

Land Acquisition and Resettlement Framework

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PAK: Khyber Pakhtunkhwa Provincial Roads Improvement Project

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ABBREVIATIONS

ADB	Asian Development Bank
AP	Affected Person (DP)
BOR	Board of Revenue
DC	District Coordinator (also District LAC)
DDE	Deputy Director, Environmental and Social Cell (PMU)
DDR	Due Diligence Report
DP	Displaced Person (AP)
EA	Executing Agency (PKHA)
EMA	External Monitoring Agency
ESC	Environmental and Social Cell (PMU)
FGD	Focus Group Discussion
GRC	Grievance Redress Committee
GRM	Grievance Redress Mechanism
IA	Implementation Agency (PMU, PKHA)
IP	Indigenous People
IPSA	Initial Poverty and Social Assessment
IR	Involuntary Resettlement
LAA	Land Acquisition Act, 1894 (amended to-date)
LAC	(District) Land Acquisition Collector (see also DC)
LAR	Land Acquisition and Resettlement (Impacts)
LARF	Land Acquisition and Resettlement Framework
LARP	Land Acquisition and Resettlement Plan
LDMS	Land Demarcation and Measurement Survey
MD	Managing Director (PKHA)
MIS	Management Information System
PD	Project Director (PMU, PKHA)
PMU	Program Management Unit (PMU, PKHA)
PPTA	Project Preparation Technical Assistance (Team of Consultants)
PRIP	Pakhtunkhaw Road Improvement Project (ADB TA 9194-PAK)
PSC	Project Steering Committee
RFS	Resettlement Field Survey (Inventory of Assets, Census, Consultations)
SCT	Supervisory Consultant Team
SPS	Safeguard Policy Statement, 2009 (ADB)
TA	Technical Assistance (ADB Grant for Project Preparation)
TCM	Traffic Calming Measures

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DEFINITION OF TERMS

Displaced Household:	All members of a subproject affected household residing under one roof and operating as a single economic unit, who are adversely affected by the Project or any of its components; may consist of a single nuclear family or an extended family group.
Displaced Persons:	In the context of involuntary resettlement, displaced persons are those who are physically displaced (relocation, loss of residential land, or loss of shelter) and/or economically displaced (loss of land, assets, access to assets, income sources, or means of livelihoods) as a result of (i) involuntary acquisition of land, or (ii) involuntary restrictions on land use or on access to legally designated parks and protected areas.
Compensation:	Payment in cash or in kind of the replacement cost of the acquired assets.
Cut-off-Date	the completion date of the census of project-displaced persons is usually considered the cut-off date. A cut-off date is normally established by the borrower government procedures that establishes the eligibility for receiving compensation and resettlement assistance by the project displaced persons. In the absence of such procedures, the borrower/client will establish a cut-off date for eligibility.
Encroachers/Squatters	People who have trespassed onto private/community land to which they are not authorized. If such people arrived before the entitlements cut-off date, they are eligible for compensation for any structures, crops or land improvements that they will lose.
Entitlement:	Range of measures comprising compensation, income restoration, transfer assistance, income substitution, and relocation, which are due to displaced persons, depending on the nature of their losses, to restore their economic and social base.
Economic Displacement	loss of land, assets, access to assets, income sources, or means of livelihood because of (i) involuntary acquisition of land, or (ii) involuntary restrictions on land use or on access to legally designated parks and protected areas.
ESC:	Environment and Social Cell
Encroachers	mean those people who extend their occupation beyond the lands they legally own, usually not entitled to compensation but sometimes provided with assistance if they are found vulnerable; they are, however, entitled to compensation for the loss of built-up structures, trees, crops and other assets.

Involuntary Resettlement:	Land and/or asset loss, which results in a reduction of livelihood level. These losses have to be compensated for so that no person is worse off than they were before the loss of land and/or assets.
Physical displacement	means relocation, loss of residential land, or loss of shelter a result of (i) involuntary acquisition of land, or (ii) involuntary restrictions on land use or on access to legally designated parks and protected areas.
Rehabilitation:	Compensatory measures provided under the ADB Policy Framework on Involuntary Resettlement other than payment of the replacement cost of acquired assets.
Replacement Cost:	The rate of compensation for acquired housing, land and other assets will be calculated at full replacement costs. The calculation of full replacement cost will be based on the following elements: (i) fair market value; (ii) transaction costs; (iii) interest accrued, (iv) transitional and restoration costs; and (v) other applicable payments, if any. In applying this method of valuation, depreciation of structures and assets should not be taken into account.
Resettlement Impact:	The nature and value of livelihood loss caused by the acquisition of land and/or assets
Vulnerable Groups:	The policy defines vulnerable groups as households below the poverty line, the elderly, those without legal title to assets, landless, women, children and indigenous people and those without legal title to land.
Meaningful Consultation	is a process that (i) begins early in the project preparation stage and is carried out on an ongoing basis throughout the project cycle; (ii) provides timely disclosure of relevant and adequate information that is understandable and readily accessible to affected people; (iii) is undertaken in an atmosphere free of intimidation or coercion; (iv) gender inclusive and responsive, and tailored to the needs of disadvantaged and vulnerable groups; and (v) enables the incorporation of all relevant views of affected people and other stakeholders into decision making, such as project design, mitigation measures, the sharing of development benefits and opportunities, and implementation issues.
Significant impact	means 200 people or more will experience major impacts, which are defined as; (i) being physically displaced from housing, or (ii) losing 10 % or more of their productive assets or income generating activities.
Squatters	mean those people who do not own the land but are possessing and using it for residential, commercial, agricultural or other economic purposes, and as such they usually not entitled to land compensation but sometimes provided with assistance if they are found vulnerable; they are, however, entitled to compensation for the loss of built-up structures, trees, crops and other assets.

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INTRODUCTION

A. The Project

1. The Khyber Pakhtunkhwa Highways Authority (PKHA), Government of Khyber Pakhtunkhwa (KPK) province of the Islamic Republic of Pakistan has requested Asian Development Bank (ADB) for providing a loan for the rehabilitation and improvement of its provincial highways network. The project has been conceived to result in improved quality of transportation because of upgrading the highway network, with increased intra-/inter-regional connectivity in trade and communication, economic wellbeing of the population. It will thereby serve as a tool towards reducing poverty in KPK province, in general, and in the central and eastern areas of the project in particular.

2. In response to the PKHA's request for financing of the proposed project, ADB fielded a Project Preparatory Technical Assistant (PPTA) consultants team under ADB TA-9194-PAK. The PPTA was mandated to assist PKHA in the preparation of KPK's Provincial Roads Improvement Project (PRIP). The PPTA's Social Team led by an International Safeguards Specialist undertook detailed social due diligence work in the field, visited all eight roads proposed for the improvement work, undertook social impact assessment (SIA) of proposed roads, held consultations with different project stakeholders including those expected to be affected by the project, and based on SIA, prepared a detailed land acquisition and resettlement (LAR) due diligence report (DDR) and a land acquisition and resettlement framework (LARF) to address all potential resettlement impacts in accordance with ADB's Safeguard Policy Statement 2009 (SPS), and applicable national and provincial laws.

3. The proposed project was initially comprised of a total eleven roads with an estimated length of 305 km, which upon preparation of designs was reduced to 293.6 km. However, three roads with a designed total length of 85.5 km were later excluded from the list for economic and financial reasons. The remaining eight roads, totaling in length at 214 km (see Table 1 below) now comprise the proposed PRIP.

Table 1: List of Project Roads Proposed for Rehabilitation and Improvements

Sr. No.	Name of Road	Total Length (km)
1	Shah Alam – Sardaryab Section	11.77
2	Khair Abad – Kahi (Nizampur)	23.14
3	Umerzai – Harichand – Shergarh Section	29.00
4	Risalpur to Jehangira via Pir Sabaq - Misri Banda with Link to Akora Khattak and Mardan Ring Road via Motorway Wali Interchange	37.00
5	Jhandai – Sang-e-Marmar (Mardan)	33.40
6	Adina – Yar Hussain – Lahor Road	24.37
7	Haripur – Hattar – Taxila Section	22.00
8	Maqsood – Kohala Section	33.52
Total Length of Project Roads: (as per PC-1)		214.00

B. LAR Due Diligence Report (LAR-DDR)

4. Field review of the road designs by PPTA and PKHA revealed that four of the eight project roads were totally clear of any LAR impacts, while the remaining four roads had considerable potential LAR impacts. Following the principles of avoiding and minimizing LAR impacts, as

provided in the SPS, all possible technical and engineering remedial measures were considered and adopted in the roads cross-section designs that enabled complete avoidance of all resettlement impacts in the roads right-of-way (ROW) which was found to be encroached upon at dense built-up or market/bazar and residential areas.

5. Thus, all the potential LAR impacts have been avoided successfully on all eight road subprojects, and thus, PRIP has been classified as category “C” for Involuntary Resettlement (IR) (see Table 2 below). This LAR Due Diligence Report (DDR) has been prepared to provide details on the remedial measures adopted to avoid LAR impacts throughout the eight project roads. Regarding presence of any indigenous peoples (IPs) groups in and around the proposed eight road subprojects, the DDR did not find any IPs groups living in the subproject areas. More specifically, no community members recognized themselves to be the IPs during public consultations. Therefore, the proposed project is classified as category C for IPs also.

Table 2: Field Review of Road Designs and Remedial Measures to Avoid LAR Impacts

Sr. No.	Name of Road	Avoidance of LAR Impacts	
		Field Review	Remedial Actions
1	Shah Alam–Sardaryab Road	No LAR impact	No actions required
2	Khair Abad–Kahi (Nizampur) Road	No LAR impacts	No actions needed
3	Umerzai–Harichand Road	LAR impacts found	Impacts avoided by reducing *formation width (FW)
4	Risalpur–Pir Sabag–Jehangira Road.	LAR impacts found	Impacts avoided by reducing FW and traffic calming measures in 3 narrow reaches of ~300m.
5	Jhandai–Sang-e-Marmar (Mardan) Road	No impacts found	No actions required
6	Adina–Yar Hussain–Lahor Road	No impacts found	No actions required
7	Haripur–Hattar–Taxila Section	LAR impacts found	Impacts avoided by reducing FW
8	Maqsood–Kohala Section	LAR impacts found	Impacts avoided by Reducing FW

*See roads cross-sections at Annex C for adjustments in FW.

6. Although all potential LAR impacts in the proposed eight road subprojects have been completely avoided by adjusting the formation width to the existing width of carriageway (Annex C), and thus the project has been placed under category “C” for IR and IPs, but some LAR impacts are still expected and may occur in some section of the three roads¹ due to (i) further adjustments in the roads cross sections as part of the detailed design review and (ii) construction work if this is not strictly kept limited to the detailed/final design. Therefore, this LARF has been prepared in accordance with the requirements of ADB’s SPS 2009 for responding to and addressing any LAR impacts (including the project’s recategorization, if required) occurring on any of the road subprojects during the project’s implementation work.

7. This LARF will provide guidance to the PKHA’s Project Management Unit (PMU) and its Environment and Social Cell (ESC, headed by a Deputy Director) Environment and Resettlement) and Resettlement Specialist of the Supervisory Consultant team in the preparation, implementation and monitoring of the resettlement plans (RPs) (if needed to be prepared for any emergent LAR impacts). Accordingly, PRIP will also be classified again for IR and IPs impacts based on the actual LAR impacts situation. However, no RPs will be needed if the design related remedial measures adopted for the proposed road subprojects are confirmed not to have any

¹ Risalpur–Pir Sabag–Jehangira road, Hattar–Haripur road and Maqsood–Kohala road.

LAR impacts upon finalizing of the detailed road designs. In such a situation, the proposed IR and IPs categorization will also remain the same.

8. The framework provides the guiding principles for preparing the RPs. The indigenous or tribal peoples, as SPS 2009 defines them to be, are not found in living in the project areas. Therefore, a separate Indigenous Peoples Planning Framework (IPPF) is not required, as the loan will not include subprojects that affect indigenous peoples.

9. The framework sets out the safeguard principles, procedures, compensation, entitlements and implementation, disclosure and monitoring arrangements to be applied when preparing and implementing LARPs. The framework is endorsed by the PKHA for its implementation strictly in accordance with LAA, SPS 2009, Project Administration Manual (PAM) and schedule 5 of loan agreement. This LARF and any RPs (if needed) will also be uploaded to ADB website and disclosed appropriately to the project stakeholders, displaced persons in particular.

C. Options Considered to Avoid/Minimize LAR Impacts

10. The proposed road subprojects were jointly visited multiple times by the officials of PKHA, ADB and PPTA and the design consultants to identify any resettlement impacts which may arise due to the project's improvement work. Based on these field visits, a detailed due diligence report was prepared which identified several sections of the proposed roads that were overly encroached upon and could have major resettlement impacts if the encroachment was to be completely or partially removed from the right of way. The PKHA, PPTA & ADB reviewed the situation and decided to revise the roads cross-sections in such a way that all potential resettlement impacts were completely avoided. The paras below briefly mention the different options considered by PKHA, ADB & PPTA in this regard:

C.1 Initial Options

11. The DDR and proposed roads cross-sections were jointly reviewed by PKHA, PPTA & ADB and the Design Consultants in August 2017 to resolve the issue of expected resettlement impacts in the two road subprojects (Risalpur to Jehangira and Haripur to Hattar roads) that had the existing carriageway overly encroached upon in the dense built-up commercial and residential areas. Three critical sections in Risalpur road (Ghala Dher Kalay Km 7+300, Zara Maina Village Km 13+700 and Ali Mohammad Kilay km 19+750) were identified where the carriageway was too narrow and heavily encroached by houses and shops constructed on both sides, leaving no space to accommodate 6.1m wide paved carriageway as proposed by PKHA in the earlier road cross-section.

12. The PKHA reviewed the situation again and proposed to further reduce the road cross-section (at critical or narrowed sections) from 6.1m to minimum 5.5m paved carriageway without shoulders.

C.2 Final Design Options Adopted

13. The PKHA, PPTA and the design consultants along with ADB's Social Safeguard Specialist visited the proposed roads again in July 2017 and reviewed the detailed road maps, prepared by design consultants, in a scale of 1:1000 with "wall to wall" measurements. Three critical sections had already been identified during previous survey. The site visit revealed that in addition to the narrow road width confined within the wall to wall measurement there were further restrictions from open drains with water utility pipelines and electricity poles within the "wall to wall" measurement resulting in a minimum clearance of only 4.0 to 4.6 meters, insufficient for a two-lane road. Keeping in view this situation, the PKHA, PPTA & ADB discussed (in a meeting at

PRM on 23 August 2017) the following options to further avoid or minimize the resettlement impacts:

- a. Exclude the three critical sections from the Risalpur-Pir Sabag-Jehangira Road;
- b. Design and improve all critical sections in all roads to a “No Impact” situation;
- c. Demolish the affected buildings in the critical areas and prepare resettlement plans.

