



REPUBLIC OF LEBANON
COUNCIL FOR DEVELOPMENT AND RECONSTRUCTION

Consultancy Services For
Roads Routine Maintenance
For Lot 14 (Nabatiyeh & Marjayoun Cazas)

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

November 2023

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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
GM	Grievance Mechanism
IBA	Important Bird Area
ILO	International Labor Organization
iRAP	International Road Assessment Programme
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 Nabatiyeh (Lot 14) 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 Nabatiyeh Caza (Lot 14) 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.

The existing Bank-cleared ESMP report for the roads rehabilitation project in Nabatiyeh Caza of 2020 is available on CDR Website via the following link:

https://www.cdr.gov.lb/getmedia/a603b650-0a4b-4875-861c-dd5f1660d1f8/Nabatiyeh_Final-ESMP.pdf.aspx

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 road projects must abide by national legislations (laws, decrees and decisions) relevant to environmental, labor, health and safety, cultural and municipal, traffic considerations.

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 (UNFCCC), 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 Nabatiyeh of the Nabatiyeh 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) in the Caza with an estimated total length of 64 km in Lot 14.

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 Nabatiyeh, and the secondary roads where and when the funds permit. The total primary roads length as per the International Road Assessment Programme i-RAP road classification in the Caza of Nabatiyeh is 37.2 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 and installation of traffic control devices.

ES4. Baseline Environmental and Social Conditions

Topography, Geology and Water Bodies

The Caza of Nabatiyeh is located in the Nabatiyeh Governorate and it is about 65 km away from the capital of Beirut. Nabatiyeh caza is part of the lower Litani River basin and is bordered by Al Zarariya to the North, Tirlisi to the West, Al Humayra to the East, and Dayr Qanoun Al Naher to the South. The elevation of Nabatiyeh Caza ranges from 0 m to 1,691 m above sea level.

The main geological formation within the study belong to the following: Chouf Sandstone (C1), Albian (C3), Sannine Limestone of Cenemonain age unit (C4), Turonian (C5), White marl and marl-limestones (C6), Pleistocene (Q)-(qta, qd, qar), Oligocene (E2), and Miocene (M1).

The Caza of Nabatiyeh has abundant water resources and several streams and springs, including Al Zahrani River that passes through the district and irrigates most of the Caza. Many streams have been identified along or near the primary roads. Some streams also pass by or are near to some of the secondary roads. The Caza comprises of several springs distributed at different elevations within the Caza including: Ain El Nouata, Ain El Bayed, Ain el Daiaa, Ain Younes, Ain El Chemaliye, Nabaab Barbara, Ain El Boustane, Nabaab El Marje, Ain El Saltaoun, Nabaab Jlaikha that crosses primary roads; Ain El Cheqir, Ain El Jamali, Nabaab EL Oussaibe that crosses secondary roads.

Climate and Meteorology

The results of Nabatiyeh weather data conditions are used to describe the climate of the Caza. The lowest average temperature is 7°C while the highest average temperature is 33°C. In Nabatiyeh, most rain events fall in the winter during the months of January and December. However, the driest months are July and August. The wind rose for Nabatiyeh 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 the village of New Nabatiyeh that is located at the altitude 530 meters a.s.l. 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 from its nearest station

in New Nabatiyeh (nearest available station to Nabatiyeh Caza) that is located at the altitude 530 meters a.s.l.

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). The modelled annual concentration map showed that NO₂ annual concentration at Nabatiyeh Caza is around 28 µg/m³ whereas the annual PM₁₀ is around 33 µg/m³. Within the project sites, there are no unusual high level of air pollution.

As for the level of noise in the region, as no data was available on the project location, observations during site visits showed that noise does not seem to be significant along most of the roads with no sources of noise pollution observed.

Land Use/Land Cover

The most common land use in Nabatiyeh Caza is residential and commercial, as the area is urbanized. The main land use/land cover is alternating between urban areas (moderately to densely populated), agricultural areas, woods, a natural surface with herbaceous vegetation and a very small section of the roads passing a non productive area of a natural terrain with little or no vegetation. The industrial sector is growing in Nabatiyeh. The Caza has a high share of animals that are raised for livestock production such as goats and cattle.

Biological Environment and Ecologically Sensitive Areas

Flora: The Southern part of Lebanon is covered by Aleppo Pine forests (*Pinus halepensis*). Forests in Nabatiyeh make up 6% of the total forests in Lebanon. There was no floral and tree species of an ecological importance along the roads of the project area in Nabatiyeh Caza. However, many trees were identified along the roads, these trees include: Peach, Palm, Quercus, Cypress, Salix, Eucalyptus, Olive, Pine and Vine. All the mentioned tree species that were identified along the roads in Nabatiyeh Caza are located outside the road delimitations or are private to residential buildings and areas.

Fauna: The fauna in the Caza includes mainly animals that are raised for livestock production such as goats and sheep. However, common animals could also be present mainly in the surrounding natural landscapes. During the site visits, wild animals including mammals and birds were not identified. Moreover, the presence of grazing livestock was not noticed along the project roads although the governorate has the third highest share of goats in Lebanon.

The District of Nabatiyeh comprises Ebel Es Saqi area that was declared as an Important Bird Area (IBA) by BirdLife International where different bird species were observed such as the Common Cranes, White Storks, Pallid Harrier, European Honey-buzzard, Egyptian Vulture, Black-headed Bunting and Masked Shrike. However, the nearest road (INT 005_R2) is about 15 km away from this IBA.

Demographic Profile

The Nabatiyeh Governorate has around 330,000 inhabitants (including Syrian and Palestinian refugees). The population density in the Caza of Nabatiyeh is around 305 people per km². The Caza of Nabatiyeh has 180,200 residents. The governorate of Nabatiyeh possesses a poverty rate of 25% lower than the national average 27%. Moreover, the unemployment rate is estimated at 6.0% compared to the national average 11.4%.

According to the Syria Refugee response per district, the total number of Syrian refugees is around 16,578 in Nabatiyeh Caza. According to the UNHCR, no informal tented settlements for refugees were established in Nabatiyeh Caza. Moreover, there are no Palestinian Refugees in Nabatiyeh Caza.

Economic Activities and Infrastructure

The economic activities of Nabatiyeh are concentrated in trade and services and real estate. Nabatiyeh is also the administrative town of the Nabatiyeh Governorate. The highest number of firms is located in Nabatiyeh Governorate. Food and beverages make up 28% of the industrial sector and 18% of Lebanon's olive cultivation is practiced in the Governorate. Among the 130,400 individuals aged more than 15 years old and living in primary dwellings around 59,400 belong to the labour force (54,400 employed and 5,100 unemployed) and 71,000 were outside the labour force.

The main source of drinking water in Nabatiyeh is the non-piped water supply with 76.2% connectivity. As for the public electricity network, it was common in the caza with 99.6% connectivity. Furthermore, 87.8% of dwellings rely on a private electricity source or owning a private generator.

Education

Nabatiyeh Caza has 12 educational institutions. The students who seek higher education can benefit from three private universities along with a branch of the Lebanese University (2 faculties serving the Nabatiyeh region). Some of the educational institutions in Nabatiyeh Caza were identified along or near the proposed roads that are eligible for maintenance.

Nabatiyeh caza had one of the highest illiteracy rates among residents aged 10 years and above. The illiteracy rate in Nabatiyeh Caza is 9.1% higher than the national level which is 7.4%.

Health Services

The Caza of Nabatiyeh includes six hospitals, of which one is public and five are private. These hospitals are Nabatiyeh Governmental Hospital, Ghossein Hospital, Al Hikme Hospital, Al Cheikh Harb Hospital, Al Hamid Medical Center – Ghandour Hospital, Secours Populaire Hospital respectively. The health facilities which are limited to some health clinics and hospitals are considered as acceptable to the needs of the Caza and Governorate and located between 150 m and 900 m away from the proposed roads in Nabatiyeh Caza.

Cultural Heritage

The caza has some ancient rock tombs, Roman and Byzantine ruins and several old mosques (i.e. Hay el Ancient) as well as old churches such as the central church el-Saydeh is (Sarba). The caza is also known for the presence of several old traditional souks.

However, these sites are not identified along any of the roads eligible for the maintenance activities. Only one Mosque, Imam Ali Mosque is located on a secondary road.

Summary of Baseline

The main sensitive receptors with the Nabatiyeh Caza include the Al Zahrani River that crosses a primary road (PRI 058). In addition, the Caza comprises of several springs distributed at different elevations within the Caza including: Ain El Nouata, Ain El Bayed, Ain el Daiaa, Ain Younes, Ain El Chemaliye, Nabaab Barbara, Ain El Boustane, Nabaab El Marje, Ain El Saltaoun, Nabaab Jlaikha that crosses primary roads (PRI 057 and 058); Ain El Cheqir, Ain El Jamali, Nabaab EL Oussaibe that crosses secondary roads.

Some of the educational institutions in Nabatiyeh Caza, were identified along or near the proposed roads that are eligible for maintenance (international and secondary roads), such as, but not limited to: CIS College Nabatiyeh, Alafak Institute, Institut Français de Nabatiyeh, ACT College, Collège Saint

Charles, Al Manar Academic Institute, Amjad College institute, Lebanese International University (LIU) - Nabatiyeh Campus, Lebanese University Faculty of Sciences V and American University of Culture and Education (AUCE) and Nabatiyeh High School.

As for the health services, Nabatiyeh Governmental Hospital is located 900 m away from the international road of Saida-Nabatiyeh, other hospitals are located between 150 m and 900 m away from the proposed roads in Nabatiyeh Caza.

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	Presence of explosive remnants of war (ERW) and/or unexploded ordinance (UXOs)	N	To seek official clearance letter from CDR before commencement of civil works
Air quality, nearby communities and workers	<p>Air pollution from emissions of machinery, trucks or open burning activities</p> <p>Potential Impact on:</p> <ul style="list-style-type: none"> - Nabatiyeh Governmental Hospital, Ghossein Hospital, Al Hikme Hospital, Al Hamid Medical Center – Ghandour Hospital and Secours Populaire Hospital located respectively 900 m, 350 m, 400 m, 300 m and 150m away from the international road of Saida-Nabatiyeh - Al Cheikh Harb Hospital located 450 m away from a secondary road - Imam Ali Mosque located on a secondary road - Computer training school, CIS College Nabatiyeh, Alafak Institute: located on international road (INT 002_5) - Institut Français de Nabatiyeh, ACT College, Collège Saint Charles, Al Manar Academic Institute, Amjad College institute, Lebanese International University (LIU) - Nabatiyeh Campus, Lebanese University Faculty of Sciences V and American University of Culture and Education (AUCE): located between 100 m and 1.2 km away from international road (INT 002_5) - Nabatiyeh High School: located 300 m away from secondary road (SEC061) - Near densely populated urban areas 	N	<p>Prepare and abide by Pollution Prevention Plan that includes:</p> <p>Atmospheric Emissions and Dust Management Provisions</p> <p>Water the ground when extremely windy</p> <p>Mix material in an enclosed space</p> <p>Cover material when transporting</p> <p>Cover piles to avoid generation of dust especially near sensitive receptors</p> <p>Proper storage of material</p> <p>Routine Maintenance of vehicles and machinery</p> <p>Prepare and abide by Emergency Preparedness and Response Plan</p> <p>Specific Measures Near Sensitive Receptors</p> <p>Speed limit for project vehicles and machinery within working areas shall not exceed 20 Km/h</p> <p>Ensure optimal traffic routes as per the Traffic Management Plan (TMP).</p> <p>Use wet suppression in the dry season, where unpaved roads, the working strip, raw material stockpiles are located <200 m from settlements</p>

Receptor	Impact Description	Rating	Mitigation Measure
Air quality, nearby communities	Dust pollution from maintenance and excavation activities. Potential Impact on: - Same sensitive receptors as above	N	
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: - Same sensitive receptors as above	N	Routine 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
Biodiversity and sensitive habitats	Disturbance of nearby areas and animal escape through noise and vibrations	N	Specific Measures Near Sensitive Receptors Verify drivers' behavior with respect to driving speed Plan vehicle routes to avoid complaints where possible
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: - Al Zahrani River crossing Road PRI 058 - Ain El Nouata, Ain El Bayed, Ain el Daiaa, Ain Younes, Ain El Chemaliye, Nabaab Barbara, Ain El Boustane, Nabaab El Marje, Ain El Saltaoun, Nabaab Jlaikha crossing Roads PRI 057 and 058 - Ain El Cheqir, Ain El Jamali, Nabaab El Oussaibe crossing secondary roads	N	Prepare and abide by Pollution Prevention Plan that includes: Effluent Management Provisions Rainwater run-off Management Provisions Prepare and abide by Emergency Preparedness and Response Plan Specific Measures Near Sensitive Receptors 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: - Same sensitive receptors as above	N	Prepare and abide by a Spill Prevention and Management Plan under Pollution Prevention Plan Minimize soil exposure time Minimize the use of chemicals Routine maintenance of vehicles and machinery
Water resources	Improper disposal of cut volume may cause contamination of water bodies in rainy weather Potential impact on: - Same sensitive receptors as above	N	Prepare and abide by Waste Management Plan and Hazardous Materials Management Plan Reuse or recycle the generated waste whenever possible Prepare and abide by Emergency Preparedness and Response Plan Specific Measures Near Sensitive Receptors 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

Receptor	Impact Description	Rating	Mitigation Measure
			Fuel and hazardous chemicals/materials shall be stored in designated areas, except for quantities generated or required for the daily construction activities, or where there is the potential for spilled fuel to enter groundwater and surface water bodies 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, 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: - Same sensitive receptors as above	N	Prepare and abide by Waste Management Plan Reuse or recycle the generated waste whenever possible Prepare and abide by Emergency Preparedness and Response Plan Specific Measures Near Sensitive Receptors Waste bins shall be located at a distance of over 100 m from any natural sensitive receptor or water bodies and over 500 m from any socioeconomic sensitive receptor
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 maintenance related activities	N	Use water in the most efficient way and reduce wastage
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; Extracting the borrow material from agricultural lands or natural landscapes is prohibited
Biodiversity and sensitive habitats	Potential damage of existing flora	N	Prepare and abide by Pollution Prevention Plan 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

Receptor	Impact Description	Rating	Mitigation Measure
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	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 as well as mobile sign boards)
Shop owners	Economic Activities and its effect on the livelihood of the shop owners	N	Install overpass structures from the road to the shops. The design of any proposed structure to allow safe and smooth access of customers to affected businesses would be subject to review and clearance approval by the supervision engineer. Overpass to be inspected by the supervision engineer before open to public. 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
Foreign workers influx	Discrimination from the local community against the potential influx of foreign workers	N	Prevent discrimination at the workplace by: <ul style="list-style-type: none"> - Educating and training all your workers about what constitutes discrimination. - Training higher-ups like supervisors and managers on how to properly respond to discrimination in the workplace. - Handling any discrimination complaints confidentially and carefully. 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

Receptor	Impact Description	Rating	Mitigation Measure
			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, as well as forced labor	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 Ensure all workers signed the Code of Conduct
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 Ensure optimal traffic routes as per the Traffic Management Plan (TMP) prepared by the Contractor Road Safety Specialist and approved by the Consultant; Traffic shall be secured via alternative routes to reach relevant destinations in case the works imply the temporary closure of this road, if partial closure of the road is not possible 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	Accidental Damage of existing infrastructure or planned interruption of utilities	N	Regular coordination with relevant municipalities and documentation Conducting trial pits Ensure proper communication with affected communities to alert them whenever planned/accidental interruption of services happens Ensure access to external GRM (public notice including GRM to be posted at relevant municipalities and on project sign boards)
Existing Cultural Heritage	Accidental Damage of existing cultural heritage	N	Abide by Chance Finds Procedure Ensure all routine maintenance works are halted until a certificate is issued by the authorities
Nearby communities	Potential occurrence of gender-based violence and sexual exploitation and abuse incidents and all forms of GBV incidents Potential Impact in informal tents	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

Receptor	Impact Description	Rating	Mitigation Measure
			<p>All workers should understand, and sign codes of conduct written in their native language</p> <p>Respond to the reported incidents of sexual abuse exploitation as a matter of priority</p> <p>Regular training on gender-based aspects, internal and external GRM that includes an anonymous channel for protection of complainants' identity and confidentiality</p> <p>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</p> <p>GRM will be sensitive to complaints related to SEA/SH grievances and ensure implementation of the necessary referral pathways with application of principles of confidentiality and anonymity as needed</p> <p>Ensure that there is a survivor centric approach for SEA/SH complaints and trained personnel handling these calls</p>
Nearby communities	<p>Slight increase in traffic due to the transport of construction materials or due to the material that may fall</p> <p>Traffic congestion in the town due to temporal road closure</p> <p>Material falling from vehicles during transport may cause traffic accidents or congestion</p> <p>Potential Impact on:</p> <ul style="list-style-type: none"> - Nabatiyeh Governmental Hospital, Ghossein Hospital, Al Hikme Hospital, Al Hamid Medical Center – Ghandour Hospital and Secours Populaire Hospital located respectively 900 m, 350 m, 400 m, 300 m and 150m away from the international road of Saida-Nabatiyeh - Al Cheikh Harb Hospital located 450 m away from a secondary road - Imam Ali Mosque located on a secondary road - Computer training school, CIS College Nabatiyeh, Alafak Institute: located on international road (INT 002_5) - Institut Français de Nabatiyeh, ACT College, Collège Saint Charles, Al Manar Academic Institute, Amjad College institute, Lebanese International University (LIU) - 	N	<p>Prepare and abide by Traffic Management Plan</p> <p>Ensure traffic is not blocked during transportation</p> <p>Inform residents and place signs near the working areas in culturally appropriate languages and written in clear and understandable manner</p> <p>Ensure communities have access to GRM</p> <p>Cover transported material</p> <p>Abide by traffic regulations</p> <p>Operate well maintained vehicles</p>

Receptor	Impact Description	Rating	Mitigation Measure
	<p>Nabatiyeh Campus, Lebanese University Faculty of Sciences V and American University of Culture and Education (AUCE): located between 100 m and 1.2 km away from international road (INT 002_5)</p> <ul style="list-style-type: none"> - Nabatiyeh High School: located 300 m away from secondary road (SEC061) - Near densely populated urban areas 		
Health and Safety			
Workers	Accident and injuries to workers and public because of maintenance activities	2N	<p>Develop a site-specific Public Health and Safety Plan and Occupational Health and Safety</p> <p>Contractor to develop a site-specific Public Health and Safety Plan and Occupational Health and Safety (Annex 9) to be approved by Supervision Consultant and CDR before commencement of works in order to identify all risks related to the project related activities and site surroundings, responsibilities, operational controls as well as emergency situations. The Plan should include, at minimum:</p> <ul style="list-style-type: none"> introduction project overview details / works tasks occupational health and safety policy project health and safety objectives legal and other requirements control of project work areas project personnel and roles & responsibilities communication and safety information (including communication with nearby communities) consultation and participation induction toolbox talks & training hazard identification and risk assessment (including JHA) safe systems of work housekeeping and waste disposal permits to work inspections & audits safety observation Presence of first aid kits on the construction site Stop Work Authority site access fatigue and stress management plant and heavy equipment safety training personal protective equipment permit to work electrical safety excavation safety working at heights - fall protection Best Applicable Practices on Road Safety
Nearby communities	<p>Dust generation and noise may cause health related problems for workers and disturbance to residents.</p> <p>Potential Impact on:</p> <ul style="list-style-type: none"> - Nabatiyeh Governmental Hospital, Ghossein Hospital, Al Hikme Hospital, Al Hamid Medical Center – Ghandour Hospital and Secours Populaire Hospital located respectively 900 m, 350 m, 400 m, 300 m and 150m away from the international road of Saida-Nabatiyeh - Al Cheikh Harb Hospital located 450 m away from a secondary road - Imam Ali Mosque located on a secondary road - Near densely populated urban areas 	N	

Receptor	Impact Description	Rating	Mitigation Measure
			emergency preparedness and response procedures accident and incident investigation/reporting occupational health and safety performance monitoring

Note: All risks, impacts and mitigation measures should be acknowledged by the awarded contractor. It is the ultimate responsibility of the contractor to identify further site-specific risks and impacts, based on the contractor's site reconnaissance and experience, and implement necessary preventative and mitigation measures which shall be approved by the Employer or his designated representative onsite prior to proceeding with actual implementation.

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 maintenance 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 Ensure GM mobile sign board is readily accessible and visible
- Check GRM log
- Ensure that all workers are committed to prevent and report sexual abuse and exploitation incidents and sign codes of conduct in culturally appropriate language
- Ensure signs are in place before works begin
- Ensure that all workers are wearing their PPEs
- Record injuries and accidents within the workers and inform the CDR PMU as needed in a timely manner
- Ensure the installation of pedestrian and vehicular passages near residential areas
- Ensure road diversion and maintenance 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
- Ensure ongoing consultation and engagement with the relevant municipalities and surrounding affected communities

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 Nabatiyeh Caza and to take into account their concerns and feedback. The public consultation was held on Monday, 31 July 2023 at Nabatiyeh Saray. 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 19 participants attended the session out of which 2 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. The feedback of the consultation was positive, minors concerns and complaints were raised by the participants.

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.

GRM for communities:

The GRM will be accessible to all relevant stakeholders. 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 Nabatiyeh 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 three:

- 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).

Finally, an online form has been designed using the IMPACT platform to allow citizens to share their feedback. For each worksite in Nabatiyeh, 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.

GRM for workers:

A GRM for internal employees, namely the laborers onsite, 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 duration of one week. The second level involves reporting to the PMU Director and should be resolved within one week.

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 (including International Roads/ Highways) in Nabatiyeh (Lot 14) 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 roads¹ in 25 Cazas² 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.

The existing Bank-cleared ESMP report for the roads rehabilitation project in Nabatiyeh Caza of 2020 is available on CDR Website via the following link:

https://www.cdr.gov.lb/getmedia/a603b650-0a4b-4875-861c-dd5f1660d1f8/Nabatiyeh_Final-ESMP.pdf.aspx

This report represents the Environmental and Social Management Plan (ESMP) for Roads Routine Maintenance activities in Nabatiyeh Caza (Lot 14) 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

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

²Lebanon is divided administratively into three levels: Governorates (محاافظات), 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).

Instruments for the Project. This ESMP will only cover the planned routine maintenance works for classified primary roads including International roads/ Highways in Nabatiyeh Caza.

1.3 Report Objectives

This ESMP has the following objectives:

- 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 and social 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 Nabatiyeh Caza (Lot 14) 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 July 31st, 2023 at Nabatiyeh Saray 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 Nabatiyeh Caza that is part of Lot 14.

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
Law No. 205/2020 - Sexual harassment	This law makes sexual harassment a crime and protects the Lebanese employees from gender-based violence.
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 / Decree / Decision	Relevant Provisions
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
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
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 Nabatiyeh of the Nabatiyeh 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 64 km in Lot 14.

The routine maintenance is targeting in the first place the primary roads (incl. International Roads/ Highways) within the Caza of Nabatiyeh, and the secondary roads where and when the funds permit. The priority shall be to start the maintenance activities on primary roads, and then target secondary roads where the BOQ quantities for Routine Maintenance in Nabatiyeh Caza permit. The total primary roads length as per i-RAP road classification in the Caza of Nabatiyeh is 37.2 km (Table 3-1).

Table 3-1: Roads Classification in Nabatiyeh Caza

Caza Nabatiyeh		
Road Code	i-RAP Classification	Length (km)
INT	International Roads	26.8
PRI	Primary Roads	37.2
SEC	Secondary Roads	71.4



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

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

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

- Road Category: The selected road(s) should be classified as primary roads (including International roads/ highways).
- 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.
- 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.
- 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
- 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 m² 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.

3.3 Material and Equipment

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

- Steel-wheeled Rollers
- Asphalt Distributor or paver
- Concrete mixing trucks
- Dumper Trucks
- 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 includes 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), to be mostly hired from the local communities with a potential influx of workers. . Furthermore, the project site will not include any facilities to be installed on-site. There will be no labor camps in routine maintenance works.. 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 Nabatiyeh 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 Nabatiyeh is located in the Nabatiyeh Governorate and it is about 65 km away from the capital of Beirut (IDAL, 2020). Nabatiyeh caza is part of the lower Litani River basin and is bordered by Al Zarariya to the north, Tirflisi to the west, Al Humayra to the east, and Dayr Qanoun Al Naher to the South. The villages in Nabatiyeh are distinguished by their slopes of hills (i.e. Jarjouaa, Ain Baysour) and flat meadows (i.e. Zefta, Ansar).

The elevation of Nabatiyeh Caza ranges from 0 m to 1,691 m above sea level. The topographic map representing this Caza is provided in Annex 1.

4.1.2 Geology

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

- Chouf Sandstone (C1): this formation belongs to the Cretaceous period. It is an often ferruginous brown to white sandstone with associated clays, shales and lignites. Some of the darker layers contain woody or coaly fragments, often with pyrite, marcasite and amber. Locally, the Chouf Sandstone contains basaltic volcanics and reddish clayey beds which appear to be weathered volcanic tuffs. The Chouf Sandstone is very variable in thickness, ranging from a few metres to 300 m thick and in places showing rapid lateral changes.
- Albian (C3): This formation (Hammana Formation) belongs to the Cretaceous period. It consists of green marl (containing glauconite) intercalated with thick layers of marly limestone forming cliffs 3 - 4 m in height. May contain some thin sand layers in the lower part of the formation.
- Sannine Limestone, of Cenomanian 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 karstified. The color of this formation is white to brown and its thickness is about 300 meter.
- Maameltain or Ghazir Limestone, of Turonian age (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.

- 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.
- Pleistocene (Q)-(qta, qd, qar): 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.
- Oligocene (E2): Belongs to the tertiary geological period. This rock formation 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.
- Miocene (M1), Lake: Belongs to the neogene geological period. It is composed of Marnes, Conglomerat, Red Clay.

4.1.3 Water Bodies

The Caza of Nabatiyeh has abundant water resources and several streams and springs, including Al Zahrani River that passes through the district and irrigates most of the Caza with a total length of 25 km and an average flow of 0.6 m³ /s (2005-2009). Based on bacteriological analysis conducted at this river, it was noticed that there were fecal coliforms indicating that the water quality is polluted from wastewater discharges (CAS, 2010).

Many streams have been identified along or near the primary roads (PRI 057 and 058). Some streams also pass by or are near to some of the secondary roads. Al Zahrani River crosses primary road (PRI 058). The Caza comprises of several springs distributed at different elevations within the Caza including: Ain El Nouata, Ain El Bayed, Ain el Daiaa, Ain Younes, Ain El Chemaliye, Nabaab Barbara, Ain El Boustane, Nabaab El Marje, Ain El Saltaoun, Nabaab Jlaikha that crosses primary roads (PRI 057 and 058); Ain El Cheqir, Ain El Jamali, Nabaab EL Oussaibe that crosses secondary roads.

A map showing the major rivers and streams along with the springs in Nabatiyeh Caza is presented in Annex 3.

4.1.4 Climate and Meteorology

The results of Nabatiyeh weather data conditions are used to describe the climate of the Caza. This station is the closest one where data is available. Annex 4 – Figure 1 presents the averages temperatures and precipitation registered at Nabatiyeh during each month of the last 30 years. It shows that the lowest average temperature, which was 7°C was registered in January and February, while July and August had registered the highest average temperature of 33°C. In Nabatiyeh, most rain events fall in the winter during the months of January and December (99 mm and 96 mm of precipitations respectively). However, the driest months are July and August, with 0 mm of rain (Meteoblue website, 2023).

Figure 2 of Annex 4 shows the wind rose for Nabatiyeh representing how annual wind speed and direction are distributed. The wind rose 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 occurring most of the times (1005 h/year). In addition, strong winds occur during fall and winter mainly from November to January while periods of calm winds usually occur from February till October (Meteoblue website, 2023).

Additional data on climate in the area was obtained from the Lebanese Agriculture Research Institute (LARI) from its station in the village of New Nabatiyeh that is located at the altitude 530 meters a.sl. 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 New Nabatiyeh (nearest available station to Nabatiyeh Caza) that is located at the altitude 530 meters a.sl. Annex 4 – Table 1 represents the average monthly and annual wind speed and direction for the year of 2017.

4.1.5 Air Quality and Noise

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 (NO₂) and Particulate Matter (PM). The results for Lebanon simulation for NO₂ and PM₁₀ are shown in Annex 5. The modelled annual concentration map showed that NO₂ annual concentration at Nabatiyeh Caza is around 28 µg/m³ (below the WHO recommended value of 40 µg/m³ limit) whereas the annual PM₁₀ is around 33 µg/m³ (above the WHO recommended value of 20 µg/m³ limit) (Abdallah et al., 2018). Within the project sites, there are no unusual high level of air pollution.

As for the level of noise in the region, as no data was available on the project location, observations during site visits showed that noise does not seem to be significant along most of the roads with no sources of noise pollution observed. However, the noise level was observed to be slightly higher around other densely populated areas, where noise from vehicles, businesses, and public events can contribute to elevated noise levels.

4.1.6 Land Use/Land Cover

In Nabatiyeh Caza, the most common land use is residential and commercial, as the area is urbanized. The main land use/land cover is alternating between urban areas (moderately to densely populated), agricultural areas, woods, a natural surface with herbaceous vegetation and a very small section of the roads passing a non productive area of a natural terrain with little or no vegetation. Refer to Annex 6 for an overview of the LU/LC of the entire Caza. The industrial sector is growing in Nabatiyeh, and many permits have been acquired especially between 2011 and 2016. The Caza has a high share of animals that are raised for livestock production such as goats and cattle. Food and beverages make up 28% of the industrial sector (IDAL, 2018).

4.2 Biological Environment

4.2.1 Flora

The Southern part of Lebanon is covered by Aleppo Pine forests (*Pinus halepensis*). Forests in Nabatiyeh make up 6% of the total forests in Lebanon (SOER, 2010). As for the floral species, and in reference to the report 'Setting Conservation priorities for Lebanese Flora - Identification of important plant areas', there was no floral and tree species of an ecological importance along the roads of the project area in Nabatiyeh Caza (Dagher-Kharrat et al., 2018).

However, many trees were identified along the roads, these trees include:

- Peach trees

- Palm trees
- Quercus trees
- Cypress trees
- Salix trees
- Eucalyptus trees
- Olive trees
- Pine trees
- Vine

All the mentioned tree species that were identified along the roads in Nabatiyeh Caza are located outside the road delimitations or are private to residential buildings and areas.

4.2.2 Fauna

The fauna in the Caza includes mainly animals that are raised for livestock production such as goats and sheep (IDAL, 2018). However, common animals could also be present mainly in the surrounding natural landscapes. During the site visits, wild animals including mammals and birds were not identified. Moreover, the presence of grazing livestock was not noticed along the project roads although the governorate has the third highest share of goats in Lebanon (IDAL, 2018).

4.2.3 Ecologically Sensitive Areas

The District of Nabatiyeh comprises Ebel Es Saqi area that was declared as an Important Bird Area (IBA) by BirdLife International where different bird species were observed such as the Common Cranes, White Storks, Pallid Harrier, European Honey-buzzard, Egyptian Vulture, Black-headed Bunting and Masked Shrike. Moreover, the MOE has declared in 2006 Ebel Es Saqi a Hima that was among the list of sites of natural and/or ecological importance in need for protection and the word Hima refers to protected area (SPNL, 2020). However, the nearest road (INT 005_R2) is about 15 km away from this IBA.

The Hima is divided into six land use zones of a pine forest, scrubland, Hasbani river Ecotone, Hasbani river, crop fields and olive groves (State of Lebanon's Birds and IBAs, 2014). Moreover, the non-avian fauna of interest are bats, hyrax, wild cat, fox, jackal, river otter, wild boar, freshwater fish, terrestrial turtles, chameleon and lizards, three species of amphibians, and scorpions (BirdLife International, 2020).

4.3 Socio Economic Environment

4.3.1 Demographic Profile

The Nabatiyeh Governorate has around 330,000 inhabitants (including Syrian and Palestinian refugees) and this is considered the lowest population share among all governorates in Lebanon. The population density in the Caza of Nabatiyeh is around 305 people per km². The governorate of Nabatiyeh possesses a poverty rate of 25% lower than the national average 27%. Moreover, the unemployment rate is estimated at 6.0% compared to the national average 11.4% (IDAL, 2018). The Caza of Nabatiyeh has 180,200 residents with 49.1 % males and 50.9 % are females. Around 8.5% of the residents are old residents (65+ years old). The age group 25–64 years occupy 44.7% of the residents. As for the age group less than 18 years old, it represents 33.9% while residents aged between 18 and 24 years old represented 12.9 per cent (CAS, 2020).

The average household size in the Caza is 4 compared to the overall average household size of 3.8 individuals (CAS, 2020). According to the Syria Refugee response per district (UNHCR, 2021), the total number of Syrian refugees is around 16,578 in Nabatiyeh Caza. According to the UNHCR, no

informal tented settlements for refugees were established in Nabatiyeh Caza (Reliefweb, 2022). Moreover, there are no Palestinian Refugees in Nabatiyeh Caza (OCHA, 2016).

4.3.2 Economic Activities and Infrastructure

The economic activities of Nabatiyeh are concentrated in trade and services and real estate. Nabatiyeh Municipality is the main center of the Caza, and is considered as the main market for the villages of the Caza. Nabatiyeh is also the administrative town of the Nabatiyeh Governorate. The highest number of firms is located in Nabatiyeh Governorate. Food and beverages make up 28% of the industrial sector and 18% of Lebanon's olive cultivation is practiced in the Governorate (IDAL, 2018). Among the 130,400 individuals aged more than 15 years old and living in primary dwellings around 59,400 belong to the labour force (54,400 employed and 5,100 unemployed) and 71,000 were outside the labour force.

The main source of drinking water in Nabatiyeh is the non-piped water supply with 76.2% connectivity almost the same as the connectivity at the national level which is 76.9%. Drinking water was in the form of piped supplies connected directly to 23.4% of households while 0.4% of residencies have no drinking water supply. As for the public electricity network, it was common in the caza with 99.6% connectivity. Furthermore, 87.8% of dwellings rely on a private electricity source or owning a private generator (CAS, 2020).

4.3.3 Education Services

Some of the schools in Nabatiyeh have only primary education level while others have both the intermediate and secondary education level. Others might have secondary level only. As for those who are seeking vocational training and higher education, they attend the schools and universities in Nabatiyeh, Saida and Beirut. In addition, students who seek higher education can benefit from three private universities along with a branch of the Lebanese University (2 faculties serving the Nabatiyeh region) (IDAL, 2018).

There are 12 educational institutions in Nabatiyeh Caza (Google Maps):

ACT College: located 150 m away from international road (INT 002_5)

Computer training school: located on international road (INT 002_5)

CIS College Nabatiyeh: located on international road (INT 002_5)

American University of Culture and Education (AUCE): located 1.2 km away from international road (INT 002_5)

Al Manar Academic Institute: located 300 m away from international road (INT 002_5)

Amjad College institute: located 350 m away from international road (INT 002_5)

Alafak Institute: located on international road (INT 002_5)

Lebanese International University (LIU), Nabatiyeh Campus: located 1 km away from international road (INT 002_5)

Lebanese University Faculty of Sciences V: located 1 km away from international road (INT 002_5)

Institut Français de Nabatiyeh: located 100 m away from international road (INT 002_5)

Collège Saint Charles: located 300 m away from international road (INT 002_5)

Nabatiyeh High School: located 300 m away from secondary road (SEC061)

The location of the above-mentioned educational institutions, which are expected to be affected by the project activities due to their proximity to the roads subject to routine maintenance, can be shown on the sensitive receptors map (Annex 7).

Nabatiyeh caza had one of the highest illiteracy rates among residents aged 10 years and above. The illiteracy rate in Nabatiyeh Caza is 9.1% higher than the national level which is 7.4%. Illiteracy is

concentrated at high age groups (65+ years) with 37.9% mainly among women (55.5%) while the rate for the men is 17.1% (CAS, 2020).

4.3.4 Health Services

The Caza of Nabatiyeh includes six hospitals, of which one is public and five are private. These hospitals are Nabatiyeh Governmental Hospital, Ghossein Hospital, Al Hikme Hospital, Al Cheikh Harb Hospital, Al Hamid Medical Center – Ghandour Hospital, Secours Populaire Hospital respectively. The health facilities which are limited to some health clinics and hospitals are considered as acceptable to the needs of the Caza and Governorate and located between 150 m and 900 m away from the proposed roads in Nabatiyeh Caza and are expected to be affected by the project activities due to their proximity to the roads subject to routine maintenance, as per the following:

- Nabatiyeh Governmental Hospital is located 900 m away from the international road of Saida-Nabatiyeh.
- Ghossein Hospital is located 350 m away from the international road of Saida-Nabatiyeh.
- Al Hikme Hospital is located 400 m away from the international road of Saida-Nabatiyeh.
- Al Cheikh Harb Hospital is located 450 m away from a secondary road.
- Al Hamid Medical Center – Ghandour Hospital is located 300 m away from the international road of Saida-Nabatiyeh.
- Secours Populaire Hospital is located 150 m away from the international road of Saida-Nabatiyeh.

The location of the above-mentioned hospitals can be shown on the sensitive receptors map (Annex 7).

The residents of Nabatiyeh Caza who benefit from at least one type of health insurance make 43.2%. Health coverage for woman is 44.3% while it is 42.1% for men in this region. These numbers show that health coverage in Nabatiyeh Caza is lower than the national level for woman and men with respectively 56.2% and 54.9%. The National Social Security Fund is found to be the main source of health coverage in this region (CAS, 2020).

4.3.5 Cultural Heritage

The caza has some ancient rock tombs, Roman and Byzantine ruins and several old mosques (i.e. Hay el Ancient) as well as old churches such as the central church el-Saydeh is (Sarba). The caza is also known for the presence of several old traditional souks (MoT, 2011).

However, these sites are not identified along any of the roads eligible for the maintenance activities. Only one Mosque, Imam Ali Mosque is located on a secondary road.

A map can be found in Annex 7.

4.3.6 Road Sensitive Receptors

The main sensitive receptors with the Nabatiyeh Caza include the Al Zahrani River that crosses primary road (PRI 058). In addition, the Caza comprises of several springs distributed at different elevations within the Caza including: Ain El Nouata, Ain El Bayed, Ain el Daiaa, Ain Younes, Ain El Chemaliye, Nabaab Barbara, Ain El Boustane, Nabaab El Marje, Ain El Saltaoun, Nabaab Jlaikha that crosses primary roads (PRI 057 and 058); Ain El Cheqir, Ain El Jamali, Nabaab El Oussaibe that crosses secondary roads.

Moreover, Nabatiyeh Governmental Hospital is located 900 m away from the international road of Saida-Nabatiyeh, as well as Ghossein Hospital, Al Hikme Hospital, Al Hamid Medical Center – Ghandour Hospital and Secours Populaire Hospital that are located 350 m, 400 m, 300m and 150 m respectively away from the international road of Saida-Nabatiyeh. One private hospital, Al Cheikh Harb Hospital is located 450 m away from a secondary road.

Some of the educational institutions in Nabatiyeh Caza, were identified along or near the proposed roads that are eligible for maintenance, such as, but not limited to:

Computer training school, CIS College Nabatiyeh, Alafak Institute: located on international road (INT 002_5)

Institut Français de Nabatiyeh, ACT College, Collège Saint Charles, Al Manar Academic Institute, Amjad College institute, Lebanese International University (LIU) - Nabatiyeh Campus, Lebanese University Faculty of Sciences V and American University of Culture and Education (AUCE): located between 100 m and 1.2 km away from international road (INT 002_5)

Nabatiyeh High School: located 300 m away from secondary road (SEC061)

A map of all these receptors can be found in Annex 7.

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 Nabatiyeh 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 Nabatiyeh 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. 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	<p>Removal of all vegetation, surface debris and scattered stones and rocks within the limits of working area</p> <p>Cleaning of waterways, hydraulic structures, drainage pipes, and box culverts</p> <p>Removal of damaged galvanized steel guardrail and replacing it by new ones</p> <p>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</p> <p>Deep patching works including excavation maintaining base course and asphalt binder course and asphalt wearing courses</p> <p>Milling and overlay for sunken but stable trench</p> <p>Removal and reinstatement of damaged trench.</p>	Presence of explosive remnants of war (ERW) and/or unexploded ordinance (UXOs)	N	To seek official clearance letter from CDR before commencement of maintenance works
Air quality, nearby	Same as above	Air pollution from emissions of machinery, trucks or open burning activities	N	Prepare and abide by Pollution Prevention Plan that includes:

Receptor	Activity Generating Impacts	Impact Description	Rating	Mitigation Measure
communities and workers		<p>Potential Impact on:</p> <ul style="list-style-type: none"> - Nabatiyeh Governmental Hospital, Ghossein Hospital, Al Hikme Hospital, Al Hamid Medical Center – Ghandour Hospital and Secours Populaire Hospital located respectively 900 m, 350 m, 400 m, 300 m and 150m away from the international road of Saida-Nabatiyeh - Al Cheikh Harb Hospital located 450 m away from a secondary road - Imam Ali Mosque located on a secondary road - Computer training school, CIS College Nabatiyeh, Alafak Institute: located on international road (INT 002_5) - Institut Français de Nabatiyeh, ACT College, Collège Saint Charles, Al Manar Academic Institute, Amjad College institute, Lebanese International University (LIU) - Nabatiyeh Campus, Lebanese University Faculty of Sciences V and American University of Culture and Education (AUCE): located 		<p>Atmospheric Emissions and Dust Management Provisions (Annex 9)</p> <p>Water the ground when extremely windy</p> <p>Mix material in an enclosed space</p> <p>Cover material when transporting</p> <p>Cover piles to avoid generation of dust especially near sensitive receptors</p> <p>Proper storage of material</p> <p>Routine Maintenance of vehicles and machinery</p> <p>Prepare and abide by Emergency Preparedness and Response Plan (Annex 9)</p> <p>Specific Measures Near Sensitive Receptors (Refer to Annex 7)</p> <p>Speed limit for project vehicles and machinery within working areas shall not exceed 20 Km/h</p> <p>Ensure optimal traffic routes as per the Traffic Management Plan (TMP).</p> <p>Use wet suppression in the dry season, where unpaved roads, the working strip, raw material stockpiles are located <200 m from settlements</p>

Receptor	Activity Generating Impacts	Impact Description	Rating	Mitigation Measure
		<p>between 100 m and 1.2 km away from international road (INT 002_5)</p> <ul style="list-style-type: none"> - Nabatiyeh High School: located 300 m away from secondary road (SEC061) - Near densely populated urban areas <p>Refer to Annex 7</p>		
Air, nearby communities		<p>Dust pollution from maintenance and excavation activities.</p> <p>Potential Impact on: Same sensitive receptors as above</p> <p>Refer to Annex 7</p>	N	
Nearby communities and workers		<p>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.</p> <p>Potential Impact on: Same sensitive receptors as above</p> <p>Refer to Annex 7</p>	N	<p>Routine Maintenance of vehicles and machinery</p> <p>Excavation and any other noisy activity only to be conducted during working hours</p> <p>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</p> <p>Set traffic speed limits</p> <p>Specific Measures Near Sensitive Receptors (Refer to Annex 7)</p>
Biodiversity and sensitive habitats		<p>Disturbance of nearby areas and animal escape through noise and vibrations</p>	N	<p>Verify drivers' behavior with respect to driving speed</p> <p>Plan vehicle routes to avoid complaints where possible</p>

Receptor	Activity Generating Impacts	Impact Description	Rating	Mitigation Measure
Water resources, soil, nearby communities	<p>Removal of all vegetation, surface debris and scattered stones and rocks within the limits of working area</p> <p>Cleaning of waterways, hydraulic structures, drainage pipes, and box culverts</p> <p>Removal of damaged galvanized steel guardrail and replacing it by new ones</p> <p>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</p> <p>Deep patching works including excavation maintaining base course and asphalt binder course and asphalt wearing courses</p> <p>Milling and overlay for sunken but stable trench</p> <p>Removal and reinstatement of damaged trench.</p> <p>Cast in situ reinforced concrete for repair box culverts, headwalls and wingwalls, concrete channels, safety barriers, retaining walls and cover channels</p>	<p>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</p> <p>Potential impact on:</p> <ul style="list-style-type: none"> - Al Zahrani River crossing Road PRI 058 - Ain El Nouata, Ain El Bayed, Ain el Daiaa, Ain Younes, Ain El Chemaliye, Nabaa Barbara, Ain El Boustane, Nabaa El Marje, Ain El Saltaoun, Nabaa Jlaikha crossing Roads PRI 057 and 058 - Ain El Cheqir, Ain El Jamali, Nabaa El Oussaibe crossing secondary roads <p>Refer to Annex 7</p>	N	<p>Prepare and abide by Pollution Prevention Plan that includes:</p> <p>Effluent Management Provisions</p> <p>Rainwater run-off Management Provisions (Annex 9)</p> <p>Prepare and abide by Emergency Preparedness and Response Plan (Annex 9)</p> <p>Specific Measures Near Sensitive Receptors (Refer to Annex 7)</p> <p>On-site concrete pouring shall be done in a way to avoid leaching to nearby water bodies.</p> <p>Onsite mixing of concrete shall be performed at least 40 meters away from nearby water bodies</p> <p>Prohibit the disposal of excess concrete mix into the environment or near water bodies</p>

Receptor	Activity Generating Impacts	Impact Description	Rating	Mitigation Measure
	Plain concrete patching for deteriorated concrete in culverts, channels, walls and safety barriers			
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	Water pollution due to accidental spill of oils and chemicals from trucks and from transportation of chemicals and oils. Potential impact on: Same sensitive receptors as above Refer to Annex 7	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 Routine maintenance of vehicles and machinery Prepare and abide by Waste Management Plan and Hazardous Materials Management Plan (Annex 9)
Water resources	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.	Improper disposal of cut volume may cause contamination of water bodies in rainy weather Potential impact on: Same sensitive receptors as above Refer to Annex 7	N	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 7) 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 chemicals/materials shall be stored in designated areas, except for quantities generated or required for the daily construction activities, or where there is the potential for spilled fuel to enter groundwater and surface water bodies

Receptor	Activity Generating Impacts	Impact Description	Rating	Mitigation Measure
				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, 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	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: Same sensitive receptors as above Refer to Annex 7	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 7) 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 receptors
Energy resources	Deep patching works including excavation maintaining base course and asphalt binder course and asphalt wearing courses Milling and overlay for sunken but stable trench	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	Removal and reinstatement of damaged trench.	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
Water resources, soil,		Reduction in overall ground and surface water quality due to	N	

Receptor	Activity Generating Impacts	Impact Description	Rating	Mitigation Measure
nearby communities	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	improper disposal of construction waste		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; Extracting the borrow material from agricultural lands or natural landscapes is prohibited
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	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
	binder course and asphalt wearing courses Milling and overlay for sunken but stable trench Removal and reinstatement of damaged trench.			
Social				
Local workers, socio-economic activities	Removal of all vegetation, surface debris and scattered stones and rocks within the limits of working area	Creation of job opportunities for local communities	P	Workers are paid their wages in full and on time
Nearby communities, socio-economic activities	Cleaning of waterways, hydraulic structures, drainage pipes, and box culverts Removal of damaged galvanized steel guardrail and replacing it by new ones	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	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	Small snack shops and coffee stations are expected to benefit from workers buying food and drinks	P	
Foreign Workers	Deep patching works including excavation maintaining base course and asphalt binder course and asphalt wearing courses Milling and overlay for sunken but stable trench	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 as well as mobile sign boards)

Receptor	Activity Generating Impacts	Impact Description	Rating	Mitigation Measure
	<p>Removal and reinstatement of damaged trench.</p> <p>Cast in situ reinforced concrete for repair box culverts, headwalls and wingwalls, concrete channels, safety barriers, retaining walls and cover channels</p> <p>Plain concrete patching for deteriorated concrete in culverts, channels, walls and safety barriers</p>			
Shop owners	<p>Removal of all vegetation, surface debris and scattered stones and rocks within the limits of working area</p> <p>Cleaning of waterways, hydraulic structures, drainage pipes, and box culverts</p> <p>Removal of damaged galvanized steel guardrail and replacing it by new ones</p> <p>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</p> <p>Deep patching works including excavation maintaining base course and asphalt binder course and asphalt wearing courses</p>	Economic Activities and its effect on the livelihood of the shop owners	N	<p>Install overpass structures from the road to the shops. The design of any proposed structure to allow safe and smooth access of customers to affected businesses would be subject to review and clearance approval by the supervision engineer. Overpass to be inspected by the supervision engineer before open to public.</p> <p>Maintain a passing corridor within the alignment to grant access to nearby properties</p> <p>Ensure that access to small snack and coffee stations is not blocked by installing wooden boards where necessary</p> <p>Inform the shops' owners ahead of time about maintenance date and coordinate with relevant municipalities</p> <p>Regularly inform road users and local communities in relation to changed traffic conditions or access</p>

Receptor	Activity Generating Impacts	Impact Description	Rating	Mitigation Measure
	<p>Milling and overlay for sunken but stable trench</p> <p>Removal and reinstatement of damaged trench.</p>			<p>Proper installation of sign boards in culturally appropriate languages that are clear and understandable to the public</p> <p>Timely completion of the maintenance activities</p> <p>Ensure access to external GRM (public notice including GRM to be posted at relevant municipalities and on project sign boards)</p> <p>Prepare and abide by Traffic Management Plan (Annex 9)</p>
Foreign workers influx	<p>Removal of all vegetation, surface debris and scattered stones and rocks within the limits of working area</p> <p>Cleaning of waterways, hydraulic structures, drainage pipes, and box culverts</p> <p>Removal of damaged galvanized steel guardrail and replacing it by new ones</p> <p>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</p> <p>Deep patching works including excavation maintaining base course and asphalt</p>	Discrimination from the local community against the potential influx of foreign workers	N	<p>Prevent discrimination at the workplace by:</p> <ul style="list-style-type: none"> - Educating and training all your workers about what constitutes discrimination. - Training higher-ups like supervisors and managers on how to properly respond to discrimination in the workplace. - Handling any discrimination complaints confidentially and carefully. <p>Conduct awareness campaigns for the local community regarding foreign workers influx</p> <p>Inform the local community that worker will sign code of conduct before starting the work</p> <p>GRM for local communities and all relevant stakeholders</p>

Receptor	Activity Generating Impacts	Impact Description	Rating	Mitigation Measure
Locals and foreign, skilled and unskilled)	binder course and asphalt wearing courses Milling and overlay for sunken but stable trench Removal and reinstatement of damaged trench.	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	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	Possible recruitment of children who are under the legal age as workers on the site, especially in the case of the day laborers as well as forced labor	2N	Daily registrations of workers and verification of their age to prevent child labor with documentation 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 Ensure all workers signed the Code of Conduct
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,	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) Ensure optimal traffic routes as per the Traffic Management Plan (TMP) prepared by the Contractor Road Safety Specialist and approved by the Consultant; Traffic shall be secured via alternative routes to reach relevant destinations in case the works imply the temporary closure of this road, if partial closure of the road is not possible

Receptor	Activity Generating Impacts	Impact Description	Rating	Mitigation Measure
	<p>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</p> <p>Deep patching works including excavation maintaining base course and asphalt binder course and asphalt wearing courses</p> <p>Milling and overlay for sunken but stable trench</p> <p>Removal and reinstatement of damaged trench.</p>			<p>Inform the local community about the location of detours, road blockages or diversions through public announcements and proper diversion signage</p> <p>Ensure access to external GRM (public notice including GRM to be posted at relevant municipalities and on project sign boards)</p>
Existing infrastructure and nearby communities	<p>Removal of all vegetation, surface debris and scattered stones and rocks within the limits of working area</p> <p>Cleaning of waterways, hydraulic structures , drainage pipes, and box culverts</p> <p>Removal of damaged galvanized steel guardrail and replacing it by new ones</p> <p>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</p> <p>Deep patching works including excavation maintaining base course and asphalt</p>	Accidental Damage of existing infrastructure or planned interruption of utilities	N	<p>Regular coordination with relevant municipalities and documentation</p> <p>Conducting trial pits</p> <p>Ensure proper communication with affected communities to alert them whenever planned/accidental interruption of services happens</p> <p>Ensure access to external GRM (public notice including GRM to be posted at relevant municipalities and on project sign boards)</p>

Receptor	Activity Generating Impacts	Impact Description	Rating	Mitigation Measure
	<p>binder course and asphalt wearing courses</p> <p>Milling and overlay for sunken but stable trench</p> <p>Removal and reinstatement of damaged trench.</p>			
Existing Cultural Heritage	<p>Removal of all vegetation, surface debris and scattered stones and rocks within the limits of working area</p> <p>Cleaning of waterways, hydraulic structures , drainage pipes, and box culverts</p> <p>Removal of damaged galvanized steel guardrail and replacing it by new ones</p> <p>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</p> <p>Deep patching works including excavation maintaining base course and asphalt binder course and asphalt wearing courses</p> <p>Milling and overlay for sunken but stable trench</p> <p>Removal and reinstatement of damaged trench.</p>	Accidental Damage of existing cultural heritage	N	Abide by Chance Finds Procedure (Annex 9) Ensure all routine maintenance works are halted until a certificate is issued by the authorities

Receptor	Activity Generating Impacts	Impact Description	Rating	Mitigation Measure
Nearby communities	<p>Cleaning of waterways, hydraulic structures, drainage pipes, and box culverts</p> <p>Removal of damaged galvanized steel guardrail and replacing it by new ones</p> <p>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</p> <p>Deep patching works including excavation maintaining base course and asphalt binder course and asphalt wearing courses</p> <p>Milling and overlay for sunken but stable trench</p> <p>Removal and reinstatement of damaged trench.</p> <p>Cast in situ reinforced concrete for repair box culverts, headwalls and wingwalls, concrete channels, safety barriers, retaining walls and cover channels</p>	Potential occurrence of gender-based violence and sexual exploitation and abuse incidents and all forms of GBV incidents	N	<p>Draft Codes of Conduct and the guidelines for a GBV and VAC Action Plan</p> <p>Conduct training sessions for workers on Sexual Exploitation and Abuse and/or Sexual Harassment</p> <p>All workers should understand, and sign codes of conduct written in their native language</p> <p>Respond to the reported incidents of sexual abuse exploitation as a matter of priority</p> <p>Regular training on gender-based aspects, internal and external GRM that includes an anonymous channel for protection of complainants' identity and confidentiality</p> <p>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</p> <p>GRM will be sensitive to complaints related to SEA/SH grievances and ensure implementation of the necessary referral pathways with application of principles of confidentiality and anonymity as needed</p> <p>Ensure that there is a survivor centric approach for SEA/SH complaints and trained personnel handling these calls</p>

Receptor	Activity Generating Impacts	Impact Description	Rating	Mitigation Measure
Nearby communities	Plain concrete patching for deteriorated concrete in culverts, channels, walls and safety barriers	<p>Slight increase in traffic due to the transport of construction materials or due to the material that may fall</p> <p>Traffic congestion in the town due to temporal road closure</p> <p>Material falling from vehicles during transport may cause traffic accidents or congestion</p> <p>Potential Impact on:</p> <ul style="list-style-type: none"> - Nabatiyeh Governmental Hospital, Ghossein Hospital, Al Hikme Hospital, Al Hamid Medical Center – Ghandour Hospital and Secours Populaire Hospital located respectively 900 m, 350 m, 400 m, 300 m and 150m away from the international road of Saida-Nabatiyeh - Al Cheikh Harb Hospital located 450 m away from a secondary road - Imam Ali Mosque located on a secondary road - Computer training school, CIS College Nabatiyeh, Alafak Institute: located on international road (INT 002_5) - Institut Français de Nabatiyeh, ACT College, Collège Saint 	N	<p>Prepare and abide by Traffic Management Plan (Annex 9)</p> <p>Ensure traffic is not blocked during transportation</p> <p>Inform residents and place signs near the working areas in culturally appropriate languages and written in clear and understandable manner</p> <p>Ensure communities have access to GRM</p> <p>Cover transported material</p> <p>Abide by traffic regulations</p> <p>Operate well maintained vehicles</p>

Receptor	Activity Generating Impacts	Impact Description	Rating	Mitigation Measure
		<p>Charles, Al Manar Academic Institute, Amjad College institute, Lebanese International University (LIU) - Nabatiyeh Campus, Lebanese University Faculty of Sciences V and American University of Culture and Education (AUCE): located between 100 m and 1.2 km away from international road (INT 002_5)</p> <ul style="list-style-type: none"> - Nabatiyeh High School: located 300 m away from secondary road (SEC061) - Near densely populated urban areas <p>Refer to Annex 7</p>		
Health and Safety				
Workers	<p>Thermoplastic reflectorized road paint lines including surface preparation and removal of existing paint lines</p> <p>Thermoplastic reflectorized special road marking including speed limit marking, Bituminous speed humps</p> <p>Rumble strips</p>	Accident and injuries to workers and public because of maintenance activities	2N	5.4 Contractor to develop a site-specific Public Health and Safety Plan and Occupational Health and Safety (Annex 9) to be approved by Supervision Consultant and CDR before commencement of works in order to identify all risks related to the project related activities and site surroundings, responsibilities, operational controls as well as emergency situations. The Plan should include, at minimum:
Nearby communities	Cleaning of waterways, hydraulic structures, drainage pipes, and box culverts	<p>Dust generation and noise may cause health related problems for workers and disturbance to residents.</p> <p>Potential Impact on:</p>	N	<ul style="list-style-type: none"> - introduction

Receptor	Activity Generating Impacts	Impact Description	Rating	Mitigation Measure
	<p>Removal of damaged galvanized steel guardrail and replacing it by new ones</p> <p>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</p> <p>Deep patching works including excavation maintaining base course and asphalt binder course and asphalt wearing courses</p> <p>Milling and overlay for sunken but stable trench</p> <p>Removal and reinstatement of damaged trench.</p> <p>Cast in situ reinforced concrete for repair box culverts, headwalls and wingwalls, concrete channels, safety barriers, retaining walls and cover channels</p> <p>Plain concrete patching for deteriorated concrete in culverts, channels, walls and safety barriers</p>	<ul style="list-style-type: none"> - Nabatiyeh Governmental Hospital, Ghossein Hospital, Al Hikme Hospital, Al Hamid Medical Center – Ghandour Hospital and Secours Populaire Hospital located respectively 900 m, 350 m, 400 m, 300 m and 150m away from the international road of Saida-Nabatiyeh - Al Cheikh Harb Hospital located 450 m away from a secondary road - Imam Ali Mosque located on a secondary road - Computer training school, CIS College Nabatiyeh, Alafak Institute: located on international road (INT 002_5) - Institut Français de Nabatiyeh, ACT College, Collège Saint Charles, Al Manar Academic Institute, Amjad College institute, Lebanese International University (LIU) - Nabatiyeh Campus, Lebanese University Faculty of Sciences V and American University of Culture and Education (AUCE): located between 100 m and 1.2 km away 		<ul style="list-style-type: none"> - project overview details / works tasks - occupational health and safety policy - project health and safety objectives - legal and other requirements - control of project work areas - project personnel and roles & responsibilities - communication and safety information (including communication with nearby communities) - consultation and participation - induction toolbox talks & training - hazard identification and risk assessment (including JHA) - safe systems of work - housekeeping and waste disposal - permits to work - inspections & audits - safety observation - Presence of first aid kits on the construction site - Stop Work Authority - site access - fatigue and stress management - plant and heavy equipment - safety training - personal protective equipment - permit to work - electrical safety

Receptor	Activity Generating Impacts	Impact Description	Rating	Mitigation Measure
		from international road (INT 002_5) - Nabatiyeh High School: located 300 m away from secondary road (SEC061) - Near densely populated urban areas Refer to Annex 7		<ul style="list-style-type: none"> - excavation safety - working at heights - fall protection - Best Applicable Practices on Road Safety - emergency preparedness and response procedures - accident and incident investigation/reporting - occupational health and safety performance monitoring

Note: All risks, impacts and mitigation measures should be acknowledged by the awarded contractor. It is the ultimate responsibility of the contractor to identify further site-specific risks and impacts, based on the contractor's site reconnaissance and experience, and implement necessary preventative and mitigation measures which shall be approved by the Employer or his designated representative onsite prior to proceeding with actual implementation.

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 Nabatiyeh 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	Monitoring Responsibility	Estimated Cost
Environmental						
Air pollution (Dust /GHG Emissions)	Total Suspended Particles (TSP), PM10, PM2.5 (wherever feasible), SOx, NOx and CO	Weekly and continuously during activities that generates significant amount of air pollutants, as well as when complaints are raised	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 if any complaints are raised	Contractor supervised by the Consultant	\$1,500/event
Noise Pollution and Light	Leq, Lmin and Lmax	Weekly and continuously during activities generating significant noise levels, as well as when complaints are raised	Throughout the project area near sensitive receptors	Single sample per location (average 1hr reading-15min intervals) during morning (7-8am), evening (1-2pm) and night (4-5pm) if any complaints are raised	Contractor supervised by the Consultant	\$300 (cost of noise monitoring machine)
Contamination of surface water bodies and soil from the generated domestic wastewater from workers and liquid waste from	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	Weekly	Throughout the project area and at the porta cabin toilet sites	Visual inspection	Contractor supervised by the Consultant	-

Impact	Monitoring Indicators	Frequency / Duration	Location	Methods	Monitoring Responsibility	Estimated Cost
maintenance activities	Effluent from construction activities (Concrete mixing, dust minimizing, washing of equipment...)					
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 and near nature reserve and forest	Visual inspection	Contractor supervised by the Consultant	-
Reduction in overall surface water and soil quality Accidental Releases	Ensure active spill prevention and management plan are implemented Chemicals, oils and fuel spill incidents	Weekly	Active maintenance locations	Visual inspection	Contractor supervised by the Consultant	-
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	Contractor supervised by the Consultant	-
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	Contractor supervised by the Consultant	-
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 is planned (mainly where new pavement is assigned)	Visual inspection	Contractor supervised by the Consultant	-

Impact	Monitoring Indicators	Frequency / Duration	Location	Methods	Monitoring Responsibility	Estimated Cost
Tree and floral species disturbance near the site during maintenance activities	Site observation	Weekly	Around maintenance activities and near the nature reserve and forest		Contractor supervised by the Consultant	-
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	Contractor supervised by the Consultant	-
Labor conditions	Proportion of Lebanese vs Syrian workers Worker's age (age verification) GRM log Attendance sheets to GBV and SEA trainings Number of workers who signed Code of Conduct	Weekly	Throughout the project area	Visual inspection	Contractor supervised by the Consultant	-
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	Contractor supervised by the Consultant	

Impact	Monitoring Indicators	Frequency / Duration	Location	Methods	Monitoring Responsibility	Estimated Cost
Health and Safety						
Accident and injuries to workers	<p>Ensure signs are in place before works begin</p> <p>Visual inspections to ensure that all workers are wearing their PPEs</p> <p>Recorded injuries and accidents within the workers</p>	Daily	At maintenance activity locations	<p>Visual inspection</p> <p>Accidents records</p>	Contractor supervised by the Consultant	-
Accident and injuries to the public	<p>Ensure the installation of pedestrian and vehicular passages near residential areas</p> <p>Ensure road diversion and construction attention signs are in place before works begin</p> <p>Record injuries and accidents within passers-by</p> <p>Ensure the development of a site-specific Occupational and Public Health and Safety Plan and that the best practices are applied</p>	Daily	At maintenance activity locations	<p>Visual inspection</p> <p>Accidents records</p>	Contractor supervised by the Consultant	-

6.2 Institutional Setup and Capacity Building

6.2.1 Roles and Responsibilities

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 and Safety (HS) officer
- Supervising Consultant: environmental and social expert
- Municipalities: relevant municipalities in Nabatiyeh Caza

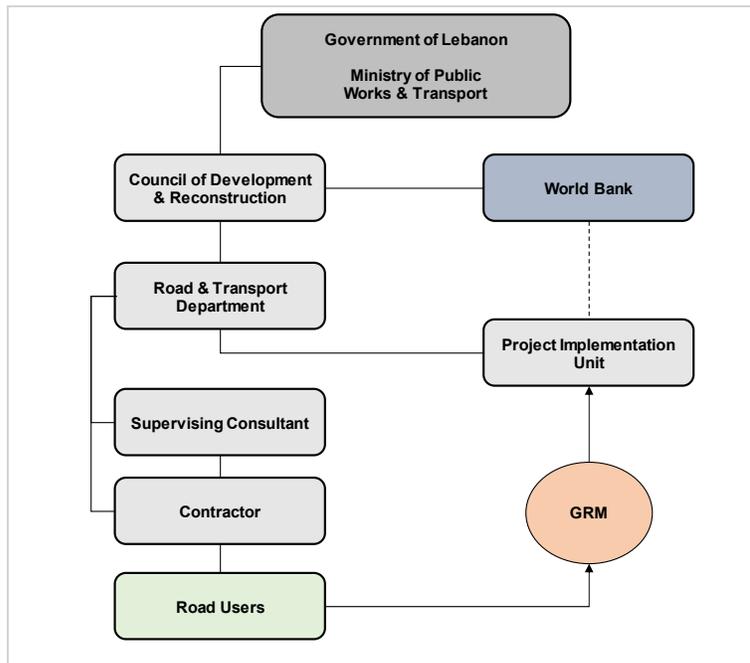


Figure 6-1: Roads and Employment Project Management Structure

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.

Prior to the commencement of works, the Contractor shall prepare and conduct training sessions targeting the above-mentioned objectives.

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 or long term injuries). In this case, prompt reporting must be done from the Contractor to the Consultant, from the Consultant to CDR and from CDR to the WB. In all other incidents, the Consultant shall be always notified by the Contractor.

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 Nabatiyeh Caza and to take into account their concerns and feedback. The public consultation was held on Monday, 31 July 2023 at Nabatiyeh Saray. An announcement was prepared for this purpose and can be found in Annex 10. The announcement was disseminated 10 days prior to the date of the public consultation session. It was shared through the social media platforms (whatsapp groups, facebook posts ...) and delivered to Nabatiyeh Saray premises.

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 July 2023. 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 who did not attend the session. A sample of the invitation can be found in Annex 10. NGOs may serve as advocates to reduce projects' social and environmental risks and promote good practice.

During the session, participants were asked to write their names along with their organization and/or position on the attendance sheet. Annex 10 presents the list of attendees of the session. A total of 19 participants attended the session out of which 2 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. 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 photos 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 governor asked about the role of the municipalities in this project and mentioned that it is important to coordinate with each municipality as they know where the problems at each road are.
- ACE representative stated that municipalities will be involved before the implementation of the maintenance activities. ACE representative also clarified that this project phase includes routine maintenance activities of already existing road features (including road marking) and does not include rehabilitation activities.
- The Head of Union of Municipalities of (UOM) Eklim El Teffeh as well as most of the participants asked about the budget and implementation timeframe of the project.
- ACE representative responded that the budget of the project is based on the remaining funds from the rehabilitation activities which is already being implemented in the Caza under the same project. Regarding the implementation timeframe, ACE representative mentioned that

as a first step an assessment of the road conditions was done on 25% of the international, primary and secondary roads. ACE representative also clarified that Bills of Quantities (BOQ) are being prepared for several road maintenance items based on the 25% assessment. Then in coordination with the relevant municipalities, maintenance activities will be identified before the implementation of the project. Supervision on road maintenance activities will be done to ensure that the contractor is implementing all items and quantities mentioned in the BOQ.

- One of the participants asked about the name of the roads subject to routine maintenance activities and how works shall be performed.
- ACE representative clarified that the project includes routine maintenance activities of already existing road features (classical road maintenance activities) and not rehabilitation activities to upgrade the road classified as international, primary and/or secondary. ACE representative also clarified that there is no identified maps showing the location of the maintenance activities and that only BOQs were prepared for the contractor. ACE representative concluded by pointing out that municipalities can coordinate with CDR and the contractor before the implementation of the routine maintenance activities.
- One of the participants asked for an explanation how this project will benefit from the local expertise and create jobs for the local community. The Consultant team detailed the positive socio-economic impact of such project to the region with examples.
- The environmental and social expert of CDR, reminded all participants about the WB regulations that govern the routine maintenance project including the importance of the GRM channel and the safeguards.
- The Consultant confirmed that the Contractor shall secure the access and traffic movement on roads subject to routine maintenance as per the requirements of the approved TMP.

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 Nabatiyeh 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 6-1):

- 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. The GRM of the contractor shall be disseminated and operationalized prior to commencement of project activities and documented
- 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 9.

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 Nabatiyeh Caza, 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 week. It also follows the Complaints Register form (refer to Annex 9).

