

ROAD SAFETY AUDIT (RSA) REPORT

(PART 1: ROAD INFORMATION)

State: West Bengal
District: North 24 Parganas
Block: Barasat1
Road Number (Core Network): T09
Construction Package Number or DPR reference number: WB01 ADB 62
Road Name: Raghubirpur Purbapara to Bora Paschimpara
RSA Stage: Road under maintenance

(PART 2: AUDIT INFORMATION)

Date of RSA: 18/02/2016

Audit Team and Participants

Name:	Role:	Organisation:
Mr. Himangshu Bhowmick	Environmental supervisor	PIC
Mr. Jayanta Banerjee	Environmental supervisor	PIC
Mr. Susanta kolay	Contractors representative	Contractor
Mr. Gopal Mitra	Road Safety Expert	TSC

Background to Inspection

The road is under maintenance by the contractor. The 6km project road is not a continuous stretch, rather it has four different parts and in between there are parts of non ADB funded road. The road along with non ADB funded road parts mainly passes through thickly populated habitation and during inspection it was observed that the road is completely unsafe for all users along with people dwelling alongside of the road. Though the road condition of the project road is quite good, it is not at all safe for road users as habitations are not adequately protected from running vehicles. During inspection it was observed encroachment on shoulder with stacked materials, personal use by the villagers, existence of electric poles near to the road edge and at some place right on the middle of the carriageway, reduces the effective roadway width. Though there are adequate numbers of well-maintained guard posts at critical places along with sign post, informative signs etc, speed reduction mechanism like speed breakers were not provided adequately and where they are placed, they did not build following standard guidelines. Hence instead of serving the purpose for which they are built, it causes more pain to the users.

Since the project road has been constructed at different parts and there were previously constructed parts of existing road in between, the chaining system is not continuous (though DPR suggested continuous chaining system). Different chainage system adopted for different parts of the road and there was error in calculation of chainage hence it was not possible to reference the inspection points through a continuous pattern of chainage system. As mentioned earlier, the road has four different parts. For ease of understanding they have been identified in this report as (part-A, Part-B, Part-C and Part-d).

Overall it can be concluded that the road is completely unsafe for all types of road users as

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well as road side dwellers and any fatal accident may happen any time during the course of traffic movement on the road. The unsafe condition of the road is not just because of technical reason but more due to administrative reason and lowness ness of the local dwellers. PIU authorities along with other law and order enforcing authorities, (taking into confidence of local bodies like panchayat, clubs etc.) needs to enforce basic law and order to keep roadway free from any encroachment and see road is not used by villagers for their personal use, so that traffic and pedestrian can use it safely.

During inspection, since there was no representative of PIU, the situation could not be explained to them directly. But the condition has been briefed to the representative of PIC and contractor.

Road Safety Audit (RSA) Process

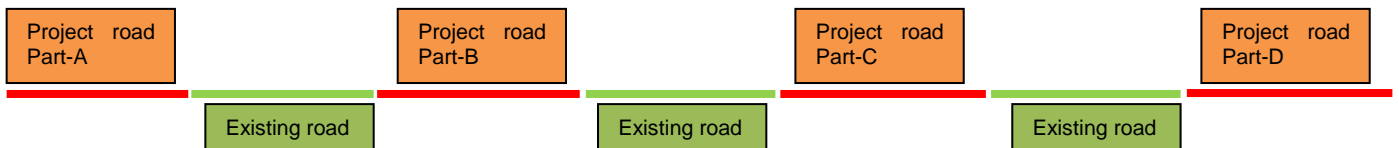
Date – 18/02/2016

Weather – Sunny

Time –12:00 PM

Road Length – 6.344km (Part-A=0.5km, Part-B=0.938km, Part-C=3.5km, Part-D=1.5km)

Traffic – Motorcycle-36, Cycle-45, LCV-16, Van/Cycle Rickshaw-13,Car-11,HCV-2,Bus-5



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(PART 3: ROAD SAFETY AUDIT FINDINGS)

Safety Issue No 1

Starts at village with thick habitation, stacked material on shoulder

Location

Chainage: At start (Part-1)

Description of Road Issue



Project road starts from a thickly populated village. Restricted road way width as entire shoulder and parts of the carriageways are encroached with stacked materials. Road has some sharp bends just after the start point but rough visibility is obstructed due to encroachments. Since shoulders are completely encroached, due to lack of shoulder maintenance, shoulder dropping along with edge break also observed at this place.