14. After detailed discussion on the three options, the PKHA, PPTA & ADB decided to adopt option “b” in consideration of the following important factors:

- a. The roads sections passing through crowded and congested market/bazar areas and to avoid causing any disturbance or resettlement impacts to the socio-economic activities of local community members, entrepreneurs and road users living along the narrow sections of the roads;
- b. The expected traffic volumes at narrow sections are only very light. Therefore, the width of carriageway was proposed to be kept limited to a comfortable full one lane traffic lane of 3.65m wide. The existing open drains and therein the piped water utility should be curbed and covered under a concrete slab and utilized as a foot path within the remaining available space;
- c. Therefore, physical design and other measures to improve safety for all vehicle transporters, pedestrians, cyclists and the bazar/residential community should be considered. The aims are to encourage safer, more responsible interaction between motorized and non-motorized traffic. Consequently, a strategy for Traffic Calming Measures, including narrowed roads and speed humps could be followed;
- d. Construction design for the narrowed sections will be paved with cement concrete overlay to change the drivers sense of the smooth asphalt texture. Construction of such physical measure will further reduce the likelihood of damage and/or cracks to adjacent brick buildings/walls through otherwise the construction equipment’s vibrations when compacting the asphalt concrete courses. The sections identified for Traffic Calming Measures (Annex D) are of shorter length (50-80 meter) on straight road alignment with a clear sight distance for traffic coming from both directions.

15. By adopting the option b above together with the remedial measures mentioned in the items a to d above, all resettlement impacts seem to have been completely avoided. Thus, no resettlement plans are envisaged needed for the proposed project. However, ADB decided to prepare this draft LARF as guidance to PKHA in the event of any LAR issues occurring during project implementation and addressing/compensating all unforeseen or unanticipated resettlement impacts through resettlement plans (RP) to be prepared by PKHA through Resettlement Specialist of the supervisory consultant in accordance with ADB’s Safeguard Policy Statement 2009 (SPS).

II. LEGAL AND POLICY FRAMEWORK

A. The Land Acquisition Act (LAA) of 1894

16. The Land Acquisition and Compensation in Pakistan is governed by Pakistan's Land Acquisition Act of 1894 (LAA) with successive amendments introduced to the Act to-date. The LAA is Federal but its implementation/application is a provincial subject. It regulates the land acquisition process and enables the provincial governments to acquire private land for public purposes and for companies through the exercise of the right of eminent domain. Land acquisition is a provincial responsibility and each province has made province-specific implementation regulations and rules.

17. A brief description of the salient features of different sections of LAA is given in Table 3. The right to acquire land for public purposes is established when Section 4 of the LAA is triggered. The LAA specifies a systematic approach for acquisition and compensation of land and other properties for development projects. It stipulates various sections pertaining to notifications, surveys, acquisition, compensation and apportionment awards, along with disputes resolution, penalties and exemptions. Surveys for land acquisition are to be disclosed to the displaced persons.

Table 3: Salient Features of Land Acquisition Act 1894 and Successive Amendments

Key Sections	Salient Features of the LAA (1894)
Section 4	Publication of preliminary notification and power for conducting survey.
Section 5	Formal notification of land needed for a public purpose; Section 5a covering need for enquiry.
Section 6	The Government makes a more formal declaration of intent to acquire land.
Section 7	The Land Commissioner shall direct the Land Acquisition Collector (LAC) to take order the acquisition of the land.
Section 8	LAC has then to direct that land required to be physically marked out, measured and planned.
Section 9	The LAC gives notice to all displaced persons (DPs) that the Government intends to take possession of the land and if they have any claims for compensation then these claims are to be made to him at an appointed time.
Section 10	Delegates power to the LAC to record statements of DPs in the area of land to be acquired or any part thereof as co-proprietor, sub-proprietor, mortgagee, and tenant or otherwise.
Section 11	Enables the Collector to make enquiries into the measurements, value and claim and then to issue the final "award". The award includes the land's marked area and the valuation of compensation.
Section 16	When the LAC has made an award under Section 11, he will then take possession and the land shall thereupon vest absolutely in the Government, free from all encumbrances.
Section 17	Urgency acquisition (Note: This section is not approved by ADB for financing a project/program).
Section 18	In case of dissatisfaction with the award, DPs may request the LAC to refer the case onward to the court for a decision. This does not affect the Government taking possession of the land.
Section 23	The award of compensation for the owners for acquired land is determined at its market value plus 15% in view of the compulsory nature of the acquisition for public purposes.
Section 28	Relates to the determination of compensation values and interest premium for land acquisition

Key Sections	Salient Features of the LAA (1894)
Section 31	Section 31 provides that the LAC can, instead of awarding cash compensation in respect of any land, make any arrangement with a person having an interest in such land, including the grant of other lands in exchange.

B. ADB's Safeguard Policy Statement 2009 (SPS)

18. ADB's Safeguard Policy Statement, 2009 (SPS), provides policy principles and objectives for Involuntary Resettlement (IR), as described in the following Table 4. The IR categorization checklist for screening and categorizing projects/subprojects, whether having any or no impacts, are provided in Annex 1. When land other than the unencumbered government-owned land is to be acquired then the preparation of an RP is required (see Annex A). The projects causing no land acquisition and resettlement (LAR) impacts, will not require a LARP, rather preparation of an IR categorization checklist (see Annex B) will be considered as sufficient documentation.

Table 4: Involuntary Resettlement Principles and Objectives in ADB's SPS 2009

<p>Objectives: To avoid involuntary resettlement wherever possible; to minimize involuntary resettlement by exploring project and design alternatives; to enhance, or at least restore, the livelihoods of all displaced persons in real terms relative to pre-project levels; and to improve standards of living of the displaced poor and other vulnerable groups.</p> <p>Scope and Triggers: The involuntary resettlement safeguards covers physical displacement (relocation, loss of residential land, or loss of shelter) and economic displacement (loss of land, assets, access to assets, income sources, or means of livelihoods) as a result of (i) involuntary acquisition of land, or (ii) involuntary restrictions on land use or on access to legally designated parks and protected areas.</p> <p>Policy Principles:</p> <ol style="list-style-type: none"> 1. Screen the project early on to identify past, present, and future involuntary resettlement impacts and risks. Determine the scope of resettlement planning through a survey and/or census of displaced persons, including a gender analysis, specifically related to resettlement impacts and risks. 2. Carry out meaningful consultations with displaced persons, host communities, and concerned non-government organizations. Inform all displaced persons of their entitlements and resettlement options. Ensure their participation in planning, implementation, and monitoring and evaluation of resettlement programs. Pay particular attention to the needs of vulnerable groups, especially those below the poverty line. These include the landless, the elderly, women and children. Specific safeguards cover Indigenous People, including those without statutory title to land, including those having communal rights, and ensure their participation in consultations. Establish a grievance redress mechanism to receive and facilitate resolution of the displaced persons' concerns. Support the social and cultural institutions of displaced persons and their host population. Where involuntary resettlement impacts and risks are highly complex and sensitive, compensation and resettlement decisions should be preceded by a social preparation phase. 3. Improve, or at least restore, the livelihoods of all displaced persons through (i) land-based resettlement strategies when affected livelihoods are land based and where it is possible to give cash compensation at replacement value for land when the loss of land does not undermine livelihoods, (ii) prompt replacement of assets with access to assets of equal or higher value, (iii) prompt compensation at full replacement cost for assets that cannot be restored, and (iv) additional revenues and services through benefit sharing schemes where these are possible. 3. Provide physically and economically displaced persons with needed assistance, including the following: (i) if there is relocation, secured tenure to relocation land, better housing at resettlement sites with comparable access to employment and production opportunities, integration of resettled persons economically and socially into their host communities, and extension of project benefits to host communities; (ii) transitional support and development assistance, such as land development, credit facilities, training, or employment opportunities; and (iii) civic infrastructure and community services, as required. 4. Improve the standards of living of the displaced poor and other vulnerable groups, including women, to at least national minimum standards. In rural areas provide them with legal and affordable access to land and resources, and in urban areas provide them with appropriate income sources and legal and affordable access to adequate housing. 5. Develop procedures in a transparent, consistent, and equitable manner if land acquisition is through negotiated settlement to ensure that those people who enter into negotiated settlements will maintain the same or better income and livelihood status. 6. Ensure that displaced persons without titles to land or any recognizable legal rights to land are
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eligible for resettlement assistance and compensation for loss of non-land assets.

7. **Prepare a resettlement plan** elaborating on displaced persons' entitlements, the income and livelihood restoration strategy, institutional arrangements, monitoring and reporting framework, budget, and time-bound implementation schedule.
8. **Disclose a draft resettlement plan**, including documentation of the consultation process in a timely manner, before project appraisal, in an accessible place and a form and language(s) understandable to displaced persons and other stakeholders. Disclose the resettlement plan and its updates to displaced persons.
9. **Conceive and execute involuntary resettlement as part of a development project or program.** Include the full costs of resettlement in the presentation of project's costs and benefits. For a project with significant involuntary resettlement impacts, consider implementing the involuntary resettlement component of the project as a stand-alone operation.
10. **Pay compensation and provide other resettlement entitlements before physical or economic displacement.** Implement the resettlement plan under close supervision throughout project implementation.
11. **Monitor and assess resettlement outcomes**, their impacts on the standards of living of displaced persons and whether the objectives of the resettlement plan have been achieved by taking into account the baseline conditions and the results of the resettlement monitoring.
12. **Disclose monitoring reports.**

Source: Asian Development Bank, SPS 2009.

C. Comparison of Key Features of LAA 1894 and ADB SPS 2009

19. Table 5 below compares the provisions of the LAA and SPS 2009 and identifies where there is a difference between the remedies under the two documents. For ADB projects, the standard policy is to apply the more generous of the two provisions.

Table 5: Comparison of Land Acquisition Act 1894 (LAA) and ADB Safeguard Policy Statement 2009 Gap Filling Measures

Pakistan's Land Acquisition Act 1894	Gap Filling Measures (SPS 2009 requirements)
Only titled landowners or customary rights holders are recognized for compensation.	Lack of title should not be a bar to resettlement and rehabilitation support. Requires equal treatment of those without clear land titles (for example, squatters or other informal settlers) in terms of their entitlements for resettlement assistance and compensation for the loss of non-land assets.
Only registered landowners, sharecroppers and lease holders are eligible for compensation of crop losses.	Crop compensation is to be provided irrespective of the land registration status of the affected farmer/share cropper.
Tree losses are compensated based on outdated officially fixed rates by the relevant forest and agriculture departments.	Tree losses are to be compensated according to market rates based on productive age or wood volume, depending on tree type.
Negotiated Purchase, no LARP required. Procedures available through instructions and agreement signed.	Prepare LARP in accordance with the provisions detailed in the SPS (2009)

Pakistan's Land Acquisition Act 1894	Gap Filling Measures (SPS 2009 requirements)
Land valuation is based on the median registered land transfer rate over the 3 years prior to Section 4 of the LAA being invoked. A 15% compulsory acquisition charges are paid over and above the assessed compensation. However, recent practice is that prices based on the average over the last one year prior to acquisition commencing is applied. Provinces have also issued instructions for assessing compensation to ensure displaced persons receive compensation at market price.	Replacement cost surveys undertaken by the EA through LAC/DC/Revenue department and shared with assessors when determining compensation. Rate of compensation must be at full replacement costs with valuation of land and assets to be undertaken by qualified and experienced experts.
The valuation of structures is based on official rates, with depreciation deducted from gross value of the structure and also 15% of the value of salvaged materials.	The valuation of built-up structures is based on current market value but with consideration of the cost of new construction of the structure, with no deduction for depreciation.
The decisions regarding land acquisition and the amounts of compensation to be paid are published in the official Gazette and notified in accessible places so that the people affected are well informed.	Carry out consultations to inform potentially displaced persons about the likely impacts, finalization of award and payment of compensation. Disclose draft LARPs and their updates, as applicable.
There is no provision for income and livelihood rehabilitation measures. There are also no special allowances for vulnerable groups. There are no requirements to assess opportunities for benefit sharing. Untitled DPs are not entitled to rehabilitation support.	The ADB policy requires rehabilitation of livelihoods, and support during the relocation process. There are also provisions to be made to cover transitional period costs, and livelihood restoration. Attention must be paid to the poor and vulnerable groups, including women. A guiding principle is that DPs should at least be able to reach a defined minimum livelihood standard. In rural areas DPs should be provided with legal access to replacement land and resources to meet the defined minimum livelihood level. In urban areas provision, should be made for appropriate income sources and the legal and affordable access to adequate housing. Untitled DPs have rights.
Contradictory Statement, needs correction	Resettlement plans are prepared and disclosed.
Grievance redress is established through the formal land acquisition process at a point in time or through appeals to the court	Provide mechanisms that are accessible locally and available throughout project implementation.
Only compensation is paid but not resettlement allowances, there is no mechanism to ensure payment is made before displacement	All compensation and allowances to be paid prior to physical or economic dislocation.
No requirements to prepare and disclose monitoring reports	Prepare and disclose monitoring reports
No special provisions to deal with support to displaced, vulnerable, and tribal groups.	Combined resettlement and indigenous peoples plan prepared

D. Remedial Measures to Reconcile Gaps between LAA 1894 and SPS 2009

20. Project specific resettlement issues have been addressed to assist non-titled persons, and bridge the gap between existing practice and the main guidelines of SPS with regard to involuntary resettlement. To reconcile the inconsistencies between the LAA and SPS. Provision of subsidies or allowances will be given for affected households that maybe relocated, suffer business losses, or maybe vulnerable. As detailed in the SPS, the content and complexity of a LARP will vary depending on the scale and severity of a subproject's impacts. An outline for preparing resettlement plans is in Annex A.

E. Land Acquisition and Resettlement Modalities and Procedures

21. The preparation of a RP, where required, and timely disbursement of compensation to the DPs fully depend on (i) availability of project design, (ii) impact assessment, (iii) valuation of land and assets including community assets, and (iv) identification and verification of owners/occupants and updated land records. Preparation of RP and compensation disbursement is not only a time-consuming process, but also depends on the availability of DPs and land records. In order to assist Project Management Unit (PMU), a full-time resettlement specialist will be recruited under the loan who will work under the Environmental and Social Cell (ESC) and will be responsible for preparation, implementation reporting and monitoring of the resettlement plans (RPs), in case of any LAR impacts emerging during implementation of the project.

22. In accordance with the LAA, a two-step procedure for land acquisition, if required, may be adopted, first negotiated purchase and if that fails expropriation. Negotiated purchase will be initiated on the written request of PKHA to the collector. The collector will constitute an independent committee consisting of the district collector and representatives of the DPs. The process of negotiation with the DPs will be completed within 60 days of the start of negotiations. If successful, the collector proceeds with registering the deed of sale between the parties. A RP will be prepared describing the procedures followed including requirements detailed in the SPS for negotiated purchase.

23. To determine the price, the committee may consider the following: (i) the price paid for land recently acquired in the vicinity; (ii) the price paid in private transactions as discoverable from the register of mutations and the record of the registration department; (iii) all other information available including instructions provided in the LAA; and (iv) the committee may consult respectable people who are disinterested with regard to the value of the land. The price so determined must meet full replacement² costs of lost land and assets as a standard of compensation as explained in SPS 2009, SR 2 para 10. Table 6 below provides procedures involved in the application of LAA.

