

# NWFP Environmental Protection Agency

## Environmental Guidelines

### Construction or Expansion of Bus Terminals

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## 1. Introduction

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Increased urban population and development has resulted in a rapid increase in public transport on the roads. Existing bus terminals are often inadequate to meet the new requirements. This results in crowded terminals, parking of buses outside the terminals and consequent traffic disruptions, and illegal and informal setting up of bus terminals in the city.

### 1.1 Scope of the Guidelines

These guidelines are applicable to the development of bus terminals in NWFP

with the total cost less than Rs 100 million.

### 1.2 How to Use These Guidelines

The project proponent (the local government, municipal government, city government, the cantonment board, private association or organization) is obliged to use these guidelines. The project proponent has to fill in an environmental impact assessment form.

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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

**Air Pollution** gaseous and dust emissions into air

**Aesthetic Value/Aesthetic Quality** beauty or landscape (of an area)

**Arid area** area receiving no rain or less rain

**Dust Pollution** dust emissions into the surroundings

**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** is 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

**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.

**Noise Pollution** generation of noise

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

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## 2. Project Profile

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### 2.1 Project

Bus terminals are usually constructed in the suburbs of the city on the highway connecting the city to other cities. Usually, the construction is undertaken by the government, however, at times a private transportation company may handle the whole project.

### 2.2 Environmental Aspects

Various types of environmental aspects are associated with the design, construction and operation of the bus terminals. These are discussed below.

- ▶ Improper siting of the bus terminal resulting in inconvenience to the surrounding population
- ▶ Conflict with the existing land-use, for example locating the bus terminal next to a hospital or school or very close to a residential area
- ▶ Parking of the buses outside the terminal either due to inadequate capacity or for lack of enforcement of traffic rules
- ▶ Traffic congestion due to other public transport that carry passengers to the bus terminal for onward journey in the buses
- ▶ General filth in the area due to improper solid waste disposal
- ▶ Lack of proper sanitary facility resulting in people urinating against the walls that apart from defacing the wall and creating filth

and stench can also be a source of spread of disease vector

- ▶ Lack of sewerage system resulting in overflowing drains and sewers and in creation of pools of dirty water
- ▶ Dust pollution from unpaved surfaces in the driveways and parking lots
- ▶ Air pollution from exhaust of buses and other vehicles
- ▶ Safety hazards due to poor design, or inadequate facilities for passengers, or poor management of facilities
- ▶ Noise pollution due to inadequate control on vehicle noise emission, poor design and management
- ▶ Oil and grease stains and spread of workshop waste due to repairs of buses within the premises of the bus terminal or leakages from the buses

### 2.3 Mitigation Options

The key to an environmentally sound bus stand is proper design and management. There are environmental aspects associated with construction phase of the bus stand as well, however, these are usually reversible impact and can be easily mitigated.

#### 2.3.1 General

The design of a bus stands takes into account many factors, such as:

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- ▶ Present and future demands
- ▶ Commercial aspects
- ▶ Passenger safety and comfort
- ▶ Environmental aspects
- ▶ Accessibility of the stand from the city and the highway
- ▶ Traffic pattern and management aspects
- ▶ Land use and zoning

Similarly, the management of a bus traffic also as several aspects, for example:

- ▶ Traffic management
- ▶ Waste management
- ▶ Passenger facilities management
- ▶ Security and safety

It is not in the scope of this document to address all the above design and management aspects. This document will focus on the environmental aspects. However, few general planning aspects may be considered:

1. The policy of shifting bus terminals to locations outside the city limits should be reconsidered. There are certain benefits to this policy. It eliminates the local traffic problem around the terminal. To certain extent, it improves the air quality locally and reduces the noise. However, it results in generating more traffic. The passengers that were carried from the center of the city to the outskirts in one bus are now carried in may be as many as 20 vehicles (taxis, minibuses and private cars). This creates a much bigger traffic, air pollution and noise problem in the long run

than one bus. It is preferable to find other solutions to the local congestion problem. These may include: constructing separate terminals for bus traffic bound in different directions; multistory terminal to save space; and starting shuttle services from different parts of the city to the bus terminal.

2. Another policy that can help in minimizing the land requirement will be separating the bus depots from bus terminals. It is a common practice to have the bus depots, that is, the place where the buses are parked when they are not in service in the premises of the bus terminal. This is convenient for the bus owners, but as a result the land area required for the terminal increases manifold. The bus terminals can always be located at other places in the city, preferably outside the city. This would reduce the land area requirement and reduce the cost of the terminal. The depots often also act as informal workshops that result in soil and water pollution at the terminals. The advantage of removing the bus depots away from the terminal will be the prevention of soil and water pollution and generation of less solid waste at the terminals.

### **2.3.2 Environmental Management**

Following specific mitigation options for environmental aspects are considered here.

