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Executive Summary

As part of the AfroSAFE project, pilot projects are being carried out in the African partner countries, Ghana, Tanzania and Zambia to demonstrate the usefulness of the Road Safety Impact Assessment (RSIA) tool. The RSIA pilots are being carried out in cooperation with relevant national authorities and are run by local road safety professionals, supported by experienced professionals from Sweden and the Netherlands. Nine road safety professionals in Ghana, 26 in Tanzania, and 6 in Zambia are participating in the pilot projects. The RSIA project teams in each African partner country identified a national infrastructure project and started to implement the RSIA tool.

The pilot projects in the three African countries demonstrate the applicability of the tool of Road Safety Impact Assessment (RSIA), developed under the AfroSAFE project, is applicable within a low- and middle-income country context, although implementation remains at an early stage.

The following recommendations can be made:

- When carrying out RSIA training activities, it is important to make sure regular online follow-up sessions to support the RSIA team through the individual RSIA steps.
- RSIA should be institutionalised within the relevant national road agency's project planning and approval procedures, requiring RSIA for all major road infrastructure projects.
- Establish a national training centre or programme for Road Infrastructure Safety Management tools, using the trained professionals as initial instructors.
- Consider developing an RSIA accreditation or certification framework to formalise competence recognition.
- Strengthen crash data management systems, ensuring adequate information on location, time, accident type, and severity.
- Develop standardised monetary values for road accidents, fatalities, and injuries to enable full cost-benefit analysis in future RSIAs.

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1 Introduction

1.1 Background

As part of the HORIZON EUROPE project AfroSAFE: Safe System for radical improvement of road safety in low- and middle-income African countries, activities on improving road infrastructure safety are being carried out. The objectives of these activities are:

- Reviewing national regulations, design guidelines, and procedures for Road Infrastructure Safety Management (RISM).
- Developing guidelines for the non-existing RISM tools in the African partner countries.
- Building capacity by providing training to professionals in the African partner countries for applying RISM tools.
- Running pilot projects to facilitate learning of RISM tools by doing.

The review activity stated in the first bullet point above was carried out as a first task and was reported in deliverable D3.1 (Várhelyi, et al., 2023). Subsequently, guidelines for the non-existing RISM tools were developed, and reported in deliverable D3.2 (Várhelyi, et al., 2024). Then, capacity building by providing training to professionals in the African partner countries for applying RISM tools was carried out, and reported in deliverable D3.3 (Várhelyi, et al., 2025). The present deliverable addresses the fourth point above – Running pilot projects to facilitate the learning of RISM tools by doing. The related work was performed based on the results presented in the deliverables D3.1 and D3.2.

1.2 Aim

The aim of the activities is to demonstrate the applicability of the Road Infrastructure Safety Management tool - Road Safety Impact Assessment (RSIA). Pilot projects at local road agencies/municipalities are being carried out in the participating African countries considering local conditions. The pilot projects have focus on the safety of vulnerable road users (pedestrians, cyclist, and motorcyclists).

1.3 Method

Based on the developed guidelines for Ghana, Tanzania and Zambia, to demonstrate the application of the RSIA tool, pilot projects in these countries are being carried out in cooperation with relevant national authorities. The projects are run by local road safety professionals, supported by professionals from Sweden and the Netherlands. The project team(s) in each African partner country identified a national infrastructure project and started to implement the RSIA tool

RSIA is a recently introduced RISM tool in the EU countries, and it is completely new for African countries. The steps of the RSIA process are as follows:

1. Define the infrastructure object to be submitted for RSIA,
2. Establish the baseline situation - Description of current situation,
3. Define the road safety objectives of the project,
4. Describe the proposed alternative schemes,
5. Assess the future situation for each scenario,
6. Compare and rank the alternatives,
7. Select best alternative based on benefit/cost ratios.

A fundamental prerequisite for carrying out RSIA is that road accidents are recorded, and the records contain adequate information about the locality of the accidents, time of occurrences, accident types, and severity. The RSIA method is described in Várhelyi et al. (2024).

2 The Pilot Project in Ghana

Road traffic injuries represent a critical public health challenge in Accra. Key statistics Baidoo (2025) show:

- Road traffic deaths in Accra rose 34% in 2024: from 88 to 118 fatalities.
- Fatality rate increased from 3.7 to 4.9 deaths per 100,000 population.
- Pedestrians accounted for 56% of all deaths; motorcyclists for 27%.
- Vulnerable road users (pedestrians, motorcyclists, cyclists) accounted for 86% of deaths.
- Males represented 86% of fatalities; individuals aged 30–39 were most affected.
- 47% of vehicles observed exceeding the speed limit; 54% of motorcycles were speeding.
- North Dzorwulu intersection – within the pilot corridor – is among Accra’s high-risk fatal crash spots.

The pilot project is carried out with the Ghana Highway Authority (GHA) as the implementing partner. The GHA is the national body responsible for the administration, development, and maintenance of trunk roads and related facilities in Ghana. The pilot team is drawn from the Road Safety and Environment Division (RSED) of the GHA, which provides a direct institutional link between the RSIA training and its application to actual infrastructure projects under GHA’s mandate.

2.1 Pilot Team Composition

Nine trainees, all professionals from the GHA - Road Safety and Environment Division, form the pilot team.

2.2 The Infrastructure Object Submitted for RSIA

The pilot corridor is the Tetteh Quarshie to Apenkwa section of the George Bush Highway (N1), approximately 5.7 km. The corridor lies within a highly urbanised setting, traversing the Ayawaso West and Okaikwei North Municipal areas. Surrounding land uses include residential neighbourhoods, commercial hubs, offices, schools, and industrial establishments. The corridor carries heavy pedestrian activity linking workplaces, schools, and marketplaces on both sides of the highway.

In its current configuration, the road is an asphaltic 2×3-lane dual carriageway with service lanes at some sections. There are 12 junctions along the 5.7 km route, including 4 major intersections. Two pedestrian footbridges serve the corridor: the Nogahil footbridge (approximately 500 m from Dzorwulu Junction) and the Abofu footbridge (approximately 400 m from Achimota Interchange).

There is a planned project involving rehabilitation and widening of the corridor to a minimum 12-lane divided highway with full access control for the freeway section. The scope of works includes construction of a new Dzorwulu Interchange (replacing the current signalised junction), construction of two toll plazas, and construction of two new footbridges. The proposed typical cross section includes a minimum of 6 lanes per direction (3.65 m lane width) with 2.5 m shoulders, a cycle lane and pedestrian walkway along the service lane, tower-type street lighting, line markings, road traffic signs, road studs, central barriers to prevent U-turns, and appropriate fencing and barriers to limit uncontrolled access to the expressway.

