



Association of
PROFESSIONAL ENGINEERS & GEOSCIENTISTS
of British Columbia

APEGBC Council Meetings

Friday, February 10, 2017

Location:

Dan Lambert Boardroom, 2nd Floor (Large Room, Upstairs)
APEGBC Offices, 200 – 4010 Regent Street, Burnaby, BC

Meeting Schedule:

08:30 – 08:55	Closed Session
08:55 – 10:25	Open Session
10:25 – 10:40	Morning Break
10:40 – 12:55	Open Session (continued)
12:55 – 13:55	Lunch
13:55 – 14:55	In-Camera Session

For more information, contact Sarah Wray at swray@apeg.bc.ca or 604.412.4896.



Association of
PROFESSIONAL ENGINEERS & GEOSCIENTISTS
of British Columbia

Council Agenda – Open Session

Friday, February 10, 2017

Dan Lambert Boardroom, 2nd Floor (Large Room, Upstairs)

APEGBC Offices, 200 – 4010 Regent Street, Burnaby, BC

08:55 – 12:55

08:55 **3. OPEN SESSION CALL TO ORDER**

(5 min)

Chair: Bob Stewart, P.Eng. President

3.1. Declaration of Conflict of Interest

09:00 **4. OPEN CONSENT AGENDA**

(20 min)

MOTION: That Council approve all items (4.1 to 4.4) on the Open Consent Agenda.

4.1. November 25, 2016 Open Minutes

Open Minutes
Nov 25, 2016

MOTION: That Council approve the November 25, 2016 Open Meeting minutes as circulated.

4.2. Appointments Approval

MOTION: That Council approves the recommended appointments and re-appointments to APEGBC Volunteer Groups and to outside Organizations, as applicable.

4.3. APEGBC Professional Practice Guidelines – Flood Mapping in BC

Flood Mapping
Guideline

MOTION: That Council approve the APEGBC Professional Practice Guidelines – Flood Mapping in BC for final editorial and legal review prior to publication.

Lindsay Steele, P.Geo., Practice Advisor, Professional Practice, Standards & Development

4.4. Information Reports

4.4.1. CEO & Registrar Report

CEO &
Registrar Rpt

Ann English, P.Eng., CEO & Registrar

4.4.2. Engineers Canada Director's Report

Engineers
Canada
Directors Rpt

Russ Kinghorn, P.Eng., FEC, FGC (Hon.), APEGBC Director to Engineers Canada

Jeff Holm, P.Eng., FEC, FGC (Hon.), APEGBC Director to Engineers Canada

4.4.3.	Geoscientists Canada Director's Report <i>Garth Kirkham, P.Geo., FGC, FEC (Hon.), APEGBC Director to Geoscientists Canada</i>	GC Report
4.4.4.	Brand Development Update <i>Melinda Lau, Acting Director of Communications & Stakeholder Engagement</i>	Brand Update
4.4.5.	Update on Volunteer Orientation <i>Kevin O'Connell, CHRP, Manager of Human Resources</i>	Update on Volunteer Orientation
4.4.6.	Update on Diversity Initiatives <i>Deesh Olychick, Director of Member Services</i>	Update on Diversity Initiatives
4.4.7.	Investigation and Discipline Committee Report <i>Efrem Swartz, LLB, Director of Legislation, Ethics and Compliance</i>	Investigation and Discipline Rpt
4.4.8.	APEGBC Road Map for 2016/2017 <i>Ann English, P.Eng., CEO & Registrar</i>	Council Road Map
4.4.9.	Council Attendance Summary <i>Ann English, P.Eng., CEO & Registrar</i>	Council Attendance Summary
4.4.10.	Calendar 2016 Registration Admissions Report <i>Ann English, P.Eng., CEO & Registrar</i>	Reg Admissions Report
4.4.11.	Strategic Plan and Key Performance Indicator Results at the 6 Month Mark for Year 3 <i>Janet Sinclair, Chief Operating Officer</i>	Strat Plan and KPI
4.4.12.	Update on National Competency-Based Assessment Project <i>Gillian Pichler, P.Eng., Director of Registration</i> <i>Don Gamble, Director of Information Systems</i>	CBA and APEGBC Framework & IT Solution

09:20 5. OPEN REGULAR AGENDA

MOTION: That Council approve the Open Regular Agenda (with any additions from the Consent Agenda).

**09:20
(20 min)**

5.1. Quarterly Financial Report

MOTION: That Council receive the APEGBC financial results as at December 31, 2016

Jennifer Cho, CPA, CGA, Director of Finance & Administration

Quarterly Financial Report

- 09:40
(45 min)** **5.2.** Councillor Notice of Motion
- Councillor Document
- PROPOSED MOTION:** That Council establish a Task Force, with broad disciplinary representation, to develop for Council consideration a renewed strategy for the Continuing Professional Development of the membership, one that articulates the objectives, assesses realistically the strengths and weakness of alternative approaches to achieving these objectives, recognizes the diversity of disciplines, modes of practice, public safety implications and circumstances of members, and relies on membership support for implementation.
- Background on CPD
- Ross Rettie, P.Eng., FEC, APEGBC Councillor*
- 10:25
(15 min)** **Morning Break**
- 10:40
(45 min)** **5.3.** Councillor Notice of Motion
- Councillor Document
- PROPOSED MOTION:** That Council establish a Task Force to develop, for Council consideration, a strategy to rebuild the trust and respect of all sectors of the APEGBC membership.
- Ross Rettie, P.Eng., FEC, APEGBC Councillor*
- 5.4.** Governance Committee
- 11:25
(45 min)** **5.4.1.** Election Policy Revisions
- APEGBC Election Policy
- MOTION: That Council approve the revised Election Policy.
- 12:10
(45 min)** **5.4.2.** Nomination and Election Review Task Force
- Nomination and Election Review
- MOTION 1:** That Council approve the creation of the Nomination and Election Review Task Force.
- MOTION 2:** That Council approve the terms of reference for the Nomination and Election Review Task Force.
- 12:55
(60 min)** **End of Open Session and Lunch Break**
- In-Camera session to commence at 13:55.**

**MINUTES OF THE OPEN SESSION OF THE SECOND MEETING OF THE 2016/2017 COUNCIL
of the Association of Professional Engineers and Geoscientists of British Columbia,
held on NOVEMBER 25, 2016 in the WHISTLER BOARDROOM, APEGBC OFFICES, BURNABY,
BC**

Present

Council	
Bob Stewart, P.Eng.	President (Chair)
Dr. Ed Casas, P.Eng.	Vice President
Dr. Mike Wrinch, P.Eng., FEC, FGC (Hon.)	Past President
Kathy Tarnai-Lokhorst, P.Eng., FEC	Councillor
David Wells, JD	Councillor
Richard Farbridge, P.Eng.	Councillor
Ken Laloge, CPA, CA, TEP	Councillor
John Turner, P.Ag. (ret.)	Councillor
Brock Nanson, P.Eng.	Councillor
Cassandra Hall, P.Geo., P.Eng.	Councillor
Caroline Andrewes, P.Eng.	Councillor
Susan Hayes, P.Eng.	Councillor
Larry Spence, P.Eng.	Councillor
Scott Martin, P.Eng.	Councillor
Ross Rettie, P.Eng., FEC	Councillor
Chris Moser, P.Eng.	Councillor
Staff	
Ann English, P.Eng.	Chief Executive Officer & Registrar
Tony Chong, P.Eng.	Chief Regulatory Officer & Deputy Registrar
Janet Sinclair	Chief Operating Officer
Jennifer Cho, CGA, CPA	Director - Finance & Administration
Vincent Lai, CGA, CPA	Associate Director – Finance & Administration
Gillian Pichler, P.Eng.	Director - Registration
Mark Rigolo, P.Eng.	Associate Director – Engineering Admissions, Registration
Don Gamble	Director - Information Systems
Efrem Swartz, LLB	Director - Legislation, Ethics & Compliance
Peter Mitchell, P.Eng.	Director – Professional Practice, Standards & Development
Taymaz Rastin	Staff Lawyer
Melinda Lau	Acting Director – Communications & Stakeholders Engagement
Deesh Olychick	Director – Member Services
Sarah Wray	Executive Assistant to Council and to the Chief Executive Officer & Registrar
Tracy Richards	Administrative Assistant
Guests	
Russ Kinghorn, P.Eng., FEC, FGC (Hon.)	APEGBC Director to Engineers Canada
Dr. Conor Reynolds, P.Eng.	Senior Project Engineer, MetroVancouver

Glen Park, P.Eng., (Retd.)

Operational Excellence Advisory for corporate Health,
Environment and Safety, Chevron
Air Quality Engineer, Golder Associates Ltd.

Rachel Wyles, P.Eng. (via teleconference)

Regrets

Suky Cheema, CPA, CA

Councillor

DRAFT

OPEN SESSION – CALL TO ORDER

Bob Stewart, President and Chair, called the meeting to order at 11:29 am. Dr. Ed Casas, Vice President, acted as the Parliamentarian, Councillor Caroline Andrewes acted as the Membership Engagement Champion, and Councillor Kathy Tarnai-Lokhorst acted as the 30 by 30 Champion. Councillor Suky Cheema sent her regrets.

Guests: The Chair advised the following guests would be welcomed over the course of the meeting: Russ Kinghorn, P.Eng., FEC, FGC (Hon.) of Engineers Canada. Also Dr. Conor Reynolds, P.Eng., Senior Project Engineer at MetroVancouver, Glen Parker, P.Eng., (Retd.), Operational Excellence Advisory for corporate Health, Environment and Safety at Chevron, and Rachel Wyles, P.Eng., Air Quality Engineer at Golder Associates Ltd. (via teleconference), (attending for item 6.3 - Presentation to the Federal Expert Panel Reviewing the Canadian Environmental Assessment Processes).

CO-17-18 OPEN CONSENT AGENDA

MOTION: It was moved and seconded that items 5.1 to 5.10 of the Open Consent Agenda be approved with items 5.6.1 and 5.10.3 being moved to the Open Regular Agenda.
CARRIED

Motions carried by approval of the Consent Agenda:

- 5.1 **MOTION** that Council approve the October 22, 2016 Open Meeting minutes as circulated.
- 5.2 **MOTION** that Council approves the recommended appointments and reappointments to APEGBC Volunteer Groups and to outside Organizations, as applicable.

Individual, Designation	Position	APEGBC Volunteer Group/Outside Organization	Staff Contact	Start Date	Expiry Date	New/Returning * Over 6 Years
Re-appointments (under six years)						
Frank Denton, P.Eng., FEC, FGC (Hon.)	Member	Discipline Committee	Efrem Swartz	January 25, 2017	January 25, 2019	Returning
Shiloh Carlson, P.Eng.	Member	Registration Committee	Gillian Pichler	December 12, 2016	December 11, 2018	Returning
Dr. Martin Edward Fandrich, P.Eng.	Member	Registration Committee	Gillian Pichler	December 12, 2016	December 11, 2018	Returning
David Harvey, P.Eng., Struct.Eng., FEC	Member	Registration Committee	Gillian Pichler	December 12, 2016	December 11, 2018	Returning
Ivan Wan Fung Lee, P.Eng.	Member	Consulting Practice Committee	Lindsey Steele-Diamond	September 12, 2016	September 12, 2018	Returning
Randall Robert Hillaby, P.Eng.	Member	Consulting Practice Committee	Lindsey Steele-Diamond	September 12, 2016	September 12, 2018	Returning
David Harvey, P.Eng., Struct.Eng., FEC	Member	Standing Awards Committee	Melinda Lau	November 29, 2016	November 28, 2018	Returning

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Sabina Kathleen Russell, P.Eng.	Member	Standard Awards Committee	Melinda Lau	November 29, 2016	November 28, 2018	Returning
Andrew Mill, P.Eng., Struct.Eng., FEC	Member	Investigation Committee	Efrem Swartz	November 28, 2016	November 28, 2018	Returning
Karen Savage, P.Eng., FEC	Member	Professional Practice Committee	Peter Mitchell	November 1, 2016	November 1, 2018	Returning
Catherine Fritter, P.Eng.	Member	Advisory Task Force on Corporate Practice	Peter Mitchell	January 1, 2017	December 31, 2017	Returning
Mike Currie, P.Eng.	Member	Advisory Task Force on Corporate Practice	Peter Mitchell	January 1, 2017	December 31, 2017	Returning
Dr. Michael Davies, P.Eng., P.Geo.	Member	Advisory Task Force on Corporate Practice	Peter Mitchell	January 1, 2017	December 31, 2017	Returning
Kathleen Groves, P.Eng.	Member	Advisory Task Force on Corporate Practice	Peter Mitchell	January 1, 2017	December 31, 2017	Returning
Susan Craig, P.Geo.	Member	Advisory Task Force on Corporate Practice	Peter Mitchell	January 1, 2017	December 31, 2017	Returning
K. Adrian Gygax, P.Eng., Struct.Eng.	Member	Advisory Task Force on Corporate Practice	Peter Mitchell	January 1, 2017	December 31, 2017	Returning
David Chwacklinski, P.Eng.	Member	Advisory Task Force on Corporate Practice	Peter Mitchell	January 1, 2017	December 31, 2017	Returning
Patricia S.M. Chong, P.Eng.	Member	Advisory Task Force on Corporate Practice	Peter Mitchell	January 1, 2017	December 31, 2017	Returning
Colin E. Smith, P.Eng.	Member	Advisory Task Force on Corporate Practice	Peter Mitchell	January 1, 2017	December 31, 2017	Returning
Dirk Nyland, P.Eng.	Member	Advisory Task Force on Corporate Practice	Peter Mitchell	January 1, 2017	December 31, 2017	Returning
Andrew J. Mill, P.Eng., Struct.Eng.	Member	Advisory Task Force on Corporate Practice	Peter Mitchell	January 1, 2017	December 31, 2017	Returning

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David Melville, P.Geo.	Member	Advisory Task Force on Corporate Practice	Peter Mitchell	January 1, 2017	December 31, 2017	Returning
Greg S.A. Scott, P.Eng.	Member	Advisory Task Force on Corporate Practice	Peter Mitchell	January 1, 2017	December 31, 2017	Returning
Eduards Miska, P.Eng.	Member	Advisory Task Force on Corporate Practice	Peter Mitchell	January 1, 2017	December 31, 2017	Returning
Scott J. Martin, P.Eng.	Member	Advisory Task Force on Corporate Practice	Peter Mitchell	January 1, 2017	December 31, 2017	Returning
Julius Pataky, P.Eng.	Member	Advisory Task Force on Corporate Practice	Peter Mitchell	January 1, 2017	December 31, 2017	Returning
Selena R. Wilson, P.Eng.	Member	Advisory Task Force on Corporate Practice	Peter Mitchell	January 1, 2017	December 31, 2017	Returning
John V. Turner, P.Ag. (ret.)	Member	Advisory Task Force on Corporate Practice	Peter Mitchell	January 1, 2017	December 31, 2017	Returning
New Appointments and Re-Appointments (over six years)						
Chris Arthur, P.Eng.	Member	Discipline Committee	Efrem Swartz	November 25, 2016	November 25, 2018	New
Jaswinder Bansal, P.Eng.	Member	Discipline Committee	Efrem Swartz	November 25, 2016	November 25, 2018	New
John Haythorne, P.Eng., FEC, FGC (Hon.)	Member	Discipline Committee	Efrem Swartz	November 25, 2016	November 25, 2018	New
Colin Smith, P.Eng., FEC, FGC (Hon.)	Member	Discipline Committee	Efrem Swartz	December 9, 2016	December 8, 2018	Returning*
Mark Dendy Lawton, P.Eng., FEC	Member	Building Codes Committee	Peter Mitchell	September 30, 2016	September 30, 2018	Returning*
John Wesley Lim, P.Eng.	Member	Building Codes Committee	Peter Mitchell	November 25, 2016	November 25, 2018	Returning*
Elizabeth Brown, P.Eng.	Member	APEGBC Editorial Board	Melinda Lau	December 1, 2016	November 30, 2018	New
Julio Bracho, P.Eng.	Member	APEGBC Editorial Board	Melinda Lau	December 1, 2016	November 30, 2018	New
Roger Ord, P.Eng.	Member	APEGBC Editorial Board	Melinda Lau	December 1, 2016	November 30, 2018	New

Mehrdad Roozbahani, P.Eng., FEC	Member	Investigation Committee	Efrem Swartz	November 25, 2016	November 25, 2018	New
Gregory Smith, P.Eng., Struct.Eng.	Member	Investigation Committee	Efrem Swartz	November 25, 2016	November 25, 2018	New
Clint Low, P.Eng., Struct.Eng., FEC	Member	Investigation Committee	Efrem Swartz	December 9, 2016	December 9, 2018	Returning*
Jeffrey Corbett, P.Eng., Struct.Eng., FEC	Member	Investigation Committee	Efrem Swartz	December 9, 2016	December 9, 2018	Returning*
Lindsay Bottomer, P.Geo., FGC, FEC (Hon.)	Member	Investigation Committee	Efrem Swartz	December 9, 2016	December 9, 2018	Returning*
Martin Ernesto Bollo, P.Eng.	Member	Board of Examiners	Mark Rigolo	November 25, 2016	November 25, 2018	New
Taco Anton Niet, P.Eng.	Member	Board of Examiners	Mark Rigolo	November 25, 2016	November 25, 2018	New
Delbert Ferguson, P.Geo., Eng.L.	Member	Geoscience Committee	Jason Ong	November 25, 2016	November 25, 2018	New
Dr. John Clague, P.Geo., FGC, FEC (Hon.)	Member	Nominating Committee	Janet Sinclair	November 25, 2016	October 21, 2017	New
Emily Cheung, P.Eng., FEC	Member	Nominating Committee	Janet Sinclair	November 25, 2016	October 21, 2017	New
Frank Denton, P.Eng., FEC, FGC (Hon.)	Member	Nominating Committee	Janet Sinclair	November 25, 2016	October 21, 2017	New
Nathan Ozog, P.Eng.	Member	Nominating Committee	Janet Sinclair	November 25, 2016	October 21, 2017	New
Tim Smith, P.Geo., Eng.L.	Member	Nominating Committee	Janet Sinclair	November 25, 2016	October 21, 2017	New
Alexander McGowan, P.Eng.	Member	Practice Review Committee	Peter Mitchell	December 9, 2016	December 31, 2018	Returning*
Randall Kovacs, P.Eng., FEC	Member	Practice Review Committee	Peter Mitchell	December 9, 2016	December 31, 2018	Returning*
Antonio J. Melo, P.Eng., FEC	Member	Practice Review Committee	Peter Mitchell	December 9, 2016	December 31, 2018	Returning*
Ken Newbert, P.Eng.	Member	Practice Review Committee	Peter Mitchell	December 9, 2016	December 31, 2018	Returning*
Charlotte-Ann Huffman, P.Eng., FEC	Member	Practice Review Committee	Peter Mitchell	December 9, 2016	December 31, 2018	Returning*

- 5.3 **MOTION** that Council approves the recommendations for considering the member motions of the 2016 AGM as circulated.
- 5.4 **MOTION** that Council approves the 2016/2017 Branch/Councillor pairings.
- 5.5 **MOTION** that Council receives the APEGBC financial results as at September 30, 2016.