Road Safety Risk

Exposure to Safety Issue: (5)

Estimated as potential for traffic conflicts (e.g. braking, swerving, etc) caused by the issue

Scale: 1 - very low, 2- low, 3 – medium, 4 – high, 5 – very high

Probability to Cause Accident: (5)

Estimated as probability of traffic conflict resulting in an accident

Scale: 1 - very low, 2- low, 3 – medium, 4 – high, 5 – very high

Consequence of Accident: (5)

Estimated likelihood of personal injury or death caused by accident. Involvement of pedestrians/bicyclists versus vehicle would have severe consequence. If trucks are involved, the consequence would be even more severe. High speed of potential impact would have severe consequence.

Scale: 1 - very low, 2- low, 3 – medium, 4 – high, 5 – very high

Resulting Road Safety Risk: (5)

Combined rating equals sum of exposure rating plus probability rating plus consequence rating divided by 3. Higher the combined rating, greater the urgency of attending to the road safety issue.

Scale: 1 - very low, 2- low, 3 – medium, 4 – high, 5 – very high

Recommendation to Address the Issue

Maintain adequate roadway width, as per DPR cross section, free for traffic movement.

Ensure shoulders and carriageways are only used for traffic movement.

Convince local dwellers not to use shoulder and carriageway for their personal use.

Ensure regular maintenance of road by repairing shoulder dropping, edge breaking of carriageway etc.

Ensure adequate visibility on road by removing encroachments.

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Safety Issue No 2

Series of Electric posts close to the road edge

Location

Chainage :all along the alignment

Description of Road Issue



Series of Electric poles and some transformers are observed along the alignment close to the road edge

Road Safety Risk

Exposure to Safety Issue: (3)

Estimated as potential for traffic conflicts (e.g. braking, swerving, etc) caused by the issue

Scale: 1 - very low, 2- low, 3 – medium, 4 – high, 5 – very high

Probability to Cause Accident: (3)

Estimated as probability of traffic conflict resulting in an accident

Scale: 1 - very low, 2- low, 3 – medium, 4 – high, 5 – very high

Consequence of Accident: (4)

Estimated likelihood of personal injury or death caused by accident. Involvement of pedestrians/bicyclists versus vehicle would have severe consequence. If trucks are involved, the consequence would be even more severe. High speed of potential impact would have severe consequence.

Scale: 1 - very low, 2- low, 3 – medium, 4 – high, 5 – very high

Resulting Road Safety Risk: (3.3)

Combined rating equals sum of exposure rating plus probability rating plus consequence rating divided by 3. Higher the combined rating, greater the urgency of attending to the road safety issue.

Scale: 1 - very low, 2- low, 3 – medium, 4 – high, 5 – very high

Recommendation to Address the Issue

Electric posts, which are not possible to be shifted to accommodate roadway width, needs to be painted up to a certain height so that they can be easily visible, especially during night.

These posts can be used to display road signs road directions for the drivers and to educate villagers about road usage.

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Safety Issue No 3

Unprotected Junction with busy existing road

Location:

Chainage : 0+500 (End of Part-A and Start of Part-B)

Description of Road Issue

Part-A of the project road meets with existing busy road forming T junction and part-B of the project roads starts from the same road forming "Y". Junction visibility is obstructed. No traffic calming measure has been taken to control speed at this point . No prior information about the junction ahead is provided to warn the running traffic.



Road Safety Risk

Exposure to Safety Issue: (5)

Estimated as potential for traffic conflicts (e.g. braking, swerving, etc) caused by the issue

Scale: 1 - very low, 2- low, 3- medium, 4- high, 5- very high

Probability to Cause Accident: (4)

Estimated as probability of traffic conflict resulting in an accident

Scale: 1 - very low, 2- low, 3- medium, 4- high, 5- very high

Consequence of Accident: (5)

Estimated likelihood of personal injury or death caused by accident. Involvement of pedestrians/bicyclists versus vehicle would have severe consequence. If trucks are involved, the consequence would be even more severe. High speed of potential impact would have severe consequence.

