporting Prepare and abide by Emergency Preparedness and Response Plan (Annex 9) **Specific Measures Near Sensitive Receptors (Refer to Annex 3)** Speed limit for project vehicles and machinery within working areas shall not exceed 20 Km/h Ensure optimal traffic routes. Use wet suppression in the dry season, where unpaved roads, the working strip, raw material stockpiles are located <200 m from settlements

Receptor	Activity Generating Impacts	Impact Description	Rating	Mitigation Measure
		and at 78 meters away from road PRI 055 Abed El Rahman Al Nakib Hospital at around 35 meters from road PRI 055 HHUMC Hammoud Hospital University Medical Center located along a secondary road Dalla'a General Hospital at around 180 meters away from a secondary road Labib Medical Center at 22 meters away from a secondary road Health Medical Center Hospital at 185 meters away from a secondary road Al Janoub Hospital at 245 meters away from a secondary road and at 270 meters away from road PRI 056 Al Hamshari Hospital along a secondary road Sidon Governmental Hospital at 15 meters away from a secondary road Raee Hospital at 250 meters away from a secondary road The Dabane Palace at 37.5 meters away from a secondary road and 107 meters away from road PRI 056 The Audi soap museum at 15 meters away from a secondary road and at 286 meters away from road PRI 056 Caves at 250 meters away from a secondary road Near densely populated urban areas		

Receptor	Activity Generating Impacts	Impact Description	Rating	Mitigation Measure
		Refer to Annex 3		
Air, nearby communities		Dust pollution from maintenance and excavation activities Potential impact on: Ain El Hilweh camp and Mieh w Mieh camp along a secondary road Informal settlements at proximity of the proposed primary and secondary roads and the ones along a secondary road The American University of Science and Technology (AUST) at 75 meters away from a secondary road Saint Joseph University at 412 meters away from a secondary road and at 271 meters away from road PRI 055 Jinan University at 70 meters away from a secondary road Lebanese University at 87 meters away from a secondary road Lebanese International University at 29 meters away from a secondary road Phoenicia University at 714 meters away from a secondary road Turkish Trauma and Emergency hospital at 170 meters away from a secondary road Kasab Hospital and Jubeily hospitals at 20 meters away from a secondary road and at 78 meters away from road PRI 055	N	

Receptor	Activity Generating Impacts	Impact Description	Rating	Mitigation Measure
		Abed El Rahman Al Nakib Hospital at around 35 meters from road PRI 055 HHUMC Hammoud Hospital University Medical Center located along a secondary road Dalla'a General Hospital at around 180 meters away from a secondary road Labib Medical Center at 22 meters away from a secondary road Health Medical Center Hospital at 185 meters away from a secondary road Al Janoub Hospital at 245 meters away from a secondary road and at 270 meters away from road PRI 056 Al Hamshari Hospital along a secondary road Sidon Governmental Hospital at 15 meters away from a secondary road Raee Hospital at 250 meters away from a secondary road The Dabane Palace at 37.5 meters away from a secondary road and 107 meters away from road PRI 056 The Audi soap museum at 15 meters away from a secondary road and at 286 meters away from road PRI 056 Caves at 250 meters away from a secondary road Near densely populated urban areas Refer to Annex 3		

Receptor	Activity Generating Impacts	Impact Description	Rating	Mitigation Measure
Nearby communities and workers		Noise pollution a result of transportation or delivery of raw materials, trucks movement, concrete mixing, drilling, construction and operation of heavy vehicle movement such as excavators Potential impact on: Ain El Hilweh camp and Mieh w Mieh camp along a secondary road Informal settlements at proximity of the proposed primary and secondary roads and the ones along a secondary road The American University of Science and Technology (AUST) at 75 meters away from a secondary road Saint Joseph University at 412 meters away from a secondary road and at 271 meters away from road PRI 055 Jinan University at 70 meters away from a secondary road Lebanese University at 87 meters away from a secondary road Lebanese International University at 29 meters away from a secondary road Phoenicia University at 714 meters away from a secondary road Turkish Trauma and Emergency hospital at 170 meters away from a secondary road Kasab Hospital and Jubeily hospitals at 20 meters away from a secondary road	N	Maintenance of vehicles and machinery Excavation and any other noisy activity only to be conducted during working hours In the case where it is absolutely necessary to conduct some activities outside the normal working hours (i.e. at night), prior approval of the concerned municipality and CDR will be obtained Set traffic speed limits **Specific Measures Near Sensitive Receptors (Refer to Annex 3)** Verify drivers' behavior with respect to driving speed Plan vehicle routes to avoid settlements where possible

Receptor	Activity Generating Impacts	Impact Description	Rating	Mitigation Measure
		and at 78 meters away from road PRI 055 Abed El Rahman Al Nakib Hospital at around 35 meters from road PRI 055 HHUMC Hammoud Hospital University Medical Center located along a secondary road Dalla'a General Hospital at around 180 meters away from a secondary road Labib Medical Center at 22 meters away from a secondary road Health Medical Center Hospital at 185 meters away from a secondary road Al Janoub Hospital at 245 meters away from a secondary road and at 270 meters away from road PRI 056 Al Hamshari Hospital along a secondary road Sidon Governmental Hospital at 15 meters away from a secondary road Raee Hospital at 250 meters away from a secondary road The Dabane Palace at 37.5 meters away from a secondary road and 107 meters away from road PRI 056 The Audi soap museum at 15 meters away from a secondary road and at 286 meters away from road PRI 056 Caves at 250 meters away from a secondary road Near densely populated urban areas		

Receptor	Activity Generating Impacts	Impact Description	Rating	Mitigation Measure
		Refer to Annex 3		
Biodiversity and sensitive habitats		Disturbance of nearby areas and animal escape through noise and vibrations	N	
Water resources, soil, nearby communities	Removal of all vegetation, surface debris and scattered stones and rocks within the limits of working area Cleaning of waterways, hydraulic structures, drainage pipes, and box culverts Removal of damaged galvanized steel guardrail and replacing it by new ones Shallow patching works including milling and re-instating wearing asphalt course, full asphalt removal and repair with maintaining base course layer and applying one layer of asphalt binder course and one layer of asphalt wearing course Deep patching works including excavation maintaining base course and asphalt binder course and asphalt wearing courses Milling and overlay for sunken but stable trench Removal and reinstatement of damaged trench. Cast in situ reinforced concrete for repair box culverts, headwalls and wingwalls, concrete channels, safety barriers, retaining walls and cover channels Plain concrete patching for deteriorated concrete in culverts, channels, walls and safety barriers	Contamination of surface water and pollution of ground water from improper disposal of wastewater from workers and of wash water coming from cleaning of machines and equipment Potential impact on: Awali River along a secondary road Many streams crossing a secondary road River at 800 m away from PRI 055 River at 400 m away from PRI 057 Ain Abou Younes at 300 m away from road PRI 057 Nabaa El Qobaiaa at 230 m away from road PRI 057 Ain El Daiaa at 100 m away from road PRI 057	N	Prepare and abide by **Pollution Prevention Plan** that includes: **Effluent Management Provisions** **Rainwater run-off Management Provisions** **(Annex 9)** Prepare and abide by Emergency Preparedness and Response Plan (Annex 9) **Specific Measures Near Sensitive Receptors (Refer to Annex 3)** On-site concrete pouring shall be done in a way to avoid leaching to nearby water bodies. Onsite mixing of concrete shall be performed at least 40 meters away from nearby water bodies Prohibit the disposal of excess concrete mix into the environment or near water bodies

Receptor	Activity Generating Impacts	Impact Description	Rating	Mitigation Measure
Water resources, soil, nearby communities	Removal of all vegetation, surface debris and scattered stones and rocks within the limits of working area Cleaning of waterways, hydraulic structures , drainage pipes, and box culverts Removal of damaged galvanized steel guardrail and replacing it by new ones Shallow patching works including milling and re-instating wearing asphalt course, full asphalt removal and repair with maintaining base course layer and applying one layer of asphalt binder course and one layer of asphalt wearing course Deep patching works including excavation maintaining base course and asphalt binder course and asphalt wearing courses Milling and overlay for sunken but stable trench Removal and reinstatement of damaged trench.	Water pollution due to accidental spill of oils and chemicals from trucks and from transportation of chemicals and oils Potential impact on: Awali River along a secondary road Many streams crossing a secondary road River at 800 m away from PRI 055 River at 400 m away from PRI 057 Ain Abou Younes at 300 m away from road PRI 057 Nabaa El Qobaiaa at 230 m away from road PRI 057 Ain El Daiaa at 100 m away from road PRI 057	N	Prepare and abide by a **Spill Prevention and Management Plan** under **Pollution Prevention Plan (Annex 9)** Minimize soil exposure time Minimize the use of chemicals Regular maintenance of vehicles Prepare and abide by **Waste Management Plan** and **Hazardous Materials Management Plan (Annex 9)** Prepare and abide by **Emergency Preparedness and Response Plan (Annex 9)** **Specific Measures Near Sensitive Receptors (Refer to Annex 3)** Fuel, oil or hazardous materials required to be temporarily stored onsite shall be stored within secondary containment located further than 100m from a watercourse or water body Fuel and hazardous chemical storage areas shall not be allowed within 30m of a minor watercourse, within 100m of a major watercourse, or where there is the potential for spilled fuel to enter groundwater Keep the area free of litter and garbage and prevent random disposal of waste Specific locations shall be designated for consuming food and snacks away from sensitive receptors.
Water resources		Improper disposal of cut volume may cause contamination of water bodies in rainy weather Potential impact on: Awali River along a secondary road Many streams crossing a secondary road River at 800 m away from PRI 055 River at 400 m away from PRI 057 Ain Abou Younes at 300 m away from road PRI 057 Nabaa El Qobaiaa at 230 m away from road PRI 057	N	

Receptor	Activity Generating Impacts	Impact Description	Rating	Mitigation Measure
		Ain El Daiaa at 100 m away from road PRI 057		
Water resources, soil, subsoil and land	Removal of all vegetation, surface debris and scattered stones and rocks within the limits of working area Cleaning of waterways, hydraulic structures , drainage pipes, and box culverts Removal of damaged galvanized steel guardrail and replacing it by new ones Shallow patching works including milling and re-instating wearing asphalt course, full asphalt removal and repair with maintaining base course layer and applying one layer of asphalt binder course and one layer of asphalt wearing course Deep patching works including excavation maintaining base course and asphalt binder course and asphalt wearing courses Milling and overlay for sunken but stable trench	Contamination of soil and surface water bodies from the improper disposal of solid waste generated from workers and the used materials, construction waste from excavation and drilling activities Potential impact on: Awali river along a secondary road Many streams crossing a secondary road River at 800 m away from PRI 055 River at 400 m away from PRI 057 Ain Abou Younes at 300 m away from road PRI 057 Nabaa El Qobaiaa at 230 m away from road PRI 057 Ain El Daiaa at 100 m away from road PRI 057	N	Prepare and abide by **Waste Management Plan (Annex 9)** Reuse or recycle the generated waste whenever possible Prepare and abide by Emergency Preparedness and Response Plan (Annex 9) **Specific Measures Near Sensitive Receptors (Refer to Annex 3)** Waste bins shall be located at a distance of over 100 m from any natural sensitive area or water bodies and over 500 m from any socioeconomic sensitive area
Energy resources	Removal and reinstatement of damaged trench. Cast in situ reinforced concrete for repair box culverts, headwalls and wingwalls, concrete channels, safety barriers, retaining walls and cover channels Plain concrete patching for deteriorated concrete in culverts, channels, walls and safety barriers	High consumption rates of electricity, fossil fuel, etc. contributing to overconsumption and depletion of fuel	N	Maintenance of the generators and trucks Light in the site offices shut down during the night Construction workers must be trained and provided with awareness sheets on efficient energy use Machinery and equipment must be turned off when not in use
Water resources		High consumption rates of water for construction related activities	N	Use water in the most efficient way and reduce wastage

Receptor	Activity Generating Impacts	Impact Description	Rating	Mitigation Measure
Water resources, soil, nearby communities		Reduction in overall ground and surface water quality due to improper disposal of construction waste	N	Regular site inspection to detect water leakages Whenever possible, use dry-cleaning instead wet cleaning Training and awareness should be raised to workers concerning water usage best practices and water conservation Proper disposal of construction waste
Water resources, soil, subsoil and land		Depletion of natural resources due to the unsustainable extraction of borrowing material (sand, aggregates, …)	N	Ensure that the borrow material are extracted from legal sites Avoid agricultural lands to extract borrowing material
Biodiversity and sensitive habitats	Removal of all vegetation, surface debris and scattered stones and rocks within the limits of working area Cleaning of waterways, hydraulic structures, drainage pipes, and box culverts Removal of damaged galvanized steel guardrail and replacing it by new ones Shallow patching works including milling and re-instating wearing asphalt course, full asphalt removal and repair with maintaining base course layer and applying one layer of asphalt binder course and one layer of asphalt wearing course Deep patching works including excavation maintaining base course and asphalt binder course and asphalt wearing courses Milling and overlay for sunken but stable trench Removal and reinstatement of damaged trench.	Potential damage of existing flora	N	Prepare and abide by **Pollution Prevention Plan (Annex 9)** In case of any tree removal, ensure that the contractor will get a permit from the MoA

Receptor	Activity Generating Impacts	Impact Description	Rating	Mitigation Measure
Social				
Local workers, socio-economic activities	Removal of all vegetation, surface debris and scattered stones and rocks within the limits of working area Cleaning of waterways, hydraulic structures , drainage pipes, and box culverts Removal of damaged galvanized steel guardrail and replacing it by new ones Shallow patching works including milling and re-instating wearing asphalt course, full asphalt removal and repair with maintaining base course layer and applying one layer of asphalt binder course and one layer of asphalt wearing course Deep patching works including excavation maintaining base course and asphalt binder course and asphalt wearing courses Milling and overlay for sunken but stable trench Removal and reinstatement of damaged trench. Cast in situ reinforced concrete for repair box culverts, headwalls and wingwalls, concrete channels, safety barriers, retaining walls and cover channels Plain concrete patching for deteriorated concrete in culverts, channels, walls and safety barriers	Creation of job opportunities for local communities	P	Workers are paid their wages in full and on time
Nearby communities, socio-economic activities		Local garages will benefit from the equipment oil maintenance and residents will benefit from the rent fees of the offices and the equipment parking area.	P	
Shop owners/renters		Small snack shops and coffee stations are expected to benefit from workers buying food and drinks	P	
Foreign Workers		Temporary potential Labor Influx	N	Priority hiring to qualified local community GRM for local communities (public notice including GRM to be posted at relevant municipalities and on project sign boards)
Shop owners/renters	Removal of all vegetation, surface debris and scattered stones and rocks within the limits of working area	Economic Activities and its effect on the livelihood of the shop owners	N	Install overpass structures from the road to the shops Maintain a passing corridor within the alignment to grant access to nearby properties