- 5.6.1 This item was moved to the Open Regular Agenda.
- 5.7 **MOTION** that Council approves the changes to the Policy on Applicants whose Discipline of Practice/Experience is Different from their Discipline of Academic Qualification.
- 5.8 **MOTION** that Council approves the modifications to the Policy on Selection and Training of Registration Volunteers and Staff.
- 5.9 **MOTION** that Council approves the *APEGBC Professional Practice Guidelines – Legislated Dam Safety Reviews in BC* for final editorial and legal review prior to publication.
- 5.10 **MOTION** that Council receives the following information reports:
- CEO & Registrar Report
 - Branch Engagement Report
 - *This item was moved to the Open Regular Agenda (Engineers Canada Director's Report)*
 - Update on National Competency-Based Assessment
 - Report on APEGBC's Role in Geoscience Competency Assessment
 - Report on Enforcement Outreach Activities
 - Investigation and Discipline Committee Report
 - Corporate Engagement Update
 - APEGBC Road Map for 2016-2017
 - Council Attendance Summary

CO-17-19 OPEN REGULAR AGENDA

MOTION It was moved and seconded that Council approve the Open Regular Agenda with the addition of items 5.6.1 and 5.10.3 from the Open Consent Agenda.
CARRIED

MOTION It was moved and seconded that Council add item 6.6 (Creation of a CPD Task Force) to the Open Regular Agenda.
DEFEATED

CO-17-20 APEGBC ELECTION AND NOMINATION PROCESSES

MOTION It was moved and seconded that Council direct staff to create a terms of reference for a Task Force to review the nomination and election processes, and the associated Bylaw 3, and subject to approval of the terms of reference, the Task Force would be created.
CARRIED

CO-17-21 PRESENTATION TO THE FEDERAL EXPERT PANEL REVIEWING THE CANADIAN ENVIRONMENTAL ASSESSMENT PROCESSES (PRESENTATION)

Dr. Conor Reynolds, P.Eng., Senior Project Engineer at MetroVancouver, Glen Parker, P.Eng., (Retd.), Operational Excellence Advisory for corporate Health, Environment and Safety at Chevron, and Rachel Wyles, P.Eng., Air Quality Engineer at Golder Associates Ltd. (via teleconference) presented the materials that will go to the Federal Expert Panel that is reviewing the Canadian

Environmental Assessment Processes. The presenters were thanked for their time and left the meeting.

CO-17-22 RENEWAL OF MEMORANDUM OF AGREEMENT WITH IRANIAN ENGINEERS OF BRITISH COLUMBIA (IEBCA)

MOTION It was moved and seconded that Council approve the renewal of the Memorandum of Agreement with IEBCA (the MOA) and that the President be authorized to execute the MOA on behalf of APEGBC.

CARRIED

CO-17-23 APPROVAL OF 2017/2018 BUDGET GUIDELINES

MOTION It was moved and seconded that Council approves the 2017/2018 budget guidelines, as presented.

CARRIED

CO-17-24 ENGINEERS CANADA DIRECTOR'S REPORT

Russ Kinghorn, P.Eng., FEC, FGC (Hon.), APEGBC Director to Engineers Canada, presented the report to Council. Council discussed at length the intricacies of the Accreditation Program and its current status. This item was for information.

END OF OPEN SESSION

The Open Session ended at 2:11 pm.

Date: January 18, 2017

Report to: **Council for Decision**

From: Lindsay Steele, P.Geo.
Practice Advisor, Professional Practice, Standards & Development

Subject: APEGBC Professional Practice Guidelines – Flood Mapping in BC

Linkage to Strategic Plan: Improve resources and education as well as awareness and access to resources that help members practice to high professional and ethical standards.

Purpose: For decision and action.

Motion: That Council approve the *APEGBC Professional Practice Guidelines – Flood Mapping in BC* for final editorial and legal review prior to publication.

Background

APEGBC's Professional Practice, Standards and Development (PPSD) Department focuses on the proactive regulation of professional engineering and professional geoscience. One of the important ways in which PPSD delivers on the proactive regulation of the professions is through the development of APEGBC professional practice guidelines. These guidelines identify the standard of care APEGBC professionals are expected to provide in meeting the duty of care APEGBC professionals have in law when carrying out professional activities involving the practice of professional engineering and professional geoscience.

These professional practice guidelines establish a common level of expectation, for a variety of stakeholders on what constitutes good professional practice when carrying out a particular professional activity. These stakeholders include APEGBC professionals, statutory decision makers, clients, APEGBC, the public and a variety of other groups. In 2008 APEGBC Council approved the Council Policy on the Development of APEGBC Professional Practice Guidelines.

Discussion

In March of 2016, APEGBC entered into an agreement with the Ministry of Transportation and Infrastructure – Emergency Management BC to develop and publish professional practice guidelines on flood mapping in BC. In this agreement the above referenced Ministry provided \$100,000 to APEGBC in order to fund the development of this guideline. The guidelines will support the development of flood maps in a consistent manner, incorporating best practices.

APEGBC retained two subject matter experts to act as the authors of the guidelines and a group of 19 experts and other stakeholders to act as reviewers. Please see below for a detailed listing of those involved. The development of the guidelines began in April 2016 and included two in person meetings with the authors and reviewers.

Authors:

- David Sellars, P.Eng. – Kerr Wood Leidal Associates Ltd.
- Adrian Chantler, Ph.D., P.Eng – Consulting Hydrotechnical Engineer

Reviewers:

- Lotte Flint-Petersen, P.Eng. – Emergency Management BC (Ministry of Transportation and Infrastructure)
- Norma Miller – BC Real Estate Association
- Steve Litke – Fraser Basin Council
- Dave Murray, P.Eng., ASCT, CPESC – Canadian Water Resources Association
- David Fisher – Ministry of Transportation and Infrastructure
- Valerie Cameron, P.Geo. – Ministry of Forest, Lands and Natural Resources
- Glen Davidson, P.Eng. - Ministry of Forest, Lands and Natural Resources
- Neil Peters – Water Resources Consultant
- Nicky Hastings – Natural Resources Canada
- Carrie Baron, P.Eng. – City of Surrey
- David Blaine M.A.Sc., MBA, P.Eng. – City of Chilliwack
- David Roulston, P.Eng. – District of Squamish
- Monica Mannerstrom, P.Eng. – Northwest Hydraulic Consultants Ltd.
- Chris Rol – Insurance Bureau of Canada
- Graham Farstad, MCIP, RPP – The Arlington Group
- Brad Hidasny, P.Eng., CLS – GeoBC (Ministry of Forest, Lands and Natural Resources)
- Matthias Jakob, Ph.D., P.Geo., L.G. – BGC Engineering Inc.
- David Roche, P.Eng., M.A.Sc. – Kerr Wood Leidal Associates Ltd.
- Tamsin Lyle, P.Eng., M.Eng. MRM – Ebbwater Consulting

The consultation process with the Review Group went smoothly, with all of the reviewers providing useful feedback which was incorporated into the final draft. The group approved a motion, that the attached final draft be published, pending approval from Council and final legal and editorial review.

Consistent with their Terms of Reference, all APEGBC Professional Practice Guidelines must be reviewed by the Professional Practice Committee before they are submitted for the APEGBC Council for their approval. At their meeting on January 26, 2017, the APEGBC Professional Practice Committee approved the following motion: “The APEGBC Professional Practice Committee recommends that Council approve the APEGBC Professional Practice Guidelines – Flood Mapping in BC for final editorial and legal review.”

Recommendation

That Council approve the APEGBC Professional Practice Guidelines – Flood Mapping in BC for final editorial and legal review prior to publication.

Appendix A – APEGBC Professional Practice Guidelines – Flood Mapping Reviews in BC

Date: January 10, 2017

Report to: **Council for Information**

From: Ann English, P.Eng.
CEO & Registrar

Subject: CEO and Registrar Report to Council

Linkage to Strategic Plan: Continue to implement best practices in governance.

This report summarizes activities of the Leadership Team related to policy work, implementation of the Strategic Plan and ongoing Regulatory duties of the association since the November 25, 2016 meeting of Council.

1. Regulatory Matters

1.1 Seismic Retrofit Program Update

The BC Ministry of Education has approached APEGBC to extend the contract for the development of a further update to the Seismic Retrofit Guidelines (SRG) for another three years. The SRG provide a common engineering approach to the seismic upgrade of BC school buildings in order to meet a life safety standard. The Ministry of Education have identified that they would like to have the new contract in place by March 2017 and have proposed that it would extend from April 2017 through to March 2020.

1.2 Response from Members on the Restricted Time Reduced Member Fee

As anticipated, several members have expressed displeasure on the time restriction (2 years consecutive) on access to the reduced member fee, as well as the increase in the amount of the fee, both of which were approved by Council in September on the recommendation of staff. This, combined with this year's change in practice from waiving deferred fees for members in hardship if not paid by the end of the year, to carrying them over as owed to the next billing year has garnered strong recommendations from some members for APEGBC to reconsider its fee structure for retired members, and others who are unable to pay the full fee. An analysis and more fulsome report will be brought to the Council in April after the annual billing cycle is complete.

1.3 Accreditation Update

On August 17, 2016 Engineers Canada (EC) hosted a forum on accreditation in Toronto with attendance by 100 plus representatives from the EC Board, the Canadian Engineering Accreditation Board (CEAB), the National Council of Deans of Engineering and Applied Science (NCDEAS), each of the regulatory associations (CA's), and the National Admissions Officials Group (NAOG). In general, it was concluded that the status quo was not acceptable and several recommendations for improvements were suggested for further investigation and follow up.

At the September EC Board meeting, a motion was passed confirming that the same accreditation criteria be maintained for the upcoming years accreditation visits.

In October 2016, during the APEGBC annual conference in Victoria, the Dean of UBC (and later on UVIC) shared with the President and CEO of APEGBC and the President and CEO of EC that the level of concern had reached a stage that it was imperative and critical that alternates to the current CEAB accreditation needed to be explored.

On November 29, 2016, the NCDEAS, sent a letter to the President of Engineers Canada outlining their concerns with the current accreditation program run by the CEAB. They outlined that 36 of 38 Deans present were requesting changes to the accreditation program and were in favour of trying a pilot of a revised accreditation process. Eleven universities, representing over 50% of the engineering students in Canada, indicated an interest in participating in a pilot.

The Deans of UBC and UVIC have been leading the development of the pilot and APEGBC has been participating in its planning and development. To date a project overview document has been developed as well as an anticipated milestone schedule and a terms of reference (TOR) for a Pilot Advisory Committee. The TOR includes participation from a wide variety of stakeholders including the CEAB, the EC Board, the CA's, student associations, a Washington Accord accreditation representative, NCDEAS representation and others. It has been recognized that the Pilot Project needs a project manager and the NCDEAS are discussing funding options. The project manager would help lead the next steps of the development of the pilot design, consultation and implementation.

On January 9, 2017 EC held a meeting of the EC Executive Committee with the CEAB Executive Committee and its Policy and Procedures subcommittee. The APEGBC CEO (a member of the EC Executive Committee) was requested and provided an update on where the pilot project was at. Those present discussed the pilot but elected not to provide representation to the Pilot Advisory Committee at that time. The CEAB was asked by the EC Executive Committee to prepare a table that compares and contrasts the current CEAB accreditation criteria and to develop and share alternate means of assessing curriculum content with the NCDEAS for their input. The latter has not been distributed as of this date.

At the upcoming EC board meetings in Ottawa at the end of February there is a whole day accreditation workshop scheduled to discuss progress and next steps arising from the recommendations from the August Forum as well as the January 9 meeting. As well, the APEGBC CEO has been asked to provide a further update on the pilot to the Board at its February meeting.

2. Internal Operations

2.1 Nominating Committee Update

The Nominating Committee has had two meetings and is well on its way to developing its list of candidates. It is expected that the list will be published on Monday May 29, 2017.

2.2 Compliance Statement

APEGBC has met all of its legal obligations. There are no outstanding lawsuits or other liabilities that would materially modify our financial position.

2.3 Space Update

Final inspection from the City of Burnaby will occur in the last week of January. Some minor deficiencies and delay of delivery of a few furniture items due to manufacturer

issues will be completed in February. The total project cost is forecasted to be below the Council approved budget of \$1.5M.

3. Member and Public Affairs

3.1 Media Interactions

In this reporting period, APEGBC responded to four inquiries from media. In December, news agency Reuters contacted APEGBC for a reaction to the Terms of Reference approved for the Expert Panel on Modernization of the National Energy Board. The association was also contacted by CTV, seeking an update on the progress of the school seismic program. Pipeline development was also a topic of interest, and APEGBC was contacted to source a subject matter expert for Business in Vancouver regarding the cost of pipeline development and environmental assessments in relation to the Province's approval of the Trans Mountain Pipeline Expansion. In January, APEGBC was asked by the Victoria Times Colonist to comment on a recent court appeal related to a contaminated soil storage facility near Shawnigan Lake.

3.2 Member Engagement Strategy Update

In order to increase awareness and understanding of APEGBC's regulatory role, executive staff have now met with 10 of the 15 branch executive groups since last summer. The purpose of these meetings is to increase awareness of APEGBC's legislative framework and how it compares to other legislative models, and to engage branch executives in providing input on ways that the message can successfully be communicated to a larger contingent of members. Visits to the Vancouver Island, Okanagan, Northern, Burnaby/ New West, and Fraser Valley branches are being scheduled.

Council will discuss member engagement at its February planning session and has been provided with a summary of initial findings from the branch executive consultation visits in the session materials.

3.3 AGM Member Motion Update

Three member motions passed at the 2016 AGM are under review by Council. The motion review status is as follows:

Motion 1

That Council consider developing a proactive guideline that will require all members to take into consideration options to achieve net zero emissions in their professional practice.

The Climate Change Advisory Group is preparing a recommendation for Council which is on track to be presented at the April 2017 meeting.

Motion 2

That Council consider reporting the results of membership voting by branch, which then would be aggregated to the total returns.

This motion is under study and may be referred to a task force. A recommendation on this motion will occur at a future meeting of Council.

Motion 3

That, in the interest of improved openness and transparency with the membership and the public, Council consider implementing a policy of publishing, both in Innovation and by broadcasting to the membership by email, any received written request signed by 25

members [pursuant to section 12(7) of the Engineers and Geoscientists Act] at the earliest possible opportunity.

This motion was referred to the Executive Committee with the expectation that a recommendation to Council could be presented at the February 2017 meeting. Due to other priorities and the timing of the Executive Committee meeting, the Committee has not yet been briefed or had an opportunity to discuss this item. It is expected that this will be on the Executive Committee agenda in the coming weeks.

3.4 Continuing Professional Development – Voluntary Compliance

As part of the membership renewal process, members are asked to indicate if they are pursuing professional development in accordance with the Continuing Professional Development (CPD) Guideline. As of January 23rd, 51.37% of members with practicing status indicated compliance with the CPD Guideline for the 2016 calendar year. This represents 11,897 of 23,159 practicing members. As the question is voluntary, 25.12% of members checked the decline to answer box and 4.45% indicated they were not in compliance. 19.06% did not answer the question. A final reminder to members was sent out on January 25th and members are encouraged to declare by January 31st.

3.5 Professional Member Induction Ceremony

The next professional member induction ceremony will be held on Tuesday, February 21st from 5:00 to 7:00 pm and will be followed by a cocktail reception until 8:30 pm. Councillors are encouraged to attend this event to meet the Association's newest members. Life members are also invited to receive their gold foil during the presentation and recent recipients of the Engineers Canada Fellowship and Geoscientists Canada Fellowship have also been invited to receive their certificates during the presentation. The event will be held at the Fairmont Hotel Vancouver, Pacific Ballroom, located at 900 West Georgia Street, Vancouver.

