Finalisation of the Design Manual for Low Volume Roads for the Ethiopia Roads Authority (ERA)

Report on Peer Group Meeting 22\textsuperscript{nd} June 2016

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23\textsuperscript{rd} June 2016
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Cover Figure: Roughton International

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<th>Version</th>
<th>Author(s)</th>
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Abstract

AFCAP is supporting the Ethiopian Roads Authority (ERA) in finalising the Low Volume Roads Design Manual, which was published in draft form in 2011. The assignment includes rectifying typing errors and incorrect cross-references throughout Parts A, B, C, D, E and G of the LVR Design Manual, responding to technical comments provided by users of the manual, and incorporating new technical content reflecting developments in LVR technology since 2011. The assignment includes the development of a new field maintenance handbook for use at the wereda level. The purpose of this report is to summarise key points and actions arising from the Peer Review Group meeting held in Addis Ababa on 23rd June 2016 to discuss the first draft of the new Part D (Construction). The report also summarises the initial discussions with experts nominated by ERA to form the Executive Review Group.

Key words

Low Volume Roads, Manuals, Maintenance, Ethiopia
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1 Introduction

The Africa Community Access Programme (AFCAP) is a programme of research and knowledge dissemination funded by the UK government though the Department for International Development (DFID). AFCAP provided support to Ethiopia through the Ethiopian Roads Authority (ERA) for the preparation of new design manuals, specifications, standard drawings and bidding documents for Low Volume Roads (LVRs) as well as the updating of the existing 2002 series of road design manuals for high volume roads and the development of a new Geotechnical Design Manual and Route Selection Manual.

The Design Manual for LVRs was published in draft form in May 2011 and distributed for use. An independent review was undertaken by IT Transport in October 2013 of the use of the new manual and ERA subsequently collected additional comments from users of the manual. Meetings were held between AFCAP management and ERA during project scoping visits of 3rd - 14th November 2014 and 23rd - 27th March 2015 to identify priority projects for funding through AFCAP 2. It was agreed at these meetings that there was a need to start a process of updating and finalising the LVR Design Manual, and that this assignment should be undertaken by the original drafting team.

The project team visited Addis Ababa from 17th to 19th November 2015 to discuss the comments received by ERA from users of the manual and the IT Transport independent review of its use. Responsibility was assigned to each team member to effect the agreed changes. The main agreements were presented to ERA at the conclusion of the visit (see Aide Memoire dated 2nd December 2015).

The first drafts of the updated manuals were discussed at a three-day Peer Review Group meeting in Addis Ababa from 23rd to 27th February 2016. Each of the Lead Authors and the Expert Reviewer presented the changes in their area of responsibility and this was followed by a discussion period. The key discussion points and agreements are summarised in the Report on Peer Group Meeting (Draft) dated 7th March 2016.

Following the February Peer Group meetings several suggestions were accepted by ERA for restructuring of the LVR manual. There were as follows:

- Combine the existing Parts B and D to make the manual more user-friendly and reduce printing costs.
- Restructure Part A to accommodate sections from the current Part B.
- Develop a new Part D on “Construction of LVRs” to incorporate section on construction related topics from Parts B, D and E.
- Develop specifications for road maintenance for inclusion in Part G (Road Maintenance).
- Restructure the section on maintenance of drainage structures in Part G (previously in Part E) to conform to the structure of the rest of Part G.
- Employ two local experts from the private sector to conduct the Executive Review Group appraisal of the final drafts of the manual.

The new structure of the manual is shown in the figure below. (Dark blue indicates parts that have received significant changes or new manuals, light blue indicates parts with few changes and white indicates parts with no changes).
2 Summary of Peer Review Group Discussions

2.1 Key Issues arising

The key issues arising and agreements made during the Peer Review Group meeting are summarised below. Members of the group were requested to provide any additional comments after reading the draft of Part D, in particular on Chapter 2 “Project implementation”.

1. There was a suggestion to include the ERA Standard Specifications and Method of Measurement for Labour Based Construction of Wereda Roads in Part D. However, the general feeling of the participants was that Specifications normally stand as a separate document. The Specification is referred to in Part D.

2. Where “LGA” or “Client” is referred to it should be changed to “Employer”.

3. Chapter 2 “Project Implementation” needs to refer to national and regional directives on procurement.

4. The time for completion of works contracts is specified by the Employer and therefore not part of the technical evaluation of tenders.

5. Direct award of contracts has been carried out under URRAP, with the price fixed by the Employer.

6. There is no “interview” in the tender evaluation process and therefore should not be part of the Tender Evaluation Report.

7. The contents of the Contract Document should be listed in the manual, in their order of priority.

8. Materials Reports are issued with the tender “for information” but do not form part of the Contract.


10. Include better photo showing poor transverse distribution of binder.

11. Include Ethiopian photos of cobble stones.
12. It was suggested that the table of friendliness of seals for L-B methods could be moved to Part B. Cold Mix Asphalt should be added. (NB There are already detailed guidelines in Part B for the selection of surfacings).
13. Replace photo of large Bell tractor with smaller agriculture tractor normally used on L-B works.
14. Chapter on “Borrow Pit Management” to move to immediately after chapter on “Road Construction.
15. Add summary of methods for L-B construction of roads in chapter on “Road Construction” based on existing material used in ERA training centre.
16. Table D.5.1- Remove column showing priorities. Consider replacing with an indication of “number and frequency of tests”, with reference to the Specs, ERA Quality Manual and agreement of site as appropriate.
17. Include more content in chapter on quality control, particularly on need to refer to Specifications for quality control requirements on site.
18. Expand on ideas for “Quality Control with Reduced Resources”.
19. Provide more details and practical advice on use of DCP for compaction control and in situ strength testing, and use of proof rolling.
20. Figure D.5.1 is confusing- clarify that it doesn’t mean that 8 roller passes is always sufficient.
21. Include warning on segregation due to tipping material on the road and need for thorough mixing.
22. Ensure that safety and environment are well covered under borrow pit management. It was noted that there is normally no separate bill item for reinstatement of borrow pits. Recommend inclusion of a bill item. [Note- there is a bill item (43.01) for reinstatement of borrow areas in the new ERA Standard Specs, but there is very little in the L-B Specs]
23. Supplementing topsoil from other sources- not normally possible nor environmentally friendly.
24. Self-draining of borrow pits- not possible in flat areas and sometimes the community want the hole to remain for water storage, or the employer might want to leave the BP open for future extraction.
25. Decision Tracking Form- modify the first example, recommending that the client reviews he design of the section of road.
26. Rationalise the Annex on materials testing to avoid duplication.

2.2 Executive Review Group
After the meeting the AFCAP Regional Technical Manager and CDS Team Leader met the two private sector representatives nominated by ERA to form the Executive Review Group. Their role was discussed, in particular the need for the experts to adopt the perspective of ERA and the Government of Ethiopia in the review of the draft documents. The budget for their time inputs was indicated as 15 days each.

The experts confirmed that they would have capacity to complete the reviews in July 2016, though would need to share the work with other experts in their organisations. Draft contracts would be prepared by CDS for agreement by the experts in order for the review to commence before the end of June.

2.3 Next Steps
The second drafts of Part A, B, D, E, G and Wereda Road Maintenance Guide will be submitted to Executive Review Group progressively from 27th June 2016. The ERG is required to complete their review of all documents by the end of July.
Comments from the ERG will be incorporated in the documents with a view to submitting the final versions by 31 August 2016. This may depend on the number and nature of comments received from the ERG.

It is recommended that Desktop publishing of the final manual should be avoided. DTP introduces significant additional requirements for re-checking the final versions, risk of new errors being introduced, and difficulty in modifying the manual in the future. It is also potentially a very lengthy process. The difference in quality of the final manuals published through DTP/PDF would not be significantly better than MS Word/PDF. It is noted that none of the ERA manuals for high volume roads were published through DTP. However, this needs to be approved by AfCAP as resources for the DTP are provided for in the budget.
# Annex A: Attendance at Meeting

The table below includes a list of people attending the Peer Review Group meeting.

<table>
<thead>
<tr>
<th>Delegate Information</th>
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