

Road Safety considerations in Design & Construction of Rural and Urban Roads

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1.0 Introduction

- **Tanzania Rural and Urban Roads Agency (TARURA)**
- **Established under “the Executive Agencies Act, CAP 245; Establishment Order, 2017 GN No. 211 of 12th May 2017;**
- **Started Operation on 2nd July 2017**

1.0 Introduction....

Generally, 42% (45,781.45 Km) of the road network is in poor condition and they are non-engineered earth roads which are unstable especially during unusual rain season which cause damages that varies from partial to total closure of roads and 58% (63,164.74 Km) are good and fair.(2019/20)

Surface Type	Road Condition (Km)			Total (Km)	(%)
	Good	Fair	Poor		
Paved	1,173.66	751.776	99.56	2,024.99	1.86%
Gravel	10,309.25	9,288.20	4,895.57	24,493.02	22.48%
Earth	13,916.49	27,747.52	40,764.18	82,428.19	75.66%
Total	25,388.32	37,776.42	45,781.45	108,946.20	100.00%
(%)	23.30%	34.67%	42.02%	100.00	

**Good and Fair 63,164.74 Km
58%**

**Poor 45,781.45 Km
42%**

1.0 Introduction

Roles and functions

The major role and function of TARURA is management of District Roads network in a cost-effective manner (considering **accessibility, mobility**, environment, road *safety* and climate change) by undertake procurement and management of contracts for design, upgrading, rehabilitation, maintenance, *emergency repairs*, and spot improvements.

2.0 Road Safety Design Consideration

Aim at:

Design for Safety is intended to point out various design issues that should be considered when designing or redesigning a road, to create an awareness of the safety implications of design decisions, and to assist the designer in selecting the appropriate standards for optimum safety.

2.0 Road Safety Design Consideration

Road Safety is a function of **safe road infrastructure** and **safe road user behavior**

Why Important?

To **safe guard the life** of majority who do not own or use motorized transport. **(All Users including motorists and NMT**

That they should have **'safe walking'** which is a basic and common mode of transport with benefits to **health** and **the environment**



2.0 Road Safety Design Consideration

The Road Safety Design Consideration in Tanzania is guided by the following documents:

1. The Road Traffic Act, 1973
2. The Road Act, 2007
3. National Road Safety Policy, 2009
4. A Guide to Road Safety Audit, 2009
5. A Guide to Traffic Signing and Marking, 2009
6. Road Geometric Design Manual, 2011
7. Low Volume Roads Manual, 2016 (Rural Roads)

2.0 Road Safety Design Consideration

Road Safety Vision for Tanzania

The Road Safety Policy (2009) was derived from the National Transport Policy (2003) and the National Road Safety Master Plan (2004).

The policy expresses the following vision:

“Nobody should be killed or seriously injured as the result of a road accident”

2.0 Road Safety Design Consideration

The road engineers should not only concentrate in maximizing motorized traffic capacity during design but also they have to consider Vulnerable Road Users to be not exposed to risk of road traffic accidents

- Walking Speeds
- Sidewalk Capacities
- Intersections
- Reducing Pedestrian Conflicts
- Adequate visibility of pedestrians

2.0 Road Safety Design Consideration

- Age-Related factor – Vision
 - Hearing and Vibration Detection
 - Attention/Appropriate Action

2.1 Strategy to pursue safe roads

- All development projects (upgrading/rehabilitation works) are audited especially during design stage. For the FY 2020/21 total of 78 design reports have been submitted to TARURA HQ for road safety audit.
- The accident prone areas on 283 roads in Regions of Dodoma, Dar es Salaam, Mwanza, Arusha, Kilimanjaro, Tanga and Iringa have been identified
- Road Safety assessment is being included in Road Inventory and Condition Surveys (RICS)

3.0 TARURA Road Safety Practice

TARURA as Roads Implementing Agency is mandated to follow the Government Guidelines as mentioned in the previous slides

Furthermore since greater of its network covered by Rural roads, which characterized by dust, potholes and wet/slippery during rain season, the Agency come up with new project under the Government and World Bank - **RISE** which set up **a People Centered Design Roads.**

An approach that makes rural roads accessible and safe to everyone. The approach to Tanzania's People-Centered Roads ensures that vulnerable road users are a central part of the development process;

3.0 TARURA Road Safety Practice

The **People-Centered approach** is now piloted in four regions Iringa, Lindi, Tanga and Geita regions in preparation to implement the nationwide **RISE** project.

Safe and accessible rural transportation networks are crucial to reducing poverty, growing the economy and improving road safety in Tanzania. The **Tanzania Roads to Inclusion and Socioeconomic Opportunities Program (RISE)** is connecting local communities to national markets and increasing access to health, education and farming inputs.