²The rate of compensation for acquired housing, land and other assets will be calculated at full replacement costs. The calculation of full replacement cost will be based on the following elements: (i) fair market value; (ii) transaction costs; (iii) interest accrued, (iv) transitional and restoration costs; and (v) other applicable payments, if any. Where market conditions are absent or in a formative stage, the borrower/client will consult with the displaced persons and host populations to obtain adequate information about recent land transactions, land value by types, land titles, land use, cropping patterns and crop production, availability of land in the project area and region, and other related information. The borrower/client will also collect baseline data on housing, house types, and construction materials. Qualified and experienced experts will undertake the valuation of acquired assets. In applying this method of valuation, depreciation of structures and assets should not be taken into account.

Table 6: Application of the Land Acquisition Act 1894

Application of LAA	Procedures and Clearance
Negotiated Purchase and routine acquisition under the LAA	The LARP will document the procedures and valuation mechanism, and append a copy of the deed of sale. If negotiation fails, the LARP will provide details and document the routine procedures applied under the LAA and the SPS.

24. Table 7 below describes the type of civil works required and proposed measures to prepare and implement LARPs/RPs.

Table 7: Civil Works and LARP Preparation

Civil Works	LARP requirement
Reconstruction on existing alignment.	No land acquisition and resettlement expected. Actions proposed: Conduct sample spot checks on site and submit checklist and categorization forms to ADB for clearance prior to award of civil works contracts.
If during implementation of rehabilitation and reconstruction works is found requiring to go beyond existing carriageway and/or formation width within encroached part of ROW.	LARPs will be prepared, fully implemented and monitored before undertaking any civil works in such sections. Action proposed: Reclassify the IR and IPs categorization from C to either B or A, as applicable. Provide third-party validation of full implementation of the LARP before commencement of construction work.
Monitoring.	Action proposed: Any road sections for which a LARP may be required, PKHA will provide quarterly monitoring reports to ADB confirming with evidence the LARPs or negotiated purchase has been implemented in accordance with the respective subproject LARP. In case of section-by-section construction, a third-party validation of LARP implementation, especially disbursement of full payments to the DPs will be required.
Contract award and construction start up	Action proposed: In case of any LAR impacts in any sections of the roads or bridges, a LARP will be prepared and approved by ADB before award of contract while the construction will commence only after full implementation of LARP, and validated by a third-party.

F. LAR Processing Procedures and Safeguard Documentation

25. The PKHA with support of resettlement specialist (consultant) will process the screening checklists, and prepare LARPs and monitoring reports. The following criteria for subproject selection will be applied:

- Reconstruction on existing alignment.
- Avoid or to the extent possible, minimize land acquisition and resettlement (LAR) by opting for technical alteration in the design and road improvement work.

- Prepare and implement land acquisition and resettlement plans for all subprojects that have land acquisition and resettlement impacts.

G. Procedure of Formulating a LARP: Social Impact Assessment and Census

26. If resettlement impacts are unavoidable in implementing a subproject, PKHA with the support of resettlement specialist (consultant) and the revenue staff, will formulate LARPs in parallel with subproject design according to the following procedure:

- (i) Complete the screening checklist. If land acquisition or resettlement is required, prepare LARPs/RPs.
- (ii) Conduct Focus Group Discussions (FGD) including, consultations with women and vulnerable households to (a) obtain stakeholder inputs regarding how to avoid or at least minimize involuntary resettlement, and (b) to identify their needs and preferences.
- (iii) LARPs will be based on detailed design, detailed measurement survey as well as inventory of lost assets and census based on the final revenue record and compensation prices approved by the BOR and respective agencies. The Environment and Social Cell (ESC) in PMU through the Resettlement Specialist (consultant) will assess replacement costs through independent assessments of sales (private and in sales registers), local materials for structure and other immovable assets replacement valuation, and updated crop and trees price assessments including, consultation with the relevant agencies on price assessments. Undertake (a) a socioeconomic survey including sex disaggregated data collection to identify gender impacts and establish the social and economic baseline to prepare LARPs.
- (iv) Establish a 100% census survey of DPs, measure lost lands, complete an inventory of lost land and assets of all DPs and addresses of households, complete the land demarcation and measurement surveys (LDMS).

H. Consultation Participation and Disclosure

27. The FGDs undertaken for establishing baseline surveys will also focus on consultation with the DPs to identify their concerns and take into account special needs and considerations. Consultations will be gender inclusive and ensure vulnerable households are included. The decisions of such meetings will be recorded, and these records will indicate the responsibility and timeline for implementing the decisions. Each resettlement plan will document all public consultations held and the disclosure of resettlement information.

28. During resettlement plan preparation, resettlement information will be disclosed to all DPs in their own language, and their views and opinions will be taken into consideration in finalizing the plans. Since many DPs are likely to be non-literate, the LARPs will be explained to them in separate groups. Particular attention will be placed on including women and vulnerable groups in all consultations. Final LARPs will be translated into local languages and disclosed through public notices posted at PKHA website, published in newspapers, and posted on ADB's website. The DPs will be closely consulted in resettlement site selection and livelihood restoration, as relevant.

29. The displaced communities have a diverse group of people belonging to different castes that participate in mainstream economic and political activities and are represented in public institutions, civil services, and educational institutions. Social inequalities and vulnerabilities in these communities usually arise from economic differentiation, as land is owned by a few large,

powerful families who rent it out to others who cultivate crops and raise livestock. Individual projects are unlikely to change this dominant mode of economic system.

30. However, vulnerabilities of all affected groups in the project areas will be identified through FGDs. This is to ensure effective consultations and that culturally- appropriate benefits will reach each displaced group. As part of this assessment, PKHA will examine the vulnerability of different groups in terms of potential exclusion from subproject benefits, negative subproject impacts, and the need for specific culturally compatible mechanisms for participation by women, the permanently disabled, and other vulnerable groups. If any of the above are found in a subproject area, PKHA will incorporate adequate measures to address such vulnerabilities in project design. If land acquisition or relocation becomes necessary, people's entitlements will be ensured through the resettlement plan that will be prepared in accordance with the framework.

31. PMU ESC with the full support of Resettlement Specialist (consultant), will be responsible for disclosing resettlement information and plans to all DPs in their own language. PKHA will endorse the LARP before submission to ADB for review.

III. COMPENSATION ELIGIBILITY AND ENTITLEMENTS

A. Entitlements

32. The entitlements for Compensation, Resettlement and Rehabilitation Assistance may be enhanced to mitigate and improve livelihoods of the DPs but not be reduced or lowered in any of the subproject LARPs. Details are provided in the entitlement matrix shown as Table 8

33. The DPs eligible for compensation or rehabilitation provisions under the PRIP are:

- (i) All land owning DPs losing land or non-land assets, i.e., crops and trees whether covered by legal title or traditional land rights, whether for temporary or permanent acquisition.
- (ii) Tenants and share-croppers, whether registered or not; for all non-land assets, based on prevailing tenancy arrangements.
- (iii) DPs losing the use of structures and utilities, including titled and non-titled owners, registered and unregistered tenants and leaseholders, and encroachers and squatters.
- (iv) Displaced persons losing business, income and salaries of workers or a person or business suffering temporary effects, such as disturbance to land, crops and business operations both permanently and also temporarily during construction.
- (v) Loss of communal property, lands, and public infrastructure.
- (vi) Vulnerable displaced persons identified through impact assessment and FGD.
- (vii) In the event of relocation, all DPs will receive transitional and other support to reestablish shelter and livelihoods.

34. In order to avoid an influx of outsiders, compensation eligibility will be limited by a cut-off date for each subproject on the day of the beginning of the sub-projects impacts and census survey. The cut-off date will be announced through village institutions and in consultation meetings with DPs.

35. Compensation and rehabilitation entitlements are summarized in Table 8.

Table 8: Entitlement Matrix

Assets lost	Specification	Displaced Person	Compensation Entitlements
Residential/ commercial land		Owner (legal/legalizable)	<ul style="list-style-type: none"> ▪ Cash compensation at replacement cost, plus 15% compulsory acquisition surcharge (CAS) free of taxes, registration and transfer costs; or ▪
		Renter/leaseholder	<ul style="list-style-type: none"> ▪ Cash compensation rent or value of lease proportionate to duration of the remaining lease period.
		Encroacher/Squatter	<ul style="list-style-type: none"> ▪ Self-relocation allowance for meeting transportation cost for shifting of family and materials; or ▪ Provision of a replacement plot in a public resettlement area.
Agricultural land, including cultivable land and	All land losses irrespective of	Owner	<ul style="list-style-type: none"> ▪ Cash compensation at (market value) replacement cost plus 15% CAS, free of taxes, of registration and transfer costs; or ▪

Assets lost	Specification	Displaced Person	Compensation Entitlements
uncultivable wasteland	impact severity	Sharecropper/Tenant (registered or not)	▪ Cash compensation equal to the market value of the share of lost harvests: two shares if the land loss is permanent, one if it is temporary.
		Lease Tenant (registered or not)	▪ Cash equivalent of the market value of the gross yield of affected/lost land for the remaining lease years, and reimbursement of remaining lease cost. Or alternate lease arrangements.
		Encroacher/Squatter	▪ Rehabilitation allowance equal to the market value of the harvest of lost land for one year (both rabi and kharif crops) in addition to standard crop compensation for the affected crop.
Residential and commercial structures		Owner of the structure, including Encroachers/Squatters	▪ Cash compensation at full replacement cost (as described in footnote of page 15) for affected structures and other fixed assets, free of salvageable materials, depreciation and transaction cost and transportation cost; or if partial loss, full cash assistance to restore the remaining structure. Fees and taxes (if applicable) will be waived. The option of relocation and relevant support will be discussed during the focus group discussions and included in the LARPs.
		Renter/Leaseholder	▪ Cash compensation equivalent to three months' rent or a value proportionate to the duration of the remaining lease.
Community Assets			▪ Rehabilitation/substitution or cash compensation at full replacement cost of the affected structures and utilities.
Businesses		All DPs so impacted	▪ Cash compensation equal to income during the interruption period, as determined through the SIA and included in the LARP/RP
Employment		All DPs so impacted	▪ Indemnity for lost wages for the period required to reestablish business as determined through the Social Impact Assessment (SIA) and included in the LARP/RP.
Crops	Affected crops	Cultivator of crop	▪ Crop compensation in cash at the full market rate for one year's agricultural income (both rabi and kharif harvests), to be assessed with assistance from Agriculture department. If sharecropped or a tenant, then compensated according to their mutual sharing arrangements with landowner.

Assets lost	Specification	Displaced Person	Compensation Entitlements
Trees	All affected trees	Owner	<ul style="list-style-type: none"> ▪ Fruit trees: compensation to reflect income replacement as assessed by Horticulture department based on market value of annual produce, projected for number of years the tree can potentially produce fruit. ▪ Timber trees: trees grown and/or used for timber then compensation is to reflect the market value of tree's wood content, based on the wood measurement survey and pricing of the Forest department.
Relocation	Transport/transition costs	All DPs to be relocated	<ul style="list-style-type: none"> ▪ Provision of allowances to cover transport costs and transitional costs on actual cost basis at current market rates. If physical relocation of the affected households is required and requested by the displaced persons, appropriate relocation sites will be developed or through support provided to flood victims. The need for support during the transitional period will be assessed through the SIA and included in the LARP.
Vulnerable DP livelihood support		Poor and female headed households and other vulnerable households, including the elderly or other groups as identified through the SIA.	<ul style="list-style-type: none"> ▪ Cash allowance equivalent to at least 6 months of inflation adjusted official poverty line (OPL) or minimum wages/month (whichever is higher) as fixed by the GOKP (in accordance with figures released by the Province) using the poverty line index or as determined through the social impact assessment surveys. ▪ First priority for skills training under emergency support. Job placement program employing DPs in project reconstruction activities.
Unidentified Losses	Unanticipated impacts	All DPs	<ul style="list-style-type: none"> ▪ Dealt with as appropriate during sub-project implementation according to the ADB's SPS 2009.

B. Implementation Arrangements

36. To address the institutional limitations the following implementation arrangements will be established.

B.1 Pakhtunkhwa Highway Authority (PKHA)

37. PKHA will be the executing agency (EA). PKHA has been implementing ADB-funded road projects and has acquired the necessary capacity to manage project implementation. The Managing Director (MD) PKHA will be responsible for overall supervision of the project. The PKHA will establish a project steering committee (PSC) to provide policy direction and strategic oversight. The PSC will meet at least quarterly to ensure coordination, review implementation progress, and provide approvals and guidance as necessary.

38. The Project Steering Committee will have the following members:

- a. Managing Director, PKHA – Chair of the Steering Committee

- b. Member (Engineering Coordination) - Member
- c. Member (Planning) - Member
- d. Member (Finance) - Member
- e. Project Director– Secretary/ Co-opted Member

39. The project management unit (PMU) and the project implementation unit (PIU) will be responsible for the day-to-day management of the project, through the Project's Supervisory Consultants Team (SCT). Similarly, the Environment and Social Cell (ESC) already established within PMU will continue to fulfill safeguard requirements with safeguards (environment and resettlement), financial management, and contract administration and project implementation capacity augmented through individual consultants recruited under the loan.

B.2 Environment and Social Cell (ESC)

40. The ESC is headed by Deputy Director, Environment and Social Cell (ESC) and will be assisted by a dedicated resettlement specialist (RS) to be provided in the Supervisory Consultant Team (SCT). The RS will assist ESC in the preparation, implementation, monitoring and disclosure of LARPs of the road subprojects having LAR impacts

41. The roles and responsibilities of the ESC are as follows:

- a. Work closely with resettlement specialist (consultant) for all LARP-related matters and capacity building of ESC in involuntary resettlement management;
- b. Prepare screening and categorization checklists (IR & IP Checklists);
- c. Conduct consultations and information disclosure with DPs and other stakeholders.
- d. Coordinate with relevant local agencies, particularly revenue departments;
- e. Prepare LARPs/RPs
- f. Prepare and submit monitoring reports to ADB to confirm resettlement plans have been implemented;
- g. All procedural requirements including translation and disclosure of LARPs will be implemented by the ESC supported by the consultant;
- h. Support PKHA and ensure the delivery of compensation and other entitlements and maintain records;
- i. The consultant and PKHA in coordination will be responsible for maintaining a complete database of all affected persons, inventory of assets, payments and other relevant field data;
- j. Develop a functioning grievance function with gender sensitive protocols and outreach and links to the provincial ombudsman's office; provide training to ESC staff to handle grievance and monitor progress.
- k. Maintain an MIS related to resettlement and social development.