2.2.1 Baseline Situation

Existing Road Conditions

The existing road is a 2×3-lane dual carriageway with service lanes in some sections. While the pavement is in good structural condition, several challenges were documented:

Traffic operations: The Dzorwulu traffic signals lack adequate capacity for left-turning traffic, creating congestion. The Apenkwa Interchange faces constraints due to limited exit capacity to the N6. Truck parking near the Apenkwa Interchange obstructs northbound traffic flow, see Figure 1.

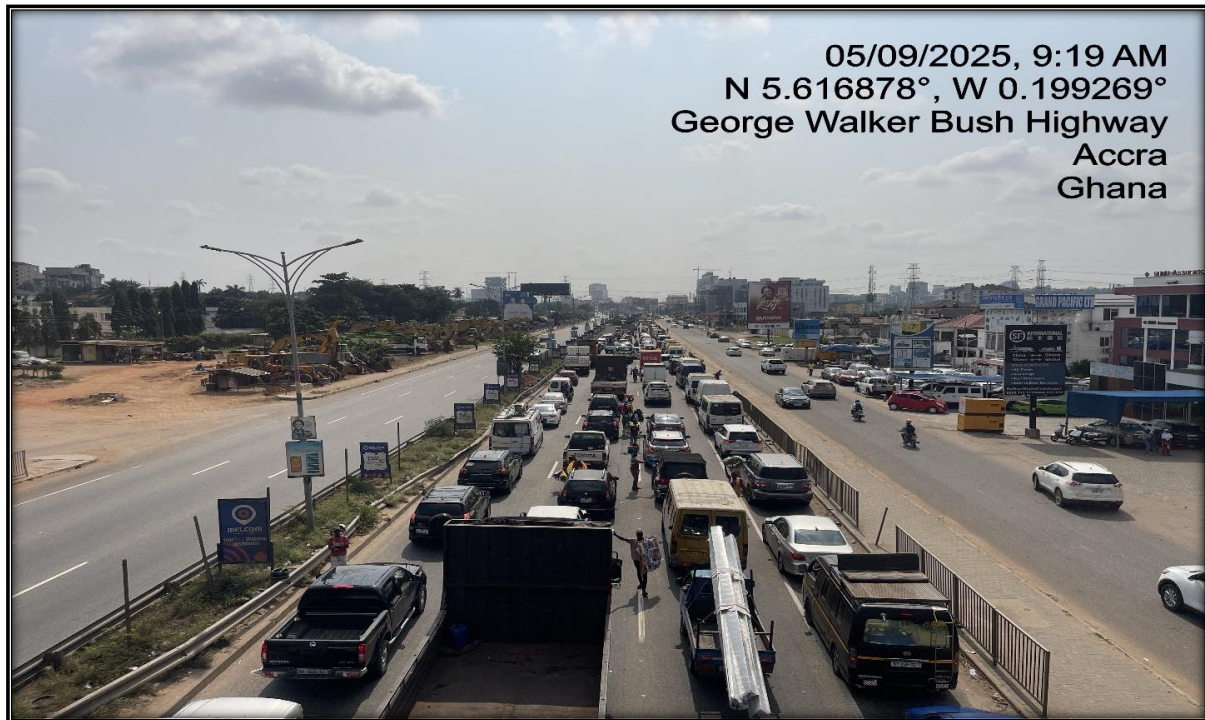


Figure 1: Traffic conditions approaching the Dzorwulu Junction Traffic signal.

Pedestrian safety: At-grade pedestrian crossings carry high volumes but are unsafe due to high vehicle speeds. The nearest footbridge is 550 m from the Apenkwa intersection, lacks a ramp for mobility-impaired users, and is not properly linked to walkways. Two underpasses – one for railway and one for vehicles – are unlit, poorly surfaced, or too narrow for shared pedestrian–vehicle use.

Road environment: The corridor lacks full access control. Road line markings and signs are faded. Crash barriers, pedestrian railings, and median fencing have been damaged or stolen, creating multiple uncontrolled crossing points. Street lighting is non-functional.

Crash Data Analysis

Crash data for the corridor covering 2018–2022 was analysed, see Table 1.

Table 1: Crash and casualty data, Tetteh Quarshie–Apenkwa corridor, 2018–2022.

Year	Crashes					Casualties		
	Fatal	Hospita- lised	Injury	Damage Only	Total Crashes	Fatalities	Serious Inj.	Slight Inj.
2018	7	14	23	51	95	7	16	41
2019	9	9	17	44	79	10	16	26
2020	16	12	18	58	104	16	35	33
2021	6	7	12	47	72	6	10	26
2022	4	7	7	23	41	4	11	13
Total	42	49	77	223	391	43	88	139

Over five years: 391 crashes, 43 fatalities, 88 serious injuries, 139 slight injuries (270 total casualties). Analysis by road user type reveals:

- Pedestrians: 38.8% of fatalities – a severe over-representation.
- Motorcyclists: 24.5% of fatalities.
- Minibus occupants: 12.2% of fatalities, reflecting public transport exposure.
- Pedestrian crashes are equally distributed between day and night (50/50), indicating that both visibility issues and the absence of safe crossing facilities contribute to the problem.

The year 2020 recorded the highest fatality count (16), coinciding with COVID-19 lockdown effects (higher speeds on emptier roads). Location analysis identified the Nestle Ghana Ltd./Crestal Royal area (near the Apenkwa Interchange) as the single highest-crash concentration point, with 35 crashes over the five-year period.

Traffic Data

The corridor carries substantial traffic volumes at all four major junctions. The table below summarises estimated daily and peak-hour volumes at key locations along the corridor.

Table 2: Traffic characteristics at key junctions along the corridor.

Junction / Location	Est. Daily Volume (veh/day)	Peak Hour Volume (veh/hr)	Notes
Tetteh Quarshie Interchange	55,000	5,500–6,000	Major urban interchange; highest volumes (merging from Liberation Rd, Airport, Spintex)
Accra Mall / Spintex Access	48,000	4,500–5,000	Heavy pedestrian activity, traffic to/from the mall, buses and taxis generate turning flows
Dzorwulu Junction (Fiesta Royal)	42,000	3,800–4,200	Serves Dzorwulu enclave; U-turns and side road demand are significant
Apenkwa Interchange (Achimota)	50,000	4,800–5,200	High merging/diverging flows with Nsawam Rd; gateway to northern corridor

Pedestrian counts were conducted at five locations along the corridor, see Table 3.