3.6 Spring Branch Representatives Meeting

The annual dinner with branch representatives will be held on Thursday, April 6th in Richmond from 5 pm to 8:30 pm. This year, we will also be joined by Division representatives. This is an excellent opportunity to connect with the branch and division representatives and to learn more about the work they do to support the goals outlined by Council. The agenda for the evening will be forwarded once confirmed. The main business meeting of the Branch Representatives will take place on Friday, April 7th from 8:30 am to 4:30 pm. Council is also welcome to attend this working session as observers. More information will be circulated by email.

Date: January 26, 2017
Report to: **Council for Information**
From: Russ Kinghorn, P. Eng., FEC
Jeff Holm, P.Eng., FEC
APEGBC Directors to the Board of Engineers Canada
Subject: Engineers Canada Update

There has been no Engineers Canada Board meeting since the November Council meeting

Accreditation Update

On January 9, 2017, a joint meeting was held between the Engineers Canada Executive Committee and the Accreditation Board P&P Committee. The purpose of this joint meeting was to discuss the progress to date on the Accreditation Forum recommendations, to have a frank and open brainstorming session to explore what factors are critical to the successful future of our accreditation system as summarized:

- Agreed that all are committed to the evolution of our accreditation system to support regulators
- Better engagement is required between the CEAB, regulators & HEI's.
- Alternate measures of curriculum content will continue to be explored.
- Current constraints need to be better understood to identify and fix the system
- Conditional approval of HEI programs and program changes to support innovation
- Streamlining and reducing workload for the HEI's
- Strengthening the linkage between the Accreditation Board and the Deans
- Increasing Eng Can Support to the Accreditation Board

Next step

There will be a special Engineers Canada Board workshop to be held specifically to deal with accreditation on Sunday, February 26, 2017. It will be a workshop-style planning session for Engineers Canada Board members and Board Advisors to deal with the recommendations that came out of the Accreditation Forum, the concerns of our regulators and their admissions officials, and the issues raised by the NCDEAS.

Joint Executive Meeting with Professional Engineers and Geoscientists Newfoundland and Labrador (PEGNL)

A joint Executive Committee meeting was held with PEGNL on November 14, 2016. Topics included:

- PEGNL's envisioning & related board processes: Lessons Learned for Engineers Canada.

PEGNL presented their revised processes to make Policy Governance work for their organization. PEGNL has been using Policy Governance for well over 10 years but are now revising their approach. This entails:

- Their Board:
 - Developing an envisioning of the future
 - Continually improving policies
- Their CEO:
 - Building a multi-year plan to be executed by staff to achieve the Board's Ends.

It is the intention to incorporate these learnings in order to improve the coordination between the intentions of the Engineers Canada Board (in service to the Regulators) with the work of the Engineers Canada CEO and staff.

- Federal demand-side legislation – nothing significant to report
- Developing a national approach for dealing with the engineering team (technicians & technologists) – nothing significant to report

Respectfully submitted by Jeff Holm P.Eng. FEC and Russ Kinghorn P. Eng., FEC

Date: January 26, 2017

Report to: **Council for Information**

From: Garth Kirkham, P.Geo., FGC
Director, Geoscientists Canada

Subject: Geoscientists Canada Report to Council

Background

On January 21-22, 2017, Geoscientist Canada held the directors' meetings in Vancouver at the APEGBC offices. The directors' meetings addressed regular items of business and discussions.

Discussion

The attached document are the motions and actions taken. This is for information purposes only and no action were identified that required feedback from APEGBC council.

Attachment A – Motions and Actions

Respectfully submitted,

Garth Kirkham, P.Geo., FGC
Director, Geoscientists Canada



47th Meeting of Geoscientists Canada Board of Directors
Planning Meeting
Geoscientists Canada Office - 200-4010 Regent Street, Burnaby, BC
21 Jan 8:30-16:30; 22 Jan 8:30 - 12:00

Motions and Actions – provisional

Motion #1 that the agenda of the 48th Meeting of the Geoscientists Canada Board of Directors be approved and that the President be authorized to revise the order of business as necessary to accommodate the needs of the meeting.

Moved by: G. Eynon

Seconded by: G. Kirkham

Decision: Carried

[Added under Other Business: 25 Years History Project (G. Eynon)]

Motion #2 that the minutes of the Geoscientists Canada 46th Board of Directors Meeting on 5 November, 2016, be approved.

Moved by: S. McCutcheon

Seconded by: J. Parks

Decision: Carried

Motion #3 that the minutes of the Geoscientists Canada 47th Board of Directors Meeting on 2 December, 2016, be approved.

Moved by: J. Pearson

Seconded by: G. Lodha

Decision: Carried

Motion #4 To expand and restructure the Awards Committee to include covering consideration of process, terms of reference and mandate to put forward candidates for high level national awards , such as Order of Canada, etc.

Moved by: G. Eynon

Seconded by: J. Parks

Decision: Carried

Motion #5 to change to name to “Council” and approve the amended Terms of Reference for the Canadian Geoscience Standards Council.

Moved by: S. McCutcheon

Seconded by: M. Priddle

Decision: Carried

Motion #6 that Board agrees to rename the CGSB to Canadian Geoscience Standards Council and approve the proposed ToR as amended.

Moved by: L. Perks

Seconded by: J. Pearson

Decision: Carried

[Amendments: replace “Committee” for “Council” as appropriate & remove “in Canada” from # b)]

Motion #6 to adjourn

Moved by: J. Parks

Seconded by: G. Lodha

Decision: Carried

Action #1 All Directors to get feedback from their CAs on the Short Course for Students and report back to Board.

Action #2 Jeff P and John P to send draft GIT booklet in design to GIT and young reader reviewers for reaction and feedback

Action #3 GK to close loop with CSA on completion of the QP Short-course and seek their feedback and their support in course presentation nationwide.

Action #4 Directors to consult with their CA on status of plans for offering of the QP short-course to students in their jurisdiction

Action #5 OB to relay to G4S Committee that booklet should cover airborne, ground geophysics and remote sensing - particularly Canada's history and depth in these areas of geoscience

Action #6 OB to contact CEO Group on behalf of Board to express concern that CEO Group chair position remains vacant

Action #7 OB to raise matter of K.Kivi letter with CEO Group

Action #8 OB to draw up plan for National Photo Competition and bring to the Executive Committee for review, with plan to take plan to the Board for approval in June

Action #9 HF to forward PEGNL letter to CGSC (formerly CGSB) for attention and response

Action #10 HF to reply to PEGNL

Action #11 Concerning RFG Call for Sessions - GE to prepare and submit session proposal on use and enforcement of Codes of Ethics; OB to submit on QP/CP systems in resources reporting

Action #12 OB to investigate with AGI if a non-member of AGI can be a signatory of its Guideline on Ethical Professional Conduct

Action #13 HF to respond the Dennis LePointe of ASBOG 1) Refer to GKE as the pertinent reference for admissions requirements; 2) Provide status of QP short-course explaining it will be offered in Canada at universities and at conferences and other events, but no beyond except by special arrangement; and 3) Become active in IUGS TG-GGP to learn more about Europe, Australia, etc.

Action #14 OB to reply to ESfS declining sponsorship (our donations budget better focused on geoscience students and young grads entering the profession.

Action #15 OB (with aid of directors) to map out use of P.Geo in "demand side" regs and codes in all provinces and territories by practice activity (groundwater, geohazards, site assessments, etc, in addition to mining and energy) [Ref Implementation Plan Item 1A]

Action #16 OB to rework Implementation Plan Table with new column showing: Tasks completed; Tasks ongoing and Tasks to be addressed for review by the Executive Committee

Date: January 20, 2017

Report to: **Council for Information**

From: Melinda Lau
Acting Director, Communications and Stakeholder Engagement

Subject: Branding Initiative Update

Linkage to Strategic Plan: Members and Future Members, Gov't, Public and other stakeholders, Enabling Goal

Purpose:	To update Council on the status of the branding initiative and provide information on next steps.
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Motion:	None required.
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Background

Council's 2014-2017 Strategic Plan has a major focus to improve brand recognition for the association and the professions of engineering and geoscience. The plan set two objectives to *"Develop and implement an organizational brand strategy for APEGBC"* and *"Develop and implement a brand strategy for the BC engineering and geoscience professions."*

To deliver on these objectives, APEGBC undertook a major initiative to renew the association's brand identity. This involved research and consultation with members and stakeholders to better understand and develop a brand that more accurately represents BC engineers and geoscientists, and the association's regulatory role, and which is supported by a strategic marketing and communications approach.

Conviction statements establishing the foundational elements of the new brand identity were developed and shared with Council in fall 2015. At its September 2016 meeting, Council approved the name "Engineers and Geoscientists British Columbia" and a logo concept for development and implementation.

Discussion

Staff are now executing the roll-out plan and preparing for the transition to the renewed brand. This includes a communications plan to engage members and stakeholders through all our communications channels from now until the launch in mid-June. Council will preview the launch package prior to releasing it to members and the public.

The first major public event that will showcase the new brand identity is the Member Induction Ceremony.

To support a strategic approach to the roll-out of the brand, members of Council are asked to keep any logo images confidential until the official launch.

The launch of the association's new brand identity is an opportunity for positive engagement with members and stakeholders. With this in mind, we have prepared the following key messages for Council's use:

- We are excited to share the association's new brand identity with members and the public in June.
- Preparations are underway for implementation of the new brand. Information about it will be shared across all of our communications platforms in the coming months (*Innovation, Enews, social media, etc*).
- Renewing and modernizing the association's brand supports our goal of **increasing public recognition and appreciation** of BC engineers and geoscientists, **and awareness of APEGBC's role as a regulator** working in the public interest.
- **Consultation** with members and stakeholders **was essential** to the development of a new brand identity that would 1) **more accurately represent the association and all its members** across the span of their professional lives, from student to senior professional and 2) be **more relatable** and attractive **to potential members**.
- Putting a **modern and progressive** face on APEGBC is considered important by members in promoting the association to the public and potential members, as well representing the professions and the association as **diverse and inclusive**.
- The new brand identity encompasses the values that members have told us they most identify with: **ethics, excellence and progress**.
- The new business name of the association will be 'Engineers and Geoscientists British Columbia.'
- A new logo and colour scheme that incorporate a clean, modern look, with elements that represent both professions will replace the old square logo.
- Language, tone and characteristics that emphasize the newly articulated brand values and brand ideas will be applied and carried throughout the association's member- and public-facing communications.
- OQM companies, branches, and divisions will be receiving information in the spring to support their transition to the new brand.

Questions about key messages or the roll out of the new brand may be directed to the report's author.

Appendix A – Brand Conviction Statements (Confidential – distributed separately)

Appendix B – Logo Concept (Confidential – distributed separately)

Date: January 25, 2017

Report to: **Council for Information**

From: Jennifer Cho, CPA, CGA
Director of Finance & Administration
Kevin O'Connell, CPHR
Manager, Human Resources

Subject: Volunteer Guidelines Rollout Plan

Linkage to Strategic Plan: Effective governance and resources that enable and guide APEGBC's operations.

Purpose:	For Council to be made aware that the Volunteer Guidelines are ready to be made available to all volunteers.
Motion:	No motion.

Background

In 2014, a Volunteer Engagement Survey was conducted and the need for a policy and procedure manual was identified by volunteers as a priority. As part of the volunteer orientation program that is in development, guidelines for volunteers have been created. This document provides volunteers with information on policies and procedures that influence their involvement with APEGBC. A copy of the document is attached as Appendix A.

At the June 17, 2016 meeting, Council approved the Volunteer Guidelines (Appendix A), subject to legal and editorial review. Both legal and editorial reviews have since been completed.

Discussion

Some of the sections included in the Volunteer Guidelines outline APEGBC policies regarding confidentiality, conflict of interest, alcohol and drug policy, bullying, harassment and violence, engaging in political activities and interactions with the media. This document will be made available online and be accessible to all volunteers. All current volunteers would be requested to read and acknowledge their acceptance of the policies and procedures. Going forward, this process would be part of the orientation for new volunteers.

Not all of the policies within the document are new and depending on the volunteer group, some volunteers currently do sign confidentiality and conflict of interest agreements. However, the policies have not been shared with volunteers in a consistent way. The creation of the Volunteer Guidelines and requiring volunteer acknowledgement of the policies and procedures helps to better support APEGBC operations and good governance, as well as aides to limit our legal liability with respect to the sections noted in the document. It also provides volunteers with resources to support them in their involvement with APEGBC.

Conclusion

APEGBC will commence making the Volunteer Guidelines available to all volunteers in March 2017 and on an ongoing basis.

Appendix A – Volunteer Guidelines

Date: January 26, 2017

Report to: **Council for Information**

From: Deesh Olychick
Director, Member Services

Subject: Update on Diversity Initiatives

Linkage to Strategic Plan: Foster diversity and inclusiveness

Purpose:	To provide Council with an update on diversity initiatives
Motion:	No motion required.

Background

In June 2013, the Women in Engineering and Geoscience Task Force provided a report to Council with a number of recommendations on how to better recruit and retain women in the professions. Significant progress has been made on the recommendations and the recommendations will continue to play an important role in how APEGBC conducts its business ensuring that diversity and inclusiveness remain a priority. A detailed look at the progress is provided in the attachment (Appendix A). Some highlights are listed below:

- 18 recommendations were made by the Women in Engineering and Geoscience Task Force and 97% of the tasks are now complete, though not all tasks led to the desired outcome (employment insurance reform & new award for diversity). Many of the recommendations are items that we will continue to build on to make ongoing improvements.
- With respect to employment insurance reform, APEGBC has asked Engineers Canada to re-visit the issue with the new federal government and Engineers Canada is engaging with the federal government on this issue. In 2016, APEGBC endorsed Bill C-243; the development of a national maternity program and amendments to the Employment Insurance Act. The Bill would improve the benefit structure for women who perform dangerous jobs and as such are unable to work due to their pregnancy. The Bill passed in October 2016 and has been referred to a Committee for further review.
- APEGBC's *Human Rights and Diversity Professional Practice Guidelines* were released in January 2017 and an overview of the guidelines was provided at the 2016 APEGBC Annual Conference. A session is also scheduled for February 2017. The session will be recorded and made available to members.
- The APEGBC 2016 Annual Conference included a professional development stream for diversity and included five sessions spanning in subject matter from communication with Indigenous Communities, Supporting the 30 by 30 goals, and the APEGBC Human Rights and Diversity Guidelines.

- In April 2016, Council selected a 30 by 30 champion to support Engineers Canada's 30 by 30 goal which is to reach 30% of new registrants being female by 2030. APEGBC's 30 by 30 champion attended a meeting in November 2016 hosted by Engineers Canada to share best practices and determine common goals. Currently, 13.6% of APEGBC members are female and 16.3% of new registrants (registered so far in Fiscal Year 2017) are female.
- In February 2016, Council approved a policy to assist refugees in registering with APEGBC and also waived the application fee for refugees. To date, APEGBC has received five applications from applicants with refugee status and has assisted Alberta and Engineers PEI with 10 additional applications. APEGBC Council also extended the application fee waiver for refugees until November 2017. In November 2016, APEGBC was invited by the Canadian Information Centre for International Credentials (CICIC) to present as part of a panel discussion at a conference in Toronto. APEGBC's refugee policy was well received by attendees.
- To support future members, APEGBC with support from other regulators, has created a Working in Canada Seminar for internationally trained applicants. This seminar helps internationally trained applicants improve their understanding of our registration process and practice requirements in a Canadian workplace environment. The online module is currently being piloted with subject matter experts and test applicants. The program is scheduled to be available in Summer 2017.

In February 2016, Council discussed the Women in Engineering and Geoscience Task Force recommendations and the progress made. There was consensus amongst Council that the association is engaged in a number of diversity initiatives and that there is good progress being made. However, Council did ask staff to explore how APEGBC can better support Indigenous Outreach.

In support of developing a strategy for APEGBC to promote Indigenous peoples' participation in engineering and geoscience, APEGBC has been working closely with Engineers Canada. At the invitation of Engineers Canada, APEGBC attended the American Indian Science and Engineering Society's (AISES) annual conference along with other representatives from Universities across Canada. AISES is a non-profit organization in the United States focused on increasing the representation of Indigenous peoples of North America in science, technology, engineering and math (STEM) studies and careers. The event attracted over 1,000 students from across the United States and was supported by major industry sponsors. As part of the event, a meeting was held with the Society's Board Chair and the Chief Executive Officer. Discussions are underway to see how this model may work in Canada.

As a next step, APEGBC is looking to connect with more members of the Indigenous community in BC to learn how APEGBC can best utilize its role in promoting Indigenous peoples' participation in engineering and geoscience.

Appendix A – Update on Task Force Recommendations

Date: January 20, 2017

Report to: **Council for Information**

From: Paul Adams, P. Eng., FEC, Chair of the Discipline Committee
Neil Nyberg, P. Eng., FEC, Chair of the Investigation Committee

Subject: Investigation & Discipline Status Report

Linkage to Strategic Plan: Develop strategies for protection from non-compliant members and unregistered practitioners.