- ▶ Impact on surrounding population
- ▶ Impact on local traffic

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- ▶ Community safety
- ▶ Fire safety and emergency response
- ▶ Solid waste disposal
- ▶ Liquid effluents
- ▶ Air and noise emissions
- ▶ Landscaping and Aesthetics
- ▶ Social issues

### ***Impact on Surrounding Population***

- ▶ While siting the bus terminal the future expansion needs should be taken into account
- ▶ The terminal should be located at least 500 m from dense residential areas, school and hospitals

### ***Impact on Local Traffic***

- ▶ The bus terminal should have provisions for temporary parking of drop-off vehicles, taxis and city commercial transports
- ▶ Proper drop-off lanes, taxi lanes, bus lanes and ramps should be developed so that the flow of traffic from and to the existing roads is smooth
- ▶ Wherever possible, measures should be taken to isolate the local traffic from the traffic generated as a result of the bus terminal
- ▶ The development of encroachments around the bus terminal should be monitored and prevented

### ***Community Safety***

- ▶ The terminal should be designed such that the need of the passengers and pedestrians to cross

bus lanes and lanes of other traffic is minimized

### ***Fire Safety and Emergency Response***

- ▶ Fire prevention and fighting equipment should be provided and maintained at the terminal
- ▶ The terminal staff should be trained in fire prevention and fighting
- ▶ An oil and fuel spill contingency plan should be prepared. The resources necessary to implement the plan should be provided.

### ***Solid Waste Disposal***

- ▶ A well defined solid waste collection and disposal system should be part of the bus terminal plan

### ***Liquid Effluents***

- ▶ A carefully planned wastewater and storm water disposal system should be part of the bus terminal plan
- ▶ All wastewater should be discharged to the municipal sewer system. In the absence of such system in the vicinity of the terminal the septic tanks and sumps of adequate sizes should be constructed
- ▶ No service of vehicles and refueling should be allowed inside the premises of the terminal. For any emergency repair, special bays should be provided. The bay should have provision to contain any oil spill. The discharge from the repair terminal should be directed to an oily water handling system. Under no circumstances, the oily waste should be allowed to

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go to the municipal sewerage system.

***Air and Noise Emissions***

- ▶ The entire area of the bus terminal, driveways and parking lots should be paved.
- ▶ The passenger waiting area should be well ventilated and separate from the bus parking areas
- ▶ The bus terminal management should be equipped with noise meters and be trained in measuring the noise of individual vehicles that use the terminal
- ▶ Vehicles should not be allowed to park with their engines are running.

***Landscaping and Aesthetics***

- ▶ A reasonable amount of open space should be provided at every bus terminal. Landscaping and plantation should be undertaken to improve the aesthetic quality of the space.

***Social***

- ▶ All bus terminals should have proper facilities, for washing, prayer, latrine and waiting areas.
- ▶ Provision for shopping and meals, and snacks should be provided within the terminal. This also helps in preventing encroachment outside terminals and hence eases the pressure on traffic

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## 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. Design Capacity of the Terminal (in terms of number of passengers per day and buses per day) \_\_\_\_\_
16. Brief Project Description \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

*Please attach a map of the proposed project area*

17. Please indicate the proposed areas of the following:

Land of the proposed terminal \_\_\_\_\_ m<sup>2</sup>

Covered area \_\_\_\_\_ m<sup>2</sup>

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Bus parking \_\_\_\_\_ m<sup>2</sup>

Temporary parking of drop-off vehicles \_\_\_\_\_ m<sup>2</sup>

Taxis and minibuses \_\_\_\_\_ m<sup>2</sup>

Passenger facilities \_\_\_\_\_ m<sup>2</sup>

18. The total construction material that will be utilized? \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

19. Land acquisition

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 structure be removed? \_\_\_\_\_

If yes, how much? \_\_\_\_\_

Where the waste will be disposed? \_\_\_\_\_

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### Section II: Screening

Will the cost of the proposed bus terminal exceed Rupees 100 million?

If the answer to 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.

### Section III: Environmental Profile

1. Describe the terrain of the proposed site of the bus terminal:

- Flat or Level (Slope < 3%)
- Level to moderately steep (Slope 3%-30%)
- Moderately steep to mountainous (Slope > 30%)

2. Is there any surface water body (river, canal, stream, lake, wetland) within 1,000 m of the proposed bus terminal?

- Yes
- No

If yes, describe each water body:

Name (including type, ie, river, canal or stream)	Dimensions	Status and Uses (Is it polluted? Is domestic or other wastewater discharged to it? What are its uses, eg, agriculture, domestic, industrial, washing, fishery)

3. Are there any existing trees or vegetation on the proposed bus terminal site?

- Yes
- No

If yes, how many? \_\_\_\_\_

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4. Is there any site of cultural importance (graveyard, shrine, mosque, archeological site) within 1000 m of the proposed bus terminal site?