Scale: 1 - very low, 2- low, 3- medium, 4- high, 5- very high

Resulting Road Safety Risk: (4.6)

Combined rating equals sum of exposure rating plus probability rating plus consequence rating divided by 3. Higher the combined rating, greater the urgency of attending to the road safety issue.

Scale: 1 - very low, 2- low, 3- medium, 4- high, 5- very high

Recommendation to Address the Issue

Provide speed breakers following proper guideline laid out in the DPR and IRC 99-1988.

Provide informatory and warning sign to alert driver before entering into the junction.

Ensure junction visibility by removing corner shops away from the roadway.

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Safety Issue No 4

Missing and or Nonstandard Traffic calming devices at Habitations and Junctions

Location

Chainage: at various locations on the project road

Description of Road Issue



At habitations, sensitive locations and junctions no traffic calming measure has been considered. Road users and local peoples playing at these places are highly susceptible to running traffic

At some places though few number of speed breakers are observed as traffic calming instrument, but neither they are constructed following codal standard mentioned in the DPR nor they are identified through proper warning sign boards, causing further pain to the road users.

Road Safety Risk

Exposure to Safety Issue: (4)

Estimated as potential for traffic conflicts (e.g. braking, swerving, etc) caused by the issue

Scale: 1 - very low, 2- low, 3- medium, 4 - high, 5 - very high

Probability to Cause Accident: (5)

Estimated as probability of traffic conflict resulting in an accident

Scale: 1 - very low, 2- low, 3- medium, 4 - high, 5 - very high

Consequence of Accident: (5)

Estimated likelihood of personal injury or death caused by accident. Involvement of pedestrians/bicyclists versus vehicle would have severe consequence. If trucks are involved, the consequence would be even more severe. High speed of potential impact would have severe consequence.

Scale: 1 - very low, 2- low, 3- medium, 4 - high, 5 - very high

Resulting Road Safety Risk: (4.6)

Combined rating equals sum of exposure rating plus probability rating plus consequence rating divided by 3. Higher the combined rating, greater the urgency of attending to the road safety issue.

Scale: 1 - very low, 2- low, 3- medium, 4 - high, 5 - very high

Recommendation to Address the Issue

Provide speed breakers and inforamatory signs for up and down traffic at these locations following proper guideline laid out in the DPR and IRC 99-1988.

Continue speed breakers at specified interval throughout the habitations as mentioned in the DPR and IRC 99-1988.

Ensure controlled speed at all sensitive locations like habitations, junctions, school etc.

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Safety Issue No 5

Fixed object right on the carriageway

Location:

Chainage : 0+500 (End of Part-A and Start of Part-B)

Description of Road Issue

To prevent entry of Loaded trucks and Multi axel HCV, fixed obstruction created right on the carriageway, creating hazard on the carriageway.



Road Safety Risk

Exposure to Safety Issue: (4)

Estimated as potential for traffic conflicts (e.g. braking, swerving, etc) caused by the issue

Scale: 1 - very low, 2- low, 3- medium, 4 - high, 5- very high

Probability to Cause Accident: (4)

Estimated as probability of traffic conflict resulting in an accident

Scale: 1 - very low, 2- low, 3- medium, 4 - high, 5- very high

Consequence of Accident: (4)

Estimated likelihood of personal injury or death caused by accident. Involvement of pedestrians/bicyclists versus vehicle would have severe consequence. If trucks are involved, the consequence would be even more severe. High speed of potential impact would have severe consequence.

Scale: 1 - very low, 2- low, 3- medium, 4 - high, 5- very high

Resulting Road Safety Risk: (4)

Combined rating equals sum of exposure rating plus probability rating plus consequence rating divided by 3. Higher the combined rating, greater the urgency of attending to the road safety issue.

Scale: 1 - very low, 2- low, 3- medium, 4 - high, 5- very high

Recommendation to Address the Issue

Remove obstruction from the carriageway.

Provide standard height barrier to prohibit Large goods vehicles from entering into the project road, if required so.