Purpose:	Investigation & Discipline status report for the period from November 1, 2016 to December 31, 2016
Motion:	None

DISCIPLINE FILES FOR THE PERIOD NOVEMBER 1, 2016 TO DECEMBER 31, 2016.

Re: 2015-2016 Files

Johannes Bluemink, P. Eng: A Notice of Inquiry was issued to Mr. Bluemink. In lieu of proceeding to a disciplinary inquiry, Mr. Bluemink agreed to a Consent Order signed December 22, 2016. In the Consent Order, Mr. Bluemink admitted that he demonstrated unprofessional conduct, incompetence, or negligence by sealing structural drawings for two jacking frames needed as part of a project to remediate part of the roof at a pulp mill in Prince George, BC which were deficient and fell below the standard expected of a professional engineer. As part of the Consent Order, Mr. Bluemink agreed to:

1. Not perform structural engineering except for structural design in connection with the structural components of mechanical systems;
2. Have his structural designs in connection with the structural components of mechanical systems peer reviewed for a minimum of 12 months;
3. Prior to applying to be relieved from his peer review requirement, Mr. Bluemink must obtain the written opinion of the peer reviewer as to whether Mr. Bluemink is fit to perform structural design in connection with the structural components of mechanical systems without peer review and successfully complete the Structural Engineering Association of BC 12-week Structural Steel Design for Buildings course; and
4. Pay a \$5,000 fine to APEGBC and \$5,000 towards APEGBC's legal costs within 30 days of the Consent Order.



Neil Nyberg, P.Eng.
Chair, Investigation Committee



Paul Adams, P.Eng.
Chair, Discipline Committee

Investigation and Discipline File Summary November 1, 2016 to December 31, 2016.

1. Statistics

Re: 2016-2017 Files: So far for the fiscal year between July 1, 2016 to December 31, 2016, APEGBC opened 31 investigation files and 1 file where we were investigating on behalf of the Registration Committee.

For this reporting period between November 1, 2016 and December 31, 2016 APEGBC opened 12 investigation files.

Investigation Files :	
Total open investigation files carried forward as of October 31, 2016 :	97
New Investigation Files Opened between November 1 to December 31, 2016:	12
New Files opened to assist the Registration Committee between November 1 to December 31, 2016 (*Note, this is a new category of classification)	0
Files Closed between November 1 to December 31, 2016:	12
Investigation Files sent to Discipline between November 1 to December 31, 2016:	1
Total Investigation Files Open at December 31, 2016:	98
Discipline Files:	

Open discipline files carried forward as of October 31, 2016:	6
Files received from Investigation Committee (see above)	1
Discipline Files Closed between November 1 and December 31, 2016:	1
Total Discipline Files Open at end of December 31, 2016:	6

New Files: The following is a breakdown of the categories of the 12 new complaints. The categories are approximate only and are not necessarily reflective as to the issues that the Investigation Committee may isolate on its review of the complaints:

Mining – 3
Structural – 2
Use of Seal – 2
Conduct Matters (not professional competence) – 1
Geotechnical – 1
Mechanical – 1
Sewerage – 1
Building Envelope – 1

2. Outcomes between November 1 and December 31, 2016:

Staff	Files closed by Registrar	8
	Files referred to Practice Review Committee by Registrar	2
	Files closed by Designated Reviewer	1
	Assistance to Registration Committee completed	0
Total closed during Intake Phase		11
Investigation Committee	Files closed by Investigation Committee	0
	Files referred to Practice Review Committee by Investigation Committee	1
Total investigation files closed		1

Discipline Committee	Notice of Inquiry proven at Inquiry	0
	Notice of Inquiry not proven at Inquiry	0
	Consent Order accepted by member	1
	Other (Consent Dismissal Order)	0
Total discipline files closed		1

Date: January 20, 2017

Report to: **Council for Information**

From: Ann English, P.Eng.
Chief Executive Officer & Registrar

Subject: Council Road Map for 2016/2017

Linkage to Strategic Plan: Effective governance and resources that enable and guide
APEGBC's operations.

Purpose:	To provide Council with the current status of the actionable items listed on the Council Road Map for 2016/2017
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Motion:	No motion required. This item is for information.
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Background

The attached document summaries expected agenda items that are planned to be brought forward to Council during the 2016-2017 Council year. The items are aligned with the Strategic Plan and will help Council see the progress on elements of the Plan. This road map is not exclusive and additional items may be added as required throughout the year but will serve as a focus for this year's meetings.

Kindly note the following items on the Work Plan that have been postponed until the April 2017 Council Meeting:

The 'Visiting Dean' item has been shifted from the February meeting to the April meeting as Dr. Eugene Fiume was appointed as the new Dean of Applied Sciences at Simon Fraser University on January 3, 2017. Delaying this item until the April meeting allows him time to become better acquainted with his new appointment and the programs that he would present on.

The 'Proposal Bridge P.Tech to Eng.L.' item has been shifted from the February meeting to the April meeting due to lack of time at the November and January Limited Licence Subcommittee meetings. Next steps are for the committee to map and compare competency evaluation systems for ladder purposes from P.Tech. to Eng.L. and consider other process possibilities, (e.g. whether a joint evaluation for P.Tech. and Eng.L. could be piloted to compare and contrast the differences in the presentation of competency by a new applicant).

The 'Enhanced MIT Program Policy' item has been shifted from the February meeting to the April meeting. The first training of mentors has been completed for the Enhanced MIT program. The pilot framework and policy that sets out the conditions that must be met and process for expedited review of a Member in Training under the program are being developed and are expected to be taken to the March Registration Committee meeting for endorsement, following which they will be sent to Council for approval.

Attachment A – APEGBC Council Road Map for 2016/2017

APEGBC Council Road Map for 2016-2017

Attachment A

	HIGHLIGHTS	November 25 (Council Mtg)	February 9 (Planning Session)	February 10 (Council Mtg)	April 28 (Council Mtg)	June 16 (Council Mtg)	September 8 (Council Mtg)	October 19-21 (Annual Conf & AGM)
Members & Future Members	BRANCHES, DIVISIONS & SOCIETIES REPORTS	Report of the October 2016 Branch Rep Meeting Branch Engagement Rpt			Branch Engagement Rpt		APEG Foundation AGM and Benevolent Fund AGM Branch Engagement Rpt	
	IMPROVING MEMBER SUPPORT & BRAND		Member Engagement Rpt	Brand Development Update	Report on Eng.L. Title Research		Public Opinion Survey Member Engagement Strategy Update	
	ENHANCING REGISTRATION PROCESSES	Report on APEGBC's Role in Geoscience Competency Assessment			Report/Proposal Bridge P.Tech. to Eng.L. Enhanced MIT Program Policy Fairness Panel Annual Rpt	Canadian Environment Experience Alternatives Report, Working in Canada Seminar - Policy and Implementation Approval	Annual Update on Eng.L. to P.Eng. Bridging	
Members, Employers, etc.	EMPLOYER ENGAGEMENT			Corporate Engagement Rpt Update on OQM Program	Update on OQM Program Approve Accredited Employer Training Program from Pilot to Permanent			
Government, Public & Other Stakeholders	INCREASING PUBLIC CONFIDENCE			Coporate Practice Task Force Rpt Update from CPD Committee		Approval of Award Nominations	Year End Rpts on (1) Investigation and Discipline and (2) Enforcement	
	ACADEMIC OUTREACH				Visiting Dean (SFU new Dean appointed in January)		Visiting Dean (UBC)	
	ENGINEERS CANADA AND GEOSCIENTISTS CANADA	Directors Rpt Update & Prospectus for approval re: National Competency-Based Assessment		Directors Rpt	Directors Rpt	Directors Rpt		
Enabling Goal	STRATEGIC PLAN CYCLE AND MONITORING ACTIVITIES		Prioritization of Strategic Plan Initiatives KPI Progress Update for 2016/2017		Approval of Strategic Plan Initiatives		AGM Rules Strategic Plan and KPI Update	
	LEGISLATION CHANGES AND BYLAW CYCLE				Approval of Registration Hearings Committee Bylaw Gov Comm Rpt on possible Revisions to Bylaws and Procedures re Delegation to Comms (tentative)	Draft Bylaw changes w/ Consultation Plan (tentative)		
	IMPROVING DIVERSITY			Update on Diversity Initiatives			Update on Volunteer Management Activities	
	EFFECTIVE GOVERNANCE	Council Governance Training; Approval of Nominating Committee Appointees; AGM Motion Referral		Calendar 2016 Registration Admissions Report	Election Policy Approval		Council Evaluation Fiscal 2017 Registration Admissions Report	Appointment of Councillors to Committees
	FINANCIAL OVERSIGHT	Quarterly Financial Report / Budget Guideline Approval		Quarterly Financial Report	Quarterly Financial Report/ Budget approval		Audited Financial Statements / Year End Review	Approval of Auditors
	Activities Completed							
	Activities Behind Schedule (by end of September)							
	New Item	Items Advanced						

Date: January 25, 2017

Report to: **Council for Information**

From: Ann English, P.Eng.
Chief Executive Officer & Registrar

Subject: Council Attendance Summary

Linkage to Strategic Plan: Effective governance and resources that enable and guide
APEGBC's operations

Purpose:	To inform Council on the Council Attendance Summary
Motion:	No motion required

Background

The Council Attendance Summary is used to track individual Councillor attendance at the Council meetings and other related Committee meetings that Councillors are a part of (e.g. the Executive Committee, the Governance Committee, the Registration Committee, etc.). Each Councillor is assigned a column which is regularly updated. Presently the table only shows the Council meetings, Executive Committee meetings, and a few other events; the table will be updated as the dates of the other Committees are determined.

At the end of the Council year, each Councillor's column will be tallied and a percentage applied. The intent in curating this summary is to provide information that will assist with future correspondence relating to things such as the election; this will enable staff to display the high level of dedication that is required of candidates. The Council Attendance Summary will also provide a clear visual of the amount of meetings that the average Councillor is required to attend and how many meetings each Committee holds.

	Bob Stewart, P.Eng.	Dr. Ed Casas, P.Eng.	Dr. Mike Winch, P.Eng.	Suky Cheema, P.Eng., FEC, FGC (Hon.)	David Wells, CA, CPA	Ken Laloge, CPA, CA, TEP	Kathy Tamai-Lokhorst, P.Eng., FEC	Brock Nanson, P.Eng.	Caroline Andrewes, P.Eng.	Larry Spence, P.Eng.	Susan Hayes, P.Eng.	Ross Kettie, P.Eng.	Cassandra Hall, P.Eng., FEC	Richard Farbridge, P.Eng.	Scott Martin, P.Eng.	Chris Moser, P.Eng.	John Turner, P. Ag. (ret)
Oct 22, 2016 (Inaugural Council)	✓	✓	✓			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Nov 7, 2016 (ATFCP)														✓			✓
Nov 9, 2016 (Orientation)	✓	✓	✓				✓		✓	✓	✓						
Nov 9, 2016 (Reg Comm)							✓		✓		✓	✕					
Nov 16, 2016 (Exec Comm)	✓	✓	✓			✓	✓										
Nov 16, 2016 (Gov Comm)			✓					✓					✓			✓	✓
Nov 22, 2016 (Orientation for New GA's)				✓	✓												
Nov 24, 2016 (New Council AG Walk-Thru)	✓	✓		✓	✓		✓		✓	✓	✓						
Nov 25, 2016 (Council)	✓	✓	✓	✕	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Dec 6, 2016 (ATFCP)														✓			✓
Dec 7, 2016 (Exec Comm)	✓	✓	✓			✓	✓										
Jan 18, 2017 (Exec Comm)	✓	✓	✓			✓	✓										
Jan 18, 2017 (Gov Comm)			✓					✓					✓			✓	✓
Jan 25, 2017 (Reg Comm)							✓		✓		✓	✕					
Jan 26, 2017 (Branch Visit - Rich/Delta)		✓															
Jan 26, 2017 (Prof Prac Comm)					✓				✓	✓	✓						
Jan 31, 2017 Audit Comm)				✓		✓		✓					✕		✕		
Feb 8, 2017 (Planning Session, Pt 1)												✕		✕			
Feb 9, 2017 (Planning Session, Pt 2)												✕		✕			
Feb 10, 2017 (Council)												✕		✕			
Feb 23, 2017 (Exec Comm)																	
Mar 2, 2017 (Branch Visit - Central Int)																	
Mar 6-7, 2017 (Govt Receptions)																	
Mar 8, 2017 (Reg Comm)																	
Mar 9, 2017 (ACEC-BC/APEGBC Joint Exec)																	
Mar 16, 2017 (Exec Comm)																	
Mar 29, 2017 (Exec Comm)																	
Apr 19, 2017 (Reg Comm)																	
Apr 28, 2017 (Council)																	
Apr 20, 2017 (Branch Visit - Vancouver)																	
May 12, 2017 (Industry Breakfast)																	
May 29, 2017 (Exec Comm)																	
May 31, 2017 (Reg Comm)																	
June 16, 2017 (Council)																	
June 20, 2017 (Audit Comm)																	
June 28, 2017 (Reg Comm)																	
Aug 9, 2017 (Exec Comm)																	
Aug 16, 2017 (Reg Comm)																	
Aug 23, 2017 (Audit Comm)																	
Aug 28, 2017 (Exec Comm)																	
Sept 8, 2017 (Council)																	
Sept 29, 2017 (Reg Comm)																	
Oct 19, 2017 (Conference)																	
Oct 20, 2017 (Conference)																	
Oct 21, 2017 (AGM)																	
Percentage of Attendance																	

☐

Attendance Required

///

Meeting Cancelled

Meeting cancelled.

Victoria



Date: January 26, 2017

Report to: **Council for Information**

From: Gillian Pichler, P.Eng.
Director, Registration

Subject: Registration Report – Admissions & Membership for Calendar 2015

Linkage to Strategic Plan: Goal 1: Members and Prospective Members
Goal 2: Members' Employers and Clients
Goal 3: Government, Public and Other Stakeholders
Goal 4: Enabling Goal

Purpose: The Registration Report (Admissions & Membership) is provided to Council on a semi-annual basis. Reports are provided to Council at its September meeting to provide fiscal year end results; and at its first meeting of each calendar year to report on the prior calendar year for budget planning purposes. Members of Council are invited to provide feedback on any aspect of the attached report and are welcome to ask for additional analysis.

Motion: No motion required.

Discussion

Changes of Note from the September 2016 Registration Report

- a. The step change in 2015 application levels held and continued to grow another 1.7% in 2016;
- b. The percentage of the total of new P.Eng. applications that were received from internationally-educated applicants tipped to 51%. Iran remained in top place overall as a source country after Canada; however the percentage of applications from Iran continued to drop from 22% to 9%. This number typically fluctuates ;
- c. As the main intake province, APEGBC has received and registered 24 applicants from other provinces who applied under the multiple application agreement signed in May by APEGBC, Engineers Nova Scotia, Engineers PEI and Engineers Yukon.
- d. In response to the policy approved by Council in February of last year for refugee applicants who do not have traditional documentation, APEGBC has been seen as a leading professional regulator with respect to making reasonable accommodations for refugees. We have been asked by APEGA and EPEI to evaluate their applicants who are refugees or in a refugee-like situation. APEGBC was also invited to participate on a panel at a national workshop in November on *Practical Approaches in Assessing the Credentials of Refugees*, organized by the Canadian Information Centre for International Credentials (CICIC) Assessing the Qualifications. Mark Rigolo, Associate Director,

Engineering Admissions represented APEGBC and his presentation was extremely well received.

- e. APEGBC has initiated an online confirmation module for applicants who are applying for 'transfer' of membership under an internal trade agreement (AIT or NWPTA). The system, developed by APEGBC's Information Systems staff, sends the applicant's claimed credentials to the home regulator who verifies it online, followed by a check by APEGBC's Member Relationship Management System that the information provided matches that verified by the home regulator. This has saved significant staff time and virtually makes the application and acceptance process automatic. The system has been piloted with APEGA and will soon be rolled out across the country.
- f. Registration and Member Services have completed the training of the first cohort of mentors for the Enhanced Engineer-in-Training Program. This program provides an EIT with a mentor trained in the requirements for reporting experience in APEGBC's competency based assessment system so that they can provide one-on-one guidance to their mentee. The expectation is that this program will increase the quality of competency assessments received from participating EITs to the degree that many can receive expedited assessments.
- g. The Accredited Employer Member-in-Training Program has expanded the number of employers participating in the program pilot. As of December 2016, ten employers with a combined 73 EITs have been granted provisional accreditation; and eight EIT 'graduates' that have been granted their P.Eng. licences under the auspices of the program.
- h. A total of 15 applications have been received from Engineering Licensees wishing to qualify for Professional Engineer registration through APEGBC's bridging pilot, initiated in March of last year. Only one applicant has actively pursued completion of the application requirements to date.
- i. As part of a national pilot and project, APEGBC is preparing to roll out its Competency-Based Assessment system for engineering experience to four other regulators in Canada. More information is available in a separate report on this agenda.

Statistics and Analysis

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Applications

Application Growth for 3 Calendar Years

- Application growth has continued in 2016, led by members-in-training, but continues to lag 2014 levels for new professional geoscientist applications. Overall, the significant increase experienced in 2014 has been sustained and has grown slightly.
- The 36% increase experienced in 2015 for applications from Alberta registered candidates grew slightly to 38% through calendar 2016, with 755 applications received vs 545 in 2014.

