A SCOPE

The Traffic Operations and Management Standing Committee (TOMSC) has recommended a project to develop application guidelines for speed display devices. The final report will be reviewed by the Project Steering Committee, TOMSC, and Chief Engineers’ Council of TAC.

B BACKGROUND

Dynamic speed display devices are being used in many jurisdictions across Canada. These devices display the speed of passing vehicles, typically along with a sign showing the posted speed limit of the roadway. Intended to increase driver awareness of speed limits and to provide instant feedback to motorists by displaying the actual speed being travelled, the devices have been found to be effective for a short time following installation. However some devices used in the field present excessive distraction potential and may not achieve their intended goal. The design, application and use of speed reader boards are not covered by any current TAC guideline. Speed display devices are currently not a recognized traffic control device(s) in the Manual of Traffic Control Devices for Canada (MUTCDC) and their design and application also are not covered by any current TAC published guidelines documents.

C PROJECT OBJECTIVE

Work in this project will include a review of speed display devices currently available on the market and a survey of existing practices or related guidelines with road jurisdictions across North America and other major countries across the world. This would include a literature review of any studies that have been carried out on the use and their effectiveness of these devices. Building on these findings, the ultimate objective of the project will be to establish best practices and develop guidelines for speed display device design and application. The major deliverable for this project will be application guidelines for speed display devices.
The focus of the guidelines should be broken into three main areas of focus of the speed display devices: permanent, temporary, and work zone.

**D METHODOLOGY**

To develop national guidelines for the application of speed display devices to improve road safety.

Key project tasks will include:

- Consultant to review existing speed reader board device practices in Canada;
- Consultant also review existing speed reader board device practices from the U.S., Europe, and Australia.
- Consultant to perform compilation of speed reader board device practices findings into guidelines for the Canadian context.

The final product of this project will be “Application Guidelines for Speed Display Devices”.

Building off the focus on permanent, temporary, work zone devices, the below should be taken into consideration.

The Guidelines should address speed display devices in the following situations at a minimum:

- Use on all types of roadways (urban and rural)
- Use at various types of work zone situations
- Use at high collision prone locations with link to safety analysis
- Use as traffic calming device
- Mention of ways to educate public

The Guidelines should provide overview of how to assess the need for a speed display devices at a particular location (evaluation criteria for each different location) and how to prioritize locations for installations.
The Guidelines should address the following points for speed display devices as well at a minimum:

- How should speed display devices be displayed in various types of applications as indicated above? Best practices for placement, etc.
- Should sign message be a standardize colour? Sign sizes standardized (e.g., font size, sign border width, backboards)

The installation or placement and operation of the board itself should be outlined:

- Placement of the display (should certain areas be avoided – within a speed transition zone, on a steep downgrade, near signals?)
- Other messaging that needs to be included with the electronic display (e.g. the text “Your Speed”, placement with or near a static speed limit sign)
- When should the board be programmed to go blank? In B.C., devices are programmed to go blank (no display) or display the message “Slow Down” if the vehicle is travelling more than 40 km/h above the speed limit
- Minimum display speed of the device
- Mounting (post, trailer, height, etc.)
- Lateral trailer placement and clear zone considerations
- Speed range of device
- Colour of the electronic display
- Font size of the electronic display
- When should the board flash the display and when should it not?

Determine if these dynamic speed display device(s) is a traffic control device and if so it needs to be included in the MUTCDC. If the device needs to be included in the MUTCDC, the project should include a motion to bring forward a recommendation for inclusion as a device(s) in the manual. This would include a recommendation as to a description on the meaning and use of the device(s) in the permanent, temporary, and work zone applications for inclusion in appropriate section(s) of the manual.

The TAC Climate Change Task Force checklist should be referenced through the development of this guide. The CCTF checklist can be found at:
E PROJECT DELIVERABLES

- Regular meetings with the Project Steering Committee, both by teleconference and during in-person meetings at Fall and Spring TAC technical meetings.
- Presentations of 100% final draft guide findings to the Project Steering Committee (PSC), TOMSC, and Chief Engineers’ Council. Please refer to schedule in section F. It is expected that the consultant team be present in person to give the final presentations.
- Draft Guide milestones and literature review document as indicated.
- Work with PSC to identify and engage appropriate stakeholders.
- A 2-5 page primer that describes the application of speed reader board devices from a broad perspective. This primer will be used as a reference document for the publication and will be made available through the TAC Library.
- Power Point presentation and the supporting documentation for each meeting.
- An original unbound (8½” x 11”) master copy that complies with format and style specifications supplied by TAC (listed below). Electronic files of all text and figures and all other supporting material shall also be delivered to TAC as part of the contract. Electronic files must also comply with requirements listed below. All final products become the property of TAC.