3.0 TARURA Road Safety Practice



A picture was taken during people centred design

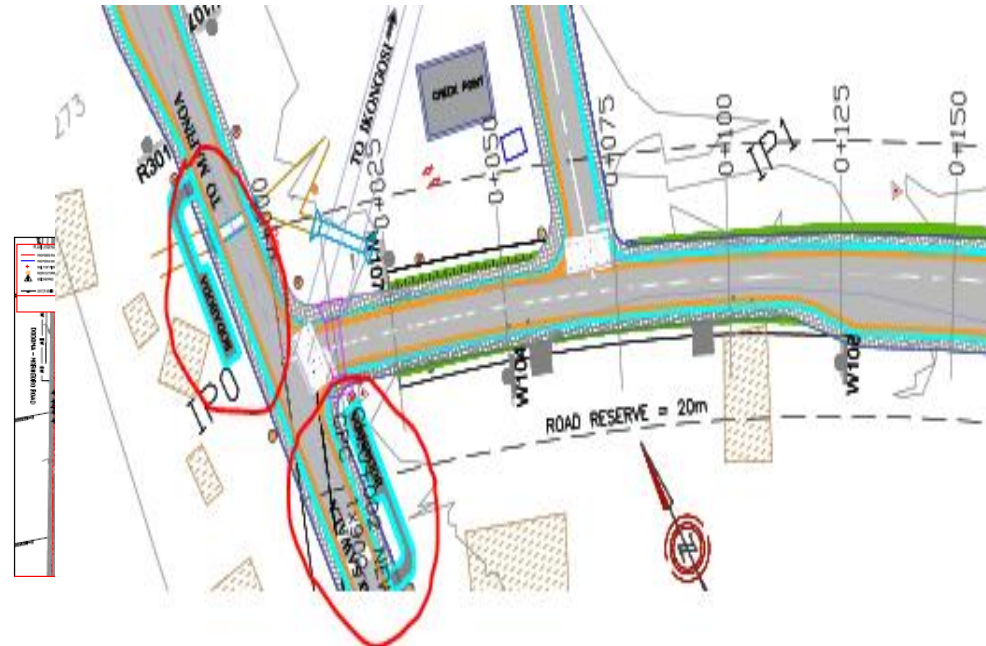


A picture was taken during Road Safety training for TARURA Engineers funded by Agri-Connect Program

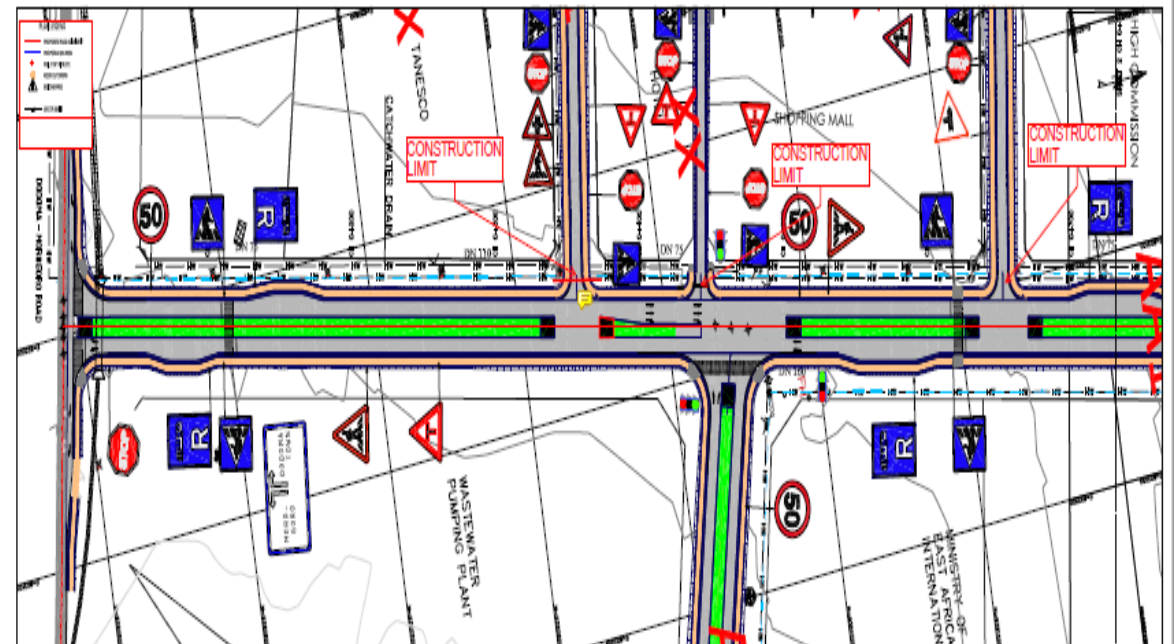
3. TARURA Road Safety Practice

Auditing some of the TARURA Projects

Road safety audit during design stage for Mtili-Ifwagi Road (14km) under RISE Program