New Applications*				
Application Type	December 31, 2014 Total	Thursday, December 31, 2015 Total	Saturday, December 31, 2016 Total	Increase over Prior Year
First Time Applying in Canada				
Professional Engineer ¹	1121	1212	1054	-13.0%
Professional Geoscientist ¹	117	86	78	-9.3%
Engineer-in-Training	1339	1267	1407	11.0%
Geoscientist-in-Training	127	69	101	46.4%
Limited Licence	24	29	32	10.3%
Total First Time Applying in Canada	2728	2663	2672	0.3%
National Mobility Transfers				
Professional Engineer	865	1047	1059	1.1%
Professional Geoscientist	42	41	45	9.8%
Engineer-in-Training	89	158	149	-5.7%
Geoscientist-in-Training	10	6	16	166.7%
Limited Licence	3	8	26	225.0%
Total National Mobility Transfers	1006	1260	1295	2.8%
Other				
Designated Structural Engineer	10	5	7	40%
Total New Applications	3744	3928	3974	1.2%
Application Growth over Prior Year	43%	5%	1%	
		Average 3 year application growth	16%	

¹ Includes Non-Resident Licence Applicants

*does not include reinstatement/ return to practice and Life Member applications

First-Time in Canada¹ P.Eng. and P.Geo. Applicants**Canadian vs Internationally Trained**¹ First time making this type of application in Canada: Excludes transfers from other Provinces

Application Type	Total	Internationally Trained		Canadian Trained	
Professional Engineer	1054	537	51%	517	49%
Professional Geoscientist	78	25	32%	53	68%

² Includes Non-Resident Licence Applicants**Top 5 Source Countries****Professional Engineer Applicants**

Country	2015			2016		
	Applicants	Ranking	Percentage of Total Applicants	Applicants	Ranking	Percentage of Total Applicants
Iran, Islamic Republic of	263	1	22	93	1	9
United States	129	2	11	75	2	7
India	103	3	8	57	3	5
China	99	4	8	48	4	5
United Kingdom	58	5	5	33	5	3

Professional Geoscientist Applicants

Country	2015			2016		
	Applicants	Ranking	Percentage of Total Applicants	Applicants	Ranking	Percentage of Total Applicants
Iran, Islamic Republic of	10	1	7			0
United States	9	2	7	7	1	9
New Zealand	8	3	6	1	6	1
Colombia	8	4	6	0		0
Australia	7	5	5	1	6	1
United Kingdom	3	8	2	3	2	4
France	0			2	3	3
South Africa	6	6		2	4	3
Turkey	0			2	5	3

New Registrants/Licensees – First Licence in Canada –Calendar 2016

Canadian vs Internationally Trained

Licence ¹ Type	Total	Internationally Trained		Canadian Trained	
Professional Engineer	1700	626	37%	1074	63%
Professional Geoscientist	102	37	36%	65	64%

¹Includes Non-Resident Licensees

Overall Application Growth including Reinstatements and Life Memberships

Application Type	Calendar 2015	Calendar 2016	% increase
New (first time in Canada) P.Eng. and P.Geo. Applications including NRL)	1,298	1,132	-12.8%
New EIT and GIT applications	1,336	1,508	12.9%
New Limited Licence	29	32	10.3%
Transfer (P.Eng., P.Geo, EIT, GIT, Eng.L., Geo.L.)	1260	1,295	2.8%
Struct.Eng.	5	7	40.0%
Return to Practice & Reinstatement	354	399	12.7%
Life Membership	227	214	-5.7%
TOTAL	4509	4587	1.7%

Processing Times: Documents Complete to a Decision

Accurate numbers are not available for the entire date set, which makes reporting on these KPIs a time consuming process. Registration is conducting a search for a professional engineer or professional geoscientist, one of whose key responsibilities will be to develop more refined benchmarks and process performance reporting for the application assessment process. We anticipate that we will have an accurate set of data for the Fiscal 2017 report. Despite the reporting challenges, registration staff is actively mindful of the Council targets and work towards expediting the processing of all applications in accordance with policy.

Membership

Membership Growth December 2012 to December 2016

	Dec-12	Dec-13	Dec-14	Dec-15	Dec-16	2015 vs 2014	Average 5 year Growth
Professional Members							
Professional Engineer	20,972	21,566	22,293	23,259	23,604	1.5%	4.1%
Professional Geoscientist	1,570	1,650	1,701	1,749	1,758	0.5%	3.3%
Dual Registrant	80	81	86	89	91	2.2%	5.0%
Non-Resident Licence (PEng)	457	527	592	626	611	-2.4%	6.0%
Non-Resident Licence (PGeo)	32	44	43	42	41	-2.4%	5.8%
Provisional Member	9	8	6	6	4	-33.3%	-42.4%
Members-in-Training							
Engineer-in-Training	3,820	4,139	4,484	4,857	5,240	7.9%	14.1%
Geoscientist-in-Training	236	258	309	306	349	14.1%	21.1%
Limited Licensees							
Limited Licence (EngL)*	91	99	120	135	158	17.0%	27.7%
Limited Licence (GeoL)	5	6	8	9	9	0.0%	16.5%
Total Membership	27,272	28,378	29,642	31,078	31,865	4.8%**	5.9%

*Does not include 18 Professional Geoscientists who also hold an EngL

** Will retroactively be less as significant member removals occur on March 1 of following year for those with fees due Dec 31. Annual growth in membership for Fiscal 2016 (June) was 4.3%

Membership by Gender

	Jun-16			Dec-16		
A. Practising and Non-Practising	Total Members	Female	%Female	Total Members	Female	%Female
P.Eng. Registrants & Licensees	24,014	2,380	9.9%	24,419	2,485	10.2%
P.Geo. Registrants & Licensees	1,895	366	19.3%	1,854	358	19.3%
EIT & Provisional (Eng)	4,895	946	19.3%	5,240	945	18.0%
GIT & Provisional (Geo)	326	133	40.8%	349	133	38.1%
TOTAL	31,130	3,825	12.3%	31,861	3,921	12.3%
B. Practising and Active Only (not including Life Members)	Total Members	Female	%Female	Total Members	Female	%Female
P.Eng. Registrants & Licensees	21,128	2,315	11.0%	21,548	2,418	11.2%
P.Geo. Registrants & Licensees	1,821	359	19.7%	1,797	357	19.8%
EIT & Provisional (Eng)	4,892	945	19.3%	5,240	980	18.7%
GIT & Provisional (Geo)	326	133	40.8%	349	143	41.0%
TOTAL	28,167	3,752	13.3%	28,934	3,897	13.5%

Date: January 25, 2017

Report to: **Council for Information**

From: Janet Sinclair
Chief Operating Officer

Subject: Strategic Plan and Key Performance Indicator Results at the 6 month mark for Year 3

Linkage to Strategic Plan: Continue to implement best practices in governance.

Purpose:	To provide Council with an update on strategic plan progress and the results of the key performance indicators for the 6 month mark of Year 3.
Motion:	That Council receives the report on strategic plan progress and the results of the key performance indicators for the 6 month mark of Year 3.

Background

In order to track progress on the implementation of the strategic plan, Council receives semi-annual reports on the initiatives being undertaken to achieve the goals and objectives. Council also receives a summary report on the Key Performance Indicators (KPIs) that are used to measure whether the objectives are being achieved.

A high level overview of progress made since the Annual Report in September follows as does the results of the KPIs for the first 6 months of Year 3 (July 1, 2016 – December 30, 2016).

Discussion

KPIs

Nineteen objectives are measured with a number of metrics tracked within each. Of the 19 objective targets 8 are on track, 5 have been are being monitored closely, and 5 have either not been achieved or are unlikely to be achieved. One metric – registration application processing time – was not able to be reported on this period.

Metrics that are well on track include: improved awareness of practice guidelines; mentoring program and career awareness participation; professional development partnerships and practice collaborations; industry participation in APEGBC programs; progress on the corporate practice initiative; and member fee increases.

Areas that are being watched closely as achievement of the targets is at risk or unknown at this time include: APEGBC initiated media interactions as resources have been refocused to internal stakeholder engagement; development of legislated professional reliance opportunities has work underway, but not yet complete; diversity of volunteers; the annual financial audit will not occur until late summer; and the financial forecast is currently within the parameters set with respect to gross budgeted revenue, but has the potential to change. There are no bylaws currently proposed by Council for 2017.

Metrics which have not been achieved or have a high likelihood of not being reached include: membership growth; reported compliance with the voluntary CPD program; processing time for member investigations; the variation in overall financial surplus (higher than target); and gender diversity.

Recommendation

That Council receives the report on strategic plan progress and the results of the key performance indicators for Year 3 at 6 months.

Appendix A – Key Performance Indicators Year 3 at 6 Months Status Table

Appendix B – Strategic Plan Progress Report

Date: January 25, 2017

Report to: **Council for Information**

From: Gillian Pichler, P.Eng.
Director, Registration
on behalf of the APEGBC Project Team

Subject: Update on National Competency-Based Assessment Project

Linkage to Strategic Plan: Government, Public and Other Stakeholders; Enabling Goal

Purpose:	To update Council on the status of National Competency Based Assessment and APEGBC's Role as a Service Provider.
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Motion:	No motion required.
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Background

In April 2016, Council resolved:

that Council approves that staff on behalf of APEGBC enter into agreements, establish the organizational and corporate structure needed and, if required, create an appropriate sub-entity (subsidiary), to offer APEGBC's Competency Based Framework and/or Online Assessment Tool as an Internet accessible Software-as-a-Service (SaaS) on a cost recovery basis.

At its November meeting, an update was provided to Council on this topic.

Discussion

Since the November Council meeting, several significant developments have occurred:

- i. Engineers Canada has polled the provincial and territorial regulators to ascertain that they are in agreement with using APEGBC's competency-based assessment system as the model for a national system. The response has been favourable and this information will be brought to the Engineers Canada CEO Group meeting in February.
- ii. Four regulators have expressed interest in participating in a pilot and project to adopt the APEGBC system in their jurisdictions in a multi-staged approach over three years.
- iii. APEGBC staff has developed a funding model for the three year project that allows for cost recovery based on a combination of funding of the pilot and project by Engineers Canada and an ongoing fee paid by the regulators to APEGBC for each validated submission for assessment by their assessors. All additional IT and Registration resources required to support this project at the national level are being funded by the project and do not impose on APEGBC's current resources. Prior to

entering into a formal service agreement with Engineers Canada in Q2 of this year, staff will be reviewing the merits of forming a sub-entity for the purposes of offering this and similar services on an ongoing basis.

- iv. In January, APEGBC hosted a 1.5 day planning meeting attended by Engineers Canada and five other regulators (EPEI, ENS, APEGNB, APEGs and APEGA which has adopted APEGBC's framework for use on its own in house IT system and intends to harmonize with a national system when it is available) to plan the pilot and project. This meeting was constituted as the first meeting of the User Steering Group for national competency assessment. A slide-based report on the meeting is attached in Appendix A.
- v. Engineers Canada has received commitment in writing from several of these regulators to participate in the pilot.
- vi. Participating regulators have begun in 'Stage 0' of the pilot in which assessors from participating jurisdictions assess APEGBC applicants to familiarize themselves with the APEGBC system and have their assessments benchmarked against those of APEGBC permanent assessors; and also to allow a few pilot applicants from these jurisdictions to use the APEGBC system as APEGBC applicants. This stage has no funding requirement and allows regulators to begin the pilot and determine any additional support required from Engineers Canada, APEGBC and/or their Councils and committees; and
- vii. Engineers Canada has begun overall project planning with the regulators towards amending its funding proposal and updating its Board.

Recommendation

APEGBC's role in this project is aligned with Council's resolution. As the intent of the resolution is now being implemented, it is recommended

Appendix A – Report on CBA Pilot Planning Meeting, Jan 17-18, 2017

Date: January 25, 2017

Report to: **Council for Information**

From: Jennifer Cho, CPA, CGA
Director of Finance & Administration

Subject: Financial Results as at December 31, 2016

Linkage to Strategic Plan: Implement best practices in governance.

Purpose: For Council to review the second quarter financial results.

Motion: That Council receive the APEGBC financial results as at December 31, 2016.

Background

As approved by Council at the September 12, 2014 meeting, quarterly financial reports will be made to the Executive Committee for review. The same information package will be provided to the Audit Committee for information. The timing of the committee meetings did not match up to when the second quarter results were available for review, thus both committees have not seen this quarter's financial results.

Discussion

This update includes a comparison of year-to-date actual results to budget, with a summary of major variances.

	A	B	C	D	E	F
1		YTD			Annual Prior Year Actual	16/17 Budget
2		Actual	Budget	Variance		
3	REVENUE					
4	Members	4,980	4,941	39	9,614	9,577
5	Others	2,295	2,376	(82)	4,660	4,677
6	Total Revenue	7,275	7,317	(43)	14,274	14,255
7						
8	EXPENDITURES					
9	Operating	6,593	7,314	(722)	13,844	14,474
10	Operating Income Before External Contracts	682	3	679	430	(220)
11						
12	CONTRACTS					
13	Revenue	849	560	289	1,174	1,120
14	Expenditures	809	520	289	1,064	1,040
15	Operating Income - External Contracts	40	40	0	110	80
16						
17	Net Operating Income/(Loss)	722	43	679	540	(140)

YEAR-TO-DATE REVIEW - BEFORE EXTERNAL CONTRACTS

MEMBER FEES & OTHER REVENUES

Total revenues are \$43K (cell D6) over budget, primarily due to:

- OQM revenue- stronger volume growth in annual OQM revenue
- AGM/annual conference – higher revenue in attendees and exhibits

Offset by:

- PD revenue - variance due to increased cancellations in July and August
- Application/registration - due to lower volume in application revenue.

EXPENDITURES

Expenditures are \$722K (cell D9) below budget primarily due to:

- Savings in salaries and benefits primarily due to unfilled positions
- Savings in legal expenses by using in-house legal staff
- Savings in professional development operating costs such as room rental and speaker fee
- Savings in practice review operating expenses due to timing

YEAR-TO-DATE REVIEW – EXTERNAL CONTRACTS

The YTD contribution margin is on track towards annual budget.

Recommendation

MOTION: That Council receive the APEGBC financial results as at December 31, 2016.

Attachment A – Detailed Program Statements with Budget to Actual High Level Variance Analysis as at December 31, 2016.

(in \$'000)					
	2016/17 Budget	2016/17 YTD Budget	FY2016/17 YTD Actual	YTD Budget vs YTD Actual Variance	Comments
REVENUES					
<u>Member Services</u>					
Affinity Program	405	38	43	5	
Annual Conference	280	280	329	49	
Professional Development	1,012	506	386	(120)	variance due to more cancellations in July and Aug
Online Law & Ethics	0	0	5	5	
	1,697	824	763	(62)	
<u>Communications & Stakeholder Engagement</u>					
Innovation Magazine	175	87	124	36	stronger volume increase than expected
Sponsorship Revenue	8	8	3	(5)	
Membership Advantage Program for Students and Student Membership	49	4	39	35	Timing difference due to accounting adjustment
Employment Web Advertising	305	152	161	8	
	537	251	326	75	
<u>Professional Practice, Standards & Development</u>					
Certified Professional Program	81	40	(0)	(40)	
Organizational Quality Management	163	82	129	47	variance due to strong volume growth in new OQM members
Grant	1,120	560	849	289	variance due to project progress
	1,364	682	978	296	

	2016/17 Budget	2016/17 YTD Budget	FY2016/17 YTD Actual	YTD Budget vs YTD Actual Variance	Comments
<u>Registration</u>					
Academic Exams	50	25	24	(1)	
Applications/Registration	1,263	632	590	(42)	variance due to volume drop
Limited License	13	6	9	3	
Professional Practice Exams	503	211	177	(35)	similar to application revenue, PPE affected by volume changes
APEC Register	3	0	3	3	
Structural Qualifications	53	29	55	26	
Registration External Projects	216	206	215	9	
	2,101	1,109	1,072	(36)	
Annual Membership Fees	9,506	4,926	4,940	14	
Late Fee	29	15	2	(12)	
Investment Revenue	93	46	24	(23)	More funds invested in short term vehicle in current year due to market rate changes
Other Revenue	48	24	19	(5)	
TOTAL REVENUE	15,375	7,877	8,124	246	
			(0)	(0)	
EXPENDITURE					
<u>Finance & Corporate Services</u>					
Annual Invoicing	47	47	12	35	savings in postage and printing
Building Operations	349	175	283	(108)	variance due to add'l expense of parking lot re- pavement & amortized annual insurance expenses

	2016/17 Budget	2016/17 YTD Budget	FY2016/17 YTD Actual	YTD Budget vs YTD Actual Variance	Comments
Administrative Services	26	13	7	6	
Green Team	3	2	0	2	
Non Program Specific	692	332	298	34	savings in bank fees
Salaries & Benefits	829	415	408	7	
	1,946	982	1,007	(24)	
-					
<u>Human Resources</u>					
Staffing	26	13	6	7	
Training and Development	86	43	48	(5)	
Staff Recognition	41	21	20	1	
Occupational Health and Safety	1	1	2	(1)	
Volunteer Management	24	12	1	11	
Compensation Management	3	2	29	(27)	variance due to additional work required for compensation assessment
Strategic HR and Organizational Development	5	3	1	2	
Non Program Specific	2	1	0	1	
Salaries & Benefits	238	119	116	3	
	427	213	222	(9)	
-					
<u>Information Technology</u>					
Run - Business Continuity	311	155	198	(42)	variance due to PCI compliance related expenses
Telecommunications	92	46	30	16	
Grow - Systems & Development	10	5	0	5	
Non Program Specific	7	3	1	3	
Salaries & Benefits	857	429	374	55	savings from staff turnover
	1,277	638	602	36	
-					