Table 3: Summary of pedestrian counts at corridor crossing locations.

Site	Peak Hour Vol.	Peak 4-Hr Vol. 2024	Peak 4-Hr Vol. 2017	Section
Dzorwulu Junction	164	511	4,317	Sec. 2
Nogahil Footbridge	104	270	887	Sec. 2
Abofu Footbridge	285	744	1,463	Sec. 2
Apenkwa Int. West	125	441	NA	Sec. 2
Apenkwa Int. East	97	347	NA	Sec. 2

Problem Definition

The pilot team identified the core problem: the corridor’s design and operational conditions do not adequately accommodate pedestrians and other vulnerable road users. The corridor is characterised by:

- High pedestrian activity driven by residential areas, offices, commercial facilities, road-side vendors, and bus stops.
- Inadequate pedestrian infrastructure: faded crossings, insufficient sidewalks, discontinuous paths.
- Frequent vehicle–pedestrian crashes reflecting a mismatch between traffic speeds and pedestrian safety needs.
- Poor enforcement and weak driver compliance with traffic signals and pedestrian right-of-way.
- Encroachment into green areas, creating unsafe informal crossing points.

2.2.2 Road Safety Objectives

Based on the analysis of the baseline situation, the pilot team defined the following road safety objectives for the project:

- The primary safety objective is to improve the safety situation for unprotected road users along the route, especially for pedestrians generally at Dzorwulu Junction and Achimota, and for children going to and from school specifically.
- A secondary objective is to improve pedestrians’ level of service to more easily reach amenities on either side of the main road.

These objectives are directly grounded in the baseline data. The 38.8% pedestrian share of crash-involved road users, the 50% nighttime crash incidence, and the documented inadequacy of crossing facilities at Dzorwulu Junction and the Apenkwa area all point to pedestrian safety as the overriding concern. The secondary objective of improving accessibility reflects the corridor’s role as a barrier that pedestrians must cross to reach workplaces, schools, and commercial facilities.

2.2.3 Alternative Schemes Proposed by the Pilot Team

The pilot team is assessing two scenarios: a do-nothing baseline and the proposed project:

- The do-nothing scenario retains the current 2×3-lane configuration with existing pedestrian facilities. Under this scenario, crash rates are expected to remain high or increase as traffic volumes grow, and the existing infrastructure will continue to fail vulnerable road users.
- The proposed project scenario involves widening to a 12-lane divided highway with full access control, a new grade-separated Dzorwulu Interchange, two new footbridges, cycle lanes and pedestrian walkways along the service lanes, full street lighting, central barriers, and fencing. This scenario directly addresses the identified safety deficiencies, particularly through grade separation at the most dangerous junction, improved pedestrian infrastructure, and access control.

The scope of the proposed rehabilitation and widening to a 12-lane divided highway (minimum) with full access control includes:

- Minimum 6 lanes per direction (3.65 m lane width) with 2.5 m shoulders.
- Construction of a new Dzorwulu Interchange to replace the signalised junction.
- Construction of 2 toll plazas and 2 new footbridges.
- Dedicated cycle lanes and pedestrian walkways along service lanes.
- Street lighting (tower type for expressway, standard for service lanes), road markings, signs, and road studs.
- Central barriers to prevent U-turns on the high-speed main carriageway.
- Fencing and barriers to limit uncontrolled access to the expressway.
- Improved drainage structures.

The pilot team has noted that while the proposed project addresses vehicular capacity and through-traffic safety, careful attention must be paid to ensuring that the wider cross-section does not create a greater barrier effect for pedestrians. The design of footbridge locations, walkway connectivity, and at-grade crossing elimination needs to be assessed from a pedestrian accessibility perspective, not only from a vehicular operations standpoint.

2.3 Subsequent Steps of the Pilot

Currently, the assessment of the present-, and the future situation for each scenario is ongoing. After that, the various alternatives will be compared based on their benefit/cost ratios and socio-economic costs and the best alternative will be proposed to be adopted by decision makers.

2.3.1 Expected Outputs

The expected outputs are as follows:

- A complete RSIA report for the Tetteh Quarshie–Apenkwa corridor, following the six-step guideline (Várhelyi, et al. 2004).
- Evidence-based policy recommendations for integrating road safety into the planned corridor upgrade.
- A ranked comparison of alternative design schemes assessed for safety, travel time, level of service, accessibility, and environment.
- Specific design recommendations for pedestrian crossings, walkways, cycle lanes, lighting, and access control.
- Nine trained RSIA practitioners within GHA who can apply the method to future projects and train others.

2.4 Implementation Timeline

The timeline to completion is presented in Table 4.

Table 4: Timeline of the Ghana RSIA pilot project.

Activity	Period	Status
Introductory training session	12 August 2025	Completed
Site visit & project selection	15 August 2025	Completed
Baseline assessment, problem definition, data collection	August–December 2025	Completed
Road safety objectives formulation	December 2025	Completed
Alternative schemes development	January 2026 – February 2026	Completed
Assessment of the future situation for each scenario	February–May 2026	In progress
Comparison, ranking, and recommendations	May 2026	Planned
Final RSIA report submission	June 2026	Planned

2.5 Lessons Learned During the RSIA Pilot in Ghana

2.5.1 Obstacles and Adaptations

Absence of monetary accident values: Ghana has not yet developed standardised monetary values for fatalities and injuries. Following the guideline’s recommendation, the trainees adopted the simplified qualitative assessment approach using the effect profile framework (Várhelyi, et al. 2024).

Data availability: While crash data was available through the Motor Traffic and Transport Department (MTTD) and National Road Safety Authority (NRSA), reporting levels vary. The trainees worked with the best available five-year dataset and supplemented it with field surveys and observational data.

Inter-agency coordination: The RSIA required input from multiple agencies (GHA, Department of Urban Roads, MTTD, NRSA). The trainees navigated inter-agency coordination through GHA-RSED leadership engagement.

Training adaptation: Based on feedback requesting more practical examples, the training was adapted by increasing follow-up frequency and providing a worked RSIA example as reference material.

2.5.2 Known Risks and Dependencies

Identified risks and mitigation measures are shown in Table 5 below.