B.3 Resettlement Specialist (consultant)

42. The loan sponsored resettlement consultant within the supervisory consultant team (SCT) will provide support to ESC in coordination with relevant government agencies and will assist preparation and implementation of LARPs besides assisting preparation and disclosure of monitoring reports. ESC and BORs, District LACs and other concerned local agencies will provide the necessary support services for facilitating expeditious preparation, implementation and monitoring of LARPs/RPs. The consultant will work with the revenue department (District LACs) and the ESC to support the following:

- a. consultation with affected communities and information disclosure;

- b. support the preparation of the revenue record and paperwork required for finalizing the land awards;
- c. support displaced persons in preparing their documents to receive compensation;
- d. participate in meetings to ensure transparency and maintain records;
- e. assist ESC in preparation of monitoring reports to be provided to ADB for review;
- f. support the functioning of the grievance mechanism; and,
- g. establish and maintain an up to date management information system to include all relevant information on displaced persons.

43. The following procedures of formulating LARPs, SIA and Census will be adopted:

- a. If resettlement impacts are unavoidable in implementing a subproject, ESC PMU with the support of the SCT resettlement specialist and the revenue staff, will formulate LARPs/RPs in parallel with subproject design according to the following procedures:
- b. Complete the screening checklist (IR & IP Checklists). If land acquisition or resettlement is required, prepare LARPs/RPs.
- c. For retroactive financing, complete screening checklists and submit with approval request.
- d. Conduct Focus Group Discussions (FGD) including, consultations with women and vulnerable households to (a) obtain stakeholder inputs regarding how to avoid or at least minimize involuntary resettlement, and (b) to identify their needs and preferences.
- e. LARPs/RPs will be based on detailed design, detailed measurement survey as well as inventory of lost assets and census based on the final revenue record and compensation prices approved by the BOR and respective agencies. Environment and Social Cell (ESC) in PMU will assess replacement costs through independent assessments of sales (private and in sales registers), local materials for structure and other immovable assets replacement valuation, and updated crop and trees price assessments including, consultation with the relevant agencies on price assessments. Undertake (a) a socioeconomic survey including sex disaggregated data collection to identify gender impacts and establish the social and economic baseline to prepare LARPs.
- f. Establish a 100% census survey of DPs, measure lost lands, complete an inventory of lost land and assets of all DPs and addresses of households, complete the land demarcation and measurement surveys (LDMS).

C. Grievance Redress Mechanism (GRM)

44. Field level grievances will be addressed through a local grievance redress committee (GRC) to be formally constituted by ESC PMU under each subproject with LAR impacts. The GRC, headed by a Deputy Director ESC, will consist of a grievance officer, a representative from the DPs, locally present NGO representative, the ESC's resettlement specialist and concerned revenue staff. The GRC will be formally notified and established at each subproject sites with LAR impacts. The role of Village Councils will also be considered in constituting GRCs with the consent of the DPs.

45. The GRCs will function as open forums for hearing complaints and exploring quick resolutions to resolving conflicts. The GRC will be required to develop an outreach program. Each GRC will record its deliberations and inform the concerned parties of a resolution within two weeks of its findings and recommendations. If the GRC cannot resolve the grievance, the DPs have the

right to appeal to the courts. Communities will be informed about the GRC through the ESC outreach program. Grievance may also be addressed to ADB Office of Special Projects Facilitator.

46. To ensure women have access to the grievance mechanism, separate focus group discussions will be held with them to design protocols that are suited to their specific needs including procedures and mechanisms to enable their access to the mechanism, including, access to the provincial ombudsman's office. Outreach programs will be tailored to women's needs to ensure information is communicated to them effectively.

D. LARP Budgeting and Financing

47. All LAR costs inclusive of compensation, resettlement and rehabilitation allowances, livelihood and income restoration support form an integral component of project costs, and will be included in the LARP under separate budget lines indicating unit costs under separate headings. PKHA will ensure adequate funds are available on time to implement the LARPs and will be responsible for financing and disbursing (i) all entitlements that are not payable under the requirements of the LAA; (ii) logistics to run the ESC including, translations and outreach and GRC functions; and (iii) any other functions related to ensuring the ESC functions effectively and delivers timely outputs.

E. Monitoring and Evaluation

48. The land acquisition and resettlement process of each subproject will be monitored both internally by ESC, PMU and externally by a third-party--an external monitoring agency (EMA) or an individual consultant. Internal monitoring reports will be submitted by ESC PMU on a quarterly basis to ADB. The EMA will submit external monitoring reports to ADB confirming satisfactory implementation of LARPs/RPs (as a third-party validation. This will be particularly required in cases of section-by-section construction) as and when each subproject LAR activities are completed. The monitoring reports will be translated and disclosed to the displaced persons and placed on the project website by ESC PKHA.

ANNEX A**OUTLINE OF A LAND ACQUISITION AND RESETTLEMENT PLAN**

1. This outline is part of the Safeguard Requirements. A resettlement plan is required for all projects with involuntary resettlement impacts. The level of detail and comprehensiveness is commensurate with the significance of potential involuntary resettlement impacts and risks. The substantive aspects of the outline will guide the preparation of the resettlement plans, although not necessarily in the order shown. If indigenous people are affected, the plan will identify the risks and include special provisions to mitigate these risks.

F. Executive Summary

2. This section provides a concise statement of project scope, key survey findings, entitlements, and recommended actions.

G. Project Description

3. This section provides a general description of the project, discusses project components that result in land acquisition, involuntary resettlement, or both and identify the project area. It also describes the alternatives considered to avoid or minimize resettlement. The section is also to include a table with quantified data and provide a rationale for the final decision.

H. Scope of Land Acquisition and Resettlement

4. This section:

- (i) discusses the project's potential impacts, and includes maps of the areas or zone of impact of project components or activities;
- (ii) describes the scope of land acquisition (provide maps) and explains why it is necessary for the main investment project;
- (iii) summarizes the key effects in terms of assets acquired and displaced persons; and,
- (iv) provides details of any common property resources that will be acquired.

I. Socioeconomic Information and Profile

5. This section outlines the results of the social impact assessment, the census survey, and other studies, with information and/or data disaggregated by sex, vulnerability, and other social groupings, including:

- (i) define, identify, and enumerate the people and communities to be affected; describe the likely impacts of land and asset acquisition on the people and communities affected taking social, cultural, and economic parameters into account;
- (ii) identify all households (including list of names) eligible for livelihood assistance to support livelihood loss due to delayed land compensation.
- (iii) discuss the project's impacts on the poor, and other vulnerable groups; and
- (iv) identify gender and resettlement impacts, and the socioeconomic situation, impacts, needs, and priorities of women.

J. Information Disclosure, Consultation, and Participation

6. This section:

- (i) identifies project stakeholders, especially primary stakeholders;
- (ii) describes the consultation and participation mechanisms to be used during the different stages of the project cycle;
- (iii) describes the activities undertaken to disseminate project and resettlement information during project design and preparation for engaging stakeholders including women;
- (iv) summarizes the results of consultations with displaced persons (including host communities), and discusses how concerns raised and recommendations made were addressed in the resettlement plan;
- (v) confirms disclosure of the draft resettlement plan to displaced persons and includes arrangements to disclose any subsequent plans; and
- (vi) describes the planned information disclosure measures (including the type of information to be disseminated and the method of dissemination) and the process for consultation with displaced persons during project implementation.

K. Grievance Redress Mechanisms

7. This section describes mechanisms to receive and facilitate the resolution of displaced persons' concerns and grievances. It explains how the procedures are accessible to displaced persons and provides access to women. It described the terms of reference, operating procedures, protocols outreach program and linkages to the provincial ombudsman's office.

L. Legal Framework

8. This section:

- (i) describes national and local laws and regulations that apply to the project and identify gaps between local laws and ADB's policy requirements; and discuss how any gaps will be addressed;
- (ii) describes the legal and policy commitments from the executing agency for all types of displaced persons;
- (iii) outlines the principles and methodologies used for determining valuations and compensation rates at replacement cost for assets, incomes, and livelihoods; and set out the compensation and assistance eligibility criteria and how and when compensation and assistance will be provided; and
- (iv) describes the land acquisition process and prepare a schedule for meeting key procedural requirements.

M. Entitlements, Assistance and Benefits

9. This section:

- (i) defines displaced persons' entitlements and eligibility, and describes all resettlement assistance measures (includes an entitlement matrix);
- (ii) identify and document the households who will be eligible for transitional livelihood support if compensation payments for land are delayed for six months;
- (iii) specifies all assistance to vulnerable groups, including women, and other special groups; and,
- (iv) outlines opportunities for displaced persons to derive appropriate development benefits from the project.

N. Relocation of Housing and Settlements

10. This section:

- (i) describes options for relocating housing and other structures, including replacement housing, replacement cash compensation, and/or self-selection (ensure that gender concerns and support to vulnerable groups are identified);
- (ii) describes alternative relocation sites considered; community consultations conducted; and justification for selected sites, including details about location, environmental assessment of sites, and development needs;
- (iii) provides timetables for site preparation and transfer;
- (iv) describes the legal arrangements to regularize tenure and transfer titles to resettled persons;
- (v) outlines measures to assist displaced persons with their transfer and establishment at new sites;
- (vi) describes plans to provide civic infrastructure; and
- (vii) explains how integration with host populations will be carried out.

O. Income Restoration and Rehabilitation

11. This section:

- (i) identifies livelihood risks particularly to vulnerable and indigenous people (if affected) and prepare disaggregated tables based on demographic data and livelihood sources;
- (ii) describes income restoration programs, including multiple options for restoring all types of livelihoods (examples include project benefit sharing, revenue sharing arrangements, joint stock for equity contributions such as land, discuss sustainability and safety nets);
outlines measures to provide social safety net through social insurance and/or project special funds;
- (iii) describes special measures to support vulnerable groups;
- (iv) explains gender considerations; and
- (v) describes training programs.

P. Resettlement Budget and Financing Plan

12. This section:

- (i) provides an itemized budget for all resettlement activities, including for the resettlement unit, staff training, monitoring and evaluation, and preparation of resettlement plans during loan implementation.
- (ii) describes the flow of funds (the annual resettlement budget should show the budget-scheduled expenditure for key items).
- (iii) includes a justification for all assumptions made in calculating compensation rates and other cost estimates (taking into account both physical and cost contingencies), plus replacement costs.
- (iv) includes information about the source of funding for the resettlement plan budget.

Q. Institutional Arrangements

13. This section:

- (i) describes institutional arrangement responsibilities and mechanisms for carrying out the measures of the resettlement plan;
- (ii) includes institutional capacity building program, including technical assistance, if required;
- (iii) describes role of nongovernment organizations (NGOs), if involved, and

- (iv) organizations of displaced persons in resettlement planning and management; and describes how women's groups will be involved in resettlement planning and management,

R. Implementation Schedule

14. This section includes a detailed, time bound, implementation schedule for all key resettlement and rehabilitation activities. The implementation schedule should cover all aspects of resettlement activities synchronized with the project schedule of civil works construction, and provide land acquisition process and timeline.

S. Monitoring and Reporting

15. This section describes the mechanisms and benchmarks appropriate to the project for monitoring and evaluating the implementation of the resettlement plan. It specifies arrangements for participation of displaced persons in the monitoring process. This section will also describe reporting procedures.

ANNEX B

INVOLUNTARY RESETTLEMENT IMPACT CATEGORIZATION

Date: _____

A. Instructions (i) The project team completes and submits the form to the Environment and Safeguards Division (RSES) for endorsement by RSES Director, and for approval by the Chief Compliance Officer (CCO). (ii) The classification of a project is a continuing process. If there is a change in the project components or/and site that may result in category change, the Sector Division submits a new form and requests for recategorization, and endorsement by RSES Director and by the CCO. The old form is attached for reference. (iii) In addition, the project team may propose in the comments section that the project is highly complex and sensitive (HCS), for approval by the CCO. HCS projects are a subset of category A projects that ADB deems to be highly risky or contentious or involve serious and multidimensional and generally interrelated potential social and/or environmental impacts.			
B. Project Data Country/Project No./Project Title : _____ _____ Department/ Division : _____ Processing Stage : _____ Modality : _____ <div style="display: flex; justify-content: space-between;"> [] Project Loan [] Program Loan [] Financial Intermediary [] General Corporate Finance </div> <div style="display: flex; justify-content: space-between;"> [] Sector Loan [] MFF [] Emergency Assistance [] Grant </div> <div style="display: flex; justify-content: space-between;"> [] Other financing modalities: </div>			
C. Involuntary Resettlement Category <div style="display: flex; justify-content: space-around;"> [] New [] Recategorization — Previous Category [] </div>			
<input type="checkbox"/> Category	<input type="checkbox"/> Category	<input type="checkbox"/> Category	<input type="checkbox"/> Category FI
D. Comments <div style="display: flex;"> <div style="flex: 1; padding: 5px;">Project Team Comments:</div> <div style="flex: 1; padding: 5px;">RSES Comments:</div> </div>			
E. Approval			
Proposed by: Project Team Leader, {Department/Division} Date: _____		Reviewed by: Social Safeguard Specialist, RSDD/RSES Date: _____	
Social Development Specialist, {Department/Division} Date: _____		Endorsed by: Director, RSES Date: _____	
Endorsed by: Director, {Division} Date: _____		Approved by: Chief Compliance Officer Date: _____	<input type="checkbox"/> Highly Complex and Sensitive Project

Involuntary Resettlement Impact Categorization Checklist

Probable Involuntary Resettlement Effects	Yes	No	Not Known	Remarks
Involuntary Acquisition of Land				
1. Will there be land acquisition?				
2. Is the site for land acquisition known?				
3. Is the ownership status and current usage of land to be acquired known?				
4. Will easement be utilized within an existing Right of Way (ROW)?				
5. Will there be loss of shelter and residential land due to land acquisition?				
6. Will there be loss of agricultural and other productive assets due to land acquisition?				
7. Will there be losses of crops, trees, and fixed assets due to land acquisition?				
8. Will there be loss of businesses or enterprises due to land acquisition?				
9. Will there be loss of income sources and means of livelihoods due to land acquisition?				
Involuntary restrictions on land use or on access to legally designated parks and protected areas				
10. Will people lose access to natural resources, communal facilities and services?				
11. If land use is changed, will it have an adverse impact on social and economic activities?				
12. Will access to land and resources owned communally or by the state be restricted?				
Information on Displaced Persons:				
Any estimate of the likely number of persons that will be displaced by the Project? <input type="checkbox"/> No <input type="checkbox"/> Yes				
If yes, approximately how many? _____				
Are any of them poor, female-heads of households, or vulnerable to poverty risks? <input type="checkbox"/> No <input type="checkbox"/> Yes				
Are any displaced persons from indigenous or ethnic minority groups? <input type="checkbox"/> No <input type="checkbox"/> Yes				

Note: The project team may attach additional information on the project, as necessary.