	2016/17 Budget	2016/17 YTD Budget	FY2016/17 YTD Actual	YTD Budget vs YTD Actual Variance	Comments
<u>Member Services</u>					
Affinity Program	1	1	0	1	
Annual Conference	368	368	350	18	
Professional Development	489	245	160	84	savings in room rental and speaker fees
Mentoring	16	8	1	7	
Branches/Divisions	68	34	19	15	
Member CPD Requirements	2	1	1	0	
Induction Ceremony and Former Presidents Dinner	70	38	23	15	
Salaries & Benefits	780	390	367	23	
	1,795	1,084	921	163	
<u>Communications & Stakeholder Engagement</u>					
Awards	60	60	64	(5)	
Career Awareness	50	25	23	2	
Innovation Magazine	316	158	160	(2)	
Employment Web Advertising	3	1	0	1	
Public Relations	84	42	26	15	
Publications	39	20	32	(12)	
Stakeholder Engagement	47	23	20	4	
Student Membership & Sponsorship	55	28	18	9	
Branding Collateral Renewal	9	5	0	5	
Brand Strategy	61	31	38	(7)	
Non Program Specific	5	2	7	(5)	
Salaries & Benefits	871	436	394	41	savings mainly from maternity leave
	1,600	830	782	48	
-					

	2016/17 Budget	2016/17 YTD Budget	FY2016/17 YTD Actual	YTD Budget vs YTD Actual Variance	Comments
<u>Council & Executive</u>					
CCPE	428	142	142	(0)	
CCPG	82	1	0	1	
Council/Executive	165	78	90	(11)	
Elections	17	15	10	5	
Government Relations	117	59	50	9	
Labor Market Studies	15	8	0	7	
Non Program Specific	5	2	3	(1)	
Salaries & Benefits	872	436	442	(6)	
	1,701	741	739	2	
<u>Professional Practice, Standards & Development</u>					
Liaison with Authorities	2	1	0	1	
Practice Review	177	88	12	76	timing difference due to completion of reviews
Professional Practice	119	60	46	13	
Corporate Practice	0	0	61	(61)	expenses approved out of contingency
Certified Professional Program	96	48	24	24	
Climate Change Initiatives	20	10	2	8	
Organizational Quality Management	163	82	50	31	related to stronger volume that caused higher operating costs such as audit and travel
Sustainability	1	0	0	0	
Non Program Specific	14	7	5	2	
Grants	1,040	520	809	(289)	variance due to project progress
Salaries & Benefits	961	481	362	118	savings in unfilled positions
	2,592	1,296	1,372	(75)	

	2016/17 Budget	2016/17 YTD Budget	FY2016/17 YTD Actual	YTD Budget vs YTD Actual Variance	Comments
<u>Legislation, Ethics & Compliance</u>					
Discipline	253	127	6	121	savings from utilizing in house staff
Enforcement	30	15	0	15	
Investigations	133	66	106	(40)	increase due to volume increase
Non Program Specific	130	65	53	12	
Salaries & Benefits	595	297	313	(16)	
	1,141	570	479	92	
-					
<u>Registration</u>					
Academic Exams	35	17	17	0	
Applications/Registration	177	88	79	9	
Engineers In Training/Geoscientists In Training Prof. Certification	17	9	0	9	
Limited License	4	2	0	2	
Professional Practice Exams	362	181	136	45	related to lower PPE revenue that caused lower operating costs
APEC Register	2	1	0	1	
Structural Qualifications	9	3	2	2	
Registration External Projects	138	69	121	(53)	variance due to project progress
Non Program Specific	23	11	1	10	
Salaries & Benefits	1,596	798	679	119	savings from unfilled positions
	2,361	1,179	1,036	143	
Total Expenditure from above	14,839	7,534	7,159	375	
Amortization	596	298	242	56	
Contingency	75	0	0	0	
Foundation	3	2	0	1	
Benevolent Fund Society	1	0	0	0	
TOTAL EXPENDITURE	15,514	7,834	7,402	433	
SURPLUS/(DEFICIT)	(140)	43	722	(679)	

Memorandum

To: APEGBC Council

From: Ross Rettie, P.Eng., Councillor
Ed Casas, P.Eng., Vice-President

Date: November 6, 2016

Re: **Proposed Motion on Continuing Professional Development**

On October 30, we proposed to the President a motion for Council's consideration at its November meeting. We hereby submit to Council the proposed motion, along with a rationale and an elaboration of its implementation.

Motion

That Council establish a Task Force, with broad disciplinary representation, to develop for Council consideration a renewed strategy for the Continuing Professional Development of the membership, one that articulates the objectives, assesses realistically the strengths and weakness of alternative approaches to achieving these objectives, recognizes the diversity of disciplines, modes of practice, public safety implications and circumstances of members, and relies on membership support for implementation.

Background and Rationale

The following actions relating to the mandatory reporting of Continuing Professional Development (CPD) have occurred over the past 15 months. Council had sought ratification of a proposed bylaw with respect to the mandatory reporting of CPD. The motion to ratify the bylaw failed by a margin of 23% relative to the two-thirds needed for ratification. Despite this result, Council submitted to the Ministry of Advanced Education shortly thereafter a request for a legislative amendment to the *Engineers and Geoscientists Act* that would enable "*Council to pass bylaws, without member ratification, on matters related to professional practice and public safety.*" It appears that this request was driven primarily by Council's desire to introduce a by-law requiring the mandatory reporting of CPD – completely contrary to the membership vote. These Council actions resulted in a reduced level of trust and respect of Council by a portion of the membership, and gave rise to a number of expressions of concern being conveyed to the Minister of Advanced Education. Government subsequently indicated that it would not consider amendments to the Act in the near term.

Based on this background, and based on APEGBC's continuing dialogue with government, it appears to be urgent that Council rethink its CPD strategy, including mandatory reporting approaches, in such a way as to be founded on clear objectives and a strong rationale and so as to garner strong membership support. The latter is needed both to assure implementation and to restore some of the lost trust and respect by portions of the membership. This would also demonstrate to government that Council is working diligently and thoughtfully to find quickly a resolution to the current impasse.

In order to undertake this, it appears that Council (and government) would be best served by the establishment of a broad Task Force to develop such a strategy, that the Task Force develops clear objectives and rational approaches, that it consults the membership in an unbiased manner, and that Council commits to relying on membership support for implementation. It turns out that such an approach would be very similar to that recently adopted by Professional Engineers Ontario (PEO) – see below. Various considerations relating to the establishment of the Task Force are given below.

Terms of Reference

In establishing the Task Force, we propose that Council requests staff to draft its Terms of Reference so as to reflect the elements below, and that the Executive Committee be required to approve a final version of the Terms of Reference. It is expected that the Terms of Reference will include the following:

- The Task Force should articulate the objectives of the CPD program and its implementation, so that these are not ambiguous.
- The Task Force should engage in a meaningful consultation and engagement of the membership prior to developing its proposed strategy. Specifically, it needs to consult actively and engage members that have been critical of past CPD proposals so as to assure a strong likelihood of ratification by the membership.
- The Task Force should develop and assess alternative approaches to achieving the CPD objectives, so as to recognize the diversity of disciplines, modes of practice, public safety implications and circumstances of members. That is, it should avoid making minor adjustments to the current program and/or the mandatory reporting requirement that had been proposed.
- The Task Force should give serious consideration to PEO's approach to reexamining CPD, to the findings of PEO's *Continuing Professional Development, Competence, and Quality Assurance Task Force*, and to PEO's approach for the implementation of CPD so as to reflect member support. PEO's approach appears to reflect a significant modernization to CPD, it recognizes disciplinary diversity and it has won the strong support of its membership.
- The Task Force should recommend that Council require member ratification by a two-thirds vote prior to implementation.

Task Force vs. CPD Committee

Taking account of the above elements of the Task Force Terms of Reference, we propose that a new ad hoc (i.e. limited term) Task Force would be much more appropriate than the standing CPD Committee with respect to undertaking the required work. Specifically, there is no reason to believe that the current CPD committee will be, and will seem to be, sufficiently detached from the current guidelines and mandatory reporting mechanisms so as to be able to develop independently new CPD approaches. Therefore, while individual members of the CPD Committee may or may not serve on the Task Force, there is a need to avoid the perception and

the reality that it is business as usual with minor adjustments, in part so as to assure strong member support.

Task Force Membership

We believe that expressions of interest and names of potential Task Force members are solicited and proposed by Councillors and other members, and that the Executive Committee considers these and thereby appoints the Task Force members and the chair.

The membership should include only senior APEGBC members, and should include broad disciplinary representation (including representation of disciplines beyond the traditional built-infrastructure disciplines), so as to recognize the breadth and variety of engineering and geoscience practice and thereby assure that the proposed program takes account of the membership's diverse activities and interests.

It may be beneficial to include, as one or more members on the Task Force, individuals who have been critical of past CPD proposals – which should assist in assuring ratification by the membership.

Membership Trust and Respect

We believe that, if the Task Force is established and it operates in the manner described above, including appropriate membership consultation and engagement, and if Council affirms the need for strong (two-thirds) membership support prior to implementing the recommendations, then an important coincident benefit will be a rebuilding of the trust and respect of Council by some portions of the membership.

Date: January 26, 2017

Report to: **Council for Information**

From: Deesh Olychick
Director, Member Services

Subject: Continuing Professional Development

Linkage to Strategic Plan: Make BC professional engineers and geoscientists synonymous with the highest standards of professional and ethical behaviour

Purpose:	To provide Council with information on the current activities of the CPD Committee
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Motion:	No motion required.
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Background

To assist Council in their consideration of the proposed motion related to Continuing Professional Development (CPD), the following information is provided on the recent activities of the CPD Committee:

- 1) Following the defeat of the CPD Bylaw, the CPD Committee sought direction from Council on how to proceed with a CPD program for members. At the April 2016 meeting of Council, Council affirmed their expectation that the CPD Committee should continue to explore modifications to the program and make appropriate recommendations to Council. The following motion was carried:

In view of the guidance sought by the CPD Committee, Council affirms that the CPD Committee keep the CPD program under review and make appropriate recommendations to Council from time to time.

- 2) The CPD committee recognizes that the program put forward was not accepted by members and is in the process of re-defining the goal for the program. The committee has been discussing the risk-based approach that Ontario has taken in developing their CPD program and the aspirational approach used by other CPD programs across Canada.
- 3) The CPD committee is closely monitoring the developments of the Professional Engineers Ontario's risk based approach and received a presentation from PEO's Director, Policy and Professional Affairs on their progress. The committee has also completed the PEO's practice evaluation questionnaire and provided an evaluation of the PEO program.
- 4) The CPD committee is keen on gathering diverse views and broadening the representation on the committee. The committee actively searched for new members to

fill identified gaps and 6 new members were appointed to the committee in September 2016. The committee is diverse with respect to discipline, career stage, gender and has P.Geo. representation. Broad representation was a priority in their search.

- 5) The committee has established a work plan and is looking to confirm Council's expectations to help guide their work. Member engagement has been identified as a key priority for the committee.

It should be noted that government has been kept apprised of the CPD Committee's activities. For information, the terms of reference for the CPD Committee is attached.

Attachment A – CPD Committee Terms of Reference



TERMS OF REFERENCE

1. **Name:** Continuing Professional Development Committee (CPD Committee)
2. **Type/Reporting Relationship::**
 - 2.1 Type:
Advisory Committee
 - 2.2 Reporting Relationship:
The Committee is appointed by Council and reports to Council.
3. **Purpose:**
 - 3.1 To advise on the development and implementation of CPD policies.
4. **Authorities of the Committee:**
 - 4.1 The Committee's authority is advisory only.
5. **Function/Deliverables:**
 - 5.1 To advise on policies, needs and opportunities for member's professional development.
 - 5.2 To provide periodic review of the CPD Guidelines.
 - 5.3 To provide oversight and monitoring of the implementation of the CPD program.
6. **Resources/Budget:**
 - 6.1 Except as set out above and as allocated in the Association's annual budget, the committee has no budget authority beyond reasonable expenses for travel, teleconference or ancillary expenses.
7. **Membership:**
 - 7.1 Seven or more members of the Association, appointed by Council.
 - 7.2 The Director, Member Services is an ex-officio (non-voting) member.
8. **Term of Office:**
 - 8.1 Two years with a maximum of two re-appointments.
 - 8.2 Additional reappointments may be made at the discretion of Council.
9. **Selection of Officers:**
 - 9.1 The Chair is elected by the Committee.

10. **Quorum:**
 - 10.1 Four voting members.
11. **Frequency of Meetings:**
 - 11.1 Meetings are held at the call of the Chair in collaboration with the senior staff liaison. Minutes are the responsibility of the staff liaison.
12. **Conduct of Meetings:**
 - 12.1 The Committee may meet in person and/or by such other means whereby all members attending may simultaneously hear each other and participate during the meeting.
 - 12.2 On occasion, a Committee Chair may communicate with all members by e-mail and, with supporting information, propose and call for a consent resolution. At his or her discretion, the Committee Chair may or may not allow limited e-mail discussion on the matter. Beyond this, Committee members have the option of responding by moving, seconding or supporting the motion, or requesting that it be considered further at a meeting of the committee. A consent resolution is deemed to have been achieved if there are no negative votes or calls for in-person discussion, and the number of support votes are equal to or greater than the number required for a quorum. In the case where a member so requests, the motion is not carried, but instead may be brought forward for consideration at a subsequent meeting of the Committee. (In the case of an urgent matter, this may occur at a special meeting conducted by telephone where the normal requirements for a quorum will prevail.) Any motion so carried is considered to take effect immediately, and is ratified at the subsequent Committee meeting and recorded in the minutes of that meeting.
13. **Minutes:**
 - 13.1 Minutes, notes or recording of decisions are the responsibility of staff support.
14. **Periodic Reporting and Review of Terms of Reference:**
 - 14.1 The Committee shall review its Terms of Reference on an annual basis and submit verification of review to the Governance Committee.
15. **Staff Support:**
 - 15.1 Director, Member Services

APPROVED BY COUNCIL: May 6, 1999 (CO-99-84)
REVISED BY COUNCIL: February 1, 2008 (CO-08-36-1)
Reviewed by CPD Committee with no changes. February 19, 2014
REVISED BY COUNCIL:

MEMORANDUM

To: APEGBC Council
From: Ross Rettie, P.Eng., Councillor
Date: November 25, 2016
Re: **Proposed Motion Relating to the APEGBC Nomination Processes**

While the proposed motion is well intentioned and very welcome, I suggest that it is too narrow, and needs to be strengthened if it is to address appropriately a number of issues that arose during the recent election process.

The current motion states: "*That Council approve the creation of a Task Force to review the nomination processes and direct staff to create a Terms of Reference for the Task Force.*"

Specifically, I feel that it needs to be amended in two ways:

- (i) The Task Force should not only review the nomination process, but also the Election Policy itself, as well as the associated Bylaw 3.
- (ii) As well, the Task Force terms of reference, its membership and reporting deadline all need to be approved by the Executive Committee in order for it to commence its work.

Further, I feel that one of Council's highest priorities needs to be to a restoration of the lost trust and respect by some sectors of the membership. Provided that it undertakes its work thoughtfully and effectively, this Task Force provides an excellent opportunity for achieving this.

Therefore, I would propose an amendment to the motion as follows:

Amended Motion

That Council establish a Task Force to review the nomination process, the Election Policy and the associated Bylaw 3, that staff draft its Terms of Reference, and that the Task Force terms of reference, membership, and reporting deadline to Council be approved by the Executive Committee.

Commentary

During the recent election process, the following issues have been identified.

- **Accessibility.** There is a perception amongst some members that the current approach perpetuates an "insiders club," and is inaccessible to the general membership; therefore an approach that encourages nominations from amongst the membership needs to be fostered. For example, the PEO approach accomplishes this: see

www.peo.on.ca/index.php/ci_id/30048/changela_id/1.htm

- **Fairness.** There is a need for a level playing field with respect to all nominees. Currently, the process contains some systemic biases that favour some candidates. For example, there is a need to affirm and adhere to a policy of equal limits for all candidate statements issued via

APEGBC (including components within Q & A statements), and that questions posed, if any, do not reflect committee viewpoints that may favour some nominees.

- ***Perceptions of conflict of interest:*** There is a need to remove potential perceptions of conflicts of interest:
 - (i) to assure that the President and immediate Past-President are completely silent with respect to dissuading candidates from standing for election and with respect to campaigning and lobbying for or against individual candidates; and
 - (ii) with respect to the role of the Registrar with respect to approving candidate statements (for example, when these may relate to the role of staff).

Implementation

Terms of Reference. Considering the above Commentary points, the terms of reference should reflect the need for the Task Force to consult with a selection of the membership, to assure a greater level of accessibility to the nomination process, a greater level of transparency with respect to the nominees, and fairness with respect to all nominees.

Membership. Staff and councillors need to solicit and propose the names of potential Task Force members, and that the Executive Committee considers these and thereby appoints the Task Force members and the chair. It is important that the chair reflects big picture thinking, rather than seeking minor tweaks that do not address the underlying issues.