Table 5: Identified risks and mitigation measures.

Risk / Dependency	Mitigation
No standardised monetary accident values in Ghana	Using the qualitative assessment (effect profile) as recommended in the guideline
Incomplete or underreported crash data	Supplementing police data with field observations, pedestrian surveys, and traffic counts
Inter-agency coordination delays	Director-level participation ensures institutional backing
Pilot team member workload and their competing priorities	Flexible scheduling of online follow-up sessions
Uncertainty of funding for the corridor upgrade	The RSIA report provides decision-ready evidence regardless of project timeline

2.5.3 Conclusions and Recommendations

The Ghana RSIA pilot project demonstrates that the Road Safety Impact Assessment guideline developed under the AfroSAFE project can be successfully applied in a low- and middle-income country context. Key conclusions:

- The ‘learning by doing’ approach is effective: the team members progressed from introductory training to producing the draft RSIA report applying the steps of the guideline.
- The pilot corridor selection was appropriate: the Tetteh Quarshie–Apenkwa corridor presents the typical challenges of urban highways in Sub-Saharan Africa – high traffic volumes, mixed traffic, vulnerable road user exposure, and a planned major upgrade.
- The evidence confirms a severe vulnerability pattern: pedestrians and motorcyclists bear a disproportionate share of fatalities both on the corridor and across Accra.
- Institutional engagement is strong: Director-level participation and continuity with previous safety assessments indicate genuine commitment to embedding RSIA in Ghana’s road infrastructure management.
- Necessary adaptations are pragmatic (qualitative instead of monetary assessment).
- Maintain the rigour of the RSIA process.
- A fundamental prerequisite for conducting RSIA is that road accidents are recorded with adequate information about location, time, type, and severity. While Ghana has crash data systems in place, further strengthening of data quality and completeness is needed.

Based on the pilot with RSIA the following recommendations can be made for Ghana:

- Institutionalise the RSIA process within GHA’s project approval procedures, requiring RSIA for all major road infrastructure projects.
- Develop standardised monetary values for road accidents, fatalities, and injuries to enable full cost-benefit analysis in future RSIA.
- Establish a training centre or programme for RISM tools within GHA, using the trained professionals as initial instructors.
- Ensure that the findings of this RSIA are formally submitted to the design team for the Tetteh Quarshie–Apenkwa corridor upgrade.

- Strengthen crash data management systems, ensuring adequate information on location, time, accident type, and severity.

3 The Pilot Project in Tanzania

Road traffic injuries remain a major public health challenge in Tanzania. According to the National Bureau of Statistics (NBS, 2023):

- 1,733 crashes, 1,647 fatalities, and 2,716 injuries were reported.
- Fatalities increased from 1,545 in 2022 to 1,647 in 2023.
- Motorcyclists accounted for 376 deaths.
- Males represented approximately 77% of fatalities.
- Driving behaviour, particularly speeding and unsafe overtaking, are the leading causes.

3.1 Pilot Team Composition

The pilot project in Tanzania is implemented in collaboration with Tanzanian National Road Agency (TANROADS), Tanzanian Rural and Urban Roads Agency (TARURA), and the Ministry of Works and Transport. TANROADS is responsible for trunk and regional roads, while TARURA manages district and urban road networks, with the Ministry providing policy oversight. The pilot team comprises technical staff from road safety, planning, engineering, and environmental units, ensuring effective integration of RSIA training into road infrastructure planning and implementation at both national and local levels.

Twenty-six professionals from TANROADS, TARURA, and the Ministry of Works and Transport, with expertise in road safety, engineering, planning, and environmental management are participating in the pilot project. They are working in 3 RSIA teams.

3.2 The Infrastructure Objects Submitted for RSIA

Three infrastructure objects were submitted for the RSIA by the three teams as described below.

3.2.1 Object 1

The infrastructure object assessed by Team 1 comprises a 6.7 km road segment from Msalato Airport Roundabout to St. Gemma Hospital Junction in Dodoma, including Maili Mbili Junction, see Figure 2. This section is a two-lane undivided trunk road between these points.

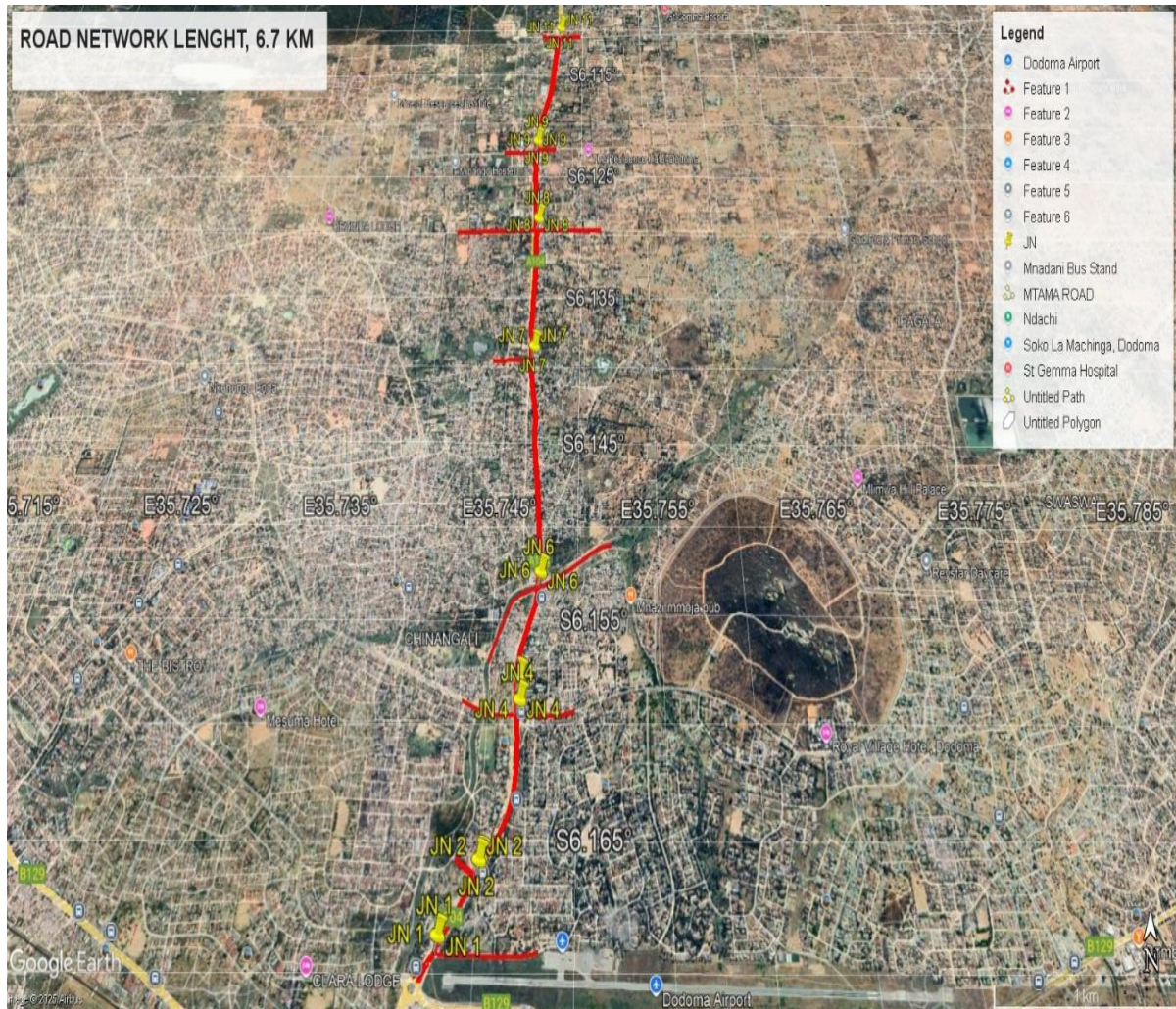


Figure 2: The trunk road from Msalato Airport Roundabout to St. Gemma Hospital Junction, including Maili Mbili Junction.

Baseline Situation

According to Team 1, the baseline situation assessed indicates that the pavement conditions are generally adequate. The seasonal flooding at the Maili Mbili bridge adversely affects road performance in the area.

Traffic conditions

High congestion occurs at Msalato Roundabout and Maili Mbili Junction due to limited capacity and uncontrolled turning movements. Informal roadside parking and loading activities further reduce effective capacity and increase conflict.

Safety issues

Pedestrian crossings are informal and unsafe due to high vehicle speeds and lack of designated facilities. Continuous sidewalks are largely absent. Corridor lacks effective access control. Road markings and signage are faded or missing, and safety barriers and pedestrian fencing are inadequate. Street lighting is limited or non-functional.

Problem definition

The corridor design and operations do not adequately accommodate pedestrians and other vulnerable road users, leading to unsafe crossings and high exposure to traffic.

3.2.2 Object 2

The infrastructure object assessed by Team 2 is the intersection between United Nations Road and Morogoro Road, located within 3.5 km section of Morogoro Road, see Figure 3.



Figure 3: The intersection at United Nations Road and Morogoro Road Junction.

Baseline situation

The UN Road–Morogoro Road junction is a critical node within the Dar es Salaam urban road network, serving as a major link between the Central Business District (CBD), residential areas, and key institutional facilities. UN Road provides access to adjacent residential and commercial developments; however, despite its strategic importance, the intersection experiences significant operational, safety, and mobility challenges. Rapid urbanization, increased vehicle ownership, and intensified land-use activities have led to traffic demand exceeding the intersection’s capacity, particularly during peak hours.

Traffic conditions

Field observations (see Figure 4) indicate frequent vehicle and pedestrian conflicts, with the junction functioning as a bottleneck that contributes to congestion and reduced public transport reliability.

Safety issues

High conflict near Bus Rapid transport (BRT) stations due to unsafe crossings, inadequate sidewalks, and informal passenger movements. Congestion, mixed traffic interaction, and inadequate traffic control devices contribute to unstable traffic flow and increased risk.

Problem definition

The core issue is that the corridor design and operational conditions do not adequately accommodate pedestrians and other vulnerable road users. This results in elevated crash risk

driven by high vehicle speeds, limited pedestrian infrastructure, uncontrolled access, complex junction movements, and mixed traffic conditions.



Legend:

- **RED ARROW:** AUTHORIZED MOVEMENTS
- **BLUE ARROW:** UNAUTHORIZED MOVEMENTS

Figure 4. Traffic conditions at the UN–Morogoro Road intersection within a 3.5 km section of Morogoro Road.

3.2.3 Object 3

The infrastructure object assessed by Team 3, is a 3.0 km section of the Mabatini – Buzuruga Road, a heavily trafficked, highway corridor connecting the Mwanza and Mara regions. It is characterized by adjacent residential areas, commercial activities, public transport, and regional freight movement (Figure 5)



Figure 5: Mabatini – Buzuruga Road, Mwanza.

Baseline situation

According to Team 3, the baseline situation assessment indicates that the Mabatini–Buzuruga road comprises four junctions three T-junctions and one cross-junction, which contribute to complex traffic interactions. This road section comprises a mixture of different road users, involving pedestrians, motorcycles, light vehicles, buses, and heavy trucks, with notable heavy truck activity associated with rice transportation. A bus bay located near a pedestrian bridge further intensifies pedestrian and vehicle interactions. The safety environment is constrained by limited street lighting, inadequate advance warning signage, and the absence of a median in the three-lane sections. Combined with high vehicle operating speeds, these conditions contribute to elevated safety risks along the corridor, see Figure 6.

Traffic conditions

Traffic conditions are highly mixed, involving pedestrians, motorcycles, light vehicles, buses, and heavy trucks, with notable heavy truck activity associated with rice transportation.

Safety issues

High pedestrian–vehicle conflict in the Mabatini commercial zone due to frequent crossings outside designated facilities and limited use of the pedestrian bridge, resulting in high exposure to multi-lane traffic. Inconsistent Lane configuration (three to four lanes) with poor transition design, including alignment of the centre lane with a raised median and lack of signage, channelization, and lighting. On-road parking and freight loading further reduce effective capacity and disrupt traffic flow.

Problem definition

Corridor design and operations do not adequately accommodate pedestrians and other vulnerable road users, leading to increased crash risk, congestion, and reduced level of service.



Figure 6: Traffic Conditions Mabatini – Buzuruga Road, Mwanza.

3.2.4 Road Safety Objectives

Based on the analysis of the baseline situation from all three infrastructure project case studies, the pilot teams defined the following road safety objectives for the projects:

- The primary safety objective is to improve the safety situation for vulnerable road users along the route, especially for pedestrians.
- A secondary objective is to improve pedestrians' level of service to more easily reach amenities on either side of the main road.