The deliverables must comply with the TAC publication guidelines (http://tac-atc.ca/sites/tac-atc.ca/files/site/doc/projects/docs/tac_publications_guidelines.pdf) and be submitted in the following formats:
DOCUMENT REQUIREMENTS
Please submit all of the following:
• Electronic version of the complete document and draft deliverables in Microsoft Word.
• Electronic version of the complete report (text, graphics, appendices, etc.) in Adobe PDF format
• Electronic version of the document in Adobe InDesign is requested for all projects.
• TAC will provide a template document, pre-set with TAC standards for fonts, headers and footers, the TAC logo, reference format, etc. Consultants are asked to maintain integrity with the standards provided in the template. Requests for variations from this should be discussed with the project manager.

FIGURES AND GRAPHICS REQUIREMENTS
• Electronic files for all graphics and images (e.g. tables, figures, charts, road signs, photos, etc.) used in the report must be provided to TAC with the final document. Text within a graphic or figure must be able to be accessed by TAC, to facilitate translation.
• Acceptable graphic formats are Adobe Illustrator or Adobe Photoshop. Embedded graphics in Word documents are not acceptable.
• Electronic files for road signs must be in a vector file format. Sign graphics must follow conform to the Standard Dimensions for signs found in the TAC Sign Pattern Manual. Colours used should match those colours found in the Sign Pattern Manual.
• Spreadsheets must be created using Microsoft Excel.
• Three or four colour photographs in TIF, JPG or EPS format, and with a resolution no less than 300 dpi, must be submitted for possible use on the publication cover. Credits shall be included with each photo. Rights for use of the photos, if required, must be obtained in advance of submission by the consultant.

All documents shall be submitted in English. All the source material, including charts, graphs and tables must be submitted in such a format that their content can be edited and translated.
## F PROJECT SCHEDULE

A schedule identifying minimum expected project milestones is included below:

<table>
<thead>
<tr>
<th>Milestone</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proposal due</td>
<td>August 13, 2015</td>
</tr>
<tr>
<td>Contract Award</td>
<td>End of August, 2015</td>
</tr>
<tr>
<td>Consultant Initial Meeting in person with PSC during the fall Meeting</td>
<td>September 24, 2015</td>
</tr>
<tr>
<td>(Charlottetown, P.E.I.)</td>
<td></td>
</tr>
<tr>
<td>Literature Review/practices scan Document due</td>
<td>February, 2016</td>
</tr>
<tr>
<td>Initial Table of Contents due</td>
<td></td>
</tr>
<tr>
<td>Consultant meeting in person with PSC during 2016 April Technical Meetings</td>
<td>April, 2016</td>
</tr>
<tr>
<td>(Ottawa, ON)</td>
<td></td>
</tr>
<tr>
<td>50% Draft Guide due</td>
<td>August, 2016</td>
</tr>
<tr>
<td>Consultant meeting in person with PSC during 2016 Fall Technical Meetings</td>
<td>September, 2016</td>
</tr>
<tr>
<td>(Toronto, ON)</td>
<td></td>
</tr>
<tr>
<td>100% Draft Guide due</td>
<td>February, 2017</td>
</tr>
<tr>
<td>Primer due</td>
<td></td>
</tr>
<tr>
<td>Presentation in person of 100% final draft Guide to PSC, TOMSC, and CEC during the TAC 2017 Spring Technical Meetings (Ottawa, ON)</td>
<td>April, 2017</td>
</tr>
<tr>
<td>Final Documents Submission</td>
<td>May, 2017</td>
</tr>
</tbody>
</table>
It is expected that the consultant team lead will be present in room for the spring and fall project meetings. The consultant team is responsible to give the final presentations by a consultant team member in person to the listed committees. Teleconference meetings are to be scheduled between in person meetings as required surrounding discussion and deliverable schedules. The consultant shall allow for a minimum of 3 teleconferences to be held, one between each in person meeting, with additional teleconference meetings as required.

The Project Steering Committee may require several reviews as the document is being drafted. A minimum of two weeks should be allocated for this review prior to any meeting or teleconference. Proponents should give allowance for this time when planning their study completion schedule. The Project Steering Committee wishes to be an active participant in the study development, and therefore, will be interested in the Project Steering Committee/Consultant interaction proposed.

The Project Steering Committee will review each draft document, and the consultant will address all comments.