Date: January 24, 2017

Report to: **Council for Decision**

From: Governance Committee

Subject: APEGBC Election Policy

Linkage to Strategic Plan: Effective governance and resources that enable and guide
APEGBC's operations

Purpose:	To review the proposed changes to the Election Policy and decide on whether to approve the changes
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Motion:	That Council approve the revised Election Policy.
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Background

The *Engineers and Geoscientists Act*, Bylaws and Election Policy outline the policy and procedures for the conduct of the Council election. Each year, the election policy and procedures are reviewed and improvements to the Election Policy are brought forward to the Governance Committee and Council for consideration.

The Governance Committee discussed the proposed changes at its meeting on January 18, 2017 and recommends that Council approve the revised Election Policy.

Discussion

To help better manage the nomination and election process, some operational improvements to the Election Policy were identified. The proposed changes to the policy can be found in Appendix A, along with comments explaining the change. A clean copy with track changes accepted is attached as Appendix B.

An overview of the proposed changes to the Election Policy is provided below:

1. Housekeeping – This includes minor edits such as re-numbering of clauses for ease of reference, and to reflect current practice.
2. Nomination Form (clause 5) – This clause is amended to provide further instructions on how to submit the nomination by 25 members form. The amendment requires that each page of the nomination submission form contains the identity of the person or persons being nominated. This is to ensure that each nominator is fully aware of the person/s he or she is nominating. In addition, each form must contain the identity and license number of each of the 25 nominators. The clause has also been amended to require handwritten signatures, however, the nomination forms can continue to be scanned and sent electronically to the Association.
3. Unacceptable Content (clause 18) – This clause has been amended to clarify the types of content that will not be published in the election material. Candidates are also reminded of their obligation under the *Code of Ethics*.

4. Use of External Web Links (clause 21) – Although the election policy does not address the use of external web links in candidate statements, recent practice has allowed for web links to be published. Concern has been raised as to whether this practice should continue. As the candidate statements contain word limits, the use of external websites allows candidates to share additional information with voters. However, this could be seen to disadvantage other candidates that don't have the resources to create their own websites. The use of external web links also raises questions about the content of the material published on these external sites and APEGBC's liability, e.g. if the material is found to be defamatory. It is recommended that external web links no longer be published in candidate statements.
5. Incorporating Q&A (clause 27) - In order to allow Council the flexibility to include additional opportunities for member to learn more about the candidates, such as the Q&A, clause 27 has been added. This clause is intended to allow for the Q&A with candidates and other activities Council wishes to pursue. Other activities pursued would be subject to Council approval.

Recommendation

At its January 18th meeting, the Governance Committee recommended that Council approve the revised Election policy. The Governance Committee also recommends that staff hold an information session with candidates to familiarize them with the role of Council and the time commitment involved with serving on Council.

MOTION: That Council approve the revised Election Policy.

Appendix A – Proposed Election Policy – with track changes

Appendix B – Proposed Election Policy – clean copy

Date: January 24, 2017

Report to: **Council for Decision**

From: Governance Committee

Subject: Nomination and Election Review Task Force

Linkage to Strategic Plan: Effective governance and resources that enable and guide APEGBC's operations

Purpose: To decide on whether to create the Nomination and Election Review Task Force and if so, approve the terms of reference for the Task Force.

Motion: That Council approve the creation of the Nomination and Election Review Task Force
That Council approve the terms of reference for the Nomination and Election Review Task Force.

Background

In October 2016, the Nominating Committee discussed the nomination processes for election to Council and requested that the nomination processes be reviewed. The Nominating Committee passed the following motion:

That the Committee recommends to Council that the nomination, and self-nomination process be reviewed through the Governance Committee as it has not been reviewed in several years. This should include benchmarking of other organizations.

At the November meeting of Council, the following motion was passed:

That Council direct staff to create a terms of reference for a Task Force to review the nomination and election processes, and the associated Bylaw 3, and subject to approval of the terms of reference, the Task Force would be created.

Discussion

Following up on the direction provided by Council, staff drafted a terms of reference for the task force. The purpose of the task force would be to review and evaluate APEGBC's nomination and election processes, the nomination and election processes of other organizations and deliver recommendations to Council on whether APEGBC should pursue any changes.

As the nomination process for the 2017/18 election is underway, recommendations from the proposed task force would not affect the 2017/18 Council election.

The Governance Committee reviewed the terms of reference at their January 18, 2017 meeting and supported the terms of reference with minor changes to the task force composition.

The proposed terms of reference for the task force is attached as Appendix A.

Task Force Member Composition

To undertake such a review, it was felt that the task force members should have some previous Council or nominating committee experience. The Governance Committee discussed the task force composition and supported the following:

7 to 10 members, with the following representation:

- 1 Branch Representative (Immediate Past Branch Reps Chair or a Past Branch Reps Chair)
- 1 past member of the Nominating Committee
- 1 Public Appointee of Council
- 2 Past Presidents (within last 12 years)
- 1 Elected Council Member
- 1 Member of the Governance Committee
- 1 Member or representative from another regulatory body (optional)

Recommendation

To support good governance, it is recommended that a task force be established to review the nomination and election processes and the associated Bylaw 3. The Governance Committee recommends that Council approve the creation of the Nomination and Election Review Task Force and approve the terms of reference for the task force.

Motion: That Council approve the creation of the Nomination and Election Review Task Force

Motion: That Council approve the terms of reference for the Nomination and Election Review Task Force.

Attachment A – Nomination and Election Review Task Force – Terms of Reference



TERMS OF REFERENCE

1. Name:

Nomination and Election Review Task Force

2. Type/Reporting Relationship:

2.1 Type:

Task Force

2.2 Reporting Relationship:

The Task Force is appointed by Council and reports to Council.

3. Purpose:

To review and evaluate APEGBC's nomination and election processes, the nomination and election processes of other organizations and deliver recommendations to Council on whether APEGBC should pursue any changes.

4. Authorities of the Task Force:

The Task Force is authorized to provide advice, guidance, and recommendations to APEGBC Council. Recommendations to Council will be based on a majority vote of all Task Force members.

5. Function/Deliverables:

5.1 To develop a work plan to guide the work of the Task Force's review of the APEGBC nomination and election processes.

5.2 To undertake a review and evaluation of APEGBC's current nomination and election processes

5.3 To undertake a review and evaluation of the nomination and election processes of other professional regulators to identify best or leading practices.

5.4 To review and evaluate the experience requirement for Nominating Committee candidates in comparison to candidates nominated by 25 members.

5.5 Upon completion of the review, the Task Force will assess its findings and provide its recommendations to Council as to whether any change related to APEGBC's nomination and/or election processes should be pursued. The Task Force's report will outline the processes reviewed, the issues identified, the recommended actions and reasons for the recommendations.

5.6 Should Act or Bylaw changes be recommended, the Task Force may provide recommendations for member consultation as part of its report to Council.

6. Resources:

6.1 The Task Force has no budget authority beyond reasonable expenses for travel, teleconference or ancillary expenses.

7. Membership:

7.1 A minimum of seven and a maximum of ten members, with the following representation:

- 1 Branch Representative (Immediate Past Branch Reps Chair or a Past Branch Reps Chair)
- 1 past member of the Nominating Committee
- 1 Public Appointee of Council
- 2 Past Presidents
- 1 Elected Council Member
- 1 Member of the Governance Committee
- 1 Member or representative from another professional regulatory body (optional)

8. Term of Office:

8.1 The terms of office are for one year or until the Task Force concludes its work or later as directed by Council.

9. Selection of Officers:

9.1 The Chair is appointed by Council.

10. Quorum:

10.1 Majority of members.

11. Frequency of Meetings:

11.1 Meetings are at the call of the Chair.

12. Conduct of Meetings:

12.1 The Task Force may meet in person and/or by telephone conference, webcast or other electronic communications media where all members may simultaneously hear each other and participate during the meeting. Generally the latest edition of Robert's Rules should be adopted for the conduct of meetings.

12.2 On occasion, the Task Force Chair may communicate with all members by e-mail and, with supporting information, propose and call for a consent resolution. At his or her discretion, the Task Force Chair may or may not allow limited e-mail discussion on the matter. Beyond this, Task Force members have the option of responding by moving, seconding or supporting the motion, or requesting that it be considered further at a meeting of the Task Force. A consent resolution is deemed to have been achieved if there are no negative votes or calls for in-person discussion, and the number of support votes are equal to or greater than the number required for a quorum. In the case where a member so requests, the motion is not carried, but instead may be brought forward for consideration at a subsequent meeting of the Task Force. (In the case of an urgent matter, this may occur at a special meeting conducted by telephone where the normal requirements for a quorum will prevail.) Any motion so carried is considered to take effect immediately, and is ratified at the subsequent Task Force meeting and recorded in the minutes of that meeting.

13. Minutes:

13.1 Minutes, notes or recording of decisions are the responsibility of staff support.

14. Periodic Reporting and Review of Terms of Reference:

14.1 The Task Force shall review its Terms of Reference on establishment and shall recommend any changes to the Terms of Reference (through the Governance Committee).

15. Staff Support:

Director, Member Services

Approved by Council: date and CO #

(Optional: Reviewed by Task Force with no changes recommended: Date)

Appendices

Item 4.3 Appendix A

Item 4.4.4 Appendix A (Confidential - distributed separately)
Appendix B (Confidential - distributed separately)

Item 4.4.5 Appendix A

Item 4.4.6 Appendix A

Item 4.4.11 Appendix A
Appendix B

Item 4.4.12 Appendix A

Item 5.4.1 Appendix A
Appendix B

Professional Practice Guidelines for Flood Mapping in BC



DRAFT
January 2017

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PREFACE

The Professional Practice Guidelines – Flood Mapping in BC have been developed with the support of the Ministry of Transportation and Infrastructure – Emergency Management BC. The Guidelines will assist professionals in developing flood maps in a consistent manner, incorporating best practices.

They have been written for the information of APEGBC professionals, statutory decision-makers, regulators, the public at large and a range of other stakeholders who might be involved in, or have an interest in, flood mapping in BC.

These guidelines provide a common level of expectation for various stakeholders with respect to the level of effort, due diligence, and standard of practice to be followed when carrying out flood mapping in BC.

These guidelines outline the appropriate standard of practice at the time that they were prepared. However, this is a living document that is to be revised and updated, as required, in the future, to reflect the developing state of practice.

Although these guidelines are intended to be used on projects in British Columbia, the guidance provided can also be considered by APEGBC professionals while working in other jurisdictions in Canada or other global jurisdictions.

1.0 INTRODUCTION

1.1 PURPOSE OF THESE GUIDELINES

This document provides guidelines on professional practice for qualified APEGBC Professionals who prepare flood maps for river, creek and coastal flooding in BC. The guidelines will provide a common approach to be followed for carrying out a range of professional activities.

The specific objectives of these guidelines are to:

- (1) Describe the standard of care APEGBC members should follow in providing professional services related to this professional activity.
- (2) Specify the tasks that should be performed by APEGBC members so as to meet an appropriate standard of care that fulfills the member's professional obligations under the Engineers and Geoscientists Act. These obligations include the member's primary duty to protect the safety, health and welfare of the public and the environment.
- (3) Outline the professional services that should generally be provided by the APEGBC member conducting this type of work.
- (4) Describe the roles and responsibilities of the various participants/stakeholders involved in such work. The document will assist in delineating the roles and responsibilities of the various participants/stakeholders, which will include the APEGBC Professional of Record having overall responsibility for the preparation of the flood map, clients, authorities having jurisdiction and statutory decision makers.
- (5) Define the skill sets that are consistent with the training and experience required to carry out this professional activity.
- (6) Provide an assurance statement, which the APEGBC Professional of Record must seal with signature and date. This assurance statement will confirm that with respect to the specific professional activity carried out, the appropriate requirements have been met (both regulatory and technical).
- (7) Describe how the intent of the seven quality management requirements under the Engineers and Geoscientists Act are to be met when carrying out the professional activity covered in these professional practice guidelines. This will include outlining expectations regarding peer review and independent checking.

1.2 INTRODUCTION OF TERMS

For the purposes of these guidelines, a Qualified Professional (QP) is a Professional Engineer or Professional Geoscientist with appropriate education, training and experience to provide professional services related to flood mapping in BC as described in these guidelines (refer to Section 5).

A flood is a condition in which a watercourse or body of water overtops its natural or artificial confines and covers land not normally under water. When a flood becomes a source of potential harm to humans, property, infrastructure, the environment and other assets it becomes a hazardous flood.

The Canadian Standards Association (CSA, 1997) defines a hazard as “a source of potential harm, or a situation with a potential for causing harm, in terms of human injury; damage to health, property, the environment, and other things of value; or some combination of these.”

The term flood risk combines the probability of a hazardous flood occurring and the potential consequences to elements at risk.

1.3 STATUS OF FLOOD MAPPING IN BRITISH COLUMBIA

The Provincial floodplain mapping program started in 1974. The rate of mapping was accelerated from 1987 to 1998 through the Federal-Provincial Floodplain Mapping Program under the federal Flood Damage Reduction Program, which ran from 1975 to 1998. While the resulting maps are now outdated, their use is still advocated by the Ministry of Forests, Lands and Natural Resource Operations, as they are often the best information available. The Province provides information on locations of floodplains, floodplain maps and supporting data through the iMapBC portal (Government of BC, 2016). The maps and associated design briefs are also available on the Ministry of Forests, Lands and Natural Resource Operations website (MFLNRO, 2016).

For the Lower Fraser River, emergency planning flood maps have been produced more recently (MFLNRO, 2011), based on a Fraser River flood profile developed in 2008 (NHC, 2008). Since then the Hope to Mission reach profile has been updated (MFLNRO, 2014). Furthermore, the effects of sea level rise and climate change on Fraser River flood scenarios have been modelled (MFLNRO, 2014a). While useful for emergency planning, these maps are not intended to be used for other purposes.

With legislative changes in 2003 and 2004, responsibility for floodplain management was mostly devolved to local governments, with the proviso that Provincial guidelines be taken into consideration. The position of Inspector of Dikes was retained by the Province. Without a central database for the most recent flood maps it is necessary to approach the appropriate local government for floodplain management information. Fewer than ten local governments undertook floodplain mapping between 2008 and 2013 (BCREA, 2016).

The Fraser Basin Council (FBC) has been a lead organization with regard to flood studies in the Lower Mainland in recent years. In Phase 1 of the FBC Lower Mainland Flood Management Strategy (2014-2016) overview maps of select coastal and Fraser River flood scenarios were developed. Subregional maps indicate flood extents under two different flood scenarios for coastal flooding and another two for Fraser River flooding, representing different assumptions regarding sea level rise and river discharge. The scenarios were developed by KWL (2015) on behalf of the FBC and the flood vulnerability was assessed by

NHC (2016). The Phase 1 work also included the Lower Mainland Dike Assessment (NHC, 2015).

The BC Real Estate Association (BCREA) has been active since 2013 in promoting the Provincial Government's role in flood mapping and awareness of flood risks among its members and the public. Significant achievements include the development of the BC Floodplain Maps Action Plan, which has been continually updated as a series of progress reports since the initial plan was published in April 2013. The BCREA published its Floodplain Mapping Guidebook for BC Local Governments in 2014 and updated it in April 2016 (BCREA, 2016). Another important publication is the BC Floodplain Map Inventory Report (Parsons and BCREA, 2015), which notes that 21% of 49 communities surveyed have floodplain maps that have been updated in the last ten years, while 31% do not have any floodplain maps. It should be noted that non-governmental organizations and the private sector were not covered by this study and many maps of inundation resulting from dam breaches have been produced by dam owners, such as BC Hydro. The report lists or refers to twenty local governments that have flood maps generated or updated outside the BC Floodplain Mapping Program.

The BCREA Floodplain Mapping Backgrounder (Sustainability Solutions and Ebbwater, 2014) provides information on the number of communities mapped in BC and the types of maps in use.

The following broad uses of flood maps can be identified, each of which has different requirements with regard to map content:

- a) Flood damage reduction and mitigation;
- b) Floodplain management (land use planning);
- c) Emergency planning; and
- d) Private sector (real estate, public awareness, potential insurance).

While flood maps have a number of applications they are only one aspect of floodplain management. Flood maps provide information on the nature of the hazard and risk, but need to be complemented by a range of other measures for effective land use planning and regulation of development on the floodplain. Integrated flood risk management includes floodplain bylaws to address issues such as the requirement for floodproofing and permitted floodproofing methods. It also includes emergency response and recovery, and structural flood protection.

The insurance industry in Canada is now offering overland (but not coastal) flood insurance and has developed, or is in the process of developing, a set of flood risk maps designed to assist insurance companies in their business decisions (Insurance Institute of Canada, 2016). It is not known whether this information will be available to those outside the insurance industry.

The Federal and Provincial Governments sometimes implement cost sharing programs to enable flood maps to be developed or updated.

Standards and criteria for all aspects of flood mapping have not been established by the Federal Government or the Province. For floodplain mapping the Province refers to a Designated Flood based on the 1 in 200-year flood, Government of BC (2004). There are no Provincial standards for freeboard.

1.4 ROLE OF APEGBC

These guidelines have been formally adopted by the Council of APEGBC, and form part of APEGBC's ongoing commitment to maintaining the quality of services that members and licensees provide to their clients and the general public. Members and licensees are professionally accountable for their work under the Engineers and Geoscientists Act, which is enforced by APEGBC.