3.2.5 Alternative Schemes Proposed by the Pilot Team

Currently, the pilot teams are working with identifying alternative schemes.

3.3 Subsequent steps of the Pilot

Currently, the assessment of the present- and future situation for each scenario is ongoing. After that, the various alternatives will be compared based on their benefit/cost ratios and socio-economic costs and the best alternative will be proposed to be adopted by decision makers.

3.4 Implementation Timeline

The timeline to completion is presented in Table 6.

Table 6: Timeline of the Tanzanian RSIA pilot project.

Activity	Period	Status
Introductory training session	December 2025	Completed
Project selection & problem definition	December 2025	Completed
Baseline assessment, Data collection	Dec. 2025 – March 2026	Completed

Road safety objectives formulation	April 2026	Completed
Alternative schemes development	May 2026	In progress
Assessment of the future situation for each scenario	June 2026	Planned
Comparison, ranking, and recommendations	July 2026	Planned
Final RSIA report	August 2026	Planned

3.5 Lessons Learned During the RSIA Pilot in Tanzania

The Tanzania RSIA pilot demonstrates that the RSIA framework developed under the AfroSAFE project is applicable within a low- and middle-income country context, although implementation remains at an early stage.

Lessons learned during the RSIA pilot in Tanzania are as follows:

- Learning by doing approach has proven effective.
- Preliminary assessment indicates a high vulnerability of pedestrians and motorcyclists.
- Strong institutional collaboration supports RSIA integration.

Based on the pilot with RSIA the following recommendations can be made for Tanzania:

- Institutionalise RSIA within TANROADS and TARURA project approval processes.
- Develop standardised economic cost values for road crashes.
- Establish a national RSIA/RISM training programme.
- Integrate RSIA into routine road design and planning processes.
- Strengthen crash data management systems (accessibility, completeness, key variables).
- Improve inter-agency coordination and data sharing.
- Develop an RSIA accreditation framework to formalise competence recognition.

4 The pilot project in Zambia

Road traffic injuries remain a major public health challenge in Zambia. According to the Road Transport and Safety Agency (RTSA, 2023):

- A total of 2,011 fatalities, and 6,027 serious injuries were reported for one year.
- Fatalities increased since 2022, indicating an upward trend in road traffic-related mortality.
- Pedestrians and motor vehicle passengers accounted for 69% of fatalities.
- Males represented approximately 75–80% of all fatalities.

4.1 Pilot Team Composition

The RSIA pilot team comprises six road safety professionals from the Zambian road Agency. The team comprises technical staff from road safety, planning, engineering, and environmental units, ensuring effective integration of RSIA training into road infrastructure planning and implementation at both national and local levels. The training of the RSIA team members started in February 2025. The training is combined with a pilot project applying the RSIA guidelines developed in Task 3.2 of the AfroSafe project. The pilot project is implemented in collaboration with Zambia Road Development Agency and Zambia Road Safety Trust.

4.2 The Infrastructure Object Submitted for RSIA

This project assesses a 3 km section of Shantumbu Road, incorporating six (6) major T-junctions with varying configurations, see Figure 7.

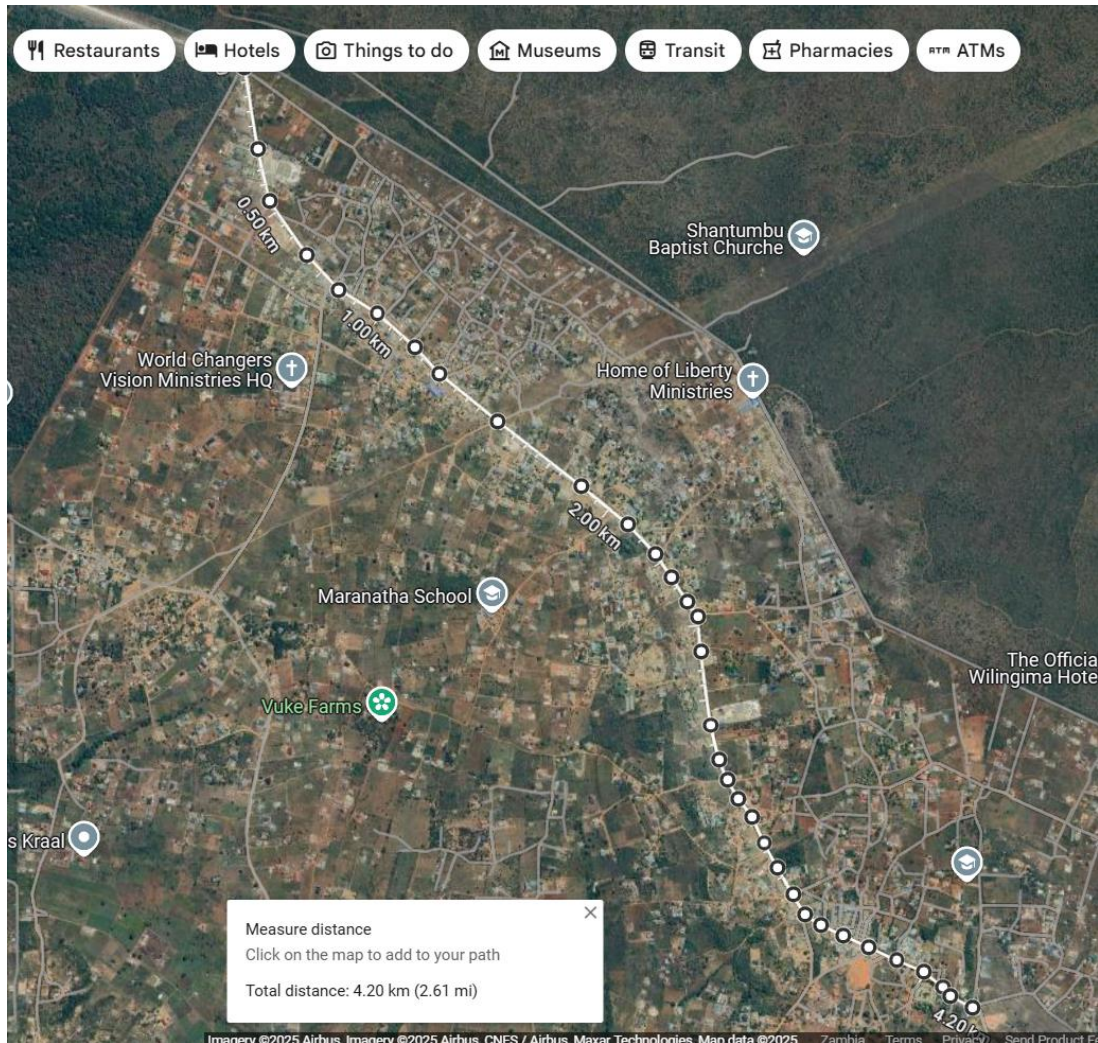


Figure 7: The Shantumbu through road with 6 Major T-junctions in the village.