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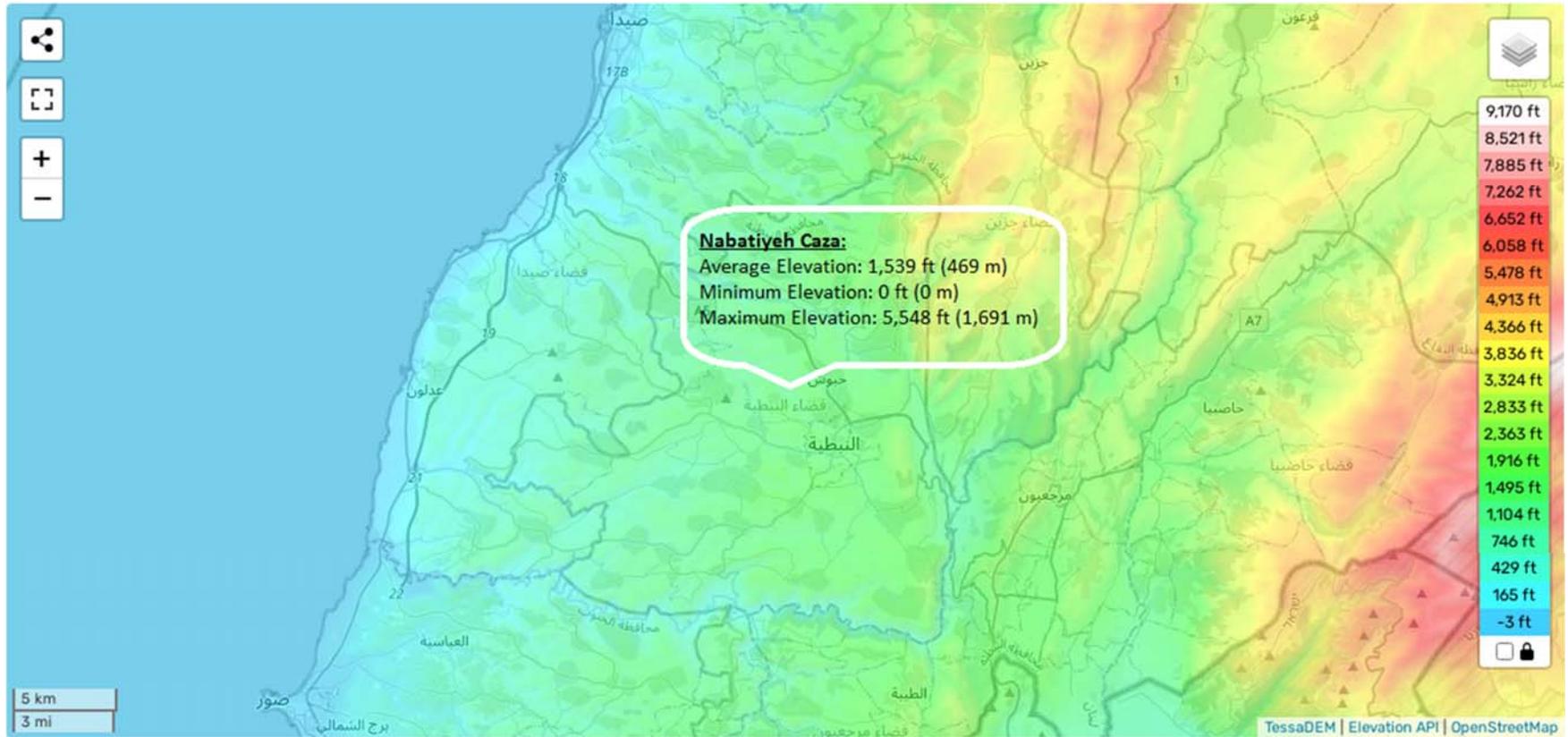
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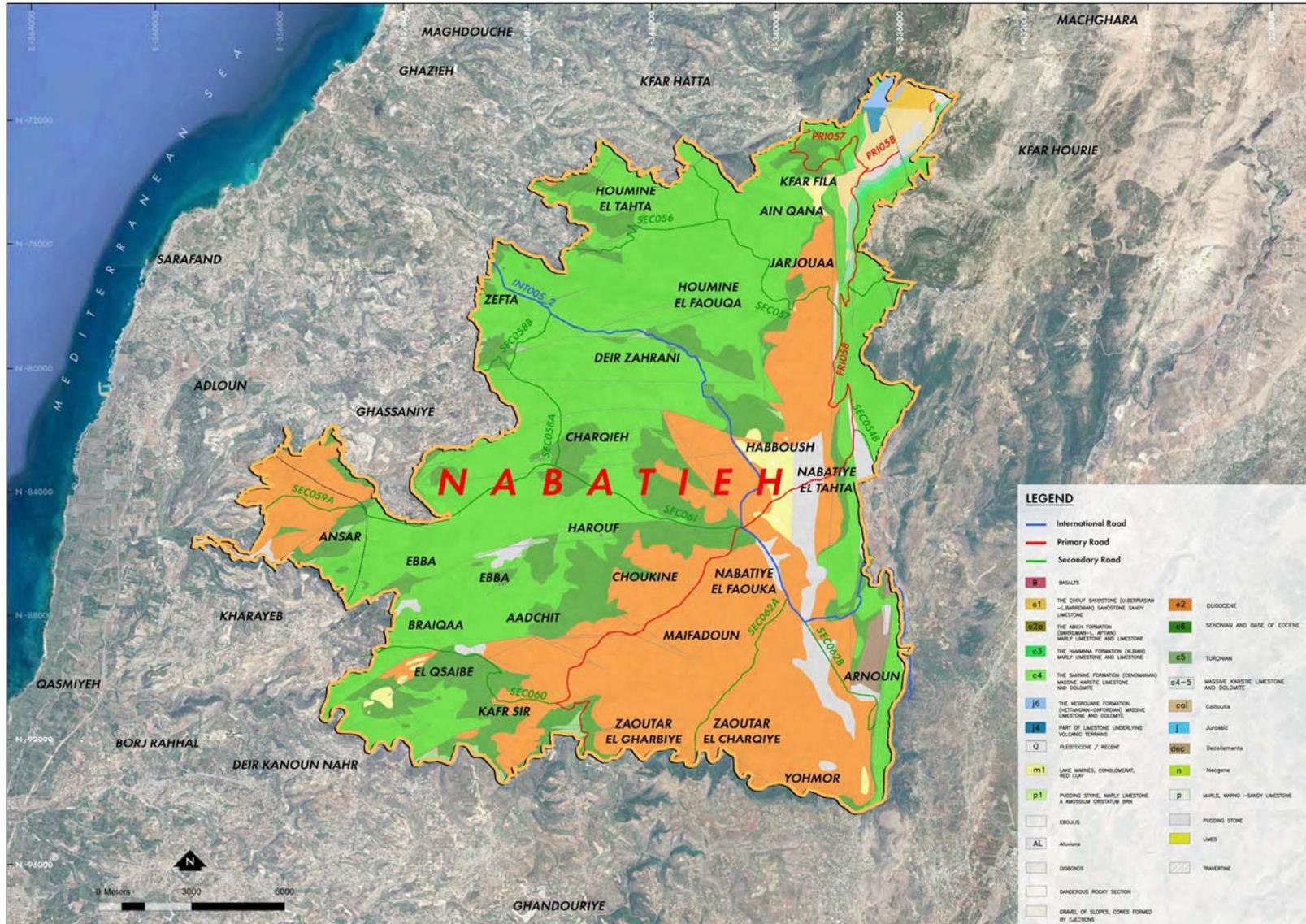
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ANNEX 1: TOPOGRAPHIC MAP OF NABATIYEH CAZA



Source: Topographic-Map Website, 2023

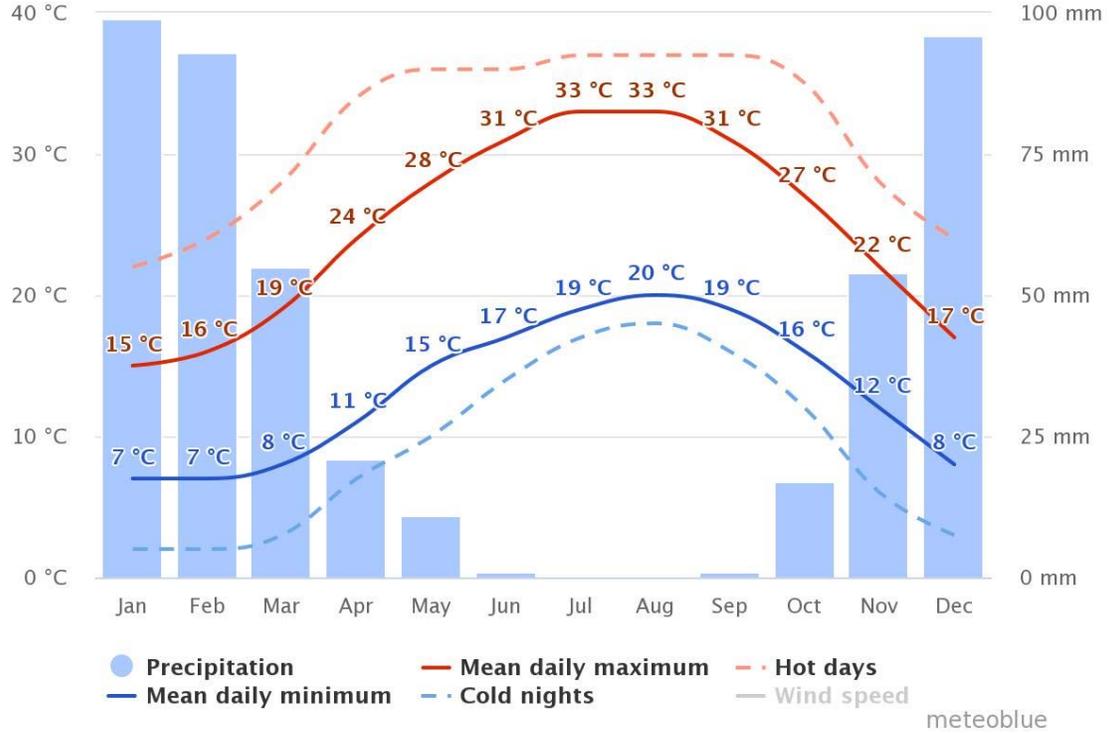
ANNEX 2: GEOLOGY MAP OF NABATIYEH CAZA



ANNEX 4: CLIMATE DATA

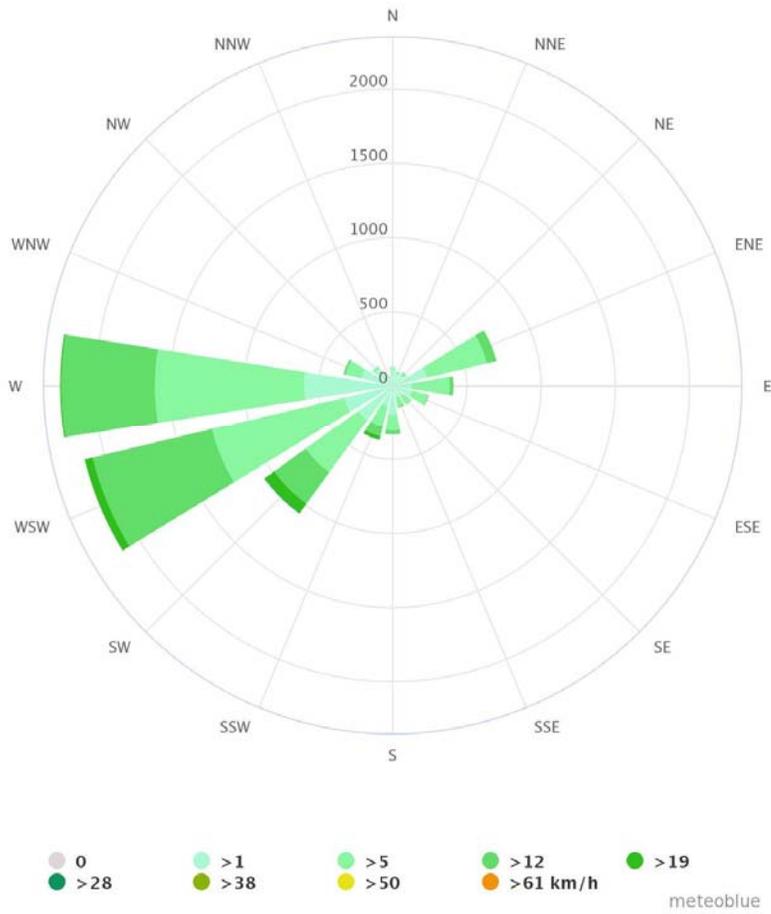
Figure 1: Climograph of Nabatiyeh in Nabatiyeh Caza (for the last 30 years)

Average Temperatures and precipitation



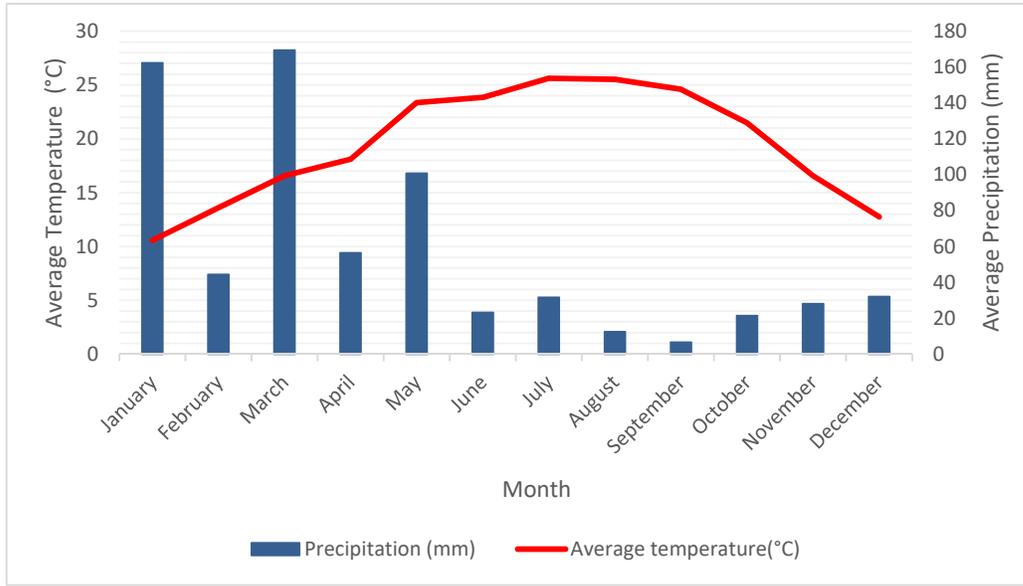
Source: https://www.meteoblue.com/en/weather/historyclimate/climatemodelled/nabatieh_lebanon_7870014

Figure 2: Wind Rose for Nabatiyeh in Nabatiyeh Caza (for the last 30 years)



Source: https://www.meteoblue.com/en/weather/historyclimate/climatemodelled/nabatieh_lebanon_7870014

Figure 3: Climograph of New Nabatiye at 530 m from LARI Station for the Year 2018



Source: LARI, 2018

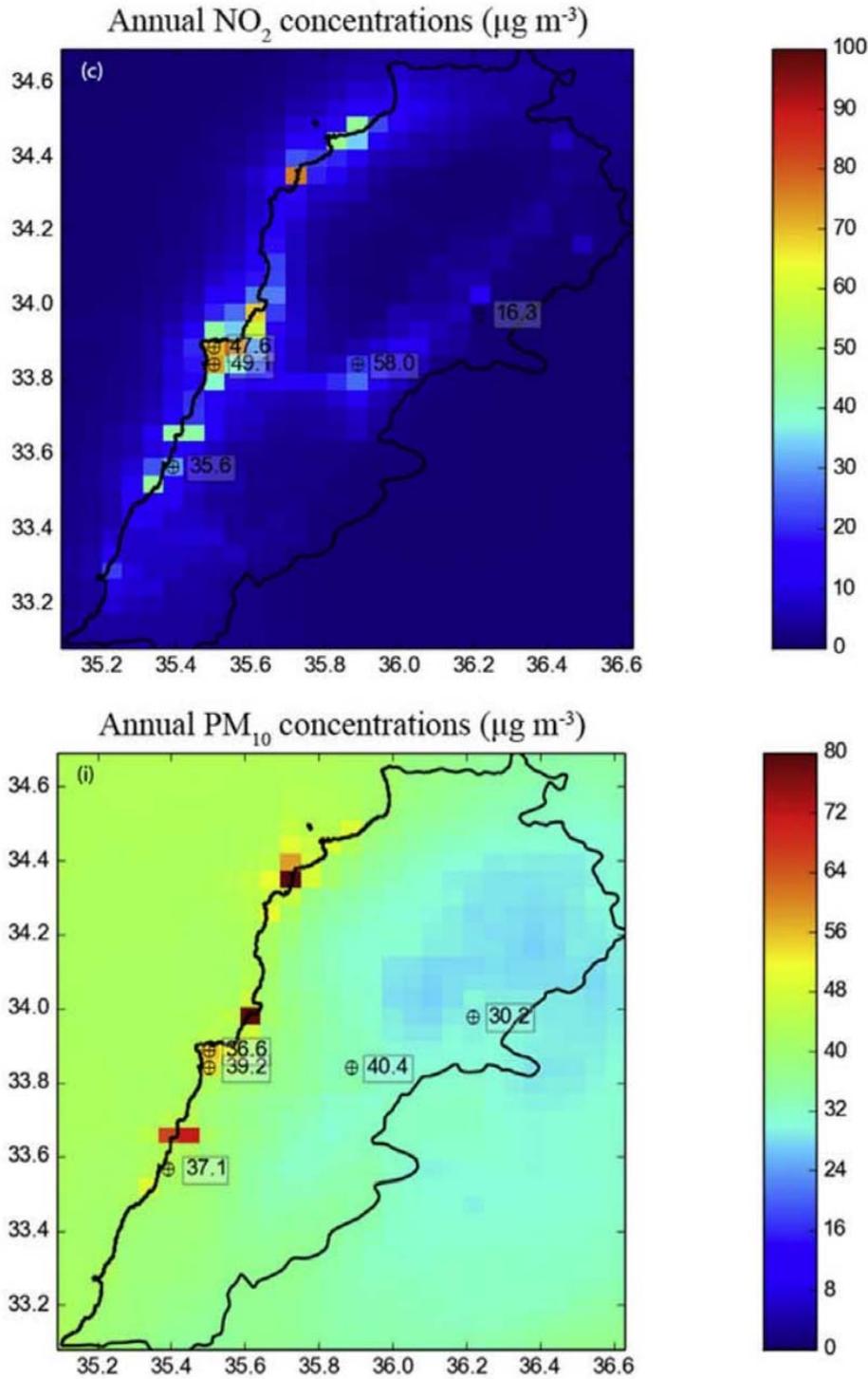
Table 1: Monthly and Yearly Averages of Wind Speed (m/s) and Direction (degrees) registered by New Nabatiye LARI Station in 2017.

Month	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec	Average per year 2017
Monthly Average Wind Speed (m/s)	0.05	0.055	0.18	0.16	0.08	0.09	0.1	0.14	0.15	0.14	0.04	0.12	0.109
Monthly Average Wind Direction (Degrees)	166.8	151.78	181.87	183.1	203.3	218.43	231.48	226.16	201.86	193.81	163.93	150.54	189.42

Source: Data provided by LARI on January 21, 2020

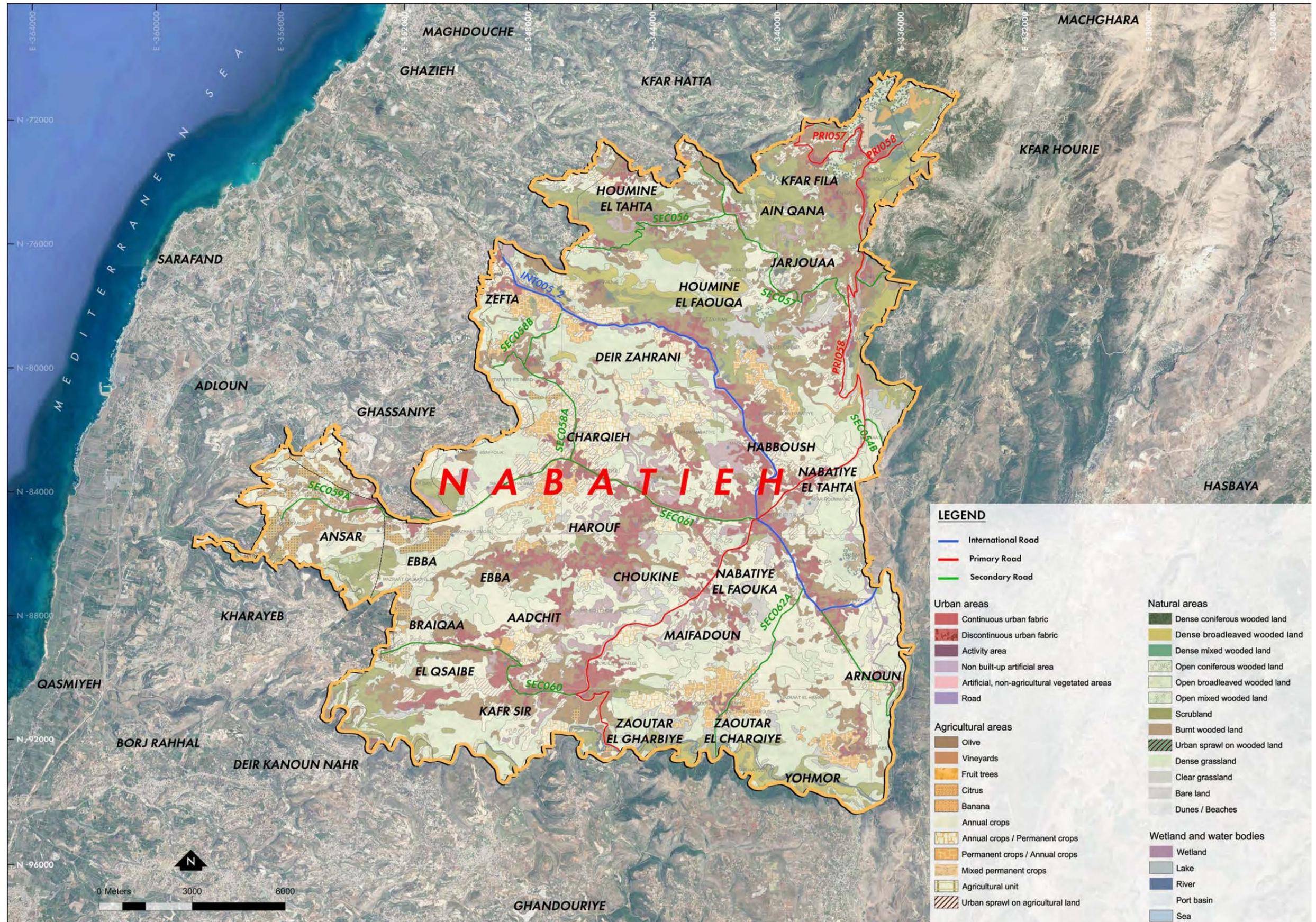
ANNEX 5: AIR QUALITY DATA

The mean modelled annual concentrations maps for NO₂ and PM₁₀

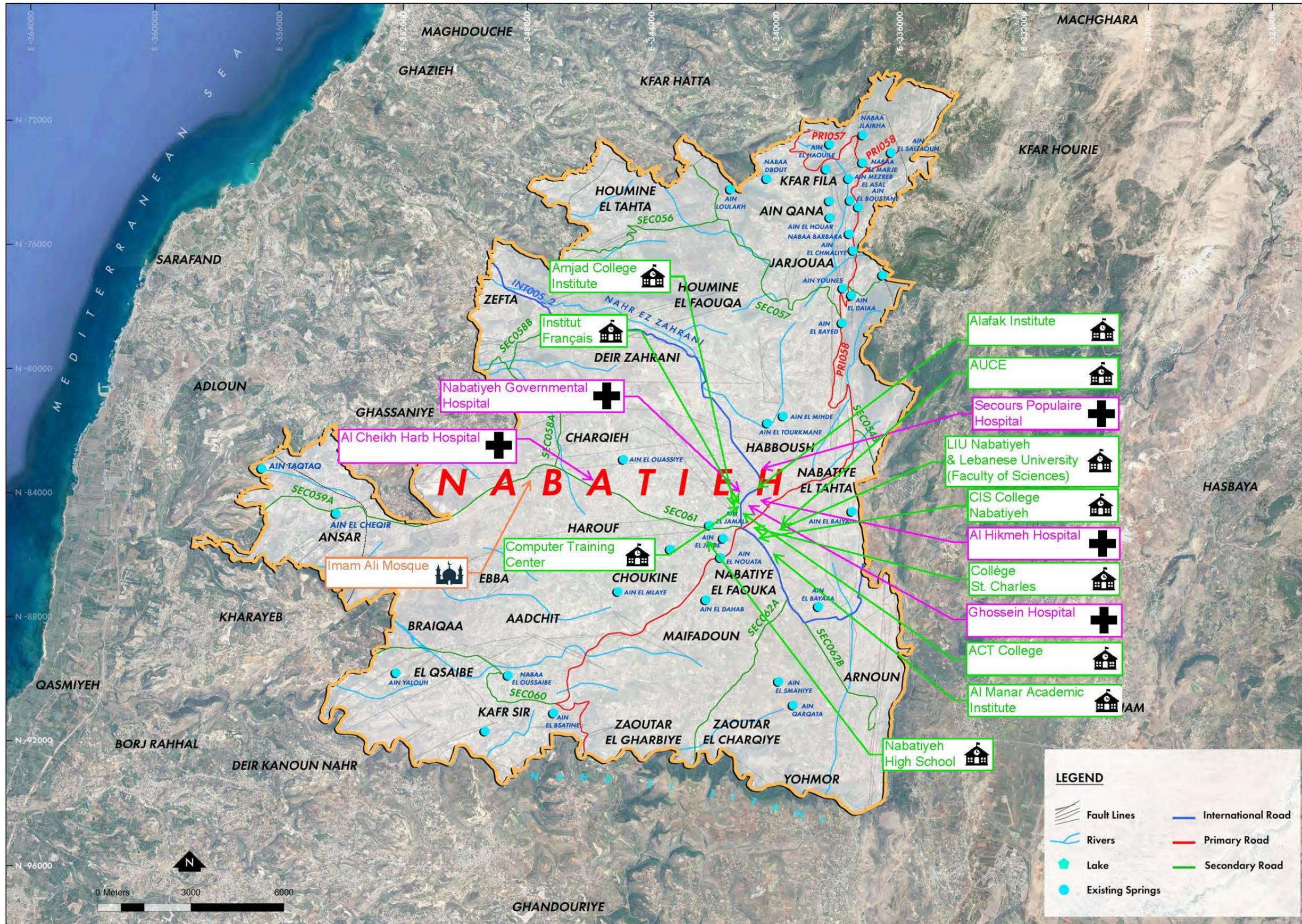


(Source: Abdallah et al., 2018)

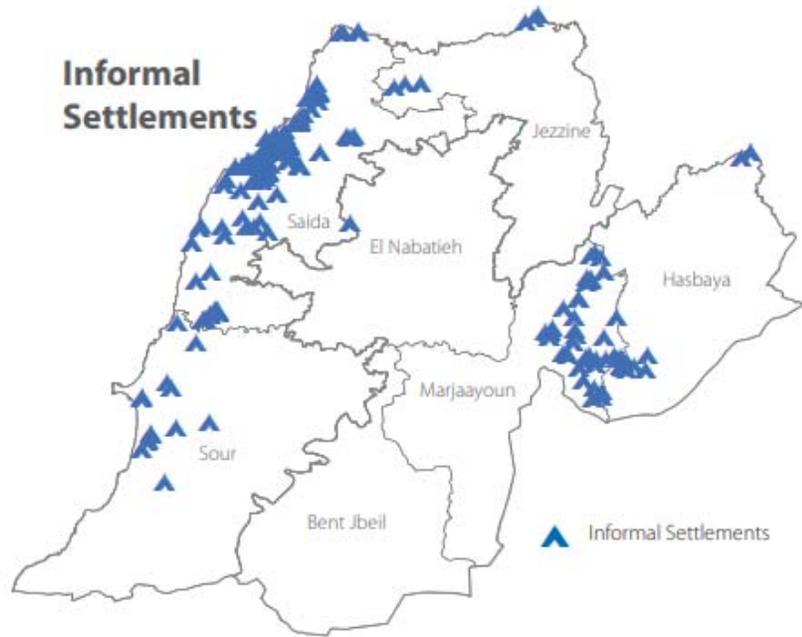
ANNEX 6: LAND USE/LAND COVER MAP OF NABATIYEH CAZA



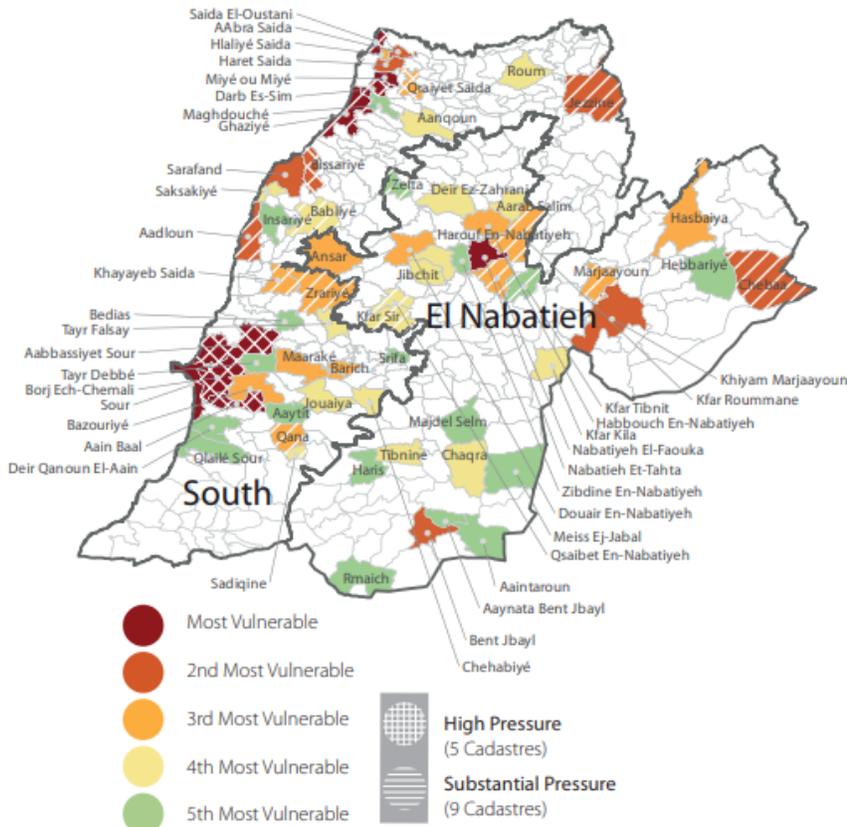
ANNEX 7: SENSITIVE AREAS RECEPTORS



ANNEX 8: INFORMAL SETTLEMENTS AND PALESTINIAN CAMPS



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 near sensitive receptors
- 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 will need to be developed by the main contractor. It 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 near sensitive receptors 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 will need to develop a site-specific OHS plan to ensure the workers' health and safety against possible accidents and injuries from the various maintenance activities. The plan shall be reviewed by the Employer or his designated representative and shall include, inter alia, 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 identifies actions necessary if previously unknown heritage resources, particularly archaeological resources, are unexpectedly encountered during project construction phase. Chance Find Procedure will set out how chance finds associated with the project will be managed and will include the following requirements:

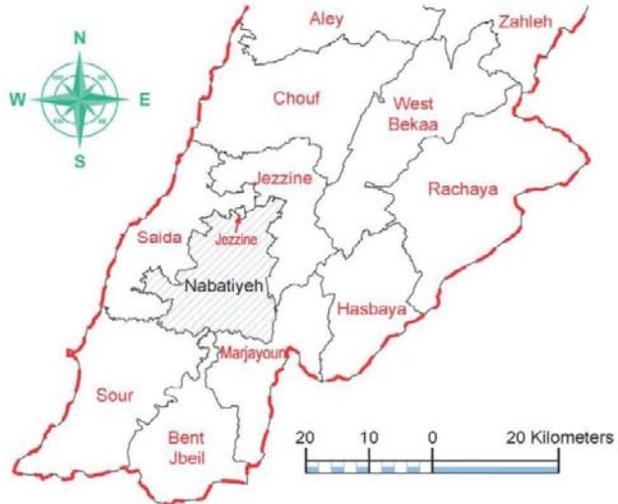
- Stop all routine maintenance activities
- Notify relevant authorities (Directorate of General of Antiquities, Ministry of Tourism) of found objects or sites
- Fence the area of finds or sites to avoid further disturbance
- Conduct an assessment of found objects or sites by cultural heritage experts in order to identify and implement actions consistent with the national legal requirements
- Resume routine maintenance activities once a certificate is issued by the authorities
- Train project personnel and project workers on chance find procedures

ANNEX 10: PUBLIC CONSULTATION

Announcement

إعلان



ضمن إطار مشروع الطرق والعمالة الممول من قبل البنك الدولي، كلف مجلس الإنماء والإعمار المكتب الهندسي الاستشاري (ACE) للقيام بإعداد ملفات تلزيم "للصيانة الروتينية" للطرق الدولية والرئيسية والثانوية التي تقع ضمن نطاق قضاء النبطية.

إن المشروع سيضم أنشطة الصيانة الروتينية لمدة سنة (1) للطرق الدولية والرئيسية والثانوية المؤهلة للصيانة داخل قضاء النبطية بعد تقييم وضعها الحالي وإدراجها ضمن الطرق المؤهلة لنشاط الصيانة الروتينية.

ووفقاً لمعايير البنك الدولي، إن المكتب الهندسي الاستشاري 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 ٢٠٢٣/٠٧/٣١ الساعة العاشرة صباحاً في مركز سراي النبطية – مكتب المحافظ.

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



Attendance Sheet

جلسة مشاركة عامة - الحضور
PUBLIC HEARING - ATTENDANCE SHEET
مشروع الطرق والعمالة في لبنان

ESMP

الصفة Position	البلدة Town	المؤسسة Institution
رئيس	عين حاتا	بلدية عين حاتا
عضو مجلس بلدي	بلدية الشفة	بلدية صربية الشفة
رئيس	بلدية صوصا	بلدية صوصا
المستشار البلدي	الشفة	بلدية الشفة
عضو مجلس بلدي	صوصا	بلدية صوصا
المستشار البلدي	انقاد (الديانة)	أكاديمية لبنان للدراسات والبحوث
مهندس محاسب بلدي	صوصا	بلدية صوصا
رئيس بلدية	رضفا	بلدية رضفا
مهندس	صوصا	
مخبر	الدور	بلدية الدور
المحافظ	الشفة	محافظة الشفة
رئيس	الاتحاد	رئيس اتحاد بلديات الشفة
رئيس	الشفة القوما	رئيس بلدية الشفة القوما
رئيس	صوصا	بلدية صوصا
رئيس	او ويرا	بلدية او ويرا
رئيس	الكفرا	بلدية الكفرا
استشاري ES&HS		CDR
مهندسة طرق/بيئة		ACE
مهندسة طرق		ACE

Public Hearing Presentation and Photos



مشروع الطرق والعمالة
في لبنان



خطة الإدارة البيئية والاجتماعية

LOT 3
قضاء النبطية

جلسة مشاركة عامة

31/07/2023
القيامة



نقاط حوار الجلسة

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



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 مستوى من حالة الطرقات على المستوى الوطني ككل



مقدمة

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



1. أهداف اللقاء

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



2. الجهات المعنية بالمشروع

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



3. مراحل إعداد الخطة البيئية والاجتماعية



4. وصف المشروع

4.1 ان المشروع يهدف لتقييم:

• باعمال صيانة معظم الطرقات الدولية والريئيسية في قضاء النبطية بالإضافة الى بعض الطرقات الثانوية في حال توفر اموال من الميزانية المعتمدة للقضاء

• مجموع طول الطرقات الدولية 26.8 كم

• مجموع طول الطرقات الريئيسية 37.2 كم

• مجموع طول الطرقات الثانوية 71.4 كم

- تمت زيارة الطرق القابلة للصيانة لتحديد:
- اوضاع طبقات الرصف الاسفلتية (مستويات الاضرار ومدى انتشارها)
 - اوضاع المنشآت (منشآت تصريف مياه الامطار، حواجز السلامة والعبارات)
 - اوضاع العناصر غير الرصفية كاللوحات الارشادية والخطوط المروية والعلامات

4.2 موقع المشروع في قضاء النبطية والطرق المقترحة صيانتها



4.3 صور لعدة مواقع ضمن المشروع في قضاء النبطية

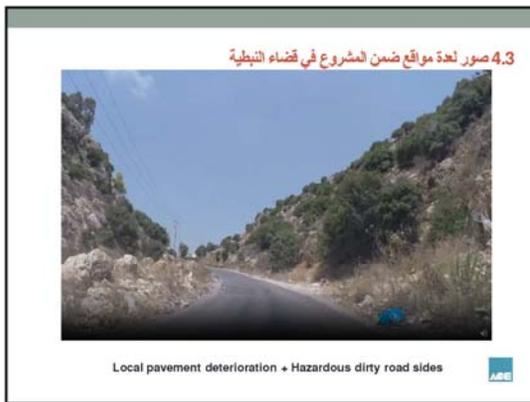


طريق الزهراني - النبطية - مرجعون

4.3 صور لعدة مواقع ضمن المشروع في قضاء النبطية



Side of road to be cleaned / vegetation removed
Road traffic sign to be checked / fixed / Adjusted



5. ماذا يتضمن المشروع خلال مرحلة التنفيذ؟

أنشطة الصيانة الروتينية لعدة سنة (1)، في المجموعة Lot3 - قضاء النبطية للطرق الدولية والرئيسية كالتالي: حيث تتوفر الأموال.

ستشمل أنشطة الصيانة الروتينية العناصر التالية:

- إصلاح وصيانة رصف الطريق (Pavement) عن طريق ترقيع الحفر العميقة والضحلة، وسد الشقوق.
- الإصلاح والصيانة عن طريق الطحن (Mill) والتراكب (Overlay) لانخفاضات الرصف (Pavement) الموضعية مثل الرصف القائل المعلق فوق الخنادق / المنخفضات.
- إصلاح وصيانة الجدران الاستنادية الخرسانية المسلحة التالفة / جدران القدم (Footwall) / جدران البناء.

5. ماذا يتضمن المشروع خلال مرحلة التنفيذ؟

- إصلاح وصيانة الأرصفة (Pedestrian Sidewalk) بما في ذلك البلاط وحجر الأرصفة.
- إصلاح وصيانة حواجز الأمان: حاجز نيوجيرسي / تكساس وسكة حماية فولاذية (Steel Guard Rails).
- تنظيف منشآت تصريف مياه الأمطار والقيام بالإصلاحات البسيطة اللازمة للمنشآت الخرسانية.
- تجديد وإصلاح وتنفيذ وصيانة علامات الطرق (Traffic Signs) وتوقيعها.
- الأعمال المساعدة الأخرى المرتبطة بما في ذلك إدارة حركة المرور خلال العقد.

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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 والاندراجات
- تشجيع الشركات المحلية من خلال بيع المواد الخام والآلات والسلع
- ازدهار التنمية الاقتصادية والاجتماعية في المناطق الريفية
- التقليل من تلوث الهواء والغبار

ABE

7. الآثار البيئية والاجتماعية السلبية المحتملة للمشروع خلال مرحلة التنفيذ

التشايط	الآثار المحتمل
أعمال بناء اصلاح مجاري مياه الأمطار التسربات المائية، تساقط الحصى، التربة الركامية المتراكمة والتلوث للمحيطات	أضرار على البنية التحتية
قطع النباتات	ضرر على التنوع الحيوي
التخلص غير السليم من النفايات الصلبة	تلوث التربة والمياه
احتمال لحلة حواجز تسرب	تلوث التربة والمياه
التدابير التخفيفية	
التنسيق المتكامل مع البلديات المعنية	
التخلص السليم من النفايات الصلبة الناتجة عن أعمال التنفيذ و حظر التخلص منها في مواقع غير مخصصة	
صيانة كلفة الآليات بشكل دوري لمنع حواجز التسرب	

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7. الآثار البيئية والاجتماعية السلبية المحتملة للمشروع خلال مرحلة التنفيذ

التشايط	الآثار 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 الانبعاثات الحدوية وألمة الإضاءة ظاهرة وموجودة في الأماكن المكتظة وخاصة قرب المدارس والمستشفيات والمناطق التجارية	
إعلام السكان ووضع لافتات بالقرب من مناطق العمل	
حصر الحفر وأي نشاط ضوضائي خلال ساعات العمل فقط	
وجود آلية مراجعة الشكاوى للمخيمات المحيطة	

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8. الآثار البيئية والاجتماعية السلبية المحتملة للمشروع خلال مرحلة التشغيل

التشايط	الآثار المحتمل
زيادة حركة المرور	زيادة احتمال حوادث السير
زيادة حركة التنقل على الطرق	زيادة انبعاث ملوثات الهواء والضجيج والإرتجاجات
زيادة الاسكربتات والتسربات الناتجة عن المركبات المتحركة	تلوث التربة والمياه
التدابير التخفيفية	
الصيانة الدورية للطرق	
صيانة البنية التحتية مع تقادي تأثيرها على الطرق	
تقليل حركة مرور الشاحنات الثقيلة بهدف المحافظة على الطريق	

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9. آلية مراجعة الشكاوى

يمكن للأشخاص المعنيين الاستفسار عن معلومات اضافية أو تقديم أية شكاوى (في حال وجودها) بالتواصل مع وحدة آلية مراجعة الشكاوى من الاثنين حتى الجمعة بين 9:00 صباحاً و 15:00 بعد الظهر، عبر:

الهاتف: 01980096 مقسم 317

البريد الإلكتروني: GRM.REP@cdr.gov.lb

تسجيل كتاب رسمي لدى مجلس الامماء والاعمار

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

كما يمكن ايداء 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

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ANNEX 11: GRIEVANCE MECHANISM FORM AND LOG

Reference No:	
Contact Information Please mark how you wish to be contacted (mail, telephone, e-mail).	<input type="checkbox"/> By Post: Please provide mailing address: _____ _____ _____ <input type="checkbox"/> By Telephone: _____ <input type="checkbox"/> By E-mail: _____
Preferred Language for communication	<input type="checkbox"/> Arabic <input type="checkbox"/> 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	
	<input type="checkbox"/> One time incident/grievance (date _____) <input type="checkbox"/> Happened more than once (how many times? _____) <input type="checkbox"/> 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?		√	

S No	ISSUES	YES	NO	Comments
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?		√	
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			This cannot be determined at this stage

S. No	ISSUES	YES	NO	Comments
	areas, wetlands, biodiversity, critical habitats, or sites of historical or cultural importance?			
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
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 SUBPROJECT				