A qualified APEGBC Professional must exercise professional judgment when providing professional services; as such, application of these guidelines will vary depending on the circumstances. APEGBC supports the principle that appropriate financial, professional and technical services be provided to support the APEGBC Professional responsible for carrying out flood mapping in BC, in order to comply with the standard of care provided in these guidelines. These guidelines may be used to assist in establishing the objectives, level of service and terms of reference of an agreement between a qualified APEGBC professional and a client.

By following these guidelines, a qualified APEGBC Professional will fulfill his/her professional obligations, especially with regards to APEGBC Code of Ethics Principle 1 (hold paramount the safety, health and welfare of the public, protection of the environment and promote health and safety in the workplace). Failure of a qualified APEGBC Professional to meet the intent of these guidelines could be evidence of unprofessional conduct and lead to disciplinary proceedings by APEGBC.

APEGBC will review these guidelines every five years to determine whether updating is necessary.

1.5 SCOPE OF THE GUIDELINES

These guidelines summarize the professional practice related to flood mapping in BC. The guidelines include the elements necessary to prepare flood maps for river, creek and coastal flooding and will focus on the three main types of flood maps; inundation maps, hazard maps and risk maps.

Essentially, there are four stages in the production of a flood map (adapted from MMM, 2014):

- Base mapping – topography, bathymetry, land cover, infrastructure;
- Hydrology - estimation of design flows;
- Hydraulics - calculation of flood elevations by numerical modelling; and
- Flood mapping – Graphical representation of floodlines, elevations and associated hazards.

The following types of flood mapping are not included in these guidelines:

- Downstream inundation from dam failures. Guidelines are available from the Canadian Dam Association (CDA, 2007).
- Flood mapping prepared as part of urban drainage analysis (e.g. resulting from pluvial or snowmelt overland flooding, pipe surcharging).

1.6 APPLICABILITY OF THE GUIDELINES

These guidelines provide guidance on professional practice for APEGBC professionals carrying out flood mapping activities in BC. These guidelines are not intended to provide step-by-step instructions for carrying out flood mapping, but to outline the considerations that go into flood mapping studies.

An APEGBC Professional's decision not to follow one or more aspects of these guidelines does not necessarily mean a failure to meet required professional obligations. Such judgments and decisions depend upon weighing facts and circumstances to determine whether another reasonable and prudent QP, in a similar situation, would have conducted himself/herself similarly.

2.0 ROLES AND RESPONSIBILITIES

2.1 CLIENT

The client may be a landowner, a development consultant, the local government, the Provincial Government, a First Nation Government or the Federal Government. The client should establish the general extent and use of the proposed flood mapping and is responsible for the potential risk.

The QP should enter into a professional services agreement with the client prior to undertaking work on the project. In order to protect both parties, the agreement should be based on a proven standard agreement such as the Master Municipal Construction Documents (MMCD) Client-Consultant Agreement or Association of Consulting Engineering

Companies of Canada (ACEC) Document 31. Some specific points for consideration regarding the agreement are as follows:

- in recognizing that natural hazards projects inherently have high potential liability, the agreement should establish an appropriate limitation of liability;
- the agreement should confirm the scope to the extent that it is known at the time of agreement (natural hazards projects typically involve several scope modifications during the project which should be documented);
- the agreement should establish a budget estimate, either for hourly services, lump sum or otherwise (recognizing that modifications to scope will typically impact the budget); and
- the budget estimate should reflect the need for an appropriate level of review (internal project review and possibly independent peer review).

The agreement should also include a clause that deals with potential disclosure issues due to the obligation of the QP under APEGBC Code of Ethics Principle 1 (hold paramount the safety, health and welfare of the public, the protection of the environment, and promote health and safety in the workplace). In certain circumstances the QP may have to convey adverse assessment findings to parties who may not be directly involved, but who have a compelling need to know. Following is suggested wording for such a clause:

“Subject to the following, the QP will keep confidential all information, including documents, correspondence, reports and opinions, unless disclosure is authorized in writing by the client. However, in keeping with APEGBC’s Code of Ethics, if the QP discovers or determines that there is a material risk to the environment or the safety, health and welfare of the public or worker safety, he/she shall notify the client as soon as practicable of this information and the need that it be disclosed to the appropriate parties. If the client does not take the necessary steps to notify the appropriate parties in a reasonable amount of time, the QP should contact APEGBC to discuss how to proceed.”

After the flood mapping is complete it is helpful if the client:

- reviews the documents, and understands the limitations and qualifications that apply;
- discusses the documents with the QP and seeks clarification if desired; and
- directs the QP to complete an assessment assurance statement.

2.2 QUALIFIED PROFESSIONAL

The QP is responsible for carrying out the flood mapping. Prior to carrying out the project the QP should:

- confirm that he/she has appropriate training and experience to carry out the flood mapping in view of the terrain characteristics and the type of potential flood hazard;
- review relevant Provincial legislation and local government regulations, policies and floodplain bylaws;
- appropriately educate the client regarding pertinent aspects of flood mapping and determine the type of flood mapping that will be consistent with the client's intended use;
- discuss and agree with the client the criteria appropriate to the client's needs to be applied for the flood mapping;
- consider the need for and scale of investigations that address future land use changes and climate change;
- consider the need for the involvement of other specialists and stakeholders;
- establish an appropriate mechanism for internal checking and review; and
- consider the need for independent peer review.

The QP should comply with the requirements of APEGBC Bylaw 17 regarding professional liability insurance.

During the assessment the QP should follow the guidance provided in Section 3. Furthermore, the QP should:

- assist the client in obtaining relevant information;
- make reasonable attempts to obtain from the client and others all relevant information related to flood hazards in the mapping area;
- notify the client as soon as reasonably possible if the project scope and/or budget estimate requires modification;
- address any significant comments arising from the internal or peer reviews;
- discuss with the client, prior to final submission, any recommendation for a significant variance from a guideline;
- where appropriate, submit a draft report including flood mapping for review by the client and other parties; and
- submit a final report accompanied by supporting digital information.

2.3 MUNICIPAL, PROVINCIAL AND FEDERAL ROLES

Land use in flood prone areas is regulated under the following British Columbia acts (MFLNRO, 2016a):

- Local Government Act (for development permits and floodplain bylaws, variances, exemptions, Official Community Plans, zoning bylaws);
- Land Title Act (for subdivision approval);
- Bare Land Strata Regulations of the Strata Property Act (for strata plan approvals);
- Community Charter (for building permits);
- Vancouver Charter (zoning and building bylaws);
- Environmental Management Act (for guidelines, regulations, flood hazard management plans);

and for historical information:

- Flood Hazard Statutes Amendment Act; and
- Miscellaneous Statutes Amendment Act.

The Local Government Act (Section 524) addresses construction requirements in relation to floodplains. Specifically, this section of the Act empowers local government to enact a bylaw that designates a floodplain area and specifies corresponding flood levels and setbacks. Any new construction or reconstruction within the designated floodplain area must comply with these protection measures. (When dealing with building renovations, often the flood protection measures are not required if the renovation does not exceed 25% of the building footprint.)

In developing its bylaws, the local government must consider Provincial guidelines as well as comply with the Provincial regulations and any plan or program developed by the local government under those regulations. To date, there are no Provincial regulations and therefore no local government plans or programs developed under regulation. However, the Flood Hazard Area Land Use Management Guidelines (BC Government, 2004), provide guidance for developing bylaws under Section 524 of the Local Government Act. Through this section of the Act, local governments may, by bylaw, designate specific floodplain areas. More information on legislation related to flood mapping can be found in Appendix D of APEGBC (2012).

Flood maps are being prepared under the auspices of the Federal National Disaster Mitigation Program (NDMP), for the period 2015 to 2020, which will fund up to 50% of eligible projects, which are selected for funding through a competitive process. Such projects are cost shared with the provincial or territorial government, which can collaborate with, and redistribute funding to, eligible entities such as municipal or local governments. A flood map

identifies the boundaries of a potential flood event based on type and likelihood and can be used to help identify the specific impacts of a flood event on, for example, structures, people and assets (Public Safety Canada, 2016).

The Federal Flood Mapping Committee (FMC) has designed a collection of documents, entitled the Canadian Floodplain Mapping Guidelines Series, consisting of the following:

1. Canadian Floodplain Mapping Framework (March 2017)
2. Flood Hazard Identification and Priority Setting (to be developed)
3. Canadian Hydrologic and Hydraulic Procedures for Floodplain Delineation (March 2017)
4. Canadian Airborne LiDAR Data Acquisition Guideline (March 2017)*
5. Case Studies on Climate Change in Floodplain Mapping (to be developed)
6. Canadian Floodplain Mapping Guidelines and Specifications (March 2017)
7. Flood Risk Assessment (to be developed)
8. Risk-based land-use guide: Safe use of land based on hazard risk assessment (2015)**
9. Bibliography of Best Practices and References Related to Flood Mitigation (March 2017)

*This document is also being developed to support data requirements for floodplain mapping.

**This document has already been published by Natural Resources Canada but is included in the Series to support mitigation planning.

Completed initial drafts of the first four of these documents have been prepared for technical review prior to publication.

3.0 GUIDELINES FOR PROFESSIONAL PRACTICE

3.1 CATEGORIES OF FLOOD MAPPING

There are three main types of flood maps in use currently and a number of less common variations. These guidelines focus on the three most important categories for BC, which currently are:

Inundation Maps

Inundation (or flood extent) maps are topographic maps showing the extent of floodwater in plan, under defined flood events. For many years these were the only flood maps used and were known simply as floodplain maps. In the past the calculated flood levels were incremented by a freeboard to give a Flood Construction Level for use in the regulation and

design of dikes and other structures in the floodplain. This is no longer standard practice however. Inundation maps can be made more comprehensive by showing areas of ponding caused by inadequate drainage not related to river or coastal flooding, and areas susceptible to flooding through failure of flood protection infrastructure or areas designated to flood through historic agreements.

Floodplains identified and mapped under the Canada/BC Floodplain Mapping Agreement, which ran from 1987 to 2003, became 'designated' floodplains as a result of that program. Once designated, a floodplain became subject to certain restrictions with regard to both governments undertaking works in the floodplain and financial assistance for development was discouraged. Local authorities were encouraged to restrict undertakings in designated floodplains and adopt floodproofing bylaws that commonly referenced the flood levels shown on the floodplain maps. These maps reflected current policy with regard to flood risk management. There are 140 sets of designated floodplain maps on the MFLNRO (2016) website. These maps are still referenced on the basis of being the best information available, even if they are up to thirty years old. The floodplains are no longer considered to be 'designated' by the Province.

Hazard Maps

Hazard maps go beyond inundation maps by providing information on the hazards associated with defined flood events, such as water depth, velocity, and duration of flooding. Hazard maps typically indicate various degrees of hazard, such as low, medium and high, based on one or more parameters, e.g. depth or a function of depth and velocity.

Some jurisdictions use hazard maps to distinguish between the floodway and flood fringe (where water is shallower and velocities are lower than in the floodway) on hazard maps. Floodway and flood fringe together comprise the floodplain.

Various other types of flood hazard maps are described in a BCREA publication (Sustainability Solutions and Ebbwater, 2014), including flood event maps, which document a specific historic event; flood velocity and propagation maps, requiring the use of 2-D dynamic modelling; channel migration maps, focusing on potential erosion; and evacuation maps, showing disaster response routes. In the US there are flood insurance rate maps.

Risk Maps

Risk maps reflect the potential damages that could occur as a result of a range of flood probabilities, by identifying populations, buildings, infrastructure, residences and environmental, cultural and other assets that could be damaged or destroyed. Most practitioners favour the definition:

$\text{Risk} = \text{Probability of Hazard} \times \text{Consequences}$

Unfortunately, the term 'flood risk maps' has been used somewhat loosely in the past to refer to hazard maps. This is because the terms hazard and risk tend to be used synonymously

and interchangeably, even by some provincial jurisdictions. This stems from the lay use of risk, for what professionals involved with flood management call hazard. In simplistic terms, if there is nothing and no-one on a floodplain, there is no risk (because there are no consequences), but there is still a hazard. The European Commission literature has made this distinction quite clear (EXCIMAP, 2007a).

3.2 CLIMATE CHANGE CONSIDERATIONS

With increasing amounts of carbon dioxide and other greenhouse gases in the atmosphere, an increase in the frequency and intensity of unusual weather events, including floods and droughts, is projected by climate science. In the context of flooding, interest centres on changes in the amount and intensity of rainfall, changes in snowpack and temperature regime, insect infestations, forest fires and sea level rise. These factors need to be considered in certain combinations in flood estimation.

APEGBC (2014) has published a position paper entitled 'A Changing Climate in British Columbia', identifying potentially increasing flood risks and underlining its registrants' responsibilities to stay abreast of climate change science and incorporate appropriate resiliency into the design of infrastructure projects.

The National Flood Mapping Guidelines (AECOM, 2016) include some discussion on climate change. These guidelines suggest that, while the practice of incorporating sea level rise in climate change trends is 'robust and generally well accepted', prediction of wave hazards is 'less mature'. The same term is applied to changing precipitation patterns, with different global circulation models (GCMs) sometimes showing opposite trends. Best practice must therefore include a combination of outputs from different simulations.

In BC the Pacific Climate Impacts Consortium (PCIC) predicts that by mid-century (2050s), mean annual temperatures will be 1.4°C to 3.7°C higher, on average. Extremely high temperatures will become more frequent. At the same time, in winter, most of BC will likely receive more precipitation (up to 26% more in some locations). In summer, northern BC may be up to 15% wetter, while southern BC may be up to 20% drier. In winter and spring, snowfall may decrease (Zwiers et al., 2011). Other assessments of future climate change and impacts are available through PCIC (Rodenhuis et al, 2009 and PCIC, 2016).

The anticipated impact of climate change on Fraser River floods has also been assessed by PCIC (Shrestha et al, 2015). Both December through May temperatures and precipitation are projected to increase significantly over the next 85 years. Despite decreasing snow accumulation at lower elevations, combinations of increased melt rates and more rainfall during the freshet period provide possible mechanisms for higher flood flows. The study results indicate that peak flows in the Fraser River should be expected to increase by a significant amount in the next few decades with further increases to 2100. While the ranges of results from different GCMs are quite broad, the median increase to the 1:500 AEP flood for a moderate emission scenario for the 2041-2070 period is approximately 10%. This

aligns with the APEGBC (2012) recommendation for incrementing design floods in the absence of more detailed information.

Climate change during the 21st century is expected to result in more frequent fires in many boreal forests, with severe environmental and economic consequences (Natural Resources Canada, 2016). In the context of flooding, forest fires alter catchment characteristics with regard to infiltration, retention and overland flow processes in such a way as to increase peak rates of runoff (Ministry of Forests and Range, 2011).

Mountain pine beetle infestations are another manifestation of climate change that have been shown to increase the frequency and intensity of flooding (Winkler et al., 2008, EDI, 2008). This results from reduced interception, increased snowpacks, reduced times of concentration and altered timing of snowmelt runoff.

In the Legislated Flood Assessment Guidelines (APEGBC, 2012) Section 3.5.3, an approach is recommended to address the uncertainties associated with climate change.

Thomson et al. (2008) examined a number of causes of sea level rise in BC, including vertical land movements and thermal processes, and recommended low, mean, and extreme high sea level rise estimates for different areas in BC (see also Government of British Columbia, 2013). The report also addresses the impact of climate change on storm surge and El Niño-Southern Oscillation (ENSO) events. Planning for a 1 m sea level rise from the year 2000 to 2100 and for a further 1 m to 2200 is recommended.

In the US, AECOM (2013) published a report for Federal Insurance and Mitigation Administration (FIMA) and the Federal Emergency Management Agency (FEMA) on the impact of climate change and population growth on the National Flood Insurance Program. According to this study, by 2100 the average size of riverine and coastal flood hazard areas may increase by 40 to 45% and the population within these areas is expected to increase by 130 to 155%.

The implications of projected climate change with regard to flooding in BC are:

- a) An increase in frequency and intensity of severe rainstorms, including 'pineapple express' events and increased snowmelt rates causing greater peak discharges for a given annual exceedance probability;
- b) An increase in the frequency and magnitude of floods due to phenomena such as insect infestations and forest fires; and
- c) Higher storm surges in combination with sea level rise causing increased flooding and erosion in low-lying coastal areas.

All of the above could result in expanded areas vulnerable to flooding.

3.3 DATA REQUIREMENTS

As indicated by AECOM (2016) free, open and trusted data is a prerequisite for flood mapping. The following types of data are regarded as essential components:

- a) elevation data (topographic and bathymetric);
- b) base map features (streams, waterbodies, roads, etc);
- c) infrastructure;
- d) land cover;
- e) land tenure;
- f) geomorphology;
- g) climate data;
- h) aerial or satellite imagery; and
- i) hydrometric (streamflow and water level) data.

The above data can be usefully supplemented by historical data, such as high water marks (for specific floods, indicated by silt deposits or debris); media flooding reports; traditional knowledge, anecdotal information; and paleoflood analysis. All data sources should be noted.

Design discharges of various annual exceedance probabilities are essential input data to any flood mapping exercise. These should be developed from a hydrological study involving frequency analysis of local or regional data, or hydrological modelling, or both. Note that peak discharge data available from Environment Canada can, in some locