

A Framework for Standardization and Integration of Design Practices for Transportation Infrastructure

Presented by Prof. Samuel Owusu-Ababio

From Sam Labi:

1. Is there any benefit of the current diversity of design standards, at least in the short term?

The diversity of design standards currently in use in Ghana are mostly over 20 years old and need to be revised and consolidated. There are currently no new standards being evaluated for adoption by the engineering community. It is time for a new guide to be developed based on Ghanaian conditions and practices.

From Stephany P. L. Adams/ Sam Yeboah:

2. Is there the possibility of inclusion of active mobility in infrastructure guides moving forward?

Certainly! There is always room for improvement. This presentation just introduced the concept. I believe that once we have a committee set up, all pertinent components will be explored, evaluated, and approved for inclusion.

From Patrick Bekoe:

3. Conspicuously missing in the manuals is a road safety manual. It may be subsumed in the other manuals. What are your thoughts?

Road safety is a critical component and will probably have its own chapter in the guide.

4. Also, who do you propose should be the custodian of the manuals?

I foresee the MRH or GHA being the Road Guide coordinating agency. A Road Guide Implementation and Improvement Committee (RGIIC) of some sort will have to be formed to ensure that this becomes a dynamic and sustainable document. The committee must assign the responsibility of responding to and compiling questions and research/improvement ideas pertaining to specific areas of the Guide to individuals with the relevant expertise. Such individuals can come from any of the road agencies, and their office contacts must be published in the Guide. Questions or ideas generated over time can be brought to an annual or periodic Road Guide Evaluation and Improvement Meeting of the RGIIC. Recommendations/any modifications resulting from the meeting will then be given to the designated GHA IT person to update the online Guide.

From Charles:

5. Where do we start from? How do we empower our research institutions to lead this charge?

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The GTPF already has initiated the process and is looking for people with the relevant expertise to be part of committees to undertake this challenge. GTPF will welcome reps from research institutions too.

6. Should we perhaps consider an open data initiative so we can enhance the integrated guides moving forward? **That is something to be considered by the committees.**

From Charles-Darwin Annan:

7. Can you share a little more about what you expect to be in the chapter relating to the Design of Bridges in the suggested outline of the GRiG.

The intent is to form committees including a bridge committee that will identify and provide guidance on cost effective bridge options. Details will be developed by such committee.

From Daniel Gyaase/Charles-Darwin Annan:

8. How do these inconsistencies affect safety on the road? **Signs can be misinterpreted, not command the attention and respect of road users, which can increase the odds of crashes occurring.**
9. What effect does the design signs (which are many in Ghana) have on road safety? **The driving task is challenging for many people and requires absolute focus. These “design signs” form a major a source of distraction, which can increase the driver’s reaction time to respond to unexpected situations that occur on the road. The potential for crash occurrence is magnified by these distracting “design signs”.**

From Falasi:

10. Are there rules and regulations governing the use of design codes in Ghana regarding the construction of a particular roadway? **I haven’t looked into it, but I assume there are foreign construction specs being used by foreign contractors doing work in Ghana and local contractors following something different. With all other factors being equal, how else can we explain the premature failures of roads built by local contractors?**

From Morris Effah:

11. To Prof.Ababio, I want to ask why the implementation of an ITS architecture in the guide wasn't touched on.

The presentation was just an introduction of a concept. Once committees are put together, ITS will be included under traffic operations.

Comments

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From Charles: TRECK can commit to take an active role in the development in partnership with the Road and Transport Sector and other stakeholders.

We are looking forward to collaborating with TRECK

Er T: The Ministry of Roads and Highways developed a road specification guide not long ago. If you have a member of MRH on your panel I guess it can be discussed. The issue is more of the implementation with associated budget - I guess the consolidation of the road guides is also important but not critical. We also have to look at the implementation constraints e.g. budget, agency commitment, supervision, etc. I guess we will go back to the same output of infrastructure products if the implementation is not matched with financial commitment.

I will be interested in knowing what is included in the specification guide, and how that can provide guidance in what is being proposed.

From Charles: Prof. Ababio, I think you should also be mindful that colour also depends on class of road ie urban (blue) or trunk roads(green)

I do not think that is the case, because there are signs with red backgrounds as I showed in my presentation. Driving is an arduous task for some and trying to add a layer of attempting to interpret what colors of signs mean in different environments makes it even tougher and increases the potential for safety problems. The use of consistent sign colors, shapes, and symbols help drivers to process road sign meanings faster and must be collective. If we have consistent colors to associate with specific interpretations (e.g. green indicates permitted movements and direction guidance; red: stop or prohibition), we will spare ourselves and the public of potential safety problems. We cannot have red, green, and blue backgrounds communicating the same intended message as shown in my presentation.

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From Alpha Badamasi Savage : A very good idea of the GRiG which I recommend we all adopt especially in the sub region so we can collaborate; I also recommend consideration of capacity analysis after traffic projections for the design life of our roads so that as designers , we can advice authorities accordingly; we don't want to design roads for a 20 year design life and in 10 years we find out that the traffic has overtaken the capacity of a two lane road for example and then authorities will have to start worrying about putting in additional lanes which is quite disruptive and expensive. Stage construction can be advised in such cases so that the Right of Way can be secured from the start; but all this will be informed by the capacity analysis.

Extending it to the sub-region may be premature at this time. Let's work on the GRiG first and use it as a model for possible expansion and adoption by the sub-region.

I anticipate the issue of proper planning and travel demand forecasting to be addressed I the guide.

From Kwabena Mintah : Thanks for sharing a shared concern Prof. There seem to be some standards but are scattered all over. If we want consistency and compliance, it is about time we make information AVAILABLE and ACCESSIBLE. We are applying 'borrowed' signs/markings without even sticking to their standard drawings. We should also be aware the overuse of signs can dilute their effectiveness and tends to bring them into disrepute. I agree with you; this is long overdue!

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