Book review

Highway Engineering 2nd edition

Martin Rogers, Blackwell, Oxford, 2008, ISBN 978-1-4051-6358-3, **£29-99, 352 pp.**

This book was first published in 2003 and this edition has been updated with two major additions: the chapter on traffic analysis has been expanded, and a new chapter has been added detailing ways in which the highway engineer directly interacts with the planning process.

The book is aimed at primarily undergraduate students of civil engineering. However, it does provide an essential text for those entering industry with a view to working in the field of highway engineering.

The text makes frequent reference to the *Design Manual for Roads and Bridges* (DMRB) and is therefore readily usable by prospective practitioners in the UK and Ireland. There are references to the United States practices, but nevertheless the theory is relevant and applicable to standards worldwide.

The contents are well laid out in a logical step-by-step process that might be followed in practice for planning, developing and designing a highway scheme. There are four chapters on the transport planning process, forecasting, traffic analysis and the capacity of highways. There is a standalone chapter on scheme appraisal, both in terms of economics and environmental impact. A further two chapters deal with the design of intersections as well as geometric alignment. There are then two chapters on pavement design, materials and structural thickness, with a chapter on the maintenance of highway pavements. The last chapter tackles the interaction of the highway engineer and the development process: traffic assessments, planning approvals and road safety audits.

Overall the author has prepared a most useful text book which should be invaluable to undergraduates and at the least helpful to those entering the

industry. The reviewer felt that there are a couple of omissions in that, firstly, highway drainage (and all the related subjects such as SUDS (sustainable urban drainage systems) and pollution control) is barely mentioned. In practice the design of the carriageway drainage and the resulting infrastructure form a significant part of the design process. Similarly (although arguably a subject in its own right), the impact of bulk earthworks requirements has not been addressed, except in regard to the formation for the highway pavement. Earthworks often form one of the most significant contributions to the cost of highway schemes after the cost of the pavement. In addition, there is also almost no reference to the bridges and structures associated with any highway scheme and their significance and impact upon the overall design of the highway.

At the time of review the text is slightly out of date (inevitably) as there is only one brief mention of thin wearing course systems and analytical design for pavements. Similarly there is now a stage 4 in road safety audits, one year after opening. Furthermore the reviewer felt that some of the references could be brought up to date, and the index would benefit from being more comprehensive.

Lastly, in terms of highway engineering, there would ideally be more reference to the implications of the planning and design upon the cost of both the construction process and the longer-term maintenance of the asset.

Nevertheless, in overall terms, the author has succeeded in producing a book in a style that is both readable and informative, as well as being of considerable use to undergraduates and those entering the industry at a practical level

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