NWFP Environmental Protection Agency

Environmental Assessment Checklists and Guidelines

Small and Medium Size Road Construction and Expansion in Urban Areas

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1. Introduction

Urbanization is going on faster rate these days as compared to the past. Construction of new roads and expansion is need of the hour to enhance the communication among the different parts of the cities and between the cities. The project proponents and planners often neglect the impact of the road construction and expansion. These guidelines are developed to allow the project proponents, the city planners and the contractors assess the environmental impact of the proposed activity and facilitate sound environmental management of the road construction and expansion project.

1.1 Scope of the Guidelines

These guidelines are applicable to future developments of road construction and expansion in the urban areas of the province of NWFP undertaken by the local government or city government.

The guidelines are applicable to construction of federal or provincial highways passing through urban areas.

1.2 How to Use These Guidelines

The project proponent (the local government, municipal government, city government or the cantonment board) is obliged to use these guidelines. The project proponent has to fill in an environmental assessment form. The following steps are to be taken in this regard:

Step 1: Provide information on project [use **Section I**]

Step 2: Determine Applicability (*Are you sure that IEE or EIA is not required?*) [use **Section II**]

Step 3: Describe the physical, biological and social environment [use **Section III**]

Step 4: Assess potential impacts and applicable mitigation measures [use **Section IV**]

Step 5: Provide undertaking to the EPA on mitigation measures and compliance [use **Section V**]

Completed form is to be submitted to the NWFP Environmental Protection Agency for evaluation. NWFP EPA may request for additional information or decide to undertake visit to the proposed project site in order to assess the environmental impact of the proposed project.

1.3 Glossary

Act means the Pakistan Environmental Protection Act, 1997

Environment means (a) air, water and land; (b) all layers of the atmosphere; (c) all organic and inorganic matter and living organisms; (d) the ecosystem and ecological relationships; (e) buildings, structures, roads, facilities and works; (f) all social and economic conditions affecting community life; and (g) the inter-relationships between any of the factors in sub-clause (a) to (f).

Environmental Assessment a technique and a process by which information about the environmental effects of a project is collected, both by the developer and from other sources, and taken into account by the planning authority in forming their judgments on whether the development should go ahead.

Environmental Management to carry out the developmental activities in sustainable manner

Erosion physical removal of soil, either by wind or by running water

Impact on Environment means any effect on land, water, air or any other component of the environment, as well as on wildlife harvesting, and includes any effect on the social and cultural environment or on heritage resources.

Mitigation Measure means a measure for the control, reduction or elimination of an adverse impact of a development on the environment, including a restorative measure.

Project Proponent a person, company, NGO or any agency that sponsors and promotes a project.

Regulations means the Pakistan Environmental Protection Agency Review of Initial Environmental Examination and Environment Impact Assessment Regulations, 2000

Siltation accumulation of silt in a water body

Urbanization becoming urbanized; changing from a rural to an urban state

2. Project Profile

2.1 Project Description

In a typical road construction project

- Gravels are laid over the dirt track and are compacted by the dozer
- Asphalt layer is laid over the compacted gravel layer.

Similarly, in a typical road expansion project

- Area on the sides of the road is cleared that is trees are removed and structures are demolished
- Debris are cleared off from the sides
- Gravels are laid over and same procedures are followed as for the road construction

If the project also includes rehabilitation of the existing project, than removal of the existing layer of asphalt is also part of the project.

2.2 Environmental Aspects

Urban road projects have typically the environmental aspects associated with them:

- A very significant environmental impact of the road construction or expansion is dust emission causing nuisance to the locals. People suffering from respiratory problems are particularly vulnerable. Source of dust includes the earthwork, wind induced emission from exposed surfaces and stockpile of construction material and surface cleaning before application of asphalt.
- Operation of construction machinery generates noise that is a cause of public nuisance, particularly if the work is carried out during the night.
- Construction work results in disruption of existing traffic
- Expansion may require cutting of trees and damage to roadside plantation
- Road construction and expansion may damage graveyards and other sites of social significance in the vicinity of the project area
- Road construction may require acquisition of private land and removal of structures on it
- Road construction may require demolishing of encroachments on the right-of way
- Damage to utilities lines, for example, electric and telephone cable, water, sewerage, and gas pipelines and consequent disruption of these services
- Road construction may generate run-off that may result in siltation of water bodies
- The operation of roadwork machinery can pose a threat to the safety of surrounding community during road construction and maintenance.