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Safety Issue No 6

Restricted carriageway width due to presence of EP right on the carriageway

Location

Chainage: 0+600 of Part-B

Description of Road Issue



At this place available carriageway width is <2.5m due to the presence of one electric pole right on the carriageway and broken road on the other side due to damaged pipe culvert, Creates black spot on the road

Road Safety Risk

Exposure to Safety Issue: (4)

Estimated as potential for traffic conflicts (e.g. braking, swerving, etc) caused by the issue

Scale: 1 - very low, 2- low, 3- medium, 4 - high, 5- very high

Probability to Cause Accident: (4)

Estimated as probability of traffic conflict resulting in an accident

Scale: 1 - very low, 2- low, 3- medium, 4 - high, 5- very high

Consequence of Accident: (4)

Estimated likelihood of personal injury or death caused by accident. Involvement of pedestrians/bicyclists versus vehicle would have severe consequence. If trucks are involved, the consequence would be even more severe. High speed of potential impact would have severe consequence.

Scale: 1 - very low, 2- low, 3- medium, 4 - high, 5- very high

Resulting Road Safety Risk: (4)

Combined rating equals sum of exposure rating plus probability rating plus consequence rating divided by 3. Higher the combined rating, greater the urgency of attending to the road safety issue.

Scale: 1 - very low, 2- low, 3- medium, 4 - high, 5- very high

Recommendation to Address the Issue

Remove electric pole out of the roadway. if that is not possible at least keep it out of the carriageway.

Ensure standard carriageway width for travel as shown in DPR.

Repair carriageway and provide parapet on culvert edge, to act as wheel guard. So that no vehicle can go off the carriageway.

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Safety Issue No 7

Encroachment on shoulder and carriageway creates black spot on the road

Location

Chainage: throughout the project road

Description of Road Issue



Encroachment on shoulder and carriageway, restricted travel path, creates unsafe condition for the running traffic as well as abutting habitants. Running vehicles are always in a threat to meet an accident while passing through these stretches.

Road Safety Risk

Exposure to Safety Issue: (5)

Estimated as potential for traffic conflicts (e.g. braking, swerving, etc) caused by the issue

Scale: 1 - very low, 2- low, 3- medium, 4- high, 5- very high

Probability to Cause Accident: (5)

Estimated as probability of traffic conflict resulting in an accident

Scale: 1 - very low, 2- low, 3- medium, 4- high, 5- very high

Consequence of Accident: (5)

Estimated likelihood of personal injury or death caused by accident. Involvement of pedestrians/bicyclists versus vehicle would have severe consequence. If trucks are involved, the consequence would be even more severe. High speed of potential impact would have severe consequence.

Scale: 1 - very low, 2- low, 3- medium, 4- high, 5- very high

Resulting Road Safety Risk: (5)

Combined rating equals sum of exposure rating plus probability rating plus consequence rating divided by 3. Higher the combined rating, greater the urgency of attending to the road safety issue.

Scale: 1 - very low, 2- low, 3- medium, 4- high, 5- very high

Recommendation to Address the Issue

Provide safe passage to the running traffic by removing encroachments from shoulder and carriageway

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Safety Issue No 8

Water body adjacent to the roadway

Location

Chainage: 0+500 on Part-A and 0+100 on Part-C

Description of Road Issue



Restricted roadway width, shoulder dropping and no guard post at the edge of the roadway to protect running vehicle from falling into the water. Though at one location, series of banana tree acts as natural road restrain system.

Road Safety Risk

Exposure to Safety Issue: (3)

Estimated as potential for traffic conflicts (e.g. braking, swerving, etc) caused by the issue

Scale: 1 - very low, 2- low, 3 – medium, 4 – high, 5 – very high

Probability to Cause Accident: (3)

Estimated as probability of traffic conflict resulting in an accident

Scale: 1 - very low, 2- low, 3 – medium, 4 – high, 5 – very high

Consequence of Accident: (4)

Estimated likelihood of personal injury or death caused by accident. Involvement of pedestrians/bicyclists versus vehicle would have severe consequence. If trucks are involved, the consequence would be even more severe. High speed of potential impact would have severe consequence.