4.2.1 Baseline Situation

Road safety records over the past four years indicate two fatalities, two serious injuries, and four slight injuries, highlighting existing safety concerns along the corridor.

Traffic conditions

Traffic counting shows a daily traffic of 2,000 motor vehicles (both directions) per day. The number of Heavy Goods Vehicles amount have sharply increased due to the recently opened Quarries, north of Shantumbu Market. The number of PTWs also has increased in response to low public transport availability and their low fares. Some bicycle traffic is present both along the main road and crossing it. The mean speed of free vehicles is over 50 km/h, which is too high considering the closeness of unprotected road users and the significant built-up area.

A site visit revealed that the high traffic flow through the village creates a barrier for those who will cross the main road, especially for children, some of them arriving by bus and must cross the main road to go to the school in the centre of the village. The stopping buses create disturbance for the traffic flow. Drivers passing the stopping bus create additional risk for crossing pedestrians.

Safety issues

The corridor passes multiple built-up areas with significant pedestrian activity, including trading centres, local pubs, a market, business outlets, and three privately owned quarry sites. There is key social infrastructure located along the road includes Shantumbu Clinic, a Police Post, primary and secondary schools, as well as market stalls and bars. The area has an estimated population of approximately 3,000 inhabitants, distributed across several village clusters, resulting in high levels of pedestrian–vehicle interaction along the corridor.

Road environment

The corridor exhibits limited access control, with numerous informal access points and intersecting local roads, particularly within built-up sections. The presence of several curved segments reduces sight distance.

Crash Data Analysis and traffic volume

A total of 8 injury accidents were recorded along the corridor of 3 km through the villages. Four of the accidents involved pedestrians. Most of these occurred during daytime and in connection with children going to and from school and around the Market Area. Four accidents involved Powered Two Wheelers (PTW) and cars on this road. Interviews with community members revealed that several of the PTW's were unlicensed and not competent.

No previous road safety review was carried out in the village.

Problem Definition

The corridor design and operational conditions do not adequately accommodate pedestrians and other vulnerable road users. High traffic speeds, mixed traffic conditions, and significant pedestrian activity within a built-up environment create unsafe crossing conditions and barrier effects. Limited access control, poor traffic regulation, and insufficient safety infrastructure further increase pedestrian exposure and crash risk along the corridor.

4.2.2 Road Safety Objectives

Based on the analysis of the baseline situation, the pilot team defined the following road safety objectives for the project:

- The primary safety objective is to improve the safety situation for unprotected road users along the route, especially for pedestrians and enhance safe mobility.
- A secondary objective is to improve pedestrians' accessibility to be able to more easily reach amenities on either side of the main road.

4.2.3 Alternative Schemes Proposed by the Pilot Team

The pilot team proposed the following alternative schemes:

1. Do nothing scenario
2. Construction of a bypass road, adjacent to a Private Natural Reserve, see Figure 8.
3. Construction of a new 3 km north–south bypass approximately 600 m east of the village, with two connections to the existing road—one about 1 km north and one about 1 km south of the village, see Figure 9.

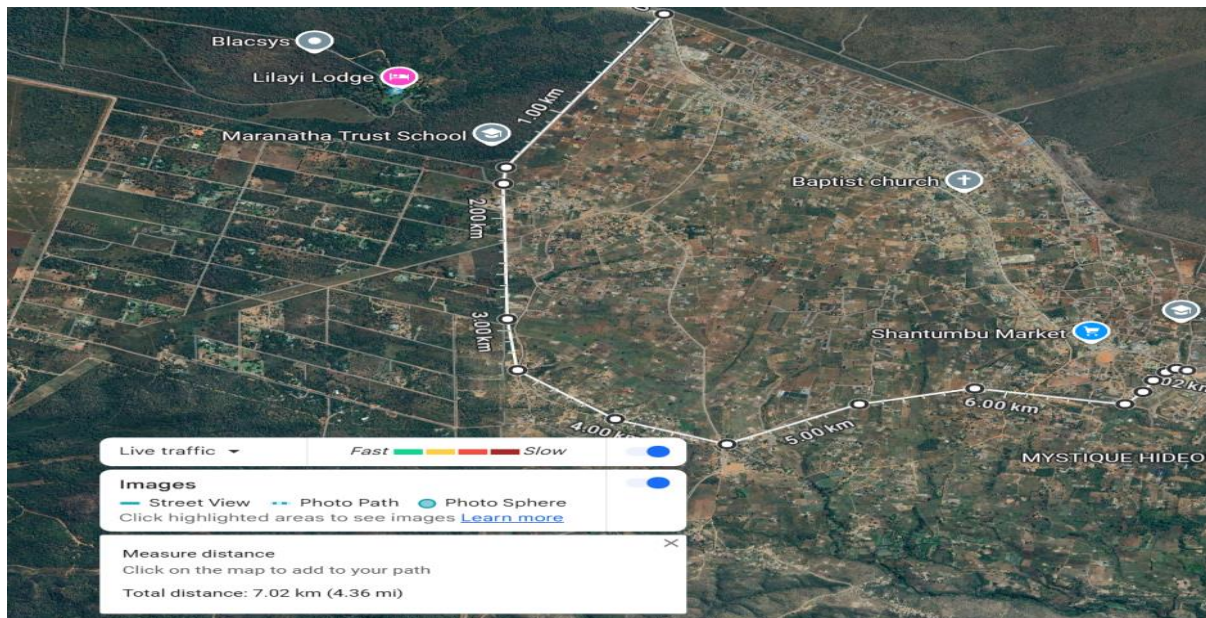


Figure 8: Alt. 2: a bypass road, adjacent to a Private Natural Reserve.