INDIGENOUS PEOPLES IMPACT CATEGORIZATION

Date:

A. Instructions (i) The project team completes and submits the form to the Environment and Safeguards Division (RSES) for endorsement by RSES Director, and for approval by the Chief Compliance Officer (CCO). (ii) The classification of a project is a continuing process. If there is a change in the project components or/and site that may result in category change, the Sector Division submits a new form and requests for recategorization, and endorsement by RSES Director and by the CCO. The old form is attached for reference. (iii) The project team indicates if the project requires broad community support (BCS) of Indigenous Peoples communities. BCS is required when project activities involve (a) commercial development of the cultural resources and knowledge of indigenous peoples, (b) physical displacement from traditional or customary lands; and (c) commercial development of natural resources within customary lands under use that would impact the livelihoods or the cultural, ceremonial, or spiritual use that define the identity and community of indigenous peoples. (iv) In addition, the project team may propose in the comments section that the project is highly complex and sensitive (HCS), for approval by the CCO. HCS projects are a subset of category A projects that ADB deems to be highly risky or contentious or involve serious and multidimensional and generally interrelated potential social and/or environmental impacts.							
B. Project Data Country/Project No./Project Title _____ <div style="display: flex; justify-content: space-between;"> <div> Department/ Division : _____ Processing Stage : _____ Modality : _____ </div> <div> <input type="checkbox"/> Project Loan <input type="checkbox"/> Program Loan <input type="checkbox"/> Financial Intermediary <input type="checkbox"/> General Corporate Finance <input type="checkbox"/> Sector Loan <input type="checkbox"/> MFF <input type="checkbox"/> Emergency Assistance <input type="checkbox"/> Grant <input type="checkbox"/> Other financing modalities: _____ </div> </div>							
C. Indigenous Peoples Category <div style="text-align: center; margin-bottom: 10px;"> <input type="checkbox"/> New <input type="checkbox"/> Recategorization — Previous Category <input type="checkbox"/> </div> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 25%; text-align: center; padding: 5px;"><input type="checkbox"/> Category A</td> <td style="width: 25%; text-align: center; padding: 5px;"><input type="checkbox"/> Category B</td> <td style="width: 25%; text-align: center; padding: 5px;"><input type="checkbox"/> Category C</td> <td style="width: 25%; text-align: center; padding: 5px;"><input type="checkbox"/> Category FI</td> </tr> </table>				<input type="checkbox"/> Category A	<input type="checkbox"/> Category B	<input type="checkbox"/> Category C	<input type="checkbox"/> Category FI
<input type="checkbox"/> Category A	<input type="checkbox"/> Category B	<input type="checkbox"/> Category C	<input type="checkbox"/> Category FI				
D. Project requires the broad community support of affected Indigenous Peoples communities. <div style="float: right; margin-top: -20px;"> <input type="checkbox"/> Yes <input type="checkbox"/> No </div>							
E. Comments <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; height: 100px; vertical-align: top; padding: 5px;">Project Team Comments:</td> <td style="width: 50%; height: 100px; vertical-align: top; padding: 5px;">RSES Comments:</td> </tr> </table>				Project Team Comments:	RSES Comments:		
Project Team Comments:	RSES Comments:						
F. Approval							
Proposed by: _____ Project Team Leader, {Department/Division} Date: _____		Reviewed by: _____ Social Safeguard Specialist, RSDD/RSES Date: _____ Endorsed by: _____ Director, RSES Date: _____					
Endorsed by: _____ Director, {Division} Date: _____		<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 70%; border: 1px solid black; padding: 5px;"> Approved by: _____ Chief Compliance Officer Date: _____ </td> <td style="width: 30%; text-align: center; vertical-align: middle; padding: 5px;"> <input type="checkbox"/> Highly Complex and Sensitive Project </td> </tr> </table>		Approved by: _____ Chief Compliance Officer Date: _____	<input type="checkbox"/> Highly Complex and Sensitive Project		
Approved by: _____ Chief Compliance Officer Date: _____	<input type="checkbox"/> Highly Complex and Sensitive Project						

Indigenous Peoples Impact Screening Checklist

KEY CONCERNS (Please provide elaborations on the Remarks column)	YES	NO	NOT KNOWN	Remarks
A. Indigenous Peoples Identification				
1. Are there socio-cultural groups present in or use the project area who may be considered as "tribes" (hill tribes, scheduled tribes, tribal peoples), "minorities" (ethnic or national minorities), or "indigenous communities" in the project area?				
2. Are there national or local laws or policies as well as anthropological researches/studies that consider these groups present in or using the project area as belonging to "ethnic minorities", scheduled tribes, tribal peoples, national minorities, or cultural communities?				
3. Do such groups self-identify as being part of a distinct social and cultural group?				
4. Do such groups maintain collective attachments to distinct habitats or ancestral territories and/or to the natural resources in these habitats and territories?				
5. Do such groups maintain cultural, economic, social, and political institutions distinct from the dominant society and culture?				
6. Do such groups speak a distinct language or dialect?				
7. Has such groups been historically, socially and economically marginalized, disempowered, excluded, and/or discriminated against?				
8. Are such groups represented as "Indigenous Peoples" or as "ethnic minorities" or "scheduled tribes" or "tribal populations" in any formal decision-making bodies at the national or local levels?				
B. Identification of Potential Impacts				
9. Will the project directly or indirectly benefit or target Indigenous Peoples?				
10. Will the project directly or indirectly affect Indigenous Peoples' traditional socio-cultural and belief practices? (e.g. child-rearing, health, education, arts, and governance)				
11. Will the project affect the livelihood systems of Indigenous Peoples? (e.g., food production system, natural resource management, crafts and trade, employment status)				
12. Will the project be in an area (land or territory) occupied, owned, or used by Indigenous Peoples, and/or claimed as ancestral domain?				

KEY CONCERNS (Please provide elaborations on the Remarks column)	YES	NO	NOT KNOWN	Remarks
C. Identification of Special Requirements <i>Will the project activities include:</i>				
13. Commercial development of the cultural resources and knowledge of Indigenous Peoples?				
14. Physical displacement from traditional or customary lands?				
15. Commercial development of natural resources (such as minerals, hydrocarbons, forests, water, hunting or fishing grounds) within customary lands under use that would impact the livelihoods or the cultural, ceremonial, spiritual uses that define the identity and community of Indigenous Peoples?				
16. Establishing legal recognition of rights to lands and territories that are traditionally owned or customarily used, occupied or claimed by indigenous peoples ?				
17. Acquisition of lands that are traditionally owned or customarily used, occupied or claimed by indigenous peoples ?				

D. Anticipated project impacts on Indigenous Peoples

Project component/ activity/ output	Anticipated positive effect	Anticipated negative effect
1.		
2.		
3.		
4.		
5.		

Note: The project team may attach additional information on the project, as necessary.

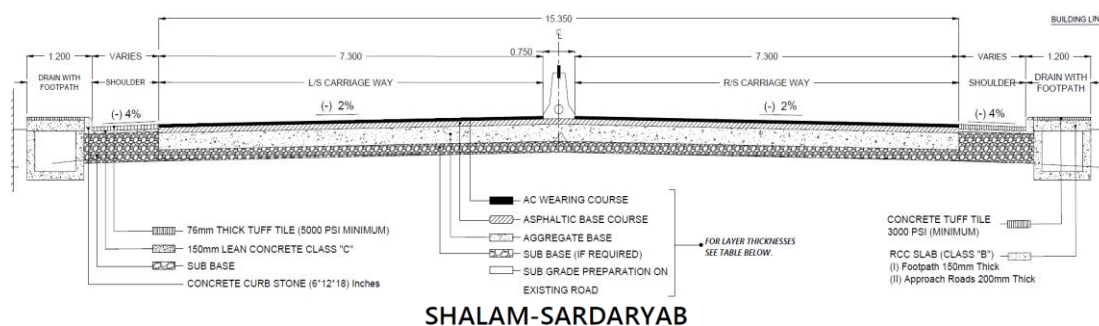
ANNEX C

ROADS CROSS SECTIONS

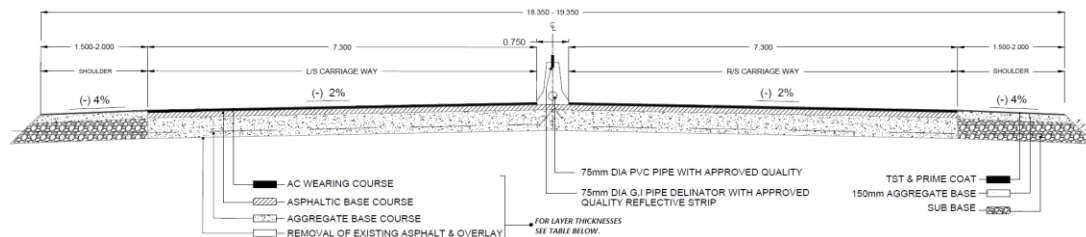
Typical Cross Section as submitted by the Design Consultant and included in the Tender Documents.

SHALAM-SARDARYAB

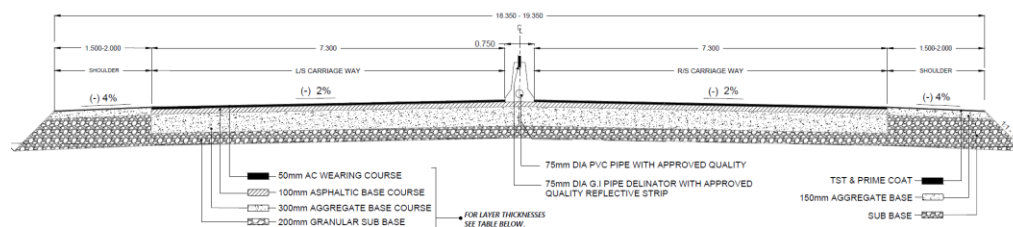
TYPICAL CROSS SECTION BUILT UP AREA



TYPICAL CROSS SECTION OVERLAY

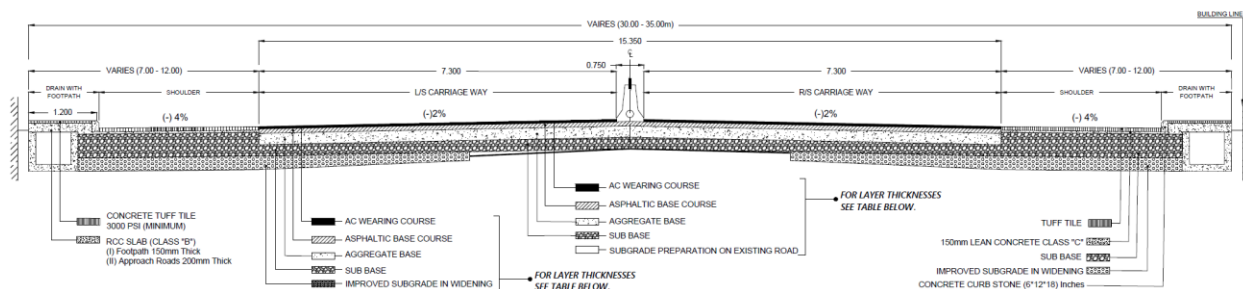


TYPICAL CROSS SECTION KM 3+000 - 6+000



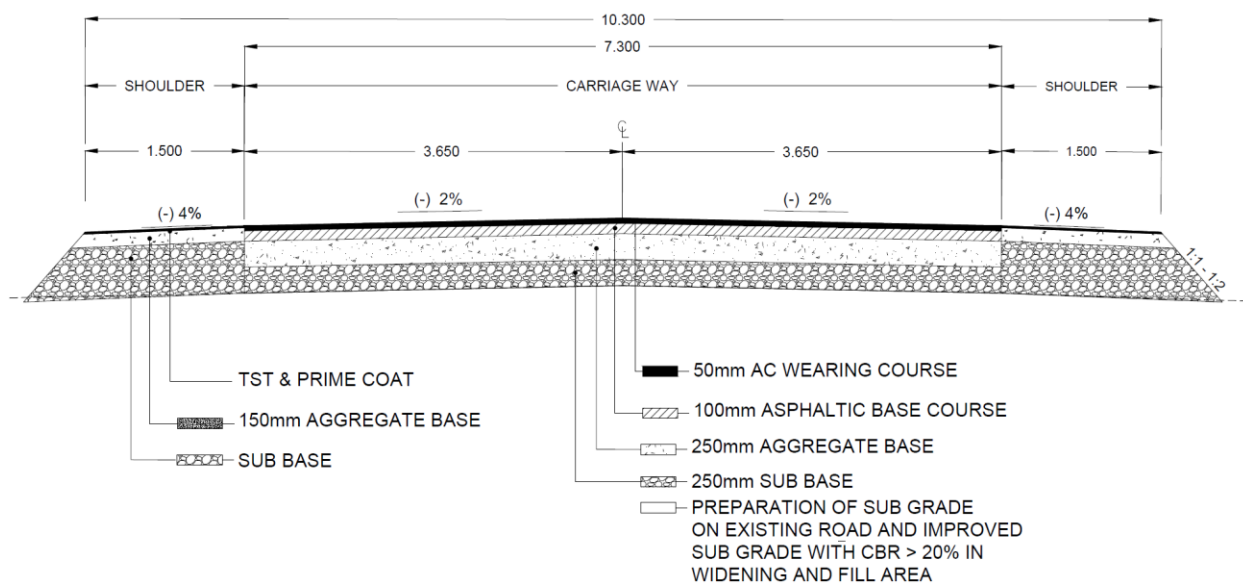
KHAIRABAD-KAHI-NIZAMPUR ROAD (S-6)

TYPICAL CROSS SECTION BUILT UP AREA



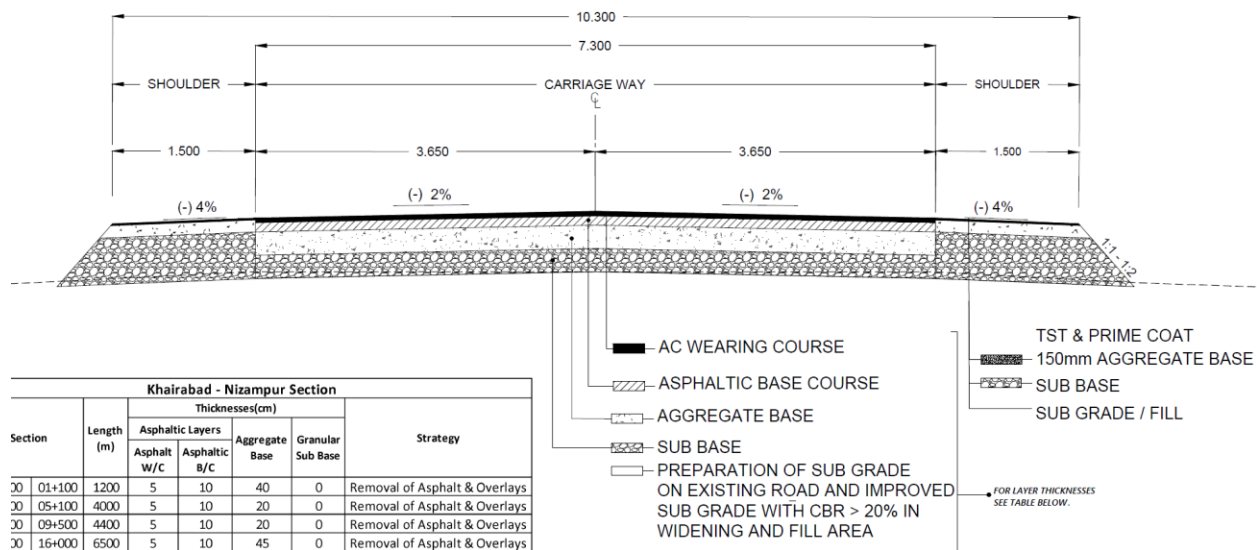
KHAIRABAD-KAHI-NIZAMPUR ROAD (S-6)

