

Transportation Association of Canada Development of A National Pavement Asset Design And Management Guide (PADMG)

Susan Tighe

Professor and Canada Research Chair

University of Waterloo (sltighe@uwaterloo.ca)

The development of the new 2011 Transportation Association of Canada (TAC) Pavement Asset Design and Management Guide (PADMG) began in September 2009. The project is a pooled fund study being sponsored by over twenty Canadian public agencies including all ten provincial Canadian Departments of Transportation, several major Canadian cities, several industry associations and the federal government. The effort is being lead by a Canadian consortium team composed of consultants and academics from across Canada. The consortium team is composed of a diverse group of practitioners who have experience across Canada in the various areas of expertise pertinent to this guide. The new 2011 PADMG will be an up-to-date, practical consolidation of Canadian pavement design and management practice for practicing engineers, managers and technicians. It will also be a valuable resource for college and university courses both in Canada and elsewhere. The guide will highlight key industry issues such as sustainability, climate change, and new innovations.

This type of initiative is not new to the TAC. Three previous guides have been published in 1965, 1977 and 1997. Full use of time invariant material from the 1997 TAC Pavement Design and Management Guide while, outdated information will be removed. New material, concepts and practices which have evolved since then, as well as new chapters, will be incorporated in the 2011 PADMG. In essence, the work to be carried out will build on the past but focus on the needs of the future.

One of the first major tasks in the development of the new 2011 PADMG is to carry out a stakeholder survey to determine current state-of-the-practice in Canada. The intent of the survey is to ensure the content is up-to-date and relevant to users. The survey was carried out in January/February 2010 and the results are currently being summarized at the time this article is being written. Information collected in this survey covers the major practices areas in pavement design and management. The comprehensive survey included questions on: pavement preservation/maintenance/rehabilitation practices, usage of materials, classifications of road types and associated traffic/subgrade conditions, data collection types and methodologies, indices, pavement and asset management practices, construction practices and new innovations.

The members of the consortium team in partnership with the TAC PADMG Project Steering Committee (PSC) have identified the prospective chapters in the new guide. Members of the consortium are currently reviewing reference materials both nationally and internationally as part of this task. For example the guide will include extensive review of proceedings and publications of TAC, Canadian Technical Asphalt Association (CTAA) Proceedings, Canadian National Guide for Sustainable Municipal Infrastructure (NGSMI), Transportation Research Board (TRB) Records, United States National Highway Cooperative Research Program, NCHRP, Provincial Standards, and other applicable publications. In addition, the list of additional references that will be included at the end of each chapter will start during this task.

The following chapters will be included in this guide:

- Chapter 1: Introduction
- Chapter 2: Principles of Asset Management
- Chapter 3: Data Requirements, Collection Methods, and Database
- Chapter 4: Sustainability in Pavement Engineering and Management
- Chapter 5: Maintenance and Rehabilitation Treatments
- Chapter 6: Materials
- Chapter 7: Flexible Pavement Design
- Chapter 8: Rigid Pavement Design
- Chapter 9: Life Cycle Analysis of Pavement Designs
- Chapter 10: Role of Construction
- Chapter 11: Role of Maintenance
- Chapter 12: Network Level Needs Analysis and Priority Programming
- Chapter 13: Principles of PMS and Implementation
- Chapter 14: Issues, Opportunities and Future Prospects

Target page lengths for each chapter have been established, and a detailed schedule for drafts is currently in place to ensure the final 2011PADMG is completed by September 2011. Each chapter is being written by a team of two to three consortium members. Peer review by the consortium project manager and one other consortium team member who was not involved in the direct preparation of the chapter will be carried out. A technical editor will then review the chapter to ensure the guide is professional and understandable. Finally each chapter will be

submitted to the PADMG PSC for their peer review and comment. The 2011 TAC PADMG will be written in manner that is straightforward, consistent and easy to understand. Each chapter will be prepared to provide information for the newly graduated engineer, and technician starting their career, to the senior engineers and managers who require information on complex issues.

In addition, training and workshop materials will be prepared by the consortium. This will include a comprehensive set of slides and speaker notes for training for use during the 2011 TAC Workshop at the Annual Fall Conference. As well it is expected that there will be training across Canada. A primer for the guide will also be prepared under this contract. The primer will summarize the key pertinent features of the guide. The 2011 PADMG Primer will be directed to non-technical practitioners, executives and politicians responsible for managing assets. However, it will also serve as a tool for technical practitioners when dealing with their various stakeholders. The Primer will outline the key subjects that are addressed in the Guide, briefly describe the current status of Canadian best practices and emerging trends including technology advancements. Green transportation technologies, climate change, and other topical technologies will be highlighted. The Primer will also highlight the importance and various factors involved in the design and management of all pavements in the network including: rural and urban; gravel, surface treated, flexible and rigid; and local, collector, arterial and freeway functional classifications.

Dr. Susan Tighe, P. Eng, is a Professor and Canada Research Chair at the University of Waterloo. She is also the Consortium Project Manager of the 2011 Canadian PADMG. The consortium team includes: David Hein, Applied Research Associates, Inc., Donaldson MacLeod, Consultant, Daryl Nixon, EBA Engineering Consultants Ltd., Ludomir Uzarowski, Golder Associates Ltd., Guy Dore, Laval University, Harry Sturm, Stantec Consulting Ltd., Lynne Cowe Falls, University of Calgary, Curtis Berthelot, University of Saskatchewan, Special Advisor: Ralph Haas, University of Waterloo and technical editor Catherine Thompson.