- Construction on steep terrain can result in land slippages and erosion
- Roadwork near the water bodies is to be managed to avoid siltation of the water bodies

2.3 Mitigation Options

Common mitigation options for the environmental management of road construction project includes:

- Sprinkling water on the worksite to minimize dust emission
- Locating the material stockpile away from residential areas and environmentally sensitive receptors
- Scheduling machinery operations to lessen the disturbance to the locals
- Proper tuning of machinery and use of mufflers
- Using signboards to inform about the construction work and provide diversions
- Minimizing removal of trees and compensating (two trees for every tree removed) for any removal
- In general, planting of trees and ornamental plants on the road side and median
- Providing offsets for protection of sites of cultural importance
- Community liaison to provide prior information on the work schedule, work area and hazards
- Compensation to the owners of the land, houses, buildings etc., on the basis of the current market rate
- Coordination with the electricity, telephone, gas, water and sewerage department to identify the utilities lines and relocating them in advance if necessary

Environmental Assessment Checklist

Section I: Project Description

File No _____ (To be filled by EPA)

Date _____

General Information

1. Project Name or Title_____
2. Project Proponent (Department, organization, or owner) _____
3. Address _____
4. Telephone _____
5. Fax _____
6. E-mail _____
7. Representative of the Proponent_____
8. Designation _____
9. Name of the person who conducted this assessment _____
10. Designation _____
11. Qualification_____

Project Information

12. Project Location_____
13. Cost of the Project_____
14. Period of construction (start and end dates) _____

Proposed Activity

15. Length of road on which work will be undertaken _____
16. Brief Project Description _____

    _____

    _____

Please attach a map of the proposed project area

17. Number and type of major construction equipment that will be used _____

    _____

    _____

18. The total construction material that will be utilized? _____
    _____
    _____
19. Will any new land be acquired?_____
    If yes, please specify
    The total area:_____
    Present ownership of land _____
    What is the present use of the land? _____
    How the land will be acquired (Through Land Acquisition Act or Direct Purchase)? _____
    When the compensation will be paid? _____
20. In case of state land, are there any squatter settlements on the land? _____
    If yes, please specify
    Number of settlements _____
    Will any compensation be paid?_____
    When the compensation will be paid? _____
21. Is construction work during the night planned? _____
22. How many trees will be removed for the construction of the road? _____
23. Will any existing asphalt be removed? _____
    If yes, how much? _____

Section II: Screening

Is the proposed road or part of the proposed road:

A federal highway?	☐ Yes	☐ No
A provincial highway?	☐ Yes	☐ No
In an ecologically sensitive area?	☐ Yes	☐ No

If the answer to any of the above questions is yes, then the project would require an initial environmental examination or an environment impact assessment. Refer to the Pakistan Environmental Protection Agency Review of Initial Environmental Examination and Environment Impact Assessment Regulations, 2000 for appropriate category or consult NWFP EPA.

Section III: Environmental Profile

1. Describe the terrain of the project area: ☐ Flat or Level (Slope < 3%)

☐ Level to moderately steep (Slope 3%-30%)

☐ Moderately steep to mountainous (Slope > 30%)

(In case the proposed road will pass through terrain in which the slope varies, indicate the maximum slope)

2. What is the maximum elevation of the proposed road?

☐ < 400 meters above sea level (masl)

☐ 400-800 masl

☐ > 800 masl

3. Will the road cross any natural stream or canal?

☐ Yes ☐ No

If yes, describe each water body:

Name (including type, ie, canal or stream)	**Dimensions** (Width and depth at the proposed road crossing)	**Flow** (flow rate in cusecs or m^3/s)	**Status and Uses** (Is it polluted? Upstream pollution, eg, sewage discharge? Downstream uses, eg, agriculture, domestic, industrial, washing, fishery

4. Are there any trees or vegetation on the sides of the road?

☐ Yes ☐ No

If yes, how many? _____

5. Is there any site of cultural importance (graveyard, shrine, mosque, archeological site) in the vicinity of the proposed road?