TYPICAL CROSS SECTION NEW CONSTRUCTION



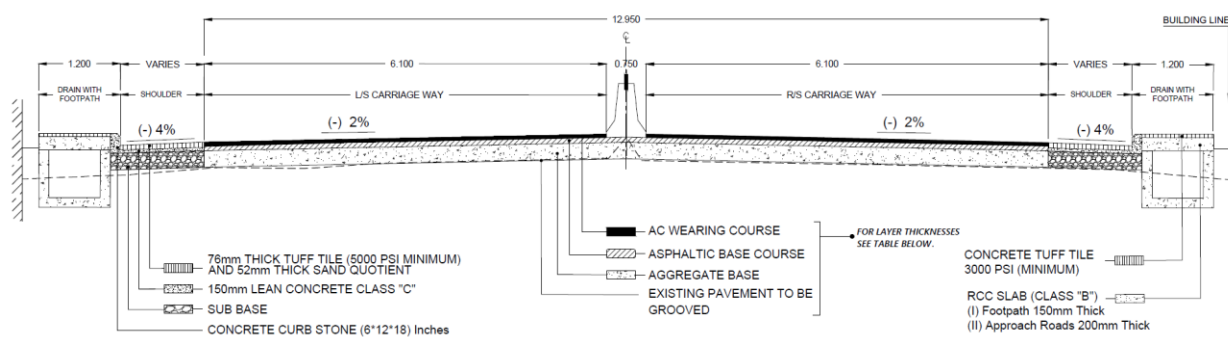
KHAIRABAD-KAHI-NIZAMPUR ROAD (S-6)

TYPICAL CROSS SECTION OVERLAY



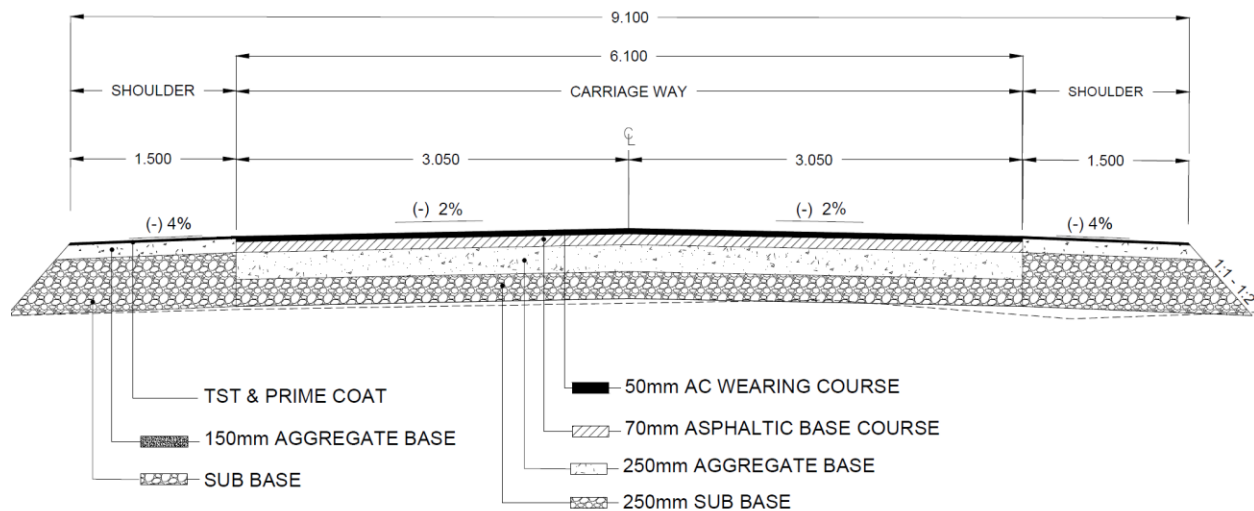
RISALPUR - JAHANGIRA SECTION

TYPICAL CROSS SECTION BUILT UP AREA



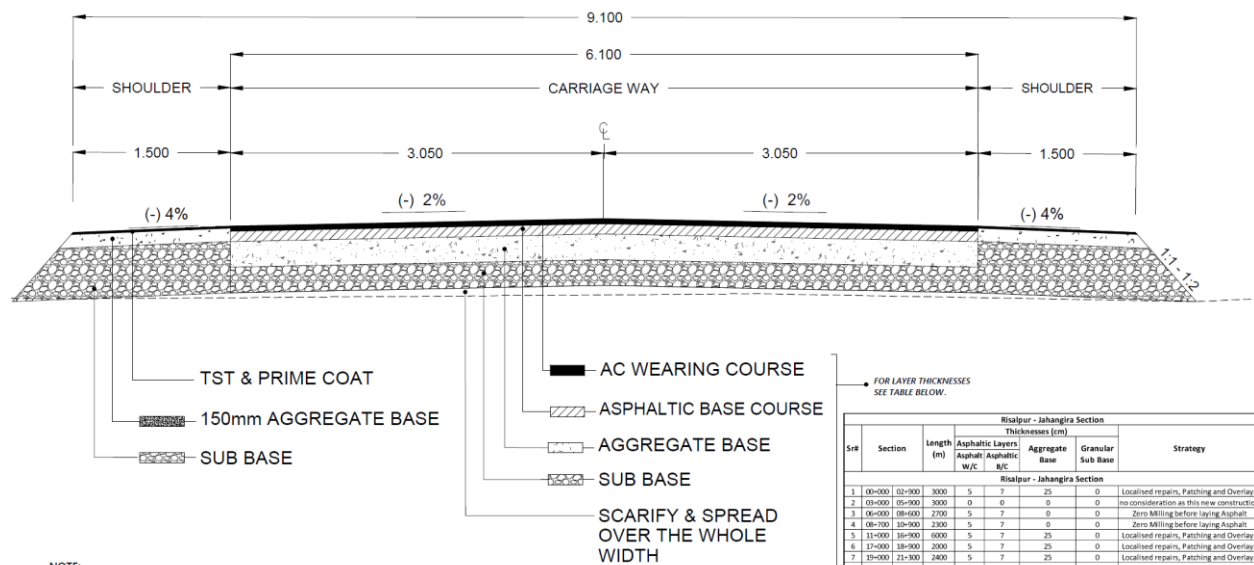
RISALPUR - JAHANGIRA SECTION

TYPICAL CROSS SECTION NEW CONSTRUCTION



RISALPUR - JAHANGIRA SECTION

TYPICAL CROSS SECTION OVERLAY

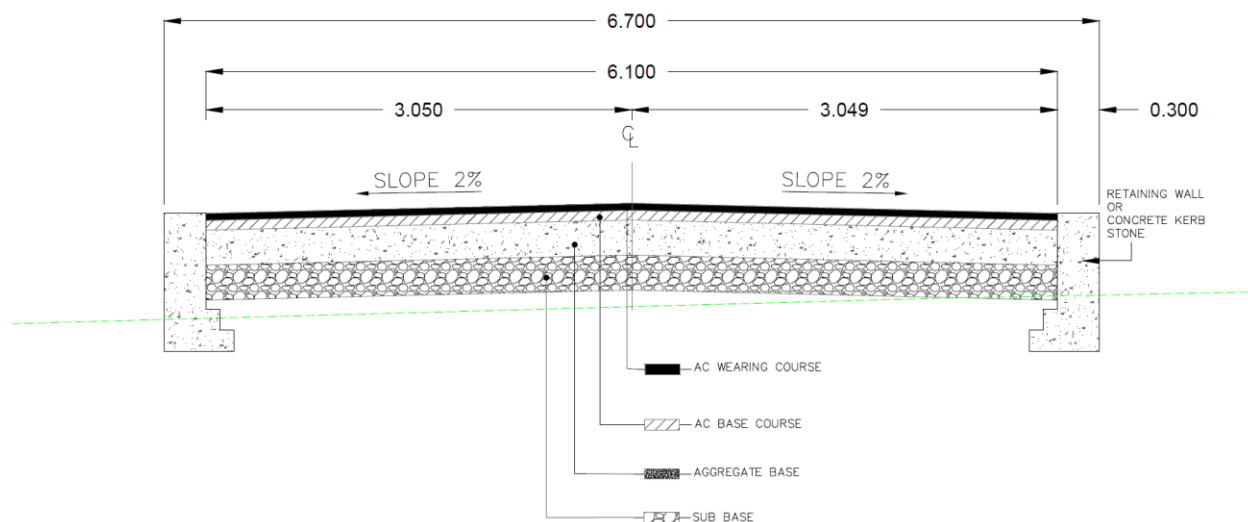


NOTE:
1. All Dimensions are in Meter
Except Otherwise Shown.

FOR LAYER THICKNESSES
SEE TABLE BELOW.

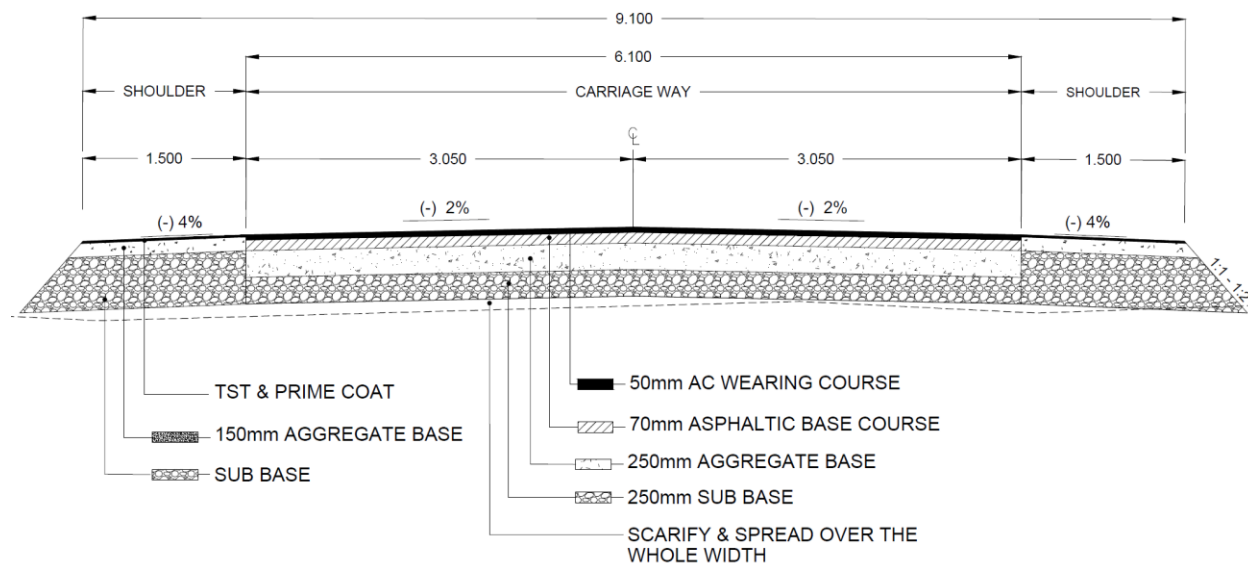
Risalpur - Jahangira Section							
Sra	Section	Length (m)	Thicknesses (cm)				Strategy
			Asphaltic Layers Asphaltic W/C	Aggregate Base	Granular Sub Base		
Risalpur - Jahangira Section							
1	00+000 - 02+000	3000	5	7	25	0	Localized repairs, Patching and Overlays
2	03+000 - 05+000	3000	0	0	0	0	no consideration as this new construction
3	06+000 - 08+000	2700	5	7	0	0	Zero Milling before laying asphalt
4	08+700 - 10+000	2300	5	7	0	0	Zero Milling before laying asphalt
5	11+000 - 16+000	6000	5	7	25	0	Localized repairs, Patching and Overlays
6	17+000 - 18+000	2000	5	7	25	0	Localized repairs, Patching and Overlays
7	19+000 - 21+000	2400	5	7	25	0	Localized repairs, Patching and Overlays
8	21+100 - 22+000	1700	5	7	30	0	Localized repairs, Patching and Overlays
9	23+000 - 29+727	6827	5	7	25	25	Reconstruction
Pir Subay - Wall Interchange Section							
10	00+000 - 02+000	3000	5	7	45	0	Localized repairs, Patching and Overlays
11	03+000 - 04+000	1100	5	7	30	0	Localized repairs, Patching and Overlays
12	04+100 - 06+405	2405	5	7	45	0	Localized repairs, Patching and Overlays

RISALPUR - JAHANGIRA SECTION
TYPICAL CROSS SECTION RECONSTRUCTION
RD 20+200 - 25+260



RISALPUR - JAHANGIRA SECTION

TYPICAL CROSS SECTION RECONSTRUCTION
11+00 - 20+200, 25+260 - 30+475

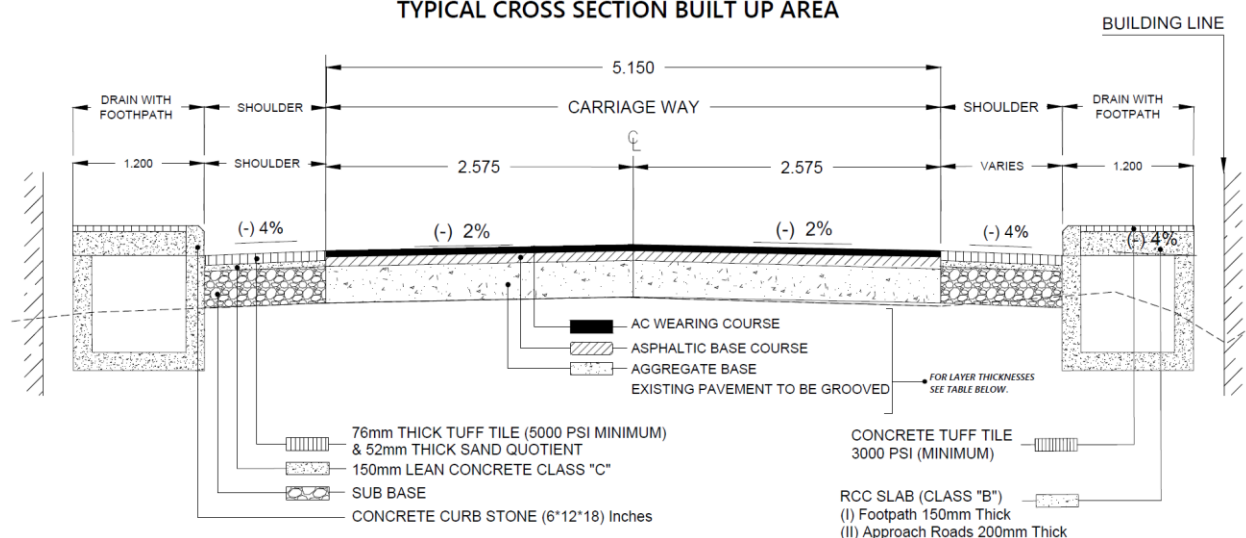


For the S-14, Risalpur to Jehangira road, three critical sections had been identified during previous survey namely; Km 7+300, Km 13+700 and km 19+750.