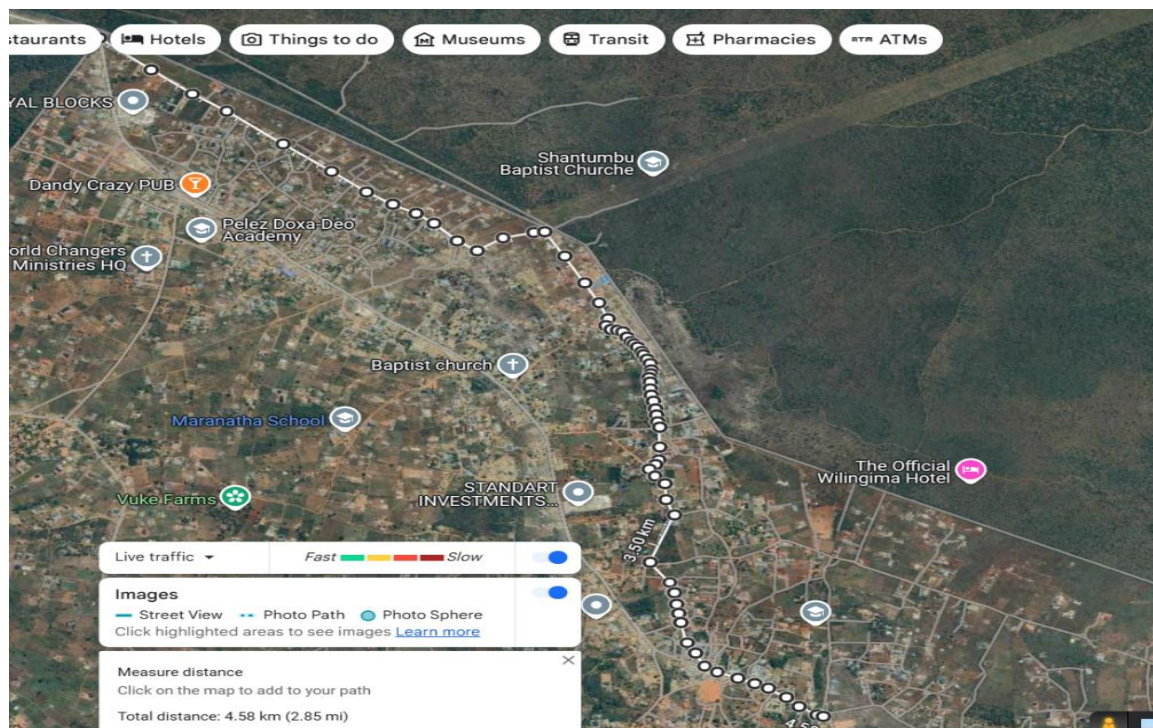


Figure 9: Alt 3: Route through densely built-up area.

The future situation for each of the proposed alternative schemes

Future traffic volumes are predicted to increase by 3% and based on the increase in traffic volumes, accident outcome during the after period of three years is expected to increase by 5% in all three alternative schemes. Thus, the predicted future number of accidents due to the increase in traffic volumes are: 1.03 fatal accidents, 5.37 accidents with severe injuries and 9.45 accidents with slight injuries, resulting in a total of 15.75 injury accidents.

4.3 Subsequent steps of the Pilot

Currently, the assessment of the present and future situation for each scenario is ongoing. After that, the various alternatives will be compared based on their benefit/cost ratios socio-economic costs and the best alternative will be proposed to be adopted by decision makers.

4.4 Implementation Timeline

The timeline to completion is presented in Table 7.

Table 7: Timeline of the Zambian RSIA pilot project.

Activity	Period	Status
Introductory training session	February 2025	Completed
Project selection & problem definition	March 2025	Completed
Baseline assessment, Data collection	April 2025 – July 2025	Completed
Road safety objectives formulation	August 2025	Completed
Alternative schemes development	Sept. – Oct. 2025	Completed
Assessment of the future situation for each scenario	Nov. 2025- April 2026	Ongoing

Comparison, ranking, and recommendations	May - June 2026	Planned
Final RSIA report	July 2026	Planned

4.5 Lessons Learned During the RSIA Pilot in Zambia

The Zambia RSIA pilot demonstrates that the RSIA framework developed under the AfroSAFE project is applicable within the Zambian context, reflecting typical road safety challenges in low- and middle-income countries, although implementation remains at an early stage.

- A learning-by-doing approach has proven effective, combining training with practical application on the Shantumbu Road corridor.
- The selected pilot corridor reflects common Zambian road safety conditions, including mixed traffic, high pedestrian activity, and limited infrastructure controls.
- The assessment highlights a high vulnerability of pedestrians and PTW users, particularly in built-up areas with schools, markets, and roadside activities.
- Strong institutional collaboration between the Road Development Agency and Zambia Road Safety Trust supports the integration of RSIA into planning processes.

Based on the pilot implementation, the following recommendations are proposed for Zambia:

- Institutionalise RSIA within the Road Development Agency project planning and approval processes.
- Develop standardised economic cost values for road traffic crashes to support cost–benefit analysis.
- Establish a national RSIA training programme to build technical capacity across relevant institutions.
- Integrate RSIA into routine road design and rehabilitation projects, particularly in rapidly developing corridors.
- Strengthen management of the crash data systems, including data accessibility, completeness, and inclusion of key variables (e.g., road user type, location, severity).
- Enhance inter-agency coordination and data sharing among transport, police, health, and planning institutions.
- Consider developing an RSIA accreditation or certification framework to formalise competence recognition.

5 Conclusions and Recommendations

The pilot projects in the three African countries demonstrate the tool of Road Safety Impact Assessment (RSIA), developed under the AfroSAFE project, is applicable within a low- and middle-income country context, although implementation remains at an early stage.

The following general recommendations can be made:

- When carrying out RSIA training activities, it is important to ensure regular online follow-up sessions to support the RSIA team through the RSIA steps.
- RSIA should be institutionalised within the relevant national road agency's project planning and approval procedures, requiring RSIA for all major road infrastructure projects.
- Establish a national training centre or programme for Road Infrastructure Safety Management tools, using the trained professionals as initial instructors.
- Consider developing an RSIA accreditation or certification framework to formalise competence recognition.
- Strengthen crash data management systems, ensuring adequate information on location, time, accident type, and severity.
- Develop standardised monetary values for road accidents, fatalities, and injuries to enable full cost-benefit analysis in future RSIA.

Specific recommendations for the AfroSAFE project:

- Continue regular follow-up sessions to support trainees through the final RSIA steps.
- Document the Ghana pilot adaptations (particularly the qualitative assessment approach) as transferable lessons for the Tanzania and Zambia pilots.

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