Receptor	Activity Generating Impacts	Impact Description	Rating	Mitigation Measure
	Cleaning of waterways, hydraulic structures , drainage pipes, and box culverts Removal of damaged galvanized steel guardrail and replacing it by new ones Shallow patching works including milling and re-instating wearing asphalt course, full asphalt removal and repair with maintaining base course layer and applying one layer of asphalt binder course and one layer of asphalt wearing course Deep patching works including excavation maintaining base course and asphalt binder course and asphalt wearing courses Milling and overlay for sunken but stable trench Removal and reinstatement of damaged trench.			Ensure that access to small snack and coffee stations is not blocked by installing wooden boards where necessary Inform the shops' owners ahead of time about maintenance date and coordinate with relevant municipalities Regularly inform road users and local communities in relation to changed traffic conditions or access Proper installation of sign boards in culturally appropriate languages that are clear and understandable to the public Timely completion of the maintenance activities Ensure access to external GRM (public notice including GRM to be posted at relevant municipalities and on project sign boards) Prepare and abide by Traffic Management Plan (Annex 9)
Foreign workers influx	Removal of all vegetation, surface debris and scattered stones and rocks within the limits of working area Cleaning of waterways, hydraulic structures , drainage pipes, and box culverts Removal of damaged galvanized steel guardrail and replacing it by new ones Shallow patching works including milling and re-instating wearing asphalt course, full asphalt removal and repair with maintaining base course layer and applying one layer of asphalt binder course and one layer of asphalt wearing course	Discrimination from the local community against the potential influx of foreign workers	N	Prevent discrimination at the workplace Conduct awareness campaigns for the local community regarding foreign workers influx Inform the local community that worker will sign code of conduct before starting the work GRM for local communities and all relevant stakeholders
Locals and foreign, skilled and unskilled)		Possible unequal wage benefits between local and foreign workers	N	Ensure that all workers (locals and foreign, skilled and unskilled) shall be compensated and are contracted equally as per the scale of market price rates, have equal contractual benefits and working conditions, and have access to internal GRM
Local and foreign children		Possible recruitment of children who are under the legal age as workers on	2N	Daily registrations of workers and verification of their age to prevent child labor

Receptor	Activity Generating Impacts	Impact Description	Rating	Mitigation Measure
	Deep patching works including excavation maintaining base course and asphalt binder course and asphalt wearing courses Milling and overlay for sunken but stable trench Removal and reinstatement of damaged trench. Cast in situ reinforced concrete for repair box culverts, headwalls and wingwalls, concrete channels, safety barriers, retaining walls and cover channels Plain concrete patching for deteriorated concrete in culverts, channels, walls and safety barriers	the site, especially in the case of the day laborers		Abide by the National Labor Law Ensure the contractor is aware of the penalties that Labor Law imposes in the case of child labor Oblige the contractor to strictly abide by the Labor Law through the CDR tender documents that should include prohibition of child labor
Nearby communities, socio-economic activities	Removal of all vegetation, surface debris and scattered stones and rocks within the limits of working area Cleaning of waterways, hydraulic structures, drainage pipes, and box culverts Removal of damaged galvanized steel guardrail and replacing it by new ones Shallow patching works including milling and re-instating wearing asphalt course, full asphalt removal and repair with maintaining base course layer and applying one layer of asphalt binder course and one layer of asphalt wearing course Deep patching works including excavation maintaining base course and asphalt binder course and asphalt wearing courses Milling and overlay for sunken but stable trench	Disruption of local community to access services due to maintenance activities and temporal road closures	N	Prepare and abide by **Traffic Management Plan (Annex 9)** Traffic shall be secured via alternative routes to reach relevant destinations in case the works imply the temporary closure of this road Inform the local community about the location of detours, road blockages or diversions through public announcements and proper diversion signage Ensure access to external GRM (public notice including GRM to be posted at relevant municipalities and on project sign boards)

Receptor	Activity Generating Impacts	Impact Description	Rating	Mitigation Measure
	Removal and reinstatement of damaged trench.			
Existing infrastructure and nearby communities	Removal of all vegetation, surface debris and scattered stones and rocks within the limits of working area Cleaning of waterways, hydraulic structures , drainage pipes, and box culverts Removal of damaged galvanized steel guardrail and replacing it by new ones Shallow patching works including milling and re-instating wearing asphalt course, full asphalt removal and repair with maintaining base course layer and applying one layer of asphalt binder course and one layer of asphalt wearing course Deep patching works including excavation maintaining base course and asphalt binder course and asphalt wearing courses Milling and overlay for sunken but stable trench Removal and reinstatement of damaged trench.	Damage of existing infrastructure	N	Regular coordination with relevant municipalities Conducting trial pits Ensure access to external GRM (public notice including GRM to be posted at relevant municipalities and on project sign boards)
Nearby communities	Cleaning of waterways, hydraulic structures, drainage pipes, and box culverts Removal of damaged galvanized steel guardrail and replacing it by new ones Shallow patching works including milling and re-instating wearing asphalt course, full asphalt removal and repair with maintaining base course layer and applying one layer of	Potential occurrence of gender-based violence and sexual exploitation and abuse incidents and all forms of GBV incidents Potential impact on: Ain El Hilweh camp and Mieh w Mieh camp along a secondary road	N	Draft Codes of Conduct and the guidelines for a GBV and VAC Action Plan Conduct training sessions for workers on Sexual Exploitation and Abuse and/or Sexual Harassment All workers should understand, and sign codes of conduct written in their native language Respond to the reported incidents of sexual abuse exploitation as a matter of priority

Receptor	Activity Generating Impacts	Impact Description	Rating	Mitigation Measure
	asphalt binder course and one layer of asphalt wearing course Deep patching works including excavation maintaining base course and asphalt binder course and asphalt wearing courses Milling and overlay for sunken but stable trench Removal and reinstatement of damaged trench. Cast in situ reinforced concrete for repair box culverts, headwalls and wingwalls, concrete channels, safety barriers, retaining walls and cover channels Plain concrete patching for deteriorated concrete in culverts, channels, walls and safety barriers	Informal settlements at proximity of the proposed primary and secondary roads and the ones along a secondary road		Regular training on gender-based aspects, internal and external GRM that includes an anonymous channel for protection of complainants' identity and confidentiality Availability of a GRM with multiple channels to initiate a GBV complaint, which ensures confidential reporting with safe and ethical documenting of GBV cases, including Sexual Exploitation and Abuse and Sexual Harassment GRM will be sensitive to complaints related to SEA/SH grievances and ensure implementation of the necessary referral pathways Ensure that there is a survivor centric approach for SEA/SH complaints and trained personnel handling these calls
Nearby communities		Slight increase in traffic due to the transport of construction materials or due to the material that may fall Potential impact on: Near densely populated urban areas Ain El Hilweh camp and Mieh w Mieh camp along a secondary road Informal settlements at proximity of the proposed primary and secondary roads and the ones along a secondary road The American University of Science and Technology (AUST) at 75 meters away from a secondary road Saint Joseph University at 412 meters away from a secondary road and at 271 meters away from road PRI 055	N	Prepare and abide by **Traffic Management Plan (Annex 9)** Ensure traffic is not blocked during transportation Inform residents and place signs near the working areas in culturally appropriate languages and written in clear and understandable manner Ensure communities have access to GRM Cover transported material Abide by traffic regulations Operate well maintained vehicles

Receptor	Activity Generating Impacts	Impact Description	Rating	Mitigation Measure
		Jinan University at 70 meters away from a secondary road Lebanese University at 87 meters away from a secondary road Lebanese International University at 29 meters away from a secondary road Phoenicia University at 714 meters away from a secondary road Turkish Trauma and Emergency hospital at 170 meters away from a secondary road Kasab Hospital and Jubeily hospitals at 20 meters away from a secondary road and at 78 meters away from road PRI 055 Abed El Rahman Al Nakib Hospital at around 35 meters from road PRI 055 HHUMC Hammoud Hospital University Medical Center located along a secondary road Dalla'a General Hospital at around 180 meters away from a secondary road Labib Medical Center at 22 meters away from a secondary road Health Medical Center Hospital at 185 meters away from a secondary road Al Janoub Hospital at 245 meters away from a secondary road and at 270 meters away from road PRI 056 Al Hamshari Hospital along a secondary road		

Receptor	Activity Generating Impacts	Impact Description	Rating	Mitigation Measure
		Sidon Governmental Hospital at 15 meters away from a secondary road Raee Hospital at 250 meters away from a secondary road The Dabane Palace at 37.5 meters away from a secondary road and 107 meters away from road PRI 056 The Audi soap museum at 15 meters away from a secondary road and at 286 meters away from road PRI 056 Caves at 250 meters away from a secondary road Refer to Annex 3		
Nearby communities		Traffic congestion in the town due to temporal road closure Potential impact on: Near densely populated urban areas Ain El Hilweh camp and Mieh w Mieh camp along a secondary road Informal settlements at proximity of the proposed primary and secondary roads and the ones along a secondary road The American University of Science and Technology (AUST) at 75 meters away from a secondary road Saint Joseph University at 412 meters away from a secondary road and at 271 meters away from road PRI 055 Jinan University at 70 meters away from a secondary road	N	

Receptor	Activity Generating Impacts	Impact Description	Rating	Mitigation Measure
		Lebanese University at 87 meters away from a secondary road Lebanese International University at 29 meters away from a secondary road Phoenicia University at 714 meters away from a secondary road Turkish Trauma and Emergency hospital at 170 meters away from a secondary road Kasab Hospital and Jubeily hospitals at 20 meters away from a secondary road and at 78 meters away from road PRI 055 Abed El Rahman Al Nakib Hospital at around 35 meters from road PRI 055 HHUMC Hammoud Hospital University Medical Center located along a secondary road Dalla'a General Hospital at around 180 meters away from a secondary road Labib Medical Center at 22 meters away from a secondary road Health Medical Center Hospital at 185 meters away from a secondary road Al Janoub Hospital at 245 meters away from a secondary road and at 270 meters away from road PRI 056 Al Hamshari Hospital along a secondary road Sidon Governmental Hospital at 15 meters away from a secondary road		

Receptor	Activity Generating Impacts	Impact Description	Rating	Mitigation Measure
		Raee Hospital at 250 meters away from a secondary road The Dabane Palace at 37.5 meters away from a secondary road and 107 meters away from road PRI 056 The Audi soap museum at 15 meters away from a secondary road and at 286 meters away from road PRI 056 Caves at 250 meters away from a secondary road Refer to Annex 3		
Nearby communities, socio-economic activities		Material falling from vehicles during transport may cause traffic accidents or congestion Potential impact on: Near densely populated urban areas Ain El Hilweh camp and Mieh w Mieh camp along a secondary road Informal settlements at proximity of the proposed primary and secondary roads and the ones along a secondary road The American University of Science and Technology (AUST) at 75 meters away from a secondary road Saint Joseph University at 412 meters away from a secondary road and at 271 meters away from road PRI 055 Jinan University at 70 meters away from a secondary road Lebanese University at 87 meters away from a secondary road	N	

Receptor	Activity Generating Impacts	Impact Description	Rating	Mitigation Measure
		Lebanese International University at 29 meters away from a secondary road Phoenicia University at 714 meters away from a secondary road Turkish Trauma and Emergency hospital at 170 meters away from a secondary road Kasab Hospital and Jubeily hospitals at 20 meters away from a secondary road and at 78 meters away from road PRI 055 Abed El Rahman Al Nakib Hospital at around 35 meters from road PRI 055 HHUMC Hammoud Hospital University Medical Center located along a secondary road Dalla'a General Hospital at around 180 meters away from a secondary road Labib Medical Center at 22 meters away from a secondary road Health Medical Center Hospital at 185 meters away from a secondary road Al Janoub Hospital at 245 meters away from a secondary road and at 270 meters away from road PRI 056 Al Hamshari Hospital along a secondary road Sidon Governmental Hospital at 15 meters away from a secondary road Raee Hospital at 250 meters away from a secondary road		

Receptor	Activity Generating Impacts	Impact Description	Rating	Mitigation Measure
		The Dabane Palace at 37.5 meters away from a secondary road and 107 meters away from road PRI 056 The Audi soap museum at 15 meters away from a secondary road and at 286 meters away from road PRI 056 Caves at 250 meters away from a secondary road Refer to Annex 3		
Health and Safety				
Workers	Thermoplastic reflectorized road paint lines including surface preparation and removal of existing paint lines Thermoplastic reflectorized special road marking including speed limit marking, Bituminous speed humps Rumble strips	Accident and injuries to workers and public because of maintenance activities	2N	Develop a site-specific **Public Health and Safety Plan and Occupational Health and Safety (Annex 9)**
Nearby communities	Cleaning of waterways, hydraulic structures , drainage pipes, and box culverts Removal of damaged galvanized steel guardrail and replacing it by new ones Shallow patching works including milling and re-instating wearing asphalt course, full asphalt removal and repair with maintaining base course layer and applying one layer of asphalt binder course and one layer of asphalt wearing course Deep patching works including excavation maintaining base course and asphalt binder course and asphalt wearing courses	Dust generation and noise may cause health related problems for workers and disturbance to residents Potential impact on: Near densely populated urban areas Ain El Hilweh camp and Mieh w Mieh camp along a secondary road Informal settlements at proximity of the proposed primary and secondary roads and the ones along a secondary road The American University of Science and Technology (AUST) at 75 meters away from a secondary road	N	

Receptor	Activity Generating Impacts	Impact Description	Rating	Mitigation Measure
	Milling and overlay for sunken but stable trench Removal and reinstatement of damaged trench. Cast in situ reinforced concrete for repair box culverts, headwalls and wingwalls, concrete channels, safety barriers, retaining walls and cover channels Plain concrete patching for deteriorated concrete in culverts, channels, walls and safety barriers	Saint Joseph University at 412 meters away from a secondary road and at 271 meters away from road PRI 055 Jinan University at 70 meters away from a secondary road Lebanese University at 87 meters away from a secondary road Lebanese International University at 29 meters away from a secondary road Phoenicia University at 714 meters away from a secondary road Turkish Trauma and Emergency hospital at 170 meters away from a secondary road Kasab Hospital and Jubeily hospitals at 20 meters away from a secondary road and at 78 meters away from road PRI 055 Abed El Rahman Al Nakib Hospital at around 35 meters from road PRI 055 HHUMC Hammoud Hospital University Medical Center located along a secondary road Dalla'a General Hospital at around 180 meters away from a secondary road Labib Medical Center at 22 meters away from a secondary road Health Medical Center Hospital at 185 meters away from a secondary road Al Janoub Hospital at 245 meters away from a secondary road and at 270 meters away from road PRI 056		

Receptor	Activity Generating Impacts	Impact Description	Rating	Mitigation Measure
		Al Hamshari Hospital along a secondary road Sidon Governmental Hospital at 15 meters away from a secondary road Raee Hospital at 250 meters away from a secondary road Visitors of the Dabane Palace at 37.5 meters away from a secondary road and 107 meters away from road PRI 056 Visitors of the Audi soap museum at 15 meters away from a secondary road and at 286 meters away from road PRI 056 Caves at 250 meters away from a secondary road Refer to Annex 3		
Traffic Safety				
Road users and Nearby communities	Routine Maintenance Expansion Joints Repair on highway bridges	• For joints that will be repaired during daytime, the implementation of traffic management plan will divert the traffic to the edge lanes or to a service lane since traffic flow is low. • For joints that will be repaired during night time, the implementation of traffic management plan will not affect road users because the traffic flow will be low at night.	N	The traffic management plan shall be implemented, as first stage before starting works. During the execution of maintenance/ repair of these joints, the traffic shall be diverted to the edge lanes or to service lanes in a safe manner, ensuring the continuity of traffic circulation with an acceptable flow.

6. ENVIRONMENTAL AND SOCIAL MONITORING PLAN

6.1 Monitoring Plan

Continuous monitoring during the implementation of the maintenance activities will be required to ensure the effectiveness of the proposed mitigation measures. The plan includes a list of indicators to monitor, responsibility of monitoring, schedule and location of monitoring activities, monitoring methods and the estimated cost.