- Yes  
 No

If yes, please describe? \_\_\_\_\_

5. How many sensitive receptors (schools, colleges, hospitals, and clinics) are within 1000 m of the proposed scheme? \_\_\_\_\_

Please describe? \_\_\_\_\_

6. Are there signs of soil erosion or landslide anywhere within 500 m of the project area?

- Yes  
 No

If yes, please describe (where, nature)? \_\_\_\_\_  
 \_\_\_\_\_

7. Is there any groundwater well within 250 m of the proposed terminal site?

- Yes  
 No

If yes, describe each well:

<b>Type</b> (Dug well, tube well, hand pump)	<b>Location</b> (Village, road, mohalla, etc. and distance from the site)	<b>Depth and Yield</b>	<b>Uses</b> (Drinking, agriculture, domestic, industrial, washing, livestock)

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8. What is the present land use in the vicinity (roughly a radius of 500 m) of the proposed bus terminal site?

	Residential (Thick, Moderate, Sparse)	Commercial (Office, Shops, Fuel Stations)	Open Land (Parks, Farmlands, unutilized plots, barren land)	Industrial	Other
Description					

(Please attach a map of the proposed project site and indicate roughly the area that you have considered for this evaluation)

9. Please provide the traffic count for all main roads adjacent to the proposed bus terminal site or that provide access to the site. The count should be based on data collected, for both directions, on at least three typical working days. Use the following format:

Road \_\_\_\_\_ Count Location \_\_\_\_\_

	6:00 am- 9:00 am	9:00 am- 12:00 noon	12:00 noon- 3:00 pm	3:00 pm- 6:00 pm	6:00 pm- 9:00 pm
Large vehicles (trucks, buses, tractor trolleys, Minibuses)					
Medium sized vehicles (Suzuki pickups, cars, jeeps, taxis)					
Small vehicles (Rickshaws, motorcycles, scooters)					
Slow vehicles (animal-driven carts, tongas)					
Others					

*(Please add additional sheets for every road)*

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## Section IV: Impact Assessment

<i>Potential Negative Environmental Impacts</i>	<i>Tick, if relevant</i>	<i>Mitigation Measures</i>	<i>Tick, if proposed</i>	<i>Monitoring Plan</i>
<b>Construction</b>				
Dust during construction	<input type="checkbox"/>	Water will be sprinkled frequently on the work site to mitigate dust emission	<input type="checkbox"/>	
		Storage material will be located away from road	<input type="checkbox"/>	
		Hauling trucks will be covered with canvass to avoid dust emission	<input type="checkbox"/>	
Demolishing of structures such as houses, buildings, shops etc	<input type="checkbox"/>	Owners of the land (houses, buildings etc.) will be compensated on the basis of the current market rates	<input type="checkbox"/>	Compensation rates, amounts and dates of payment
Siltation of water bodies	<input type="checkbox"/>	It will be ensured that runoff from the construction site does not go the road, surrounding areas, or any water bodies in the surrounding	<input type="checkbox"/>	
Community safety during construction	<input type="checkbox"/>	The construction site will be fenced	<input type="checkbox"/>	
Waste disposal during construction	<input type="checkbox"/>	Waste construction material from the site will be disposed at _____ (location)	<input type="checkbox"/>	
Landscaping and aesthetics	<input type="checkbox"/>	___ m <sup>2</sup> of open space will be provided. The space will be landscaped and planted with grass and ornamental plants	<input type="checkbox"/>	
		About ___ new trees will be planted on the site	<input type="checkbox"/>	

*Continued...*

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<i>Potential Negative Environmental Impacts</i>	<i>Tick, if relevant</i>	<i>Mitigation Measures</i>	<i>Tick, if proposed</i>	<i>Monitoring Plan</i>
<b>Operation</b>				
Fire safety and Emergency Response	<input type="checkbox"/>	Fire prevention and fighting equipment will be provided and maintained at the terminal	<input type="checkbox"/>	
		The terminal staff will be trained in fire prevention and fighting	<input type="checkbox"/>	
		An oil and fuel spill contingency plan will be prepared	<input type="checkbox"/>	
Waste disposal during operation	<input type="checkbox"/>	A solid waste collection and disposal system will be developed for the bus terminal plan operation <i>(Please attach the salient features of the plan)</i>	<input type="checkbox"/>	
Liquid effluents	<input type="checkbox"/>	No service of vehicles and refueling will be allowed inside the premises of the terminal	<input type="checkbox"/>	
		For any emergency repair, special bays will be provided	<input type="checkbox"/>	
		An oily water handling system has been provided	<input type="checkbox"/>	
Air and noise emission	<input type="checkbox"/>	The entire area of the bus terminal, driveways and parking lots will be paved	<input type="checkbox"/>	
		Noise meters will be provided to bus terminal staff to monitor the noise of individual vehicles that use the terminal	<input type="checkbox"/>	

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**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

\_\_\_\_\_