Scale: 1 - very low, 2- low, 3 – medium, 4 – high, 5 – very high

Resulting Road Safety Risk: (3.3)

Combined rating equals sum of exposure rating plus probability rating plus consequence rating divided by 3. Higher the combined rating, greater the urgency of attending to the road safety issue.

Scale: 1 - very low, 2- low, 3 – medium, 4 – high, 5 – very high

Recommendation to Address the Issue

Provide guard post at the edge of the shoulder to protect running vehicle from falling into the water body.

Restore full width of shoulder to have standard roadway width.

Encourage tree plantation at the edge of water body which can act as natural road restrain system as well as provide embankment stability.

RSA REPORT ATTACHMENT

(FORM A: EMPLOYER'S RESPONSE TO RSA FINDINGS)

State: West Bengal
District: North 24 Parganas
Block: Barasat1
Road Number (Core Network): T09
Construction Package Number or DPR reference number: WB01 ADB 62
Road Name: Raghubirpur Purbapara to Bora Paschimpara
Date of Audit: 18/02/2016

S No	PIC Details of issue	PIU Agree? Yes/No	PIU If disagree, explain why	RSA suggestion(s)	PIU To be implemented? yes, no, partial (elaborate)	PIU If yes or partial: arrangements for implementation and timeline	PIU If no, describe an alternative action to be taken and arrangements for implementation
1.	Starts at village with thick habitation, stacked material on shoulder			Maintain adequate roadway width, as per DPR cross section, free for traffic movement. Ensure shoulders and carriageways are only used for traffic movement. Convince local dwellers not to use shoulder and carriageway for their personal use. Ensure regular maintenance of road by repairing shoulder dropping, edge breaking of carriageway etc. Ensure adequate visibility on road by removing encroachments.			
2.	Series of Electric posts close to the road edge			Electric posts, which are not possible to be shifted to accommodate roadway width, needs to be painted up to a certain height so that they can be easily visible, especially during night. These posts can be used to display road signs road directions for the drivers and to educate villagers about road usage.			

RSA REPORT ATTACHMENT

S No	PIC Details of issue	PIU Agree? Yes/No	PIU If disagree, explain why	RSA suggestion(s)	PIU To be implemented? yes, no, partial (elaborate)	PIU If yes or partial: arrangements for implementation and timeline	PIU If no, describe an alternative action to be taken and arrangements for implementation
3.	Unprotected Junction with busy existing road			Provide speed breakers following proper guideline laid out in the DPR and IRC 99-1988. Provide informatory and warning sign to alert driver before entering into the junction. Ensure junction visibility by removing corner shops away from the roadway.			
4	Missing and or Nonstandard Traffic calming devices at Habitations and Junctions			Provide speed breakers and informatory signs for up and down traffic at these locations following proper guideline laid out in the DPR and IRC 99-1988. Continue speed breakers at specified interval throughout the habitations as mentioned in the DPR and IRC 99-1988. Ensure controlled speed at all sensitive locations like habitations, junctions, school etc.			
5	Fixed object right on the carriageway			Remove obstruction from the carriageway. Provide standard height barrier to prohibit Large goods vehicles from entering into the project road, if required so.			
6	Restricted carriageway width due to presence of EP right on the carriageway			Remove electric pole out of the roadway. if that is not possible at least keep it out of the carriageway. Ensure standard carriageway width for travel as shown in DPR. Repair carriageway and provide parapet on culvert edge, to act as wheel guard. So that no vehicle can go off the carriageway.			
7	Encroachment on shoulder and carriageway creates black spot on the road			Provide safe passage to the running traffic by removing encroachments from shoulder and carriageway			

RSA REPORT ATTACHMENT

S No	PIC Details of issue	PIU Agree? Yes/No	PIU If disagree, explain why	RSA suggestion(s)	PIU To be implemented? yes, no, partial (elaborate)	PIU If yes or partial: arrangements for implementation and timeline	PIU If no, describe an alternative action to be taken and arrangements for implementation
8	Water body adjacent to the roadway			Provide guard post at the edge of the shoulder to protect running vehicle from falling into the water body. Restore full width of shoulder to have standard roadway width. Encourage tree plantation at the edge of water body which can act as natural road restrain system as well as provide embankment stability.			