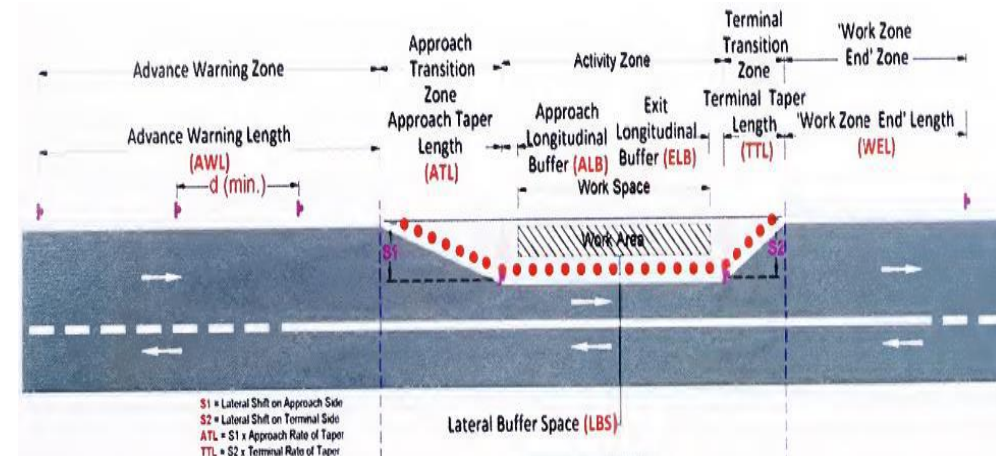
Road safety during design stage for Government City Roads (51.2km)



3. TARURA Road Safety Practice

Auditing some of the TARURA Projects

- Prior to project commencement **TARURA has take initiative all roads that are under construction are being safe as possible.** ment, the contractor needs to submit traffic management plan.



TARURA Road Safety Practice

Auditing some of the TARURA Projects

Expansion of lanes at junction of Emmaus and Morogoro Road



Side drains, pedestrian walk ways and embankment protection at CH. 0+00 of Emmaus-Arican Dream Rd



TARURA Road Safety Practice

Auditing some of the TARURA Projects

Expansion of lanes at junction of Emmaus and Morogoro Road



Side drains, pedestrian walk ways and embankment protection at CH. 0+00 of Emmaus-Arican Dream Rd



4.0 Challenges

- Unsafe driving practices;
- Drivers use mobile phone;
- Driver fatigue;
- Inability of children to gauge vehicle speed and other relevant information in order to cross the street safely alone
- Failure of drivers to respect right-of-way for pedestrians, including failure to yield at pedestrian crossings

4.0 Road Safety Challenges for Rural Roads

- Insufficient signs and marking
- lack of safety barriers to the areas with high embankment
- narrow road corridor
- Presence of steep slope
- **low volume they follow the existing road**, sometimes they tend to be unsafe as no consideration in the vertical, horizontal alignment and other geometric design consideration

4.0 Road Safety Challenges for Urban Roads

Most of roads in urban areas are mobility function rather than accessibility but due to insufficient fund, the designs do not adhere to the standard design for urban road.

Challenges associated with urban roads;

- Narrow corridor to the encroachment of the road corridor
- increased traffic which result into chaotic junction/intersection and hence increased accident rate
- absence of Non-motorized facilities in most roads e.g. walkways, crossways etc
- Improper junction design
- others

4.0 Challenges

- Lack or hardship in attaining crash data
- Vehicle condition and defects (e.g. brakes, lighting, windscreen);
- Talking and walking;
- Traffic mix-pedestrians and vehicles;
- Land-use planning factors-if not planned well frequency of pedestrian crashes is strongly influenced by the **density of the resident population** and the total population exposed to risk

4.0 Way forward

- **Constructing under- and over-passes; /no**
- **Ongoing study on urban mobility project funded by WB in 6 Intermediate Cities i.e. Kilimanjaro, Arusha, Mbeya, Dodoma, Morogoro & Mwanza. The purpose of the study is to provide conducive environment for the NMT users**
- Designing pedestrian pathways to facilitate movement of people with mobility impairments;
- Locating roads, residential areas, workplaces and other industries in such a way that traffic volume and travel distances are minimized;
- Using of People Centered Design Roads



Think this Road as an asset
and design it appropriately

4. Conclusion



**People Centered Design Cable Stay Bridge
TARURA Morogoro DC - Ngerengere**



Thank you for your kind attention

Submitted by TARURA