Through sound environmental and social management and implementation of a monitoring plan, the maintenance activities in Saida Caza will avoid incurring the major adverse impacts. The aims of the monitoring plan are:

- Verify the environmental and social impacts predicted in the ESMP study;
- Determine project compliance with national and international requirements and standards;
- Monitor the performance of the project and the effectiveness of mitigation measures;
- Take remedial action if unexpected problems and unanticipated impacts arise.

Environmental monitoring activities/indicators during the execution of the maintenance activities are included in Table 6-1.

Table 6-1: Environmental and Social Monitoring Plan during Maintenance Activities

Impact	Monitoring Indicators	Frequency / Duration	Location	Methods	Estimated Cost
Environmental					
Air pollution (Dust /GHG Emissions)	Total Suspended Particles (TSP), PM10, PM2.5 (wherever feasible), SOx, NOx and CO	Weekly and during activities that generates significant amount of air pollutants	Throughout the project area near sensitive receptors	Visual observation of dust dispersion (scale and direction) and 1-hr and 24-hr measurements when significant amount of air pollutants are generated	$1,500/event
Noise Pollution and Light	Leq, Lmin and Lmax	Weekly and during activities generating significant noise levels	Throughout the project area near sensitive receptors	Single sample per location (average 1hr reading-15minintervals) during morning (7-8am), evening (1-2pm) and night (4-5pm)	$300 (cost of noise monitoring machine)
Contamination of surface water bodies and soil from the generated domestic wastewater from workers and liquid waste from maintenance activities	Check for leakages in the connections between the porta cabin toilets and the existing network or polyethylene tank Check the discharge endpoint of the pumped wastewater from the polyethylene tank Effluent from construction activities (Concrete mixing, dust minimizing, washing of equipment…)	Weekly	Throughout the project area and at the porta cabin toilet sites	Visual inspection	-
Contamination of surface water bodies and soil from the generated solid waste	Ensure active solid waste management plan Construction and demolition waste Waste of the workers on site	Weekly	Collection points present on sites	Visual inspection	-
Reduction in overall surface water and soil quality Accidental Releases	Ensure active spill prevention and management plan Chemicals, oils and fuel spill incidents	Weekly	Active maintenance locations	Visual inspection	-

Impact	Monitoring Indicators	Frequency / Duration	Location	Methods	Estimated Cost
Depletion of non-renewable energy resources	Inspection of the quantities and types of the used fuel and oils	Weekly	Fuel and oils purchase bills	Visual inspection	-
Depletion of water resources	Inspection of water quantities Monitoring the different drilling and construction activities Ensure active spill and accident prevention plan	Weekly	Water purchase bills	Visual inspection	-
Destruction of existing Land Resources	Check the infrastructure locations and that excavation works do not interfere with it	Weekly	In location where excavation and drilling are planned (mainly where new pavement is assigned)	Visual inspection	-
Tree and floral species disturbance near the site during maintenance activities	Site observation	Weekly	Around maintenance activities		-
Social					
Traffic congestion	Check traffic conditions during transportation of materials Ensure traffic is not blocked Ensure traffic is relocated properly Ensure all safety precautions are abided by	Daily	Throughout the project area	Visual inspection	-
Labor conditions	Proportion of Lebanese vs Syrian workers Worker's age GRM log Attendance sheets to GBV trainings	Weekly	Throughout the project area	Visual inspection	-

Impact	Monitoring Indicators	Frequency / Duration	Location	Methods	Estimated Cost
	Number of workers trained to SEA Number of workers who signed Code of Conduct				
Labor Influx	Number of report Sexual abuse and exploitation incidents Number of inappropriate communication and language among the workers	Weekly	Throughout the project area	Visual inspection	
Health and Safety					
Accident and injuries to workers	Ensure signs are in place before works begin Visual inspections to ensure that all workers are wearing their PPEs Recorded injuries and accidents within the workers	Daily	At maintenance activity locations	Visual inspection Accidents records	-
Accident and injuries to the public	Ensure the installation of pedestrian and vehicular passages near residential areas Ensure road diversion and construction attention signs are in place before works begin Record injuries and accidents within passers-by Ensure the development of a site-specific Occupational and Public Health and Safety Plan and that the best practices are applied	Daily	At maintenance activity locations	Visual inspection Accidents records	-

6.2 Institutional Setup and Capacity Building

6.2.1 Roles and Responsibilities

The project works will be executed on the main road network which is under the jurisdiction of the Ministry of Public Works and Transportation (MOPWT). In Lebanon, donor-funded road works projects are implemented by CDR upon the request of the Council of Ministers (CoM). Therefore, in the context of REP project, CDR (Road and Transport Department) will execute the project on behalf of the Government/MOPWT.

In order to achieve proper environmental and social management and monitoring, a clear, functional institutional structure will be defined along with the roles and responsibilities of each institution/personnel (refer to Figure 6-1). In fact, during the execution of works, the contractor would be the primary actor; ensuring compliance of works with the different items specified in the environmental and social management plan. Accordingly, the contractor will be supervised by several entities appointed by CDR. CDR will be responsible for constant monitoring of the maintenance works through weekly and/or monthly reports (sent by the contractor) and site visits, ensuring and enforcing mitigation measures.

- More specifically, roles and responsibilities will be defined for the following:
- CDR: Project Implementation Unit (PIU) dedicated to the project which includes social and environmental specialists
- Contractor: project director, project manager, site engineer, environmental expert, social expert, Occupational Health and Safety (OH&S) expert, Road Safety Expert, and Health, Safety and Environmental (HSE) officer
- Supervising Consultant: environmental and social expert
- Municipalities: relevant municipalities in Saida Caza

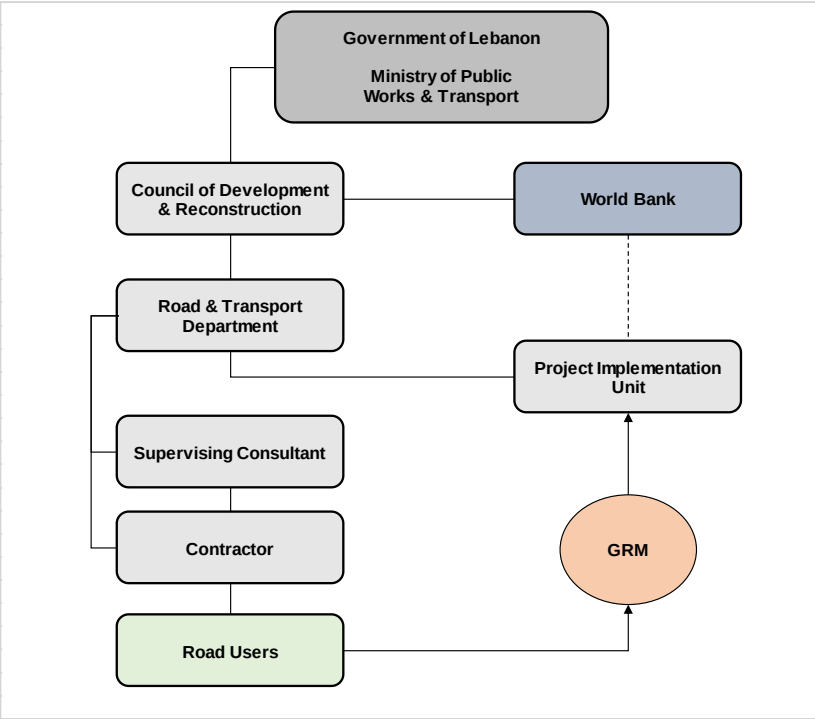


Figure 6-1: Roads and Employment Project Management Structure

6.2.2 Staff Training

In the context of the proposed project, the supervising consultant will prepare environmental and social training course (environmental and social management, health and safety issues) prior to the handover of the road project for the contractors and field supervision staff.

The main objective of the training is to:

- Meet regulatory requirements in capacity development in support of road maintenance;
- Develop technical and administrative procedures for monitoring air quality, traffic scheme recording accidents number;
- Implement data collection for monitoring activities;
- Establish a continuous improvement process for safety;
- Ensure that staff knows and understands the potential risks associated with road safety;
- Enhance knowledge and skills of municipality employees, enabling them to perform their responsibilities in the areas of health and safety.

Training programs must be incorporated with a feedback loop to ensure their relevance and acceptance by staff and will be reviewed periodically and updated when necessary. The implementation of the training programs will raise awareness to the involved workers and municipalities of the Caza in the following topics:

- National environmental and social laws, regulations, and standards;
- WB safeguard policies;
- Identified Management and Monitoring Plans
- GRM and referral pathways and prevention against SEA/SH;
- Codes of Conduct.

6.2.3 Documentation and Reporting

During the maintenance phase, regular monitoring results must be documented in order to track and analyze the frequency of potential impacts and accidents that might occur. The project supervision engineer is responsible for the reporting and establishing a comprehensive database for all monitoring activities. The report must include key indicators such as:

- Type of the activity monitored;
- Date of monitoring and weather conditions;
- Photographic documentation;
- Name of the person that is conducting the monitoring;
- Method of monitoring (sampling, visual inspection, etc.);
- Number and type of samples;
- Results of the monitoring (concentrations, accidents, frequency, etc.);
- Number of internal and external grievances as per the log;
- Code of conduct trainings and number of signed forms, attendance sheets to GBV trainings, worker's age, GRM log, etc…
- Dates of trainings;
- Mitigation measures undertaken;
- Title and dates of training programs.

After documenting, the supervision engineer must submit the reports to the CDR and the WB on a monthly and quarterly basis. In addition, any incident should be recorded using an Incident Record and the details shall be entered into a register (health and safety reporting, accident reporting procedure, case of serious misconduct). There should be immediate reporting of severe incidents (such as fatal accidents).

7. CONSULTATION, DISCLOSURE AND GRM

7.1 Public Consultation

The purpose of conducting public consultation is to inform the stakeholders and the local NGOs about the proposed project and the routine maintenance activities that will be executed in Saida Caza and to take into account their concerns and feedback. Due to the Covid-19 situation in Lebanon at the moment and high level of community transmission, public consultation was held virtually on Monday, 7 February 2022 using Zoom Application. An announcement was prepared for this purpose and can be found in Annex 10.

It is worth mentioning here that all relevant municipalities will be informed upfront before the commencement of works about the Project since public consultation was conducted back in February 2022. In addition, a public notice will be posted at each relevant municipality including the GRM procedure. This will disseminate the Project and ensure that its activities are implemented in a transparent manner.

In addition to the unions and municipalities, local and international NGOs were invited to the public hearing. Invitations were sent by the consultant to the concerned municipalities, union of municipalities and NGOs. A sample of the invitation can be found in Annex 10. Annex 10 also include the names of the invited NGOs and their field of activity. Those NGOs may serve as advocates to reduce projects' social and environmental risks and promote good practice. However, the international and local NGOs listed in the Annex were invited but did not attend the consultation.

During the session, participants were asked to write their names along with their organization and/or position in the Chat on Zoom Application. Annex 10 presents the list of attendees of the session. A total of 24 participants attended the session out of which 7 were women.

The public hearing opened with a word from ACE representative who introduced the overall project and its objectives and relevant organizations including CDR and the World Bank. The Consultant presented a description on the maintenance activities, purpose of the hearing, a summary of the ESMP process, and a list of potential environmental and social issues associated with implementation of maintenance activities. Participants were also informed that a GRM procedure has been developed for the project and were given contact information of the Project Consultant in order to inquire about it as well as the GRM channels. The floor was then opened for discussion and questions. The presentation made to the public hearing participants along with some screenshots from the Zoom meeting can be found in Annex 10.

The proceedings which describe in detail the raised concerns and complaints by the participants and how all have been addressed are presented in the following paragraph.

- The representatives of the Municipality of Saida asked about the differences between the roads marked in green and red and the towns that are covered by the roads. ACE representative stated that roads in green are the primary roads that are covered by this project and will that are a priority, however, the roads in red are the secondary roads that may be covered later if funding was provided. He also claimed that ACE can provide a map of these roads and the towns is reaching.
- The municipality of Saida claimed that there are many important international roads in Saida that serve the South and asked if these roads will be covered. International roads are not covered in this project as was claimed by ACE representative and that there maintenance is more complex and the activities require a high budget.

- One of the participants from the Municipality of Saida asked if the maintenance activities could be implemented for the west highway in case the coastal highway does not require any maintenance activities. ACE representative claimed that any will be switched to other primary roads and then to the secondary roads.
- Waffik Hawwari from the Alli Sawtak Assembly stated that communications with the municipalities must be undertaken before the approval on this project because with close communications with the local authorities the project can achieve and can cover the needed activities in the district of Saida. ACE representative claimed that these are routine maintenance activities of what is already present on the road and these are not rehabilitation activities.
- One of the participant asked if a Bill of Quantities was prepared just for Saida and if the municipality will be involved in monitoring the maintenance activities. ACE representative claimed that primary quantities was identified for these activities for the District and that a team from CDR will be responsible for monitoring these activities and that the municipality has an essential role and can send a letter to CDR if it has any clarifications or issue.
- Ali Matar from Saida municipality claimed that the priority given to primary roads is not accurate and that deadly car accidents are occurring on international roads due to holes that must be given a priority as public health is jeopardized. ACE representative stated that the ministry of public works is responsible for maintaining the highways however, the municipality can raise a letter to CDR even if it is not involved in such projects to identify some priority points for health safety on the highways.
- Mohammad El Baba from Saida municipality also stated that meeting with relevant municipalities must be undertaken and the main road issues must be identified before

7.2 Grievance Redress Mechanism (GRM)

The purpose of a grievance mechanism is to ensure that all feedback and complaints received from stakeholders, customers, employees, contractor staff and the public in general are documented, considered and addressed in an acceptable and timely manner. It is important to note that this mechanism will be shared with the participants and two mechanisms are used for filing a grievance, one for the surrounding communities and one for the workers. Moreover, GRM will be disseminated to the affected municipalities prior to roads routine maintenance works. The GRM will also be responsible for tracking and resolving worker grievances and maintain records about grievances/complaints received, recommendations and resolutions made and notice of resolution of grievance to the complainant. In addition, the GM will be sensitive to complaints related to SEA/SH grievances and ensure implementation of the necessary referral pathways. Anonymous grievances will be addressed in both levels and the maximum anticipated time needed to close a GRM case. The online GRM form that is designed for the REP at the CDR level can be used in the meantime.

7.2.1 GRM for Communities

The GRM will be accessible to all relevant stakeholders who can use this mechanism to send their suggestions, concerns and complaints related to the project. The complaints, suggestions and concerns can be sent by email, mail, phone (through a hotline), in person and other means such as a grievance compliant logging sheet where grievances are registered in writing and maintained as a database. The phone number, e-mail address, and address for receiving complaints will be disclosed among the population and will be posted at the maintenance sites in Saida Caza, before commencement of project implementation. Moreover, the information on how to access the GRM should be available through billboards, CDR website, etc..

The GRM levels of the project are the following (see Figure 8-1):

- Level 1: If any person has any complaint or concern regarding the project implementation, he/she can lodge an oral or written grievance to the site engineer. In case an oral complaint is made, it should be written by the Contractor Social expert. The issue must be resolved within a maximum duration of one week.
- Level 2: If the person is not satisfied with the action of the Contractor, he/ she can send the complaint to the PIU social specialist through Phone: 01980096 ext:317, Email: GRM.REP@cdr.gov.lb or official letter registered at the CDR. The issue shall be resolved within a maximum of two weeks
- Level 3: If the person is not satisfied with the decision of the social specialist of PIU, he or she can bring the complaint to the attention of the PIU Director's Office. Once the PIU Director receives the complaint, it needs to be resolved within a maximum of two weeks.

All complaints will be individually followed up on and documented accordingly in a GRM log. The designated person at each level should report to the PIU on the number and subject of new complaints received, and the status of the already existing complaints, if any (i.e. the Contractor social expert will report to the Supervising Consultant expert who will report monthly to the PIU (CDR) who will, in turn, submit the consultants' monthly reports to the WB). The Complaints Register form and GRM log are included in Annex 11.

The GRM does not exclude the formal legal process of the national law. If a grievance remains unresolved following application of the project GRM process, the affected person can initiate legal proceedings in accordance with national law and may have recourse to the Appeals Court as warranted.

Finally, an online form has been designed using the IMPACT platform to allow citizens to share their feedback. For each worksite in Saida, a link to the form will be shared with the local communities via location-based SMS, email and social media. At each worksite, a QR code will also be added on the project sign board (which already includes the project GRM) to automatically direct participants to the online form.

7.2.2 GRM for Workers

A GRM for internal employees, namely the laborers onsite are also necessary. It aims to allow labors to report any wrongdoings in their favor or important concerns they might have. This internal GRM is similar in nature to the one previously discussed (in terms of accessibility, reporting means, etc…). The only main difference is the contact people for each level. In this context, the first level involves reporting to the health and safety officer and has a duration of one week. The second level involves reporting to the PMU Director and should be resolved within one weeks. It also follows the Complaints Register form (refer to Annex 11).

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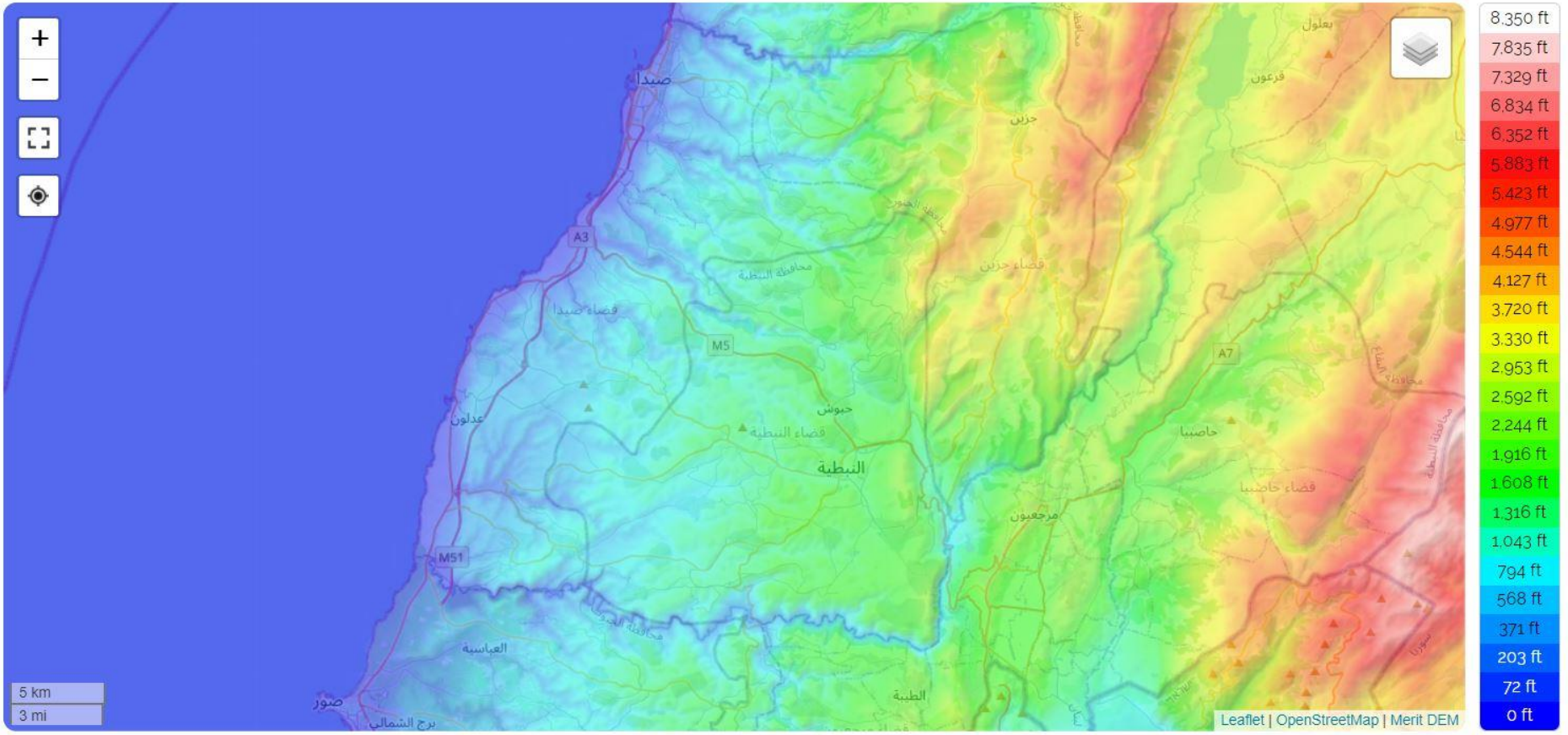
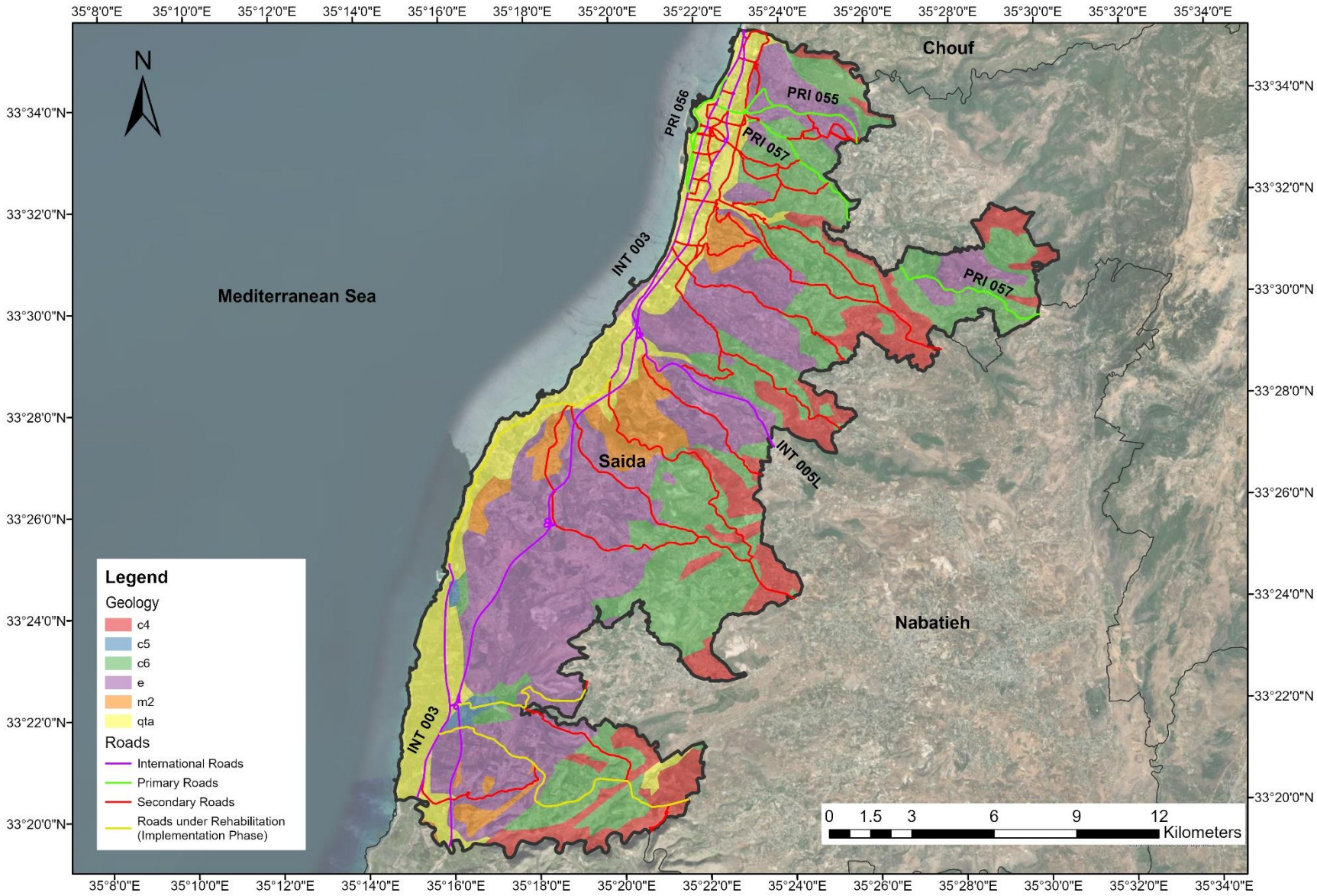
ANNEX 1: TOPOGRAPHIC MAP OF SAIDA



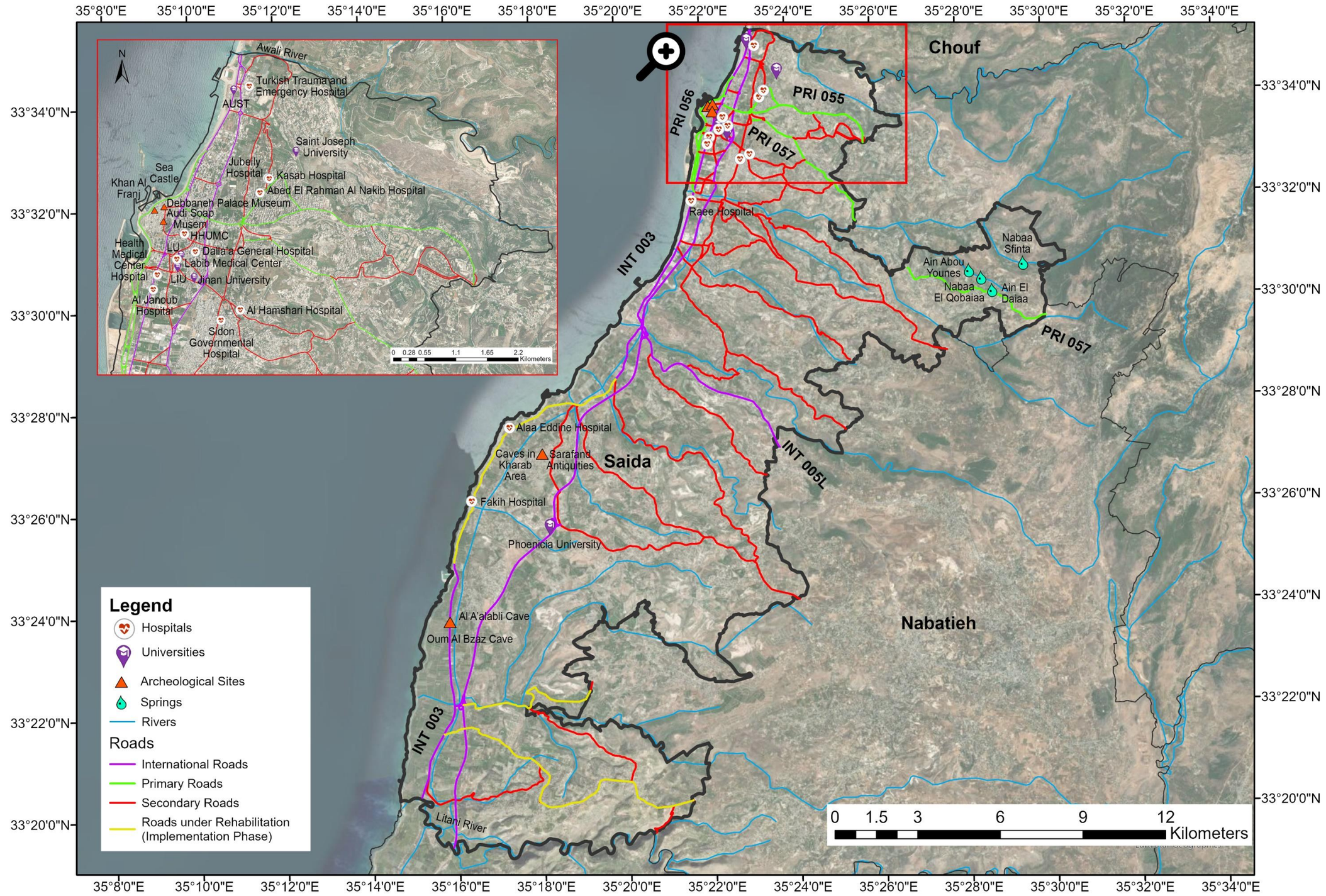
Sidon, Sidon District, South Governorate, 1600, Lebanon (33.56183 35.37803)