TAC Pooled Fund Project Guidelines, which are to be followed, can be found online at:

This project will use a TAC SharePoint site for documentation transfer.

G LEVEL OF EFFORT

A maximum budget of $60,000, plus applicable taxes, is available for this project. A project cost breakdown will be requested at the beginning of the project. Invoices will be permitted on completed and approved items. An amount equal to 10% of each invoice will be retained until the final deliverables have been completed and accepted by the project steering committee and approved by the Chief Engineers Council.
H PROPOSALS

To be considered for this project, proposals to undertake this work must be received no later than 13:00 ET on August 13, 2015. One (1) hard copy of the proposal should be delivered, as well as an electronic version in Microsoft Word or Adobe Acrobat format, to the undersigned with the below bulleted information while following the Evaluation Criteria found in Appendix A. Hard copy versions of the proposal can be received by mail after the deadline, so long as the electronic version is received by the deadline.

- **Scope and objectives** – The proponent is to demonstrate a clear understanding of the project’s objective/scope and is to describe the challenges that might be encountered in its execution.

- **Methodology** – The proponent is to describe the approach to be used to accomplish all components of the project. The proponent is to identify major tasks to be undertaken, all resources to be used, including sources of information and data, analyses and testing that are planned, and means to be used to make recommendations. Include a list of titles that will be reviewed during the literature review component of the project.

- **Work plan** – The proponent is to show the time budgeted for the various components of the project; is to include deadlines for approvals through the various stages, and is to show that adequate time and resources are devoted to all aspects of the project. Consultants are to create a draft table of contents to outline the topics covered and convey flow of the document.

- **Project team** – The proponent is to identify the project leader and team members (including sub-consultants) and is to include resumes with examples of similar projects that have been worked on.

- **References** – The proponent is to name three organizations for which they have completed substantial projects of a related nature. The proponent is to include the organization’s address and the name and telephone number of an individual familiar with the project.
• **Fees breakdown** – The proponent is to include a total project cost, a detailed fees breakdown of the various components of the job, an itemized professional fees list for each member of the team, and administrative, travel and other expenses and disbursements per stage. Professional fees per team member should be matched for each component of the job to show hours assigned by each team member per component.

• **Conflict of Interest Declaration** – The proponent is to include in the proposal a disclosure, including information on possible sources of significant financial or organizational conflict of interest in conducting the research. For example, under certain conditions, ownership of the proposing agency, other organizational relationships, or proprietary rights and interests could be perceived as jeopardizing an objective approach to the research effort, and proponents are asked to disclose any such circumstances and to explain how they will be accounted for in the study.

Proposals will be evaluated based on the methodology, team qualities, the expertise that will be brought to the project, and the time that will be invested as described and presented by candidates (evaluation criteria are presented in Appendix A). When a tie between top proponents is encountered, within 5 points of the average compilation of scoring from evaluations, the selection will be based on majority vote of Project Steering Committee members.

The main body of the proposal shall be no more than ten (10) pages (single sided). The cover letter, detailed pricing form, project schedule chart, organizational diagram and resumes should not be included in the page count.

Proposals shall make use of a twelve (12) point font, single spaced, with one (1) inch borders all around for the ten (10) pages of the main body of the proposal.
The Project Steering Committee reserves the right to interview selected candidates prior to selecting a consultant team. It should be noted that the working language for this project is English. If you wish to discuss this project in more details, contact the Project Manager listed below.

I PROJECT ADMINISTRATION

A project manager will provide liaison between the Project Steering Committee and the consultant for this project. All administrative and technical inquiries should be addressed to the undersigned. The Project Steering Committee will be responsible for reviewing project deliverables and ensuring that the work of the consultant successfully accomplishes the objectives set out herein. A contract for consulting services must be established with the consultant before work can begin.

For more information, contact:

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E-mail: cstackpole@tac-atc.ca
Appendix A: Evaluation Criteria for Project Proposals

<table>
<thead>
<tr>
<th>Evaluation Criteria</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Understanding of project’s scope and end-product requirements (Based on Scope and Objectives)</td>
<td>20</td>
</tr>
<tr>
<td>Approach and methodology toward development of a guide (Based on Methodology)</td>
<td>30</td>
</tr>
<tr>
<td>Adequacy of work plan to meet required timeframes (Based on Work Plan and Fees Breakdown)</td>
<td>15</td>
</tr>
<tr>
<td>Qualifications and experience of consultant team and project coordinator and their proven competence in relevant related work (Based on Project Team and References)</td>
<td>25</td>
</tr>
<tr>
<td>Ability to work with TAC Project Steering Committee</td>
<td>10</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>