- The road passes through crowded and congested bazar areas where consideration should include the local bazar community and nearby road uses.
- Therefore, physical design and other measures to improve road safety for all vehicle transporters, pedestrians, cyclists and the Bazar community should be considered. The aims would be to encourage safer, more responsible interaction between motorized and non-motorized traffic. Consequently, a strategy for Traffic Calming Measures, including narrowed roads and speed humps could be followed.
- The expected traffic volumes at this point are only very light. It was therefore proposed to limit the carriageway width to a comfortable full one lane traffic lane of 3.65 meter. The existing open drains and therein the piped water utility should be curbed and covered under a concrete slab and utilized as a footpath within the remaining available space.
- Construction design for the narrowed sections should be paved with cement concrete overlay to avoid damage to adjacent property from vibration etc. It was suggested that this would also change the drivers' sense from that of a smooth asphalt texture and could be regarded as a traffic calming measure. The sections identified for Traffic Calming Measures are of shorter length (50-80 meter) on straight road alignment with a clear sight distance for traffic coming from both directions.
- Cement concreting of the pavement applies to all the project roads that have less than 5.5m wide carriageway and have structures built on the edges.

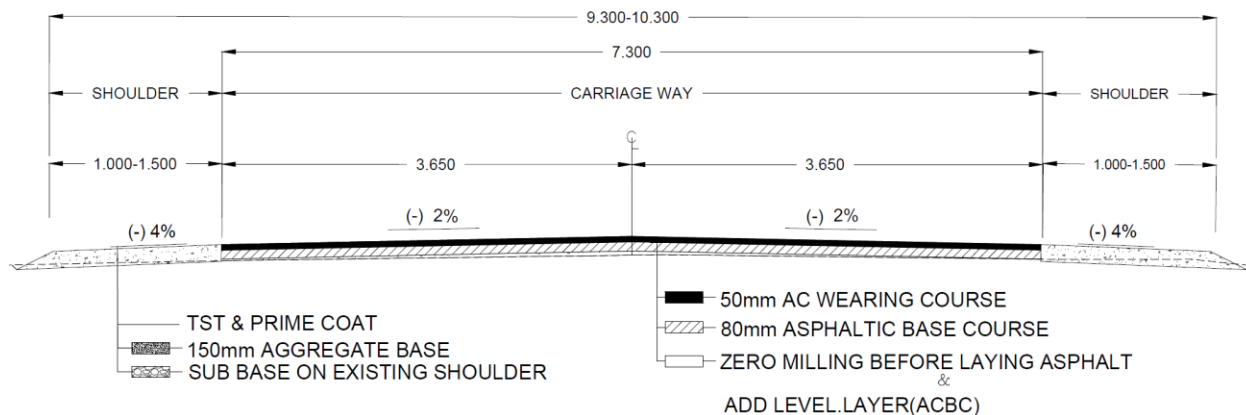
UMARZAI-HARICHAND-SHERGHAR

TYPICAL CROSS SECTION BUILT UP AREA



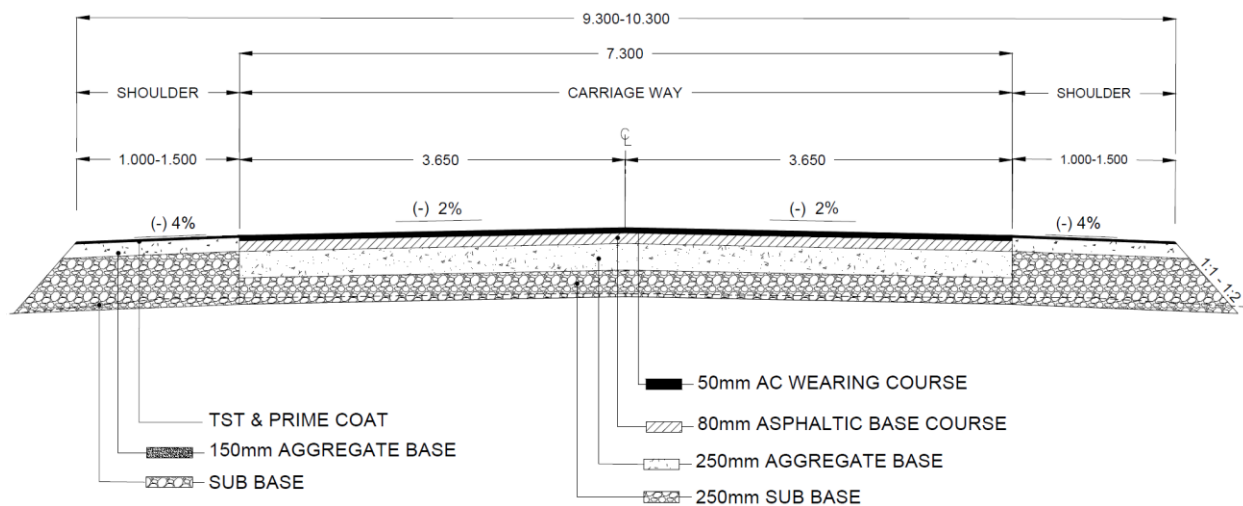
UMARZAI-HARICHAND-SHERGHAR

TYPICAL CROSS SECTION MILLING (RD: 09+000 - 09+800, 27+300 - 29+000)