Source: Topographic-Map Website, 2022

ANNEX 2: GEOLOGY MAP OF SAIDA CAZA

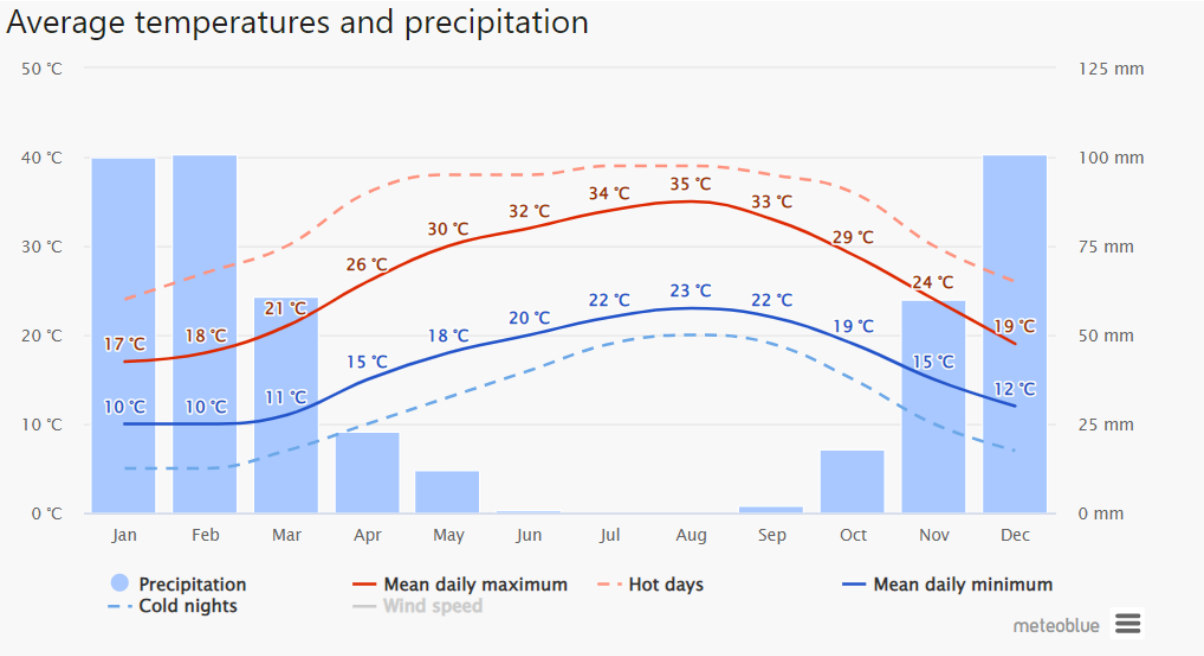


ANNEX 3: SENSTIVE AREAS MAP



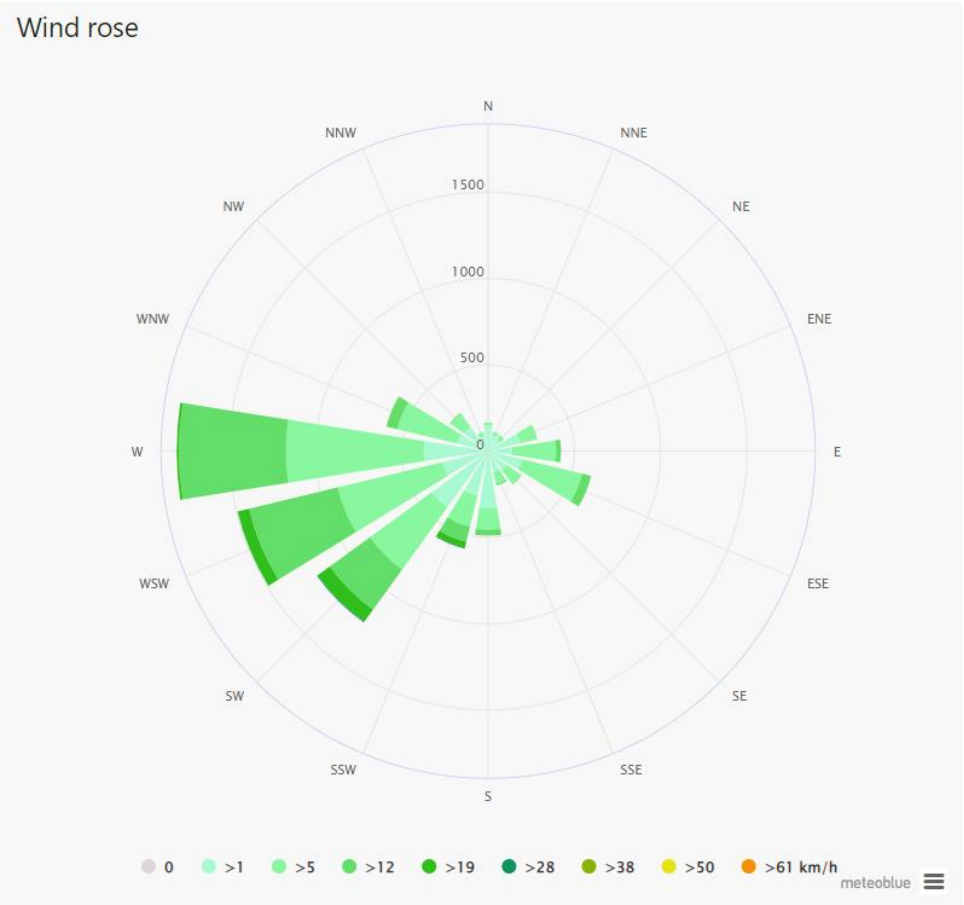
ANNEX 4: CLIMATE DATA

Figure 1: Climograph of Saida City (for the last 30 years)



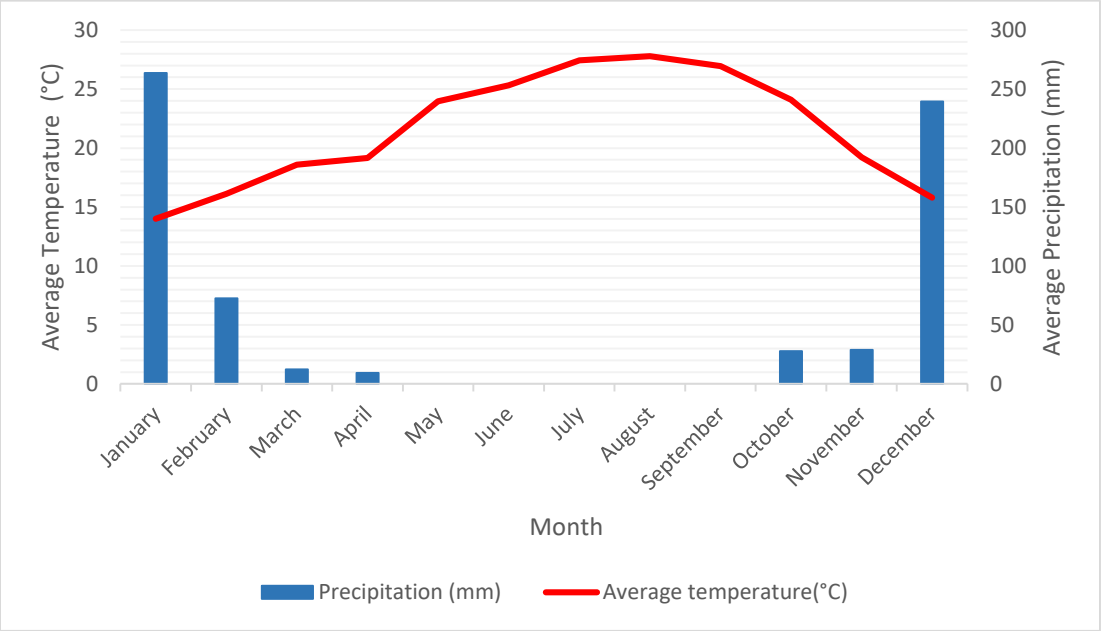
Source: https://www.meteoblue.com/en/weather/historyclimate/climatemodelled/sidon_lebanon_268064

Figure 2: Wind Rose for Saida City (for the last 30 years)



Source: https://www.meteoblue.com/en/weather/historyclimate/climatemodelled/sidon_lebanon_268064

Figure 3: Climograph of Saida from LARI Station for the Year 2018



Source: LARI, 2019

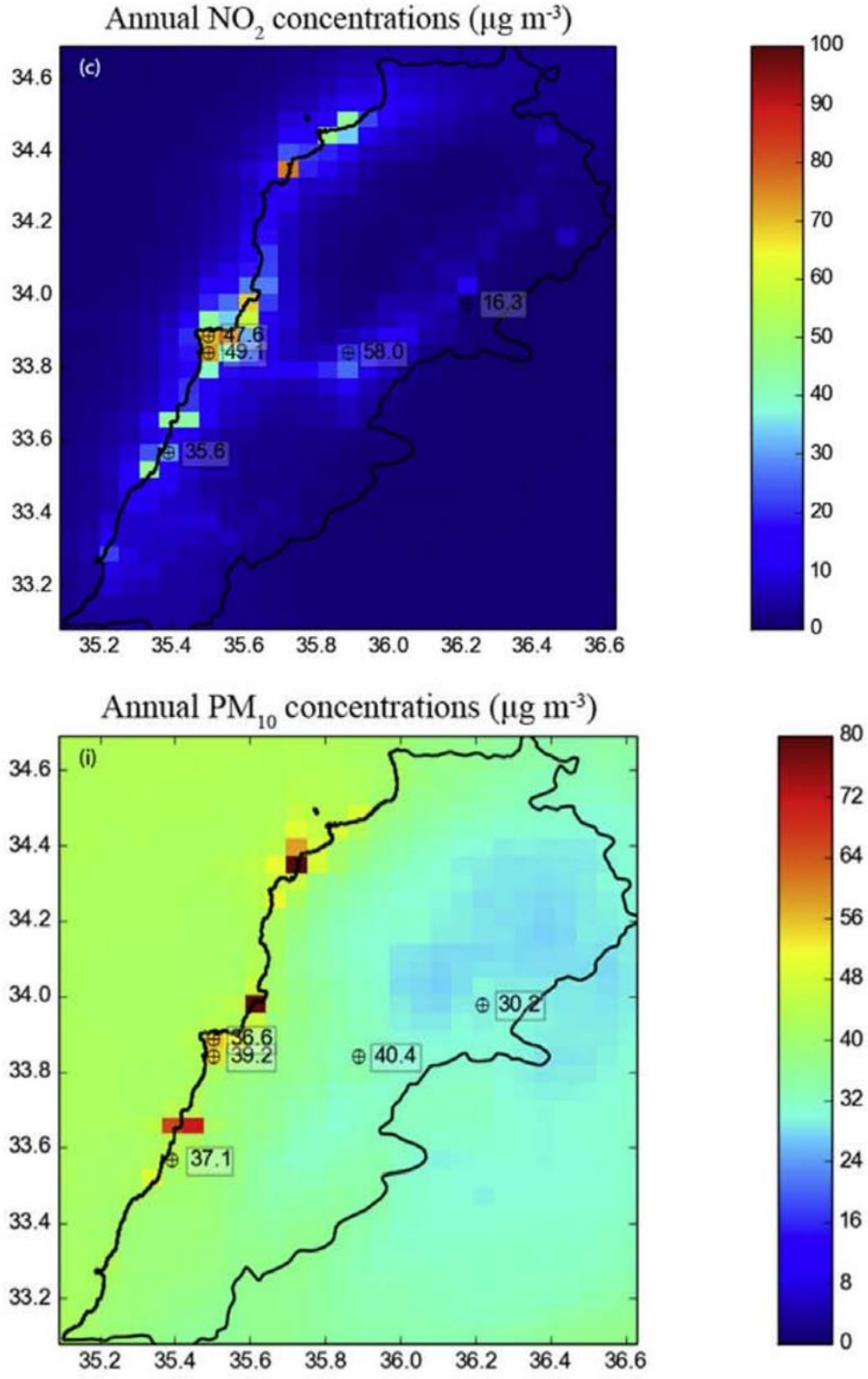
Table 1: Monthly and Yearly Averages of Wind Speed (m/s) and Direction (degrees) registered by Sour's LARI Station in 2019.

Month	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec	Average per year 2019
Monthly Average Wind Speed (m/s)	1.23	1.18	0.85	0.75	0.69	0.74	0.92	0.79	0.7	0.63	0.81	0.93	0.85
Monthly Average Wind Direction (Degrees)	149.25	133.5	131.13	120.16	124.93	134.1	181.87	158.48	141.16	102.61	95.4	117.29	132.49

Source: Data provided by LARI on January 21, 2020

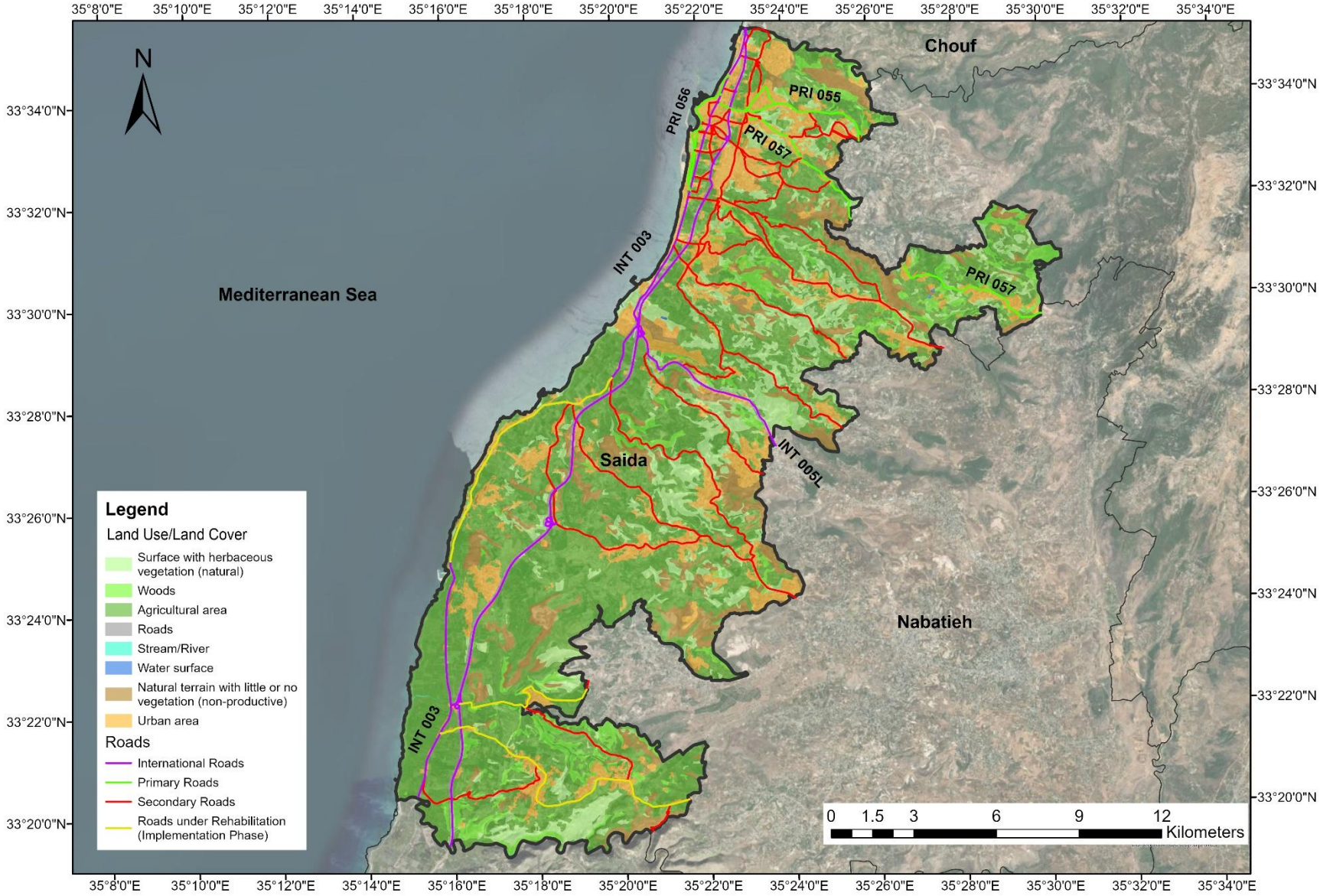
ANNEX 5: AIR QUALITY DATA

The mean modelled annual concentrations maps for NO_2 and PM_{10}.