☐ Yes ☐ No

If yes, Please describe? _____

6. How many sensitive receptors (schools, colleges, hospitals, and clinics) are there on the proposed road? _____

Please describe?_____

7. For every 250 m section of the road describe the present land use on both sides of the road as follows:

Section and Side	Residential (Thick, Moderate, Sparse)	Commercial (Office, Shops, Fuel Stations)	Open Land (Parks, Farmlands, unutilized plots, barren land	Sensitive Receptors and Sites of Cultural Importance	Other
0-250 m Right					
0-250 m Left					
250-500 m Right					
250-500 m Left					
500-750 m Right					
500-750 m Left					

8. If the proposed project entails rehabilitation of an existing road, what is the existing level of traffic on this road? _____

Section IV: Impact Assessment and Mitigation Measures

Potential Negative Environmental Impacts	*Tick, if relevant*	*Mitigation Measures*	*Tick, if proposed*	*Monitoring Plan*
Dust	☐	Water will be sprinkled frequently on the work site to mitigate dust emission	☐	
		Storage material will be located away from community and sensitive receptors	☐	
		Hauling trucks will be covered with canvass to avoid dust emission	☐	
Noise	☐	No construction work will be undertaken near the thickly populated residential areas and hospitals during the night	☐	
		Construction work near the educational institutes will be minimized before noon	☐	
Interruption to the local traffic	☐	Signboards will be used	☐	
		Diversions will be provided	☐	
Trees cutting and damage to vegetation	☐	No tree will be cut	☐	
		Number trees to be cut will be minimized. For every tree cut, at least 2 trees will be planted	☐	
		Landscaping and roadside plantation of ornamental plants will be undertaken	☐	
Damage to sites of cultural importance	☐	A safe distance of ___ m will be maintained from such sites	☐	
		The sites will be marked and possibly fenced during the construction period	☐	

Continued…

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Potential Negative Environmental Impacts	*Tick, if relevant*	*Mitigation Measures*	*Tick, if proposed*	*Monitoring Plan*
Demolishing of structures such as houses, buildings, shops etc	☐	Owners of the land (houses, buildings etc.) will be compensated on the basis of the current market rates	☐	
Siltation of water bodies	☐	It will be ensured that runoff from the roadwork does not go the water bodies by constructing runoff channels, contouring or other means	☐	
Community Safety	☐	The equipment will not be parked near residential areas	☐	
		Community will be informed in advance of the construction work and schedule	☐	
		All open ditches and other potential hazards will be marked with visible tapes	☐	
Damage to standing agricultural crops	☐	Water will be sprinkled frequently on the work site to mitigate dust emission	☐	
Risk of erosion and landslide	☐	Stabilization measures will be undertaken	☐	
Waste Disposal	☐	Waste asphalt and other waste material will be disposed at _____ (location)		
Restoration	☐	All properties, utility lines and other structures damaged during the construction will be restored		

Section V: Undertaking

I, _____ (*full name and address*) as proponent for _____ (*name, description and location of project*) do hereby solemnly affirm and declare:

1. The information on the proposed project and the environment provided in Forms I, II and III are correct to the best of my knowledge
2. I fully understand and accept the conditions contained in the Guidelines for _____ (*name, number and version of the guidelines*)
3. I undertake to design, construct and operate the project strictly in accordance with the project described in Form I, submitted with this undertaking.
4. I undertake to implement all mitigation measures and undertake monitoring stated in Form IV, submitted with this undertaking.

Date _____ Signature _____

Name _____

Designation _____

(with official stamp/seal)

Witnesses:

	Signature	Name	Address
1	_____	_____	_____
2	_____	_____	_____