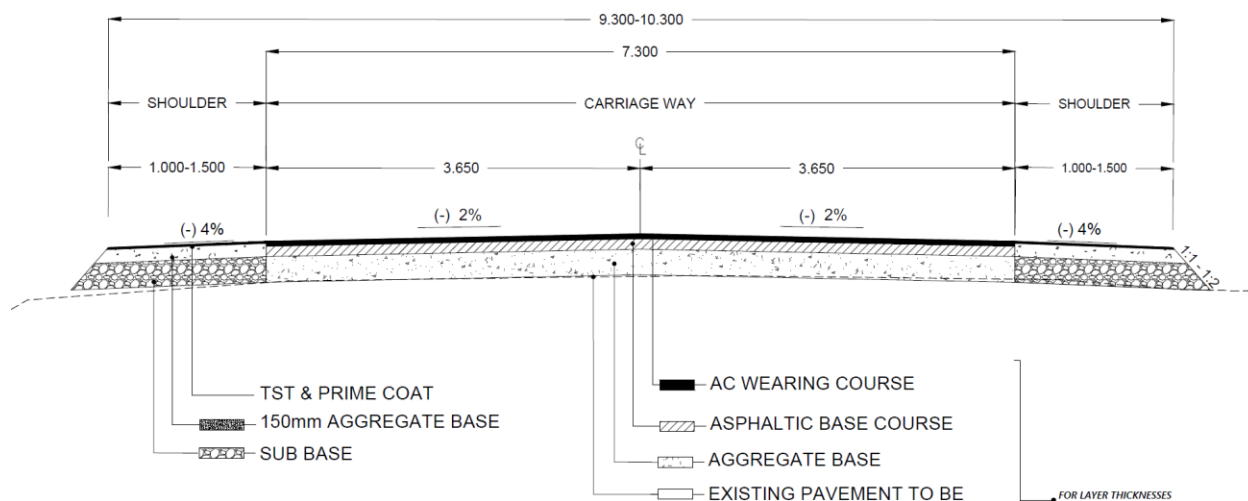
UMARZAI-HARICHAND-SHERGHAR

TYPICAL CROSS SECTION NEW CONSTRUCTION



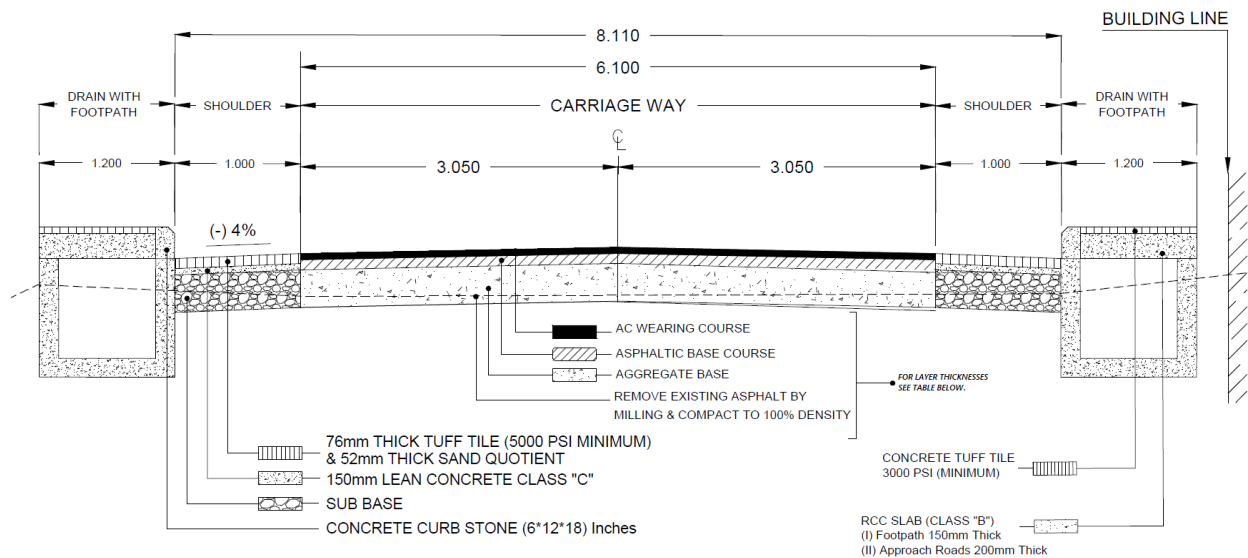
UMARZAI-HARICHAND-SHERGHAR

TYPICAL CROSS SECTION OVERLAY



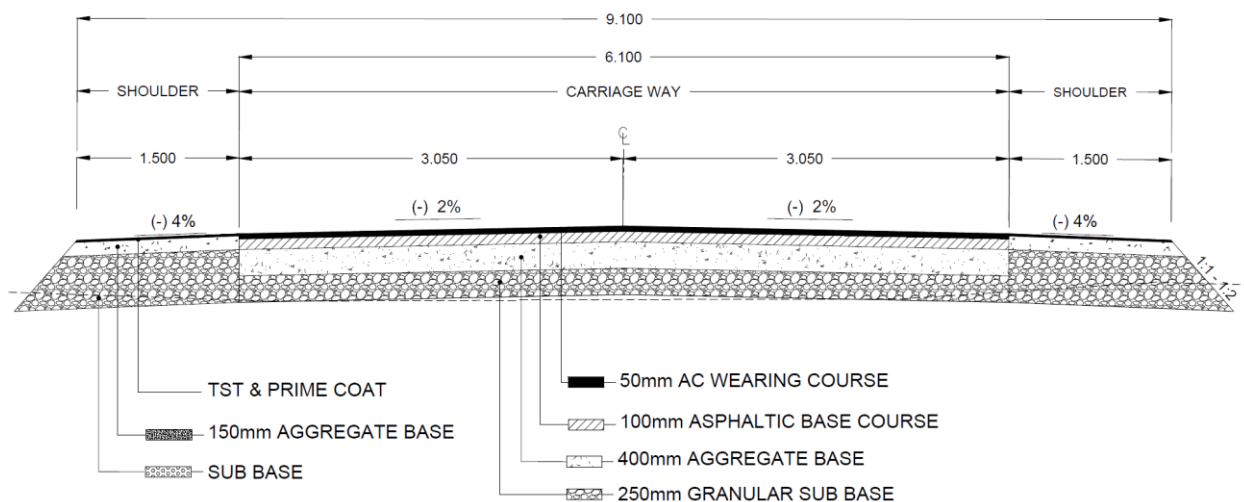
ADINA-YAR HUSSAIN - CHOTA LAHORE

TYPICAL CROSS SECTION BUILT UP AREA



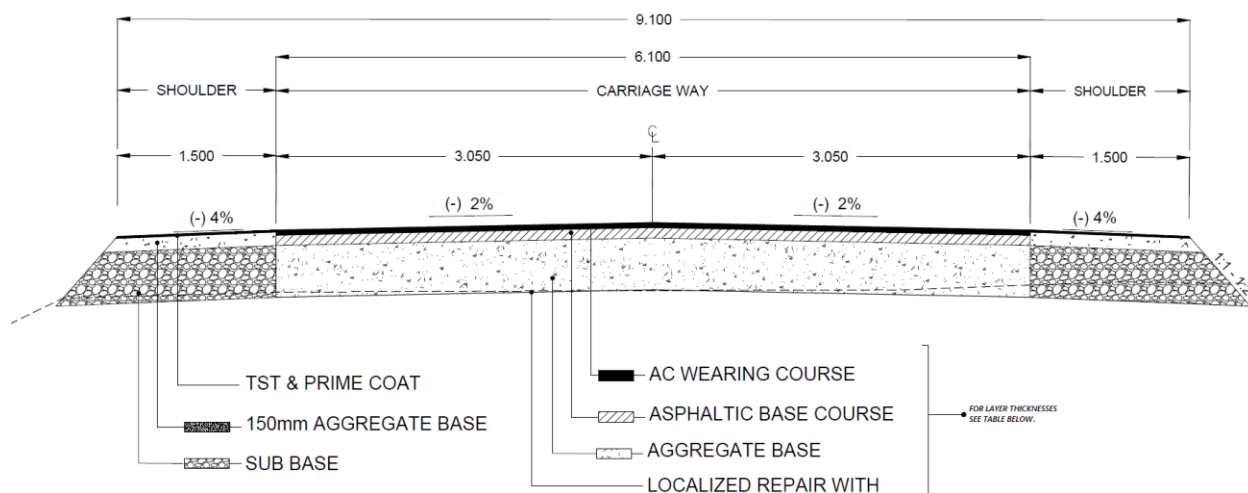
ADINA-YAR HUSSAIN - CHOTA LAHORE

TYPICAL CROSS SECTION NEW CONSTRUCTION



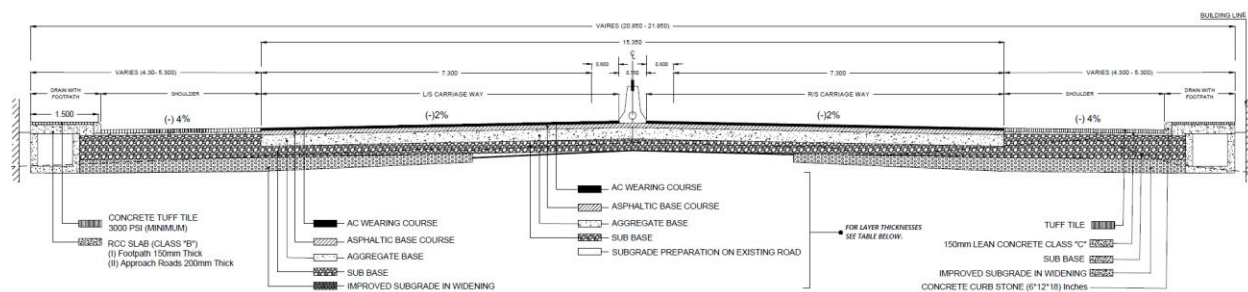
ADINA-YAR HUSSAIN - CHOTA LAHORE

TYPICAL CROSS SECTION OVERLAY



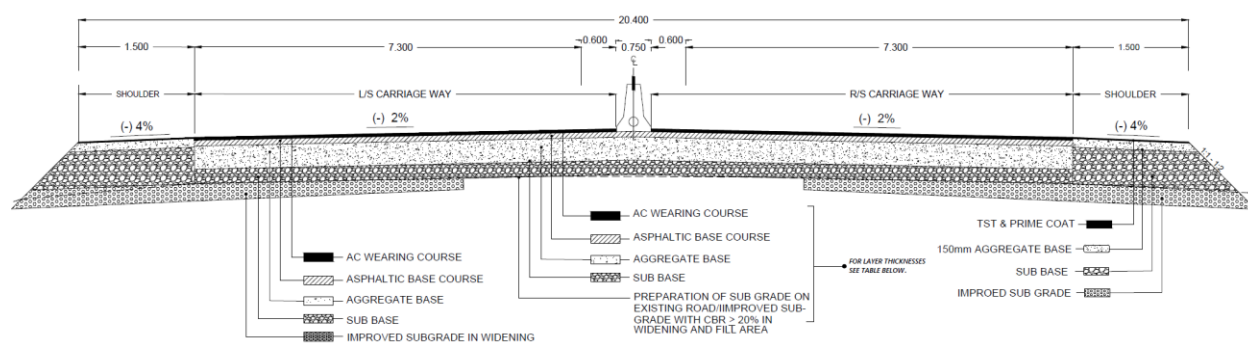
HARIPUR - HATTAR - TAXILA SECTION

TYPICAL CROSS SECTION BUILT UP AREA



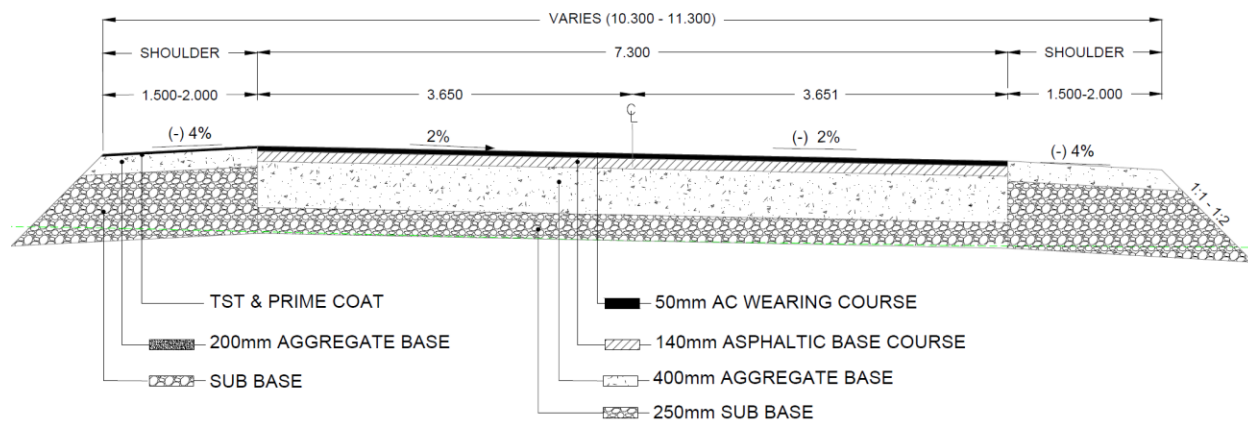
HARIPUR - HATTAR - TAXILA SECTION

TYPICAL CROSS SECTION OVERLAY



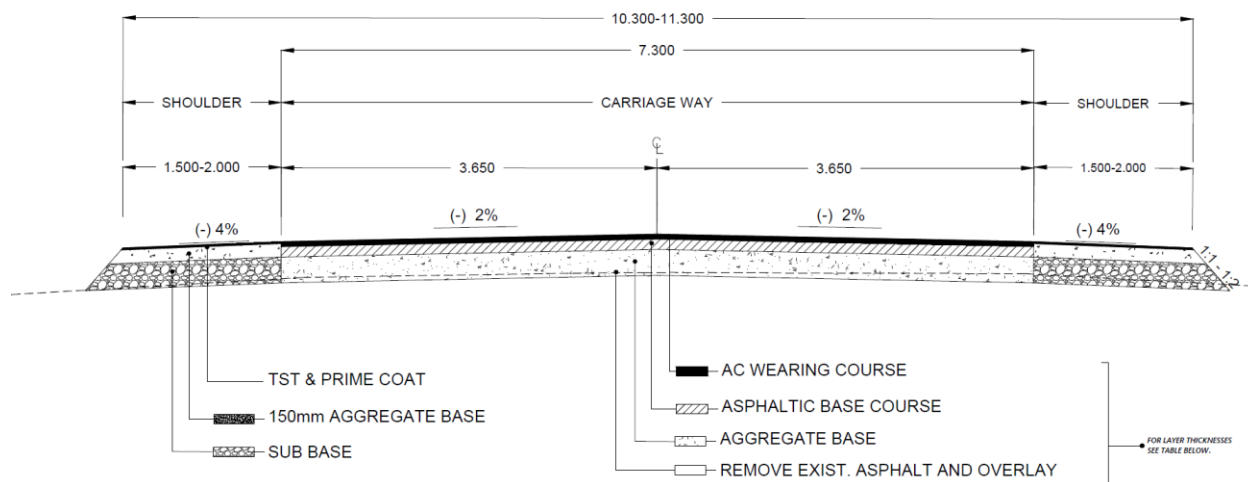
JANDAI - SANG-E-MARMAR (EASTERN BYPASS)

TYPICAL CROSS SECTION NEW CONSTRUCTIONS

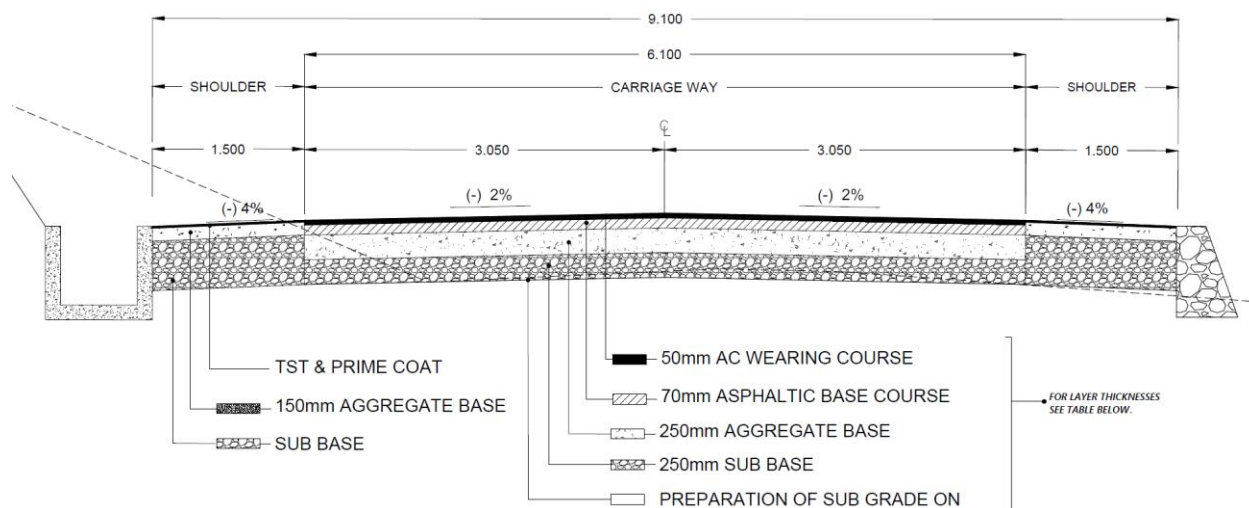


JANDAI - SANG-E-MARMAR (WESTERN BYPASS / EASTERN BYPASS)

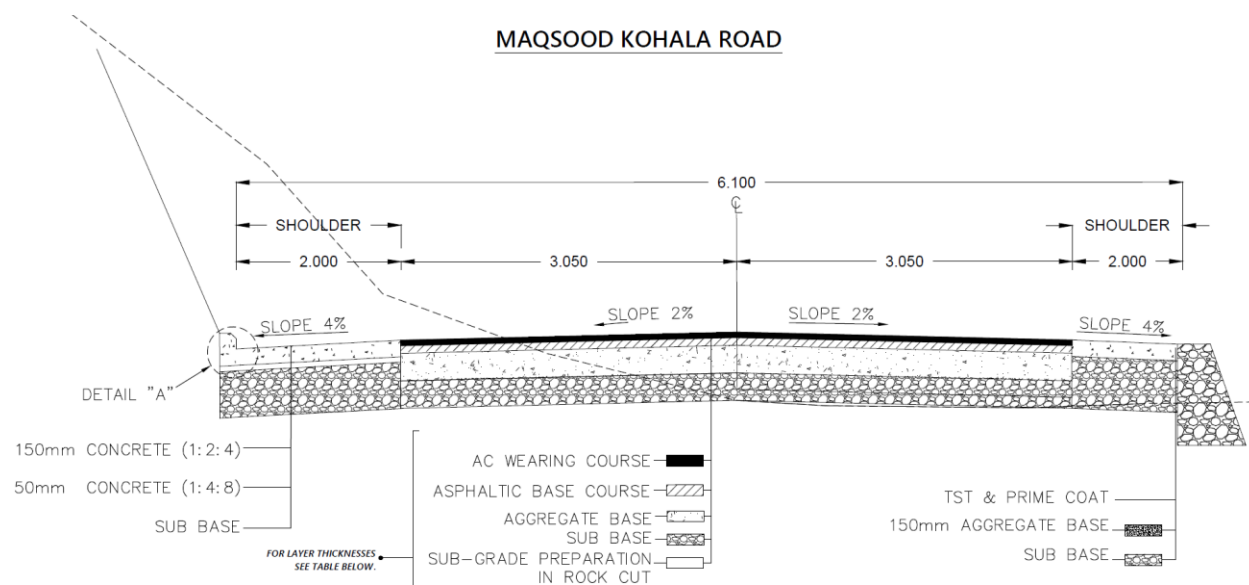
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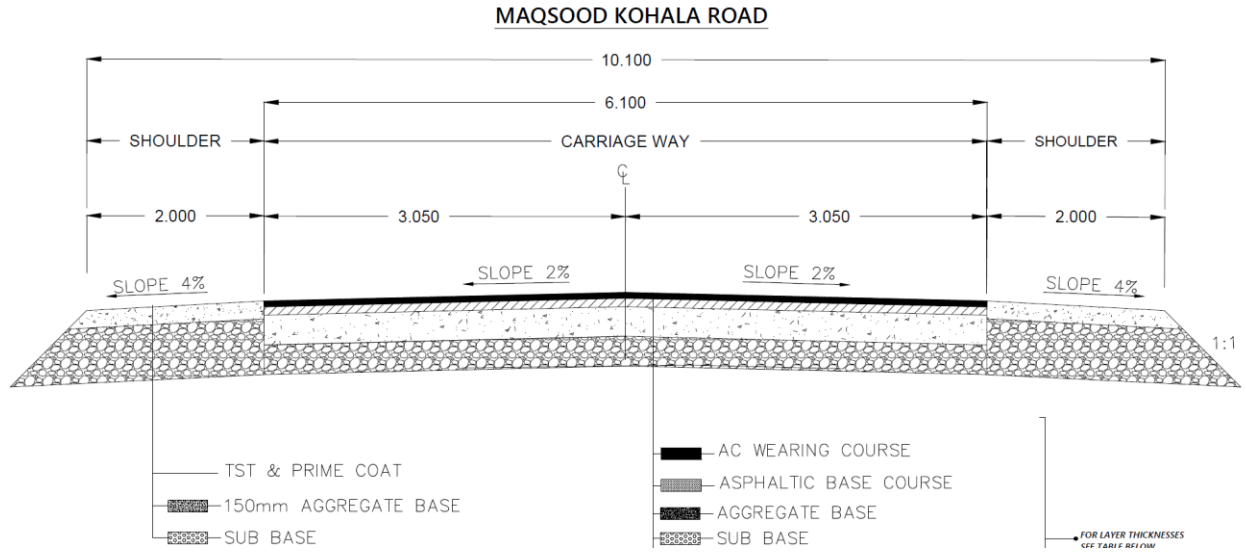


MAQSOOD KOHALA ROAD



MAQSOOD KOHALA ROAD





ANNEX D

TRAFFIC CALMING MEASURES

Traffic calming

Traffic calming is where traffic is encouraged to slow down in a specific section of a road. It's achieved by education, enforcement and engineering. Traffic calming is essentially a way of reducing vehicle speeds by self-enforcing traffic engineering methods. Traffic calming is commonly applied in urban and residential road safety management and in the road safety management of through routes in towns and villages.



Roads can be narrowed to such an extent that only single file traffic is allowed. They can also be used to provide sheltered parking. Suitable for use in urban or rural locations, as initial slowing features and as part of gateway features.

Narrowing lanes, using traffic islands and/or road markings can give the impression of a more confined road and results in reduced speeds. If a road is narrowed special attention must be given to the needs of other road users. Signs alone have a minimal impact on traffic speeds and are often used with other traffic calming features.

What types of physical measures can be used?³

A number of **visual changes** to roads are being made to encourage more attentive driving, reduced speed, reduced crashes, and a greater tendency to yield to wider road users in the community. Visual traffic calming includes lane narrowing's, road diets (reduction in lanes), use of trees next to streets, on-street parking, and buildings placed in urban fashion close to streets.

³ <https://www.cornwall.gov.uk/.../traffic-calming/types-of-traffic-calming-and-other-en...>

Physical devices include speed humps, speed cushions, and speed tables, sized for the desired speed. Such measures normally slow vehicles to between 20 and 40 km/h. Most devices are made of asphalt or concrete but rubber traffic calming products are emerging as an effective alternative with several advantages.

Traffic calming can include the following engineering measures, grouped by similarity of method:

- Narrowing traffic lanes makes slower speeds seem more natural to drivers and are less intrusive than other treatments that limit speed or restrict route choice. Narrowing measures include:
 - Lane narrowings can be created by extending sidewalks, adding bollards or planters, or adding a bike lane or on-street parking.
 - Curb extensions (also called bulbouts) narrow the width of the roadway at pedestrian crossings and congested bazar areas.
 - Chokers are curb extensions that narrow roadways to a single lane at certain points.
- Road diets remove a lane from the street. For example, allowing parking on one or both sides of a street to reduce the number of driving lanes.
- Construction of cement concrete overlay to change asphalt to brick texture and color to indicate high traffic crosswalk
- Vertical deflection: Raising a portion of a road surface can create discomfort for drivers travelling at high speeds. Both the height of the deflection and the steepness affect the severity of vehicle displacement.