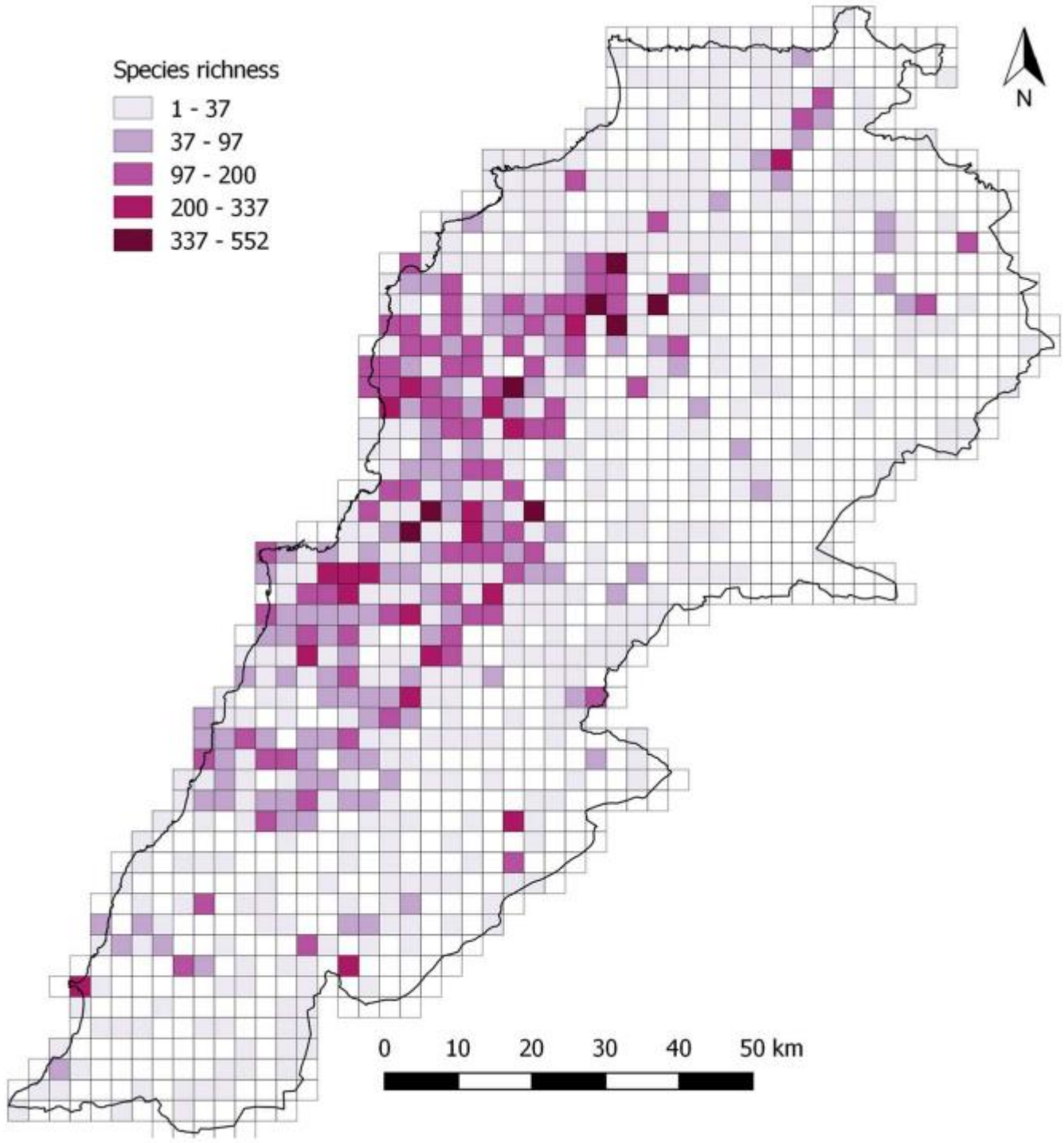


Source: Abdallah et al., 2018

ANNEX 6: LAND USE/LAND COVER MAP OF SAIDA

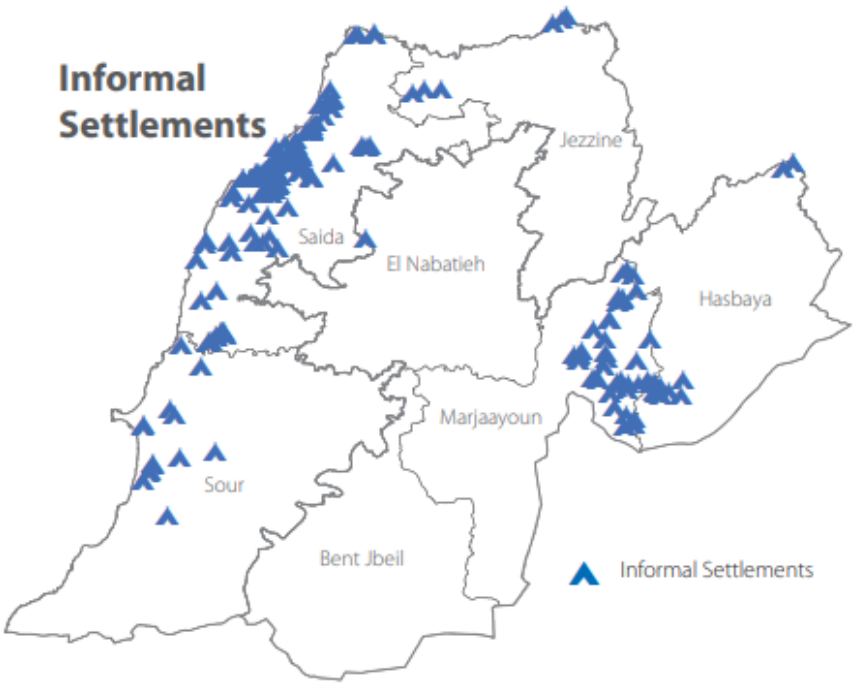


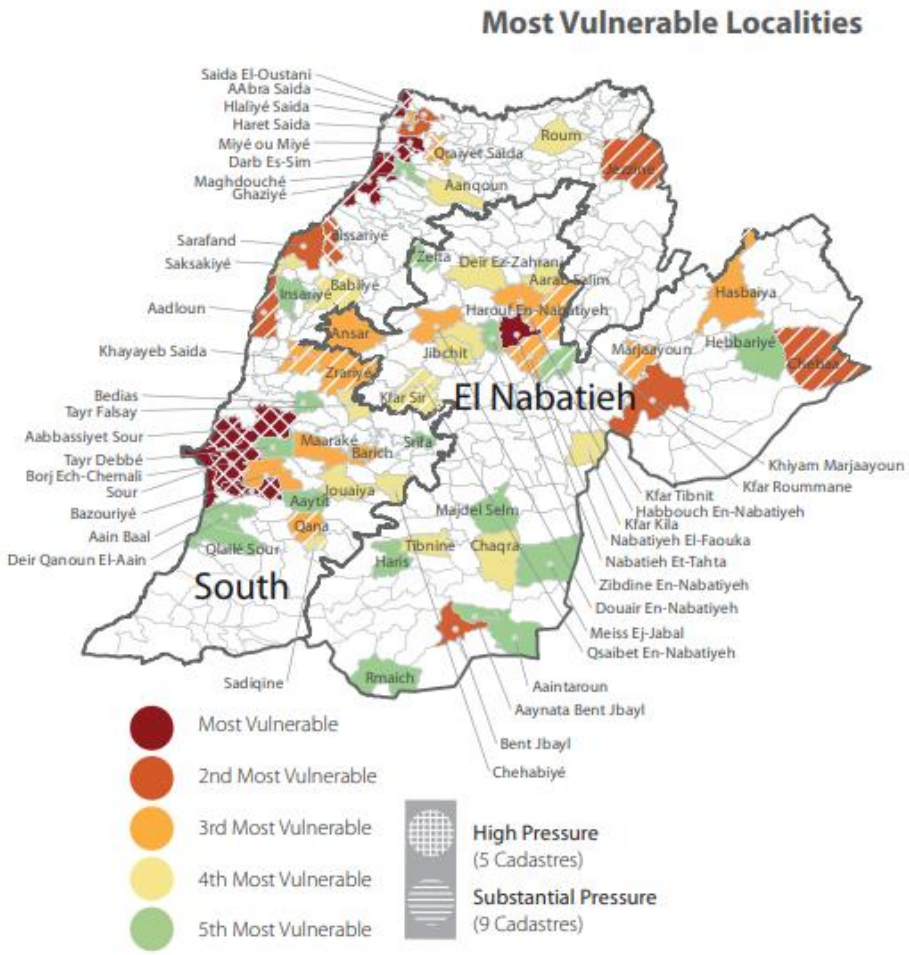
ANNEX 7: FLORA SPECIES RICHNESS IN LEBANON



Source: Dagher-Kharrat et al, 2018

ANNEX 8: INFORMAL SETTLEMENTS AND MOST VULNERABLE LOCALITIES





Source: OCHA, 2016

ANNEX 9: PLANS AND PROCEDURES DURING MAINTENANCE ACTIVITIES

Pollution Prevention Plan

The Contractor shall prepare and abide by a Pollution Prevention Plan to ensure that pollution to air, water or land is prevented or, where this is not possible, reduced and mitigated as far as practicable during the construction phase. The Pollution Prevention Plan will be developed for managing:

- liquid effluents
- air emissions
- noise and vibration
- fuel, oil, and chemical storage and handling
- hazardous, non-hazardous, and household waste handling, storage and final disposal
- vehicle and equipment selection and maintenance

Effluent Management Provisions

- No effluent shall be discharged under any condition neither into water courses or bodies including surface water bodies nor to ground surface or infiltrated into subsoils
- Install mobile porta-cabins and connect the generated wastewater from workers to the existing sewage network or to polyethylene tank
- Empty the tank in the sewer network or into nearby operational wastewater treatment plants either by municipality-owned or contracted wastewater tankers

Rainwater run-off Management Provisions

- Install temporary structures to prevent runoff from reaching nearby water bodies
- Remove base coarse and sand from active maintenance sites to prevent the transfer of suspended solids in rainwater
- All platforms where generators or hydrocarbon storage tanks are installed have an impervious layer
- Restrict excavation activities during periods of intense rainfall

Atmospheric Emissions and Dust Management Provisions

- Exercise care to minimize emissions of dust from its activities, including traffic, at work sites, in residential areas and on access roads.
- Stop dust generating activities during windy weather especially in residential areas
- Where it is deemed that dust is impacting or may have an impact on human, plant or animal receptors or where dust may cause sedimentation of watercourses/water bodies or unacceptable levels of soil loss, water shall be applied to the area creating the dust
- Control vehicle speeds to reduce traffic-induced dust dispersion and resuspension by setting and enforcing speed limits
- Post speed limit signs in sensitive areas
- Ensuring trucks hauling sand, dirt or other loose materials are covered (sheeting trucks)
- Cover dusty stockpiles
- Suspending topsoil stripping and replacement during strong winds
- Using a dust collection system for bulk materials unloading
- Ensure proper handling and storage of materials thus minimising the areas of stockpiled materials

- When storage, transport and handling of bulk materials is made in the open air and exposed to the wind, necessary dust abatement measures shall be implemented
- Regular maintenance of construction machinery, equipment and vehicles

Spill Prevention and Management

- Spill clean-up procedure to reduce the risks of accidental leakages
- Carry out all re-fuelling in designated areas with impervious surfaces and guarantee no fuel spills
- A spill collection tank must be installed under generators and specific equipment
- All chemicals shall be stored in dedicated areas on a paved or sealed floor and in tightly closed containers and be protected from adverse weather conditions
- Used oil or chemical must be stored in an appropriate area until it is collected and disposed in licensed sites
- Use of secondary containment basins for long term storage of lubricants and fuels
- Ensure that the plan is present at the construction site and that oil spill response kits are available
- Ensure proper housekeeping conditions are maintained at the oil/chemical storage areas
- Train all workers to implement this plan in case of accidental spillage

Waste Management Plan

This plan shall be developed and implemented by the Contractor to manage the generated waste effectively. The plan shall include the following components:

- Establish and maintain a waste register which is at the disposal of the Engineer. This register will record all waste management operations: production, collection, transport and disposal.. Waste shall be categorized according to the following definitions:
  - Non-hazardous solid waste generated at maintenance sites and offices includes excess fill materials from grading and excavation activities, scrap wood and metals, and small concrete spills. Other non-hazardous solid wastes include office and kitchen wastes.
  - Hazardous solid waste includes contaminated soils, oily rags, used oil filters, used oil, as well as spill cleanup materials from oil and fuel spills
- Waste shall be collected from each maintenance sites and from offices at the same rate that it is produced
- All the waste materials generated at work sites and offices shall be segregated into domestic (organic/ paper and cardboard/ metals, glass and plastics) and hazardous waste and disposed into the color-coded containers (one for the disposal of organic waste, one for paper and cardboard and one for aluminium, glass and plastics)
- The domestic waste containers shall be emptied 2 to 3 times per week by the municipality to maintain maintenance sites sanitation
- Segregated recyclables shall be sent to recycling facilities in the area where possible
- Reuse of excavation materials generated during cutting and filling activities whenever possible and disposal of remaining material in controlled disposal site to be identified by the contractor in coordination with the relevant municipality
- Approval letters shall be obtained from the concerned municipalities for domestic and construction waste disposal
- Reuse or recycle the generated waste whenever possible
- Train workers on waste reduction procedures
- Provide workers with nearby sanitation facilities and inform them about their location

- The work zone shall be cleaned on a daily basis. Construction leftovers that are external to the working zone shall be removed regularly. Site housekeeping must be maintained

Hazardous Materials Management Plan

A Hazardous Materials Management Plan will be developed for hazardous materials that pose a potential risk to human health or the environment and include cleaning chemicals, solvents and fuels. The plan shall include the following:

- Fuel and hazardous chemicals/materials shall be stored in designated areas, except for quantities generated or required for the daily construction activities.
- All fuel and hazardous chemical storage facilities shall be located on flat or gently sloping ground and shall be contained within a bund designed to contain at least 110% of the total capacity of the storage containers plus 10% of the aggregate tank volume within the containment area or as otherwise specified by regulatory requirements. The bund walls and floor shall be constructed of concrete or other suitably impermeable material. The filling connection must be within the bund. No drain valves or other connections through the bund walls shall be permitted. Tanks shall be fitted with a gauge to allow the fill level to be monitored during refilling and preferably with a high-level alarm.
- Hydrocarbons, lubricants, paints, solvents and batteries are transported in drums to suitable waste management facilities, if available

Emergency Preparedness and Response Plan

An Emergency Preparedness and Response Plan (EPRP) will be developed so that the Contractor is prepared to respond to accidental and emergency situations in a manner that prevents and mitigates harm to people and the environment. The EPRP needs to be discussed and disclosed to service providers and local affected communities prior to construction. The EPRP shall cover the following emergency situations as a minimum/;

- Medical emergency
- Fire or explosion;
- Hazardous Material Spill or Release;

The EPRP will identify

- Accidents and emergency situations and the communities and individuals that may potentially be impacted
- Response procedures, provision of equipment and resources, designation of responsibilities, communication systems and channels and periodic response training

The Project will need to ensure that the Contractor shall

- Maintain fit-for-purpose Emergency Response Capability, which shall be clearly documented
- Make contingency arrangements for calling a Doctor and transporting injured persons to hospital. The telephone numbers of the emergency services and the name, address and telephone number of the Doctor and the nearest hospital shall be prominently displayed in the Contractor´s office.
- Ensure that all personnel are informed and aware of how to react in an emergency situation, and responsibilities are defined. Information and awareness training shall be documented, and available on all Project Areas
- Organize and document emergency simulation exercises within 3 months of the physical start of the works, and subsequently once every 12 months

Traffic Management Plan

A Traffic Management Plan (TMP) will need to be developed by the main contractor. The TMP shall be a starting point for further discussion between the main contractor, local authorities and road agencies. The plan will include preventative measures to manage the risks from potential increases in traffic from construction activities including transportation of material and workers to and from the maintenance activity sites. In addition, it will include measures to protect workers and manage the risks from civilian traffic within close proximity to maintenance activities especially within residential areas. The TMP will be refined and updated as access routes are confirmed and the timing and type of abnormal loads become known.
The TMP shall include the following:

- Proposed program of works;
- Details of key stakeholders;
- Details regarding the proposed method of construction;
- Proposed Temporary Traffic Control/ Management Plans (TTCP/ TMP);
- Various traffic diversion plan layouts for various type of activities;
- Diversion signs;
- Regulatory signs;
- Informative signs;
- Analysis of impacted roads;
- Risk Assessment;
- Proposed working hours; and
- Protection of Work Zones and road users including pedestrians

The TMP shall be approved by the Consultant prior the execution of work.

A special TMP shall be prepared regarding works on Highways.

Noting that Works on Highways shall be minimized during Peak- Hours and maximized during off-peak hours, 7 days a week.

Public Health and Safety Plan

An effective Public Health and Safety Plan for construction shall include at least the following components:

- Secure the site and restrict access to it
- Prohibit unattended/unauthorized public access
- No children are allowed to be present on the work site, reminding workers and community members of this in all related communications
- Install barriers with warning lights at night around excavations, material dumps or other obstructions at the maintenance sites
- Install warning signs for drilling and maintenance at the external part of the site and at a distance of 100 meters
- Inform residents and place proper safety and diversion signs at sensitive areas within the project area (i.e. near schools, shops hospitals and agriculture areas)
- Install pedestrian and vehicular passages near residential areas
- Accidental oil spillage shall be well controlled
- Make sure at least three sets of first aid kits are present on the construction site.
- Access to hospitals should not be impeded at any time

- Properly manage trucks and heavy machinery entering and exiting the construction site.
- Training of heavy machinery drivers about road safety
- Equip Project drivers with telephones for contacting the emergency services to enact the EPRP if necessary in case of emergency.
- Keep stakeholders informed of maintenance schedule and abide by assigned timing
- Manage the grievance mechanism through which community members can make complaints about project activities
- The community health and safety plan shall cross reference with other relevant management plans such as the TMP and EPRP. Local health care and emergency services shall be consulted in the development of the plan.

Occupational Health and Safety (OHS) Plan

In addition, the Contractor shall ensure the workers' health and safety against possible accidents and injuries from the various maintenance activities. The plan shall include the following:

- Hazard Identification and assessment including (Physical injuries from: Traffic accidents, Falling from moving vehicles, Loss of stability and overturning of equipment, Falling from height, Hit by construction materials, Slips, trips and falls, Electrical incidents, Burns from hot works, Health problems due to: Fumes and dust, Noise and vibration, Excessive manual handling, Disease outbreaks, Asphyxiation in confined spaces and Fire)
- OHS protection measures for the identified hazards
- OHS protection measures for Unexploded Explosive Ordnance
- Prevention and precaution measures for COVID-19
- Identify the mandatory personal protective equipment (PPE) to be used including hard hats, safety boots, reflective vest as well as specific PPEs
- Identify and manage dangerous substances planned to be used on the project area
- Work Permit System for Confined Space Entry, Hot Works, Excavation, Lifting, Working at Height, Handling of Hazardous Materials, and Electrical works
- Safe Work Method Statements
- Hazard communication
- Emergency and Evacuation procedures
- Accident and incident reporting and investigation

The Contractor shall implement mitigation measures as per the Occupational Health and Safety Plan. Measures include but not limited to:

- Personnel and visitors to maintenance activity areas shall be equipped with a safety helmet, safety shoes and a reflective jacket as a minimum.
- Adequate quantities of PPE shall be available on the project areas and stored properly
- Personnel shall be trained on how to use and care for PPE
- Conduct training and awareness meetings including correct use of PPE, health and safety procedures, and handling hazardous material containers and related wastes
- Ensure refreshing training session on occupational health and safety measures is conducted on a monthly basis
- Ensure that supervision, directly in charge of construction activities, fully brief and discuss with Personnel HS Tool Box Talks at the start of each work day and prior to commencing new activities. These talks shall be conducted in a language understood by the workforce. A checklist shall be utilised for this purpose. At a minimum it shall include the following: Nature

of the job, associated hazards, safe working methods to be adopted and requirements of the Permit to Work

- Ensure a minimum of first-aid provisions on any work site, including: suitably stocked first-aid kits; a person, respectively an adequate number of staff appointed and trained to take charge of first-aid arrangements and ensure that staff and workers are informed about first-aid arrangements
- Equip the project area with a communication system exclusively for the purposes of communication with the first aid services. Information on how to communicate with the first aid services shall be clearly indicated near the communications equipment
- Collaborate with local health authorities and make arrangement with an appropriate number of local doctors, and/or nurses, hospitals and ambulance services to ensure that medical staff, first aid facilities, and ambulance service are available within the project area
- Measures as per national guidelines published by WHO and Ministry of Public Health regarding COVID-19 prevention and quarantine procedures
- Workplace inspections

Chance Finds Procedure

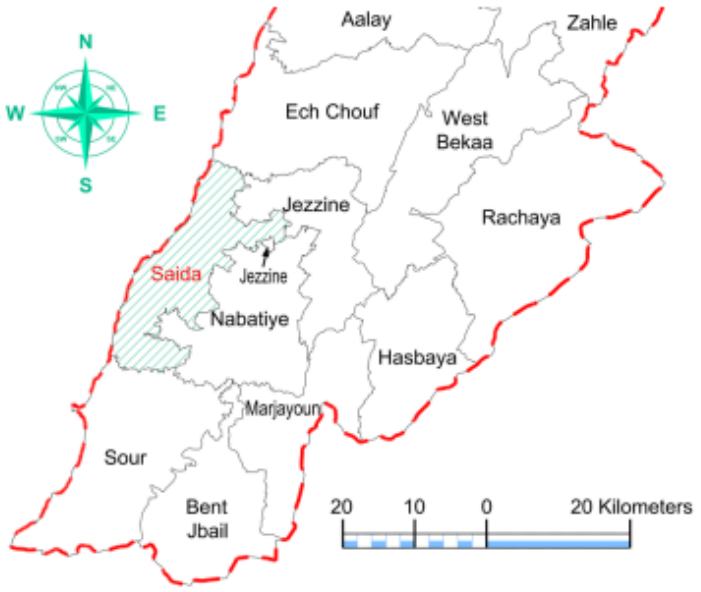
The chance find procedure is a project-specific procedure that identify actions necessary if previously unknown heritage resources, particularly archaeological resources, are unexpectedly encountered during project construction phase. As described in ESS8: Cultural Heritage, a Chance Find Procedure will set out how chance finds associated with the project will be managed and will include the following requirements:

- Notify relevant authorities (Directorate of General of Antiquities) of found objects or sites
- Fence the area of finds or sites to avoid further disturbance
- Conduct an assessment of found objects or sites by cultural heritage experts in order to identify and implement actions consistent with the requirements of ESS8 and national legislation
- Train project personnel and project workers on chance find procedures

ANNEX 10: PUBLIC CONSULTATION

Announcement

إعلان



ضمن إطار مشروع الطرق والعمالة الممّول من قبل البنك الدولي، كلّف مجلس الإنماء والإعمار المكتب الهندسي الإستشاري (ACE) للقيام بإعداد ملفات تلزيم **"للصيانة الروتينية"** للطرق الرئيسية التي تقع ضمن نطاق **قضاء صيدا**.

إن المشروع سيشمل أنشطة الصيانة الروتينية لمدة سنتين (٢) للطرق الرئيسية المؤهلة للصيانة داخل قضاء صيدا بعد تقييم وضعها الحالي وإدراجها ضمن الطرق المؤهلة لنشاط الصيانة الروتينية.

ووفقاً لمعايير البنك الدولي، إن المكتب الهندسي الإستشاري يقوم بإعداد خطة إدارة بيئية واجتماعية (ESMP) لهذا المشروع من أجل تحديد ومعالجة وتقليص أي آثار ضارة محتملة أثناء أعمال تنفيذ الصيانة وبالتالي سيتم عقد لقاء عام لعرض مكونات المشروع ومناقشة المواضيع البيئية والاجتماعية المتعلقة بالمشروع يوم **الإثنين بتاريخ ٢٠٢٢/٠٢/٠٧ الساعة الحادية عشر صباحاً** على تطبيق Zoom، ستجد الرابط هنا:

https://zoom.us/j/97212263632?pwd=N1BxdG5qY1VxZUIzWGFhN1NzUHhCdz09

أو بإمكانك مسح رمز الإستجابة السريعة (QR Code) أدناه للإنضمام الى الإجتماع:

شاكرين لكم تعاونكم وتجاوبكم، وآملين استمرار التعاون لكل ما فيه خدمة وصحة وسلامة الوطن والمواطن.

Invitation Sample

المكتب الهندسي الاستشاري ايس ش.م.ل.
شركة مساهمة لبنانية وأسمالها ٢٠٠٠٠٠٠٠٠٠ مدفوع بكامله مسجل تجاري ١٦٥٢٢
Associated Consulting Engineers S.A.L

بيروت في ١ شباط ٢٠٢٢

٣٩/٠٢٢/L2102

جانب رئيس بلدية صيدا المحترم
الاستاذ محمد سعودي

المشروع: **أعمال صيانة روتينية للطرق الرئيسية في قضاء صيدا (تمويل من البنك الدولي)**

الموضوع: **اجتماع مشاركة عامة**

تحية طيبة وبعد،

بالإشارة الى المشروع والموضوع أعلاه، وضمن إطار مشروع الطرق والعمالة الممول من قبل البنك الدولي، كلّف مجلس الإنماء والإعمار المكتب الهندسي الإستشاري (ACE) القيام بإعداد ملفات تلزيم الصيانة الروتينية للطرق الرئيسية التي تقع ضمن نطاق قضاء صيدا.

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https://zoom.us/j/97212263632?pwd=N1BxdG5qY1VxZUlzWGFhN1NzUHhCdz09

أو بإمكانك مسح رمز الإستجابة السريعة (QR Code) أدناه للإنضمام الى الإجتماع.

وعليه يسرنا أن نوجه لكم الدعوة للمشاركة في هذه الورشة راجين التكرم بتسمية مندوب من طرفكم للحضور والاتصال للتأكيد مع السيدة كارلا منصور (المكتب الهندسي الاستشاري) على هاتف رقم (٠١/٤٩٧٢٥٠ رقم فرعي ١٢٩) أو فاكس رقم (٠١/٤٩٧٥٥٠).

كما نرفق ربطاً مع هذا الكتاب إعلان لإجتماع المشاركة العامة هذا ونرجو من حضرتكم وضعه حيث ترونه مناسباً ليتمكن سكان البلدة والمعنيين من الإطلاع عليه.

إن هذه الدعوة مفتوحة لأصحاب المنفعة ضمناً منظمات المجتمع المدني والمنظمات الغير حكومية وكافة البلديات المجاورة والمعنية بأعمال الصيانة.

وتفضلوا بقبول فائق الاحترام،

هشام الخشن
مدير المشروع

مرفقات: إعلان الإجتماع

P.O.Box 11-3446 - Fax: 01 - 497550 - Beirut, Lebanon - Tel: 01 - 497250/1/2 - email:ace@ace-intl.com (٠١)٤٩٧٢٥٠/١/٢ ص.ب ١١-٣٤٤٦ - فاكس (٠١)٤٩٧٥٥٠ - بيروت - لبنان - تلفون:

Local NGOs

Name of the NGOs	Activity
Al-Zahrani Social Cultural Forum	Conducting scientific training courses, raising awareness in the environmental field, and establishing cultural and recreational activities.
Al Reesala Association – Al Zrarieh	Lebanese organization dedicated to saving lives and conducting health and medical training sessions
Environmental Protection Association	Association in Saida caza who has been working on the safety of the environment through education, awareness and guidance for a clean and healthy society and a healthy environment
Loving the Environment Association – Al Zrarieh	Association in Al Zrarieh who has been working on the safety of the environment through education, awareness and guidance for a clean and healthy society and a healthy environment

International NGOs

NGO Name	Contacts	Intervention Sector(s)
ANERA Lebanon	Mrs. Dima Zayat Deputy Country Director T: 01382590 (ext: 105) M: 70051813 E: dzayat@aneralebanon.org	Children & Youth Development Education Relief Services Water sanitation and hygiene
ACTED	Mr. Jack French Deputy Country Director T: 01324331 M: 79160375 E: jack.french@acted.org	Development Infrastructure & Services Rehabilitation Labor & Livelihoods Shelter Water sanitation and hygiene

List of Attendees

Name	Position/Institution/Municipality
Sally Berro	DPNA
Ali Abbas	Lawyer – Social Activist – Sahel El Zahrani
Sekna Saleh	Social Worker – Zahrani Union of Municipalities
Ali Mohammad Matar	Head of the Union of Municipalities of Sahel El Zahrani
Salam Badreddine	Director of the Union of Municipalities of Sahel El Zahrani
Maya Bawji	DPNA
Mohammad El Baba	Engineer – Head of the works and planning committee – Saida Municipality
Mirhane Wehbi	Engineer – Social Activist – Adloun Municipality
Mohammad Wehbe	Engineer – Surveyor – Sahel El Zahrani area
Fatima Abdallah	Resident
Bader Abdelnabi	Engineer – Hariri Foundation – Saida
Youssef Al Tabel	Social Activist - Kharayeb
Hussein Khalife	Responsible for works surveillance in the Union of Municipalities of Sahel El Zahrani
Ali Khalife	Ghazieh Municipality
Nadine El Makkary	Architect - Hariri Foundation – Saida
Houssam Chehade	Civil Engineer - Hariri Foundation – Saida
Mustafa Hijazi	Municipality of Saida
Hiba Huneini	Hariri Foundation for Sustainable Human Development
Mouhamed Ghazeleh	Resident – Adloun
Samir	Resident
Waffik Hawwari	Alli Sawtak Assembly
Noura El Zarif	DPNA
Rida Hijazzi	Municipality of Al Kharayeb
Dr. Jalal Tabel	Municipality of Al Kharayeb
Pierre Chalfoun	ACE
Rabih Moussa	ACE
Célestie Nassar	ACE
Sania El Nakib	ACE
Joanna Zaghrini	ACE

Public Hearing Presentation and Photos


مشروع الطرق والعمالة
في لبنان

THE WORLD BANK

خطة الإدارة البيئية والاجتماعية

LOT 3
قضاء صيدا

جلسة مشاركة العامة

01/02/2022

ACE

نقاط حوار الجلسة

- مقدمة
- أهداف اللقاء
- الجهات المعنية بالمشروع
- مراحل اعداد الخطة البيئية والاجتماعية
- وصف المشروع وأبرز مكوّناته خلال مرحلة التنفيذ
- الآثار البيئية والاجتماعية الايجابية المحتملة للمشروع
- الآثار البيئية والاجتماعية السلبية المحتملة للمشروع
- أسئلة ومناقشة عامة

مقدمة

- يخطّط مجلس الانماء والاعمار لتنفيذ مشروع الطرق والعمالة في لبنان عبر تمويل من البنك الدولي
- يشمل المشروع أعمال صيانة عدة طرق في بلدات من كافة الأقضية اللبنانية
- يهدف هذا المشروع إلى تحسين كفاءة قطاع الطرق من خلال تحديد أولويات أعمال الطرق وتحسين تقنيات إدارة شبكة الطرق والسلامة العامة

مقدمة

- تتمتع شبكة الطرق في لبنان بنطاق وتغطية كافيين بشكل عام
- لكن نسبة كبيرة من تلك الطرق في حالة سيئة وهو الأمر الذي يؤدي إلى إعاقة التنمية المحلية والاقتصادية، خاصة في المناطق الريفية التي تعتبر فيها حالة شبكة الطرق أدنى مستوىً من حالة الطرقات على المستوى الوطني ككل

2. الجهات المعنية بالمشروع

الجهة	الصفة
البنك الدولي	ممول المشروع
مجلس الانماء والاعمار	إدارة وتنفيذ
المكتب الهندسي الإستشاري ACE	استشاري هندسي و بيئي

1. أهداف اللقاء

- إعلام الرأي العام بالمشروع لإبداء ملاحظاتهم وفقاً لسياسة ضمانات البنك الدولي (سياسة تشغيلية رقم 4.01)
- عرض لأهم الآثار البيئية والاجتماعية والتدابير التخفيفية المرتبطة بتنفيذ المشروع
- مشاركة الحضور بمناقشة القضايا المطروحة وطرحهم لقضايا جديدة لم تذكر
- مناقشة خطة الإدارة البيئية والإجتماعية للمشروع التي تهدف لحماية الصحة البشرية، السلامة العامة والموارد البيئية

4. وصف المشروع

ان المشروع يهدف لتقيم :

- باعمال صيانة معظم الطرقات الرئيسية في قضاء صيدا بالاضافة الى بعض الطرق الثانوية في حال توفّر اموال من الميزانيّة المعتمدة للقضاء

- مجموع طول الطرق الرئيسيّة 80 km

3. مراحل إعداد الخطة البيئية والإجتماعية

4.2 موقع المشروع في قضاء صيدا والطرق المقترح صيانتها

تمت زيارة الطرق القابلة للصيانة لتحديد:

- اوضاع طبقات الرصف الاسفلتية (مستويات الاضرار ومدى انتشارها)

- اوضاع المنشات(منشات تصريف مياه الامطار، حواجز السلامة والعبارات)

- اوضاع العناصر غير الرصفية كاللوحات الارشادية والخطوط المرورية والعلامات

4.4 صور لعدة مواقع ضمن المشروع في قضاء صيدا

Sunken trench, deteriorated sidewalk and vegetation invading the road

4.4 صور لعدة مواقع ضمن المشروع في قضاء صيدا

no road marking neither cat eyes,deteriorated median, absence of sidewalk cleaning & street lighting maintenance

4.4 صور لعدة مواقع ضمن المشروع في قضاء صيدا

Moderate to Severe alligator cracks in the

4.4 صور لعدة مواقع ضمن المشروع في قضاء صيدا

Poor Asphalt repair, and sunken utility trench

5. ماذا يتضمن المشروع خلال مرحلة التنفيذ؟

- إصلاح وصيانة الأرصفة بما في ذلك البلاط وحجر الأرصفة.
- إصلاح وصيانة حواجز الأمان: حاجز نيوجيرسي / تكساس وسكة حماية فولاذية.
- تنظيف منشآت تصريف مياه الامطار والقيام بالاصلاحات البسيطة اللازمة للمنشآت الخرسانيّة. - تجديد واصلاح وتنفيذ وصيانة علامات الطرق وتوقيعها.
- الأعمال المساعدة الأخرى المرتبطة بما في ذلك إدارة حركة المرور خلال العقد.

5. ماذا يتضمن المشروع خلال مرحلة التنفيذ؟

- **أنشطة الصيانة الروتينية لمدة (2) سنتين ، في القسيمة 3 - قضاء صيدا للطرق الرئيسية كأولوية والطرق الثانوية حيث تتوفر الأموال .**
- **ستشمل أنشطة الصيانة الروتينية العناصر التالية:**
- إصلاح وصيانة رصيف الطريق عن طريق ترقيع الحفر العميقة والضحلة ، سد الشقوق.
- الإصلاح والصيانة عن طريق الطحن والتراكب لانخفاضات الرصيف الموضعية مثل الرصيف الفاشل المطبق فوق الخنادق / المنخفضات.
- إصلاح وصيانة الجدران الاستنادية الخرسانية المسلحة الثالفة / جدران القدم / جدران البناء.

7. الآثار البيئية والاجتماعية السلبية المحتملة للمشروع خلال مرحلة التنفيذ

النشاط	الأثر المحتمل
أعمال بناء اصلاح مجاري مياه الأمطار	أضرار على البيئة الحمية
قلع النباتات	ضرر على النوع الحيوي
التخلص غير السليم من النفايات الصلبة	تلوث التربة والمياه
احتمال لحالة حوادث تسرب	تلوث التربة والمياه
التدابير التخفيفية	
• التنسيق المنتظم مع البلديات المحلية	
• التخلص السليم من النفايات الصلبة الناتجة عن أعمال التنفيذ و حظر التخلص منها في مواقع غير مخصصة	
• صيانة كافة الآليات بشكل دوري لمنع حوادث التسرب	

6. الآثار البيئية والاجتماعية الإيجابية للمشروع

- تقليل الازدحام المروري وتسهيل التنقل في وإلى القضاء
- خلق فرص عمل لأبناء المنطقة والمساهمة في التنمية الاقتصادية المحلية
- المحافظة على السلامة العامة في الطرقات من خلال تقليل حوادث السير والانجرافات
- تشجيع الشركات المحلية من خلال بيع المواد الخام والآلات والسلع
- ازدهار التنمية الاقتصادية والاجتماعية في المناطق الريفية
- التقليل من تلوث الهواء والغبار

7. آلية مراجعة الشكاوى

يمكن للاشخاص المعنيين الاستفسار عن معلومات اضافية أو/و تقديم أية شكوى (في حال وجودها) بالتواصل مع وحدة آلية مراجعة الشكاوى من الاثنين حتى الجمعة بين 9:00 صباحاً و15:00 بعد الظهر، عبر:

الهاتف: 01980096 مقسم 317

البريد الالكتروني: GRM.REP@cdr.gov.lb

تسجيل كتاب رسمي لدى مجلس الانماء والاعمار

(العنوان: تلة السراي - رياض الصلح، بيروت – لبنان)

كما يمكن إبداء الرأي حول تنفيذ المشروع من خلال تعبئة النموذج الموجود عبر الرابط التالي

https://cdr.impact.gov.lb/worldbankmobile/home/main?lang=ar

أو عن طريق مسح هذا الباركود

سيكون رأيك مجهول المصدر

7. الآثار البيئية والاجتماعية السلبية المحتملة للمشروع خلال مرحلة التنفيذ

النشاط	الأثر المحتمل
حركة الآليات والمركبات	زيادة احتمال حوادث السير
انبعاثات الغبار وزيادة نسبة الضجيج	ضرر على السلامة العامة وسلامة العمال

التدابير التخفيفية

- إدارة حركة المرور أثناء تنفيذ المشروع وتعيين موظف لهذه الغاية
- التأكد من أن الإشارات التحذيرية وأنظمة الإضاءة ظاهرة وموجودة في الأماكن المكتظة وخاصة قرب المدارس والمستشفيات والمناطق التجارية
- إعلام السكان ووضع لافتات بالقرب من مناطق العمل
- حصر الحفر وأي نشاط خوضناتي خلال ساعات العمل فقط
- وجود آلية مراجعة الشكاوى للمجتمعات المحيط

شكـــــراً لحضوركم ومشاركتكم

أسئلة ومناقشة عامة

يمكنكم إبداء رأيكم:

عبر التواصل مع
المكتب الهندسي الاستشاري
هاتف: 01/497250
فاكس: 01/497550
بريد الكتروني: ace@ace-intl.com

أو

عبر التواصل مع
وحدة مشروع الطرق والعمالة
في مجلس الانماء والإعمار
هاتف: Ext. 317 01/980096
بريد الكتروني: rstephan@cdr.gov.lb

ANNEX 11: GRIEVANCE REDRESS MECHANISM FORM AND LOG

Reference No:	
Contact Information **Please mark how you wish to be contacted (mail, telephone, e-mail).**	☐ **By Post: Please provide mailing address:** _____ _____ _____ ☐ **By Telephone:** _____ ☐ **By E-mail** _____
Preferred Language for communication	☐ **Arabic** ☐ **English**

Description of Incident or Grievance:	What happened? Where did it happen? Who did it happen to? What is the result of the problem?
Date of Incident/Grievance	
	☐ **One time incident/grievance (date _____)** ☐ **Happened more than once (how many times? _____)** ☐ **On-going (currently experiencing problem)**
What would you like to see happen to resolve the problem?	

Signature: _____

Date: _____

GRM Log Book

Name/group of commenter/complainant	Complaint Received date	Description of Issues	Proposed Corrective Actions	Date of Response	Status		
					Solved	Ongoing	Pending

ESMP Risk Classification Criteria Checklist

Eligibility Criteria for Sub-Projects

Criteria	YES / NO	Description
Subproject is classified as Category A according to World Bank classification.	NO	
Subproject activities have significant adverse environmental or social impacts that are sensitive, diverse, or unprecedented.	NO	
Activities affect an area broader than the sites or facilities subject to physical works	NO	
Subproject will result in conversion/alteration of natural habitats	NO	
Generation of significant quantities of hazardous waste	NO	
Will the sub-project trigger a new World Bank Policy other than OP4.01 and OP4.12?	NO	
Will the sub-project increase the footprint or includes new construction of roads?	NO	
Subproject Project is Eligible to be financed under REP		

Checklist of Possible Environmental and Social Impacts of Projects

Subcomponent Related Issues

S No	ISSUES	YES	NO	Comments
A.	Zoning and Land Use Planning			
1.	Will the subproject affect land use zoning and planning or conflict with prevalent land use patterns?		√	
2.	Will the subproject involve significant land disturbance or site clearance?		√	
3.	Will the subproject land be subject to potential encroachment by urban or industrial use or located in an area intended for urban or industrial development?		√	
B.	Utilities and Facilities			
4.	Will the subproject require the setting up of ancillary production facilities?		√	
5.	Will the subproject require significant levels of accommodation or service amenities to support the workforce during construction (e.g., contractor will need more than 20 workers)?		√	
C Water and Soil Contamination				
6.	Will the subproject require large amounts of raw materials or construction materials?	√		For all the maintenance activities combined, a large amount of asphalt, base course, concrete, stones.

S No	ISSUES	YES	NO	Comments
7.	Will the subproject generate large amounts of residual wastes, construction material waste or cause soil erosion?	√		For all the maintenance activities combined, a large amount of asphalt, base course, concrete, stones.
8.	Will the subproject result in potential soil or water contamination (e.g., from oil, grease and fuel from equipment yards)?	√		This risk will be eliminated if correct measures were followed.
9.	Will the subproject lead to contamination of ground and surface waters by herbicides for vegetation control and chemicals (e.g., calcium chloride) for dust control?		√	
10.	Will the subproject lead to an increase in suspended sediments in streams affected by road cut erosion, decline in water quality and increased sedimentation downstream?		√	
11.	Will the subproject involve the use of chemicals or solvents?	√		
12.	Will the subproject lead to the destruction of vegetation and soil in the right-of-way, borrow pits, waste dumps, and equipment yards?		√	
13.	Will the subproject lead to the creation of stagnant water bodies in borrow pits, quarries, etc., encouraging for mosquito breeding and other disease vectors?		√	
D. Noise and Air Pollution Hazardous Substances				
14.	Will the subproject increase the levels of harmful air emissions?	√		For a limited period during the execution of maintenance activities
15.	Will the subproject increase ambient noise levels?	√		For a limited period during the execution of maintenance activities
16.	Will the subproject involve the storage, handling or transport of hazardous substances?	√		
E.	Fauna and Flora			
18.	Will the subproject involve the disturbance or modification of existing drainage channels (rivers, canals) or surface water bodies (wetlands, marshes)?		√	
19.	Will the subproject lead to the destruction or damage of terrestrial or aquatic ecosystems or endangered species directly or by induced development?		√	
20.	Will the subproject lead to the disruption/destruction of wildlife through interruption of migratory routes, disturbance of wildlife habitats, and noise-related problems?		√	
F. Destruction/Disruption of Land and Vegetation				
21.	Will the subproject lead to unplanned use of the infrastructure being developed?		√	

S No	ISSUES	YES	NO	Comments
22.	Will the subproject lead to long-term or semi-permanent destruction of soils in cleared areas not suited for agriculture?		√	
23.	Will the subproject lead to the interruption of subsoil and overland drainage patterns (in areas of cuts and fills)?		√	
24.	Will the subproject lead to landslides, slumps, slips and other mass movements in road cuts?		√	
25.	Will the subproject lead to erosion of lands below the roadbed receiving concentrated outflow carried by covered or open drains?		√	
26.	Will the subproject lead to long-term or semi-permanent destruction of soils in cleared areas not suited for agriculture?		√	
27.	Will the subproject lead to health hazards and interference of plant growth adjacent to roads by dust raised and blown by vehicles?		√	
G.	Cultural Property			
28.	Will the subproject have an impact on archaeological or historical sites, including historic urban areas?		√	
29.	Will the subproject have an impact on religious monuments, structures and/or cemeteries?		√	
30.	Have Chance Finds procedures been prepared for use in the subproject?		√	
H. Expropriation and Social Disturbance				
31.	Will the subproject involve land expropriation or demolition of existing structures?		√	
32.	Will the subproject lead to induced settlements by workers and others causing social and economic disruption?		√	
33.	Will the subproject lead to environmental and social disturbance by construction camps?		√	
34	Will the sub-project lead to physical displacement (title-holders, squatters, and vulnerable groups)?		√	
35	Will there be economic displacement?		√	
36	Will there be loss of assets/infrastructure?		√	
37	Will the sub-project impact livelihood of non-titled persons and vulnerable groups?		√	

Site Characteristics

S. No	ISSUES	YES	NO	Comments
1.	Is the subproject located in an area with designated natural reserves?			This cannot be determined at this stage
2.	Is the subproject located in an area with unique natural features?			This cannot be determined at this stage
3.	Is the subproject located in an area with endangered or conservation-worthy ecosystems, fauna or flora?			This cannot be determined at this stage
4.	Is the subproject located in an area falling within 500 meters of national forests, protected areas, wilderness areas, wetlands, biodiversity, critical habitats, or sites of historical or cultural importance?			This cannot be determined at this stage
5.	Is the subproject located in an area which would create a barrier for the movement of conservation-worthy wildlife or livestock?			This cannot be determined at this stage

S. No	ISSUES	YES	NO	Comments
6.	Is the subproject located close to groundwater sources, surface water bodies, water courses or wetlands?			This cannot be determined at this stage
7.	Is the subproject located in an area with designated cultural properties such as archaeological, historical and/or religious sites?			This cannot be determined at this stage
8.	Is the subproject in an area with religious monuments, structures and/or cemeteries?			This cannot be determined at this stage
9.	Is the subproject in a polluted or contaminated area?			This cannot be determined at this stage
10.	Is the subproject located in an area of high visual and landscape quality?			This cannot be determined at this stage
11.	Is the subproject located in an area susceptible to landslides or erosion?			This cannot be determined at this stage
12.	Is the subproject located in an area of seismic faults?			This cannot be determined at this stage
13.	Is the subproject located in a densely populated area?			This cannot be determined at this stage
14.	Is the subproject located on prime agricultural land?			This cannot be determined at this stage
15.	Is the subproject located in an area of tourist importance?			This cannot be determined at this stage
16.	Is the subproject located near a waste dump?			This cannot be determined at this stage
17.	Does the subproject have access to potable water?			This cannot be determined at this stage
18.	Is the subproject located far (1-2 kms) from accessible roads?			This cannot be determined at this stage
19.	Is the subproject located in an area with a wastewater network?			This cannot be determined at this stage
20.	Is the subproject located in the urban plan of the city?			This cannot be determined at this stage
21.	Is the subproject located outside the land use plan?			This cannot be determined at this stage

CONCLUSION

	High	Substantial	Moderate	Low
RISK CLASSIFICATION OF THE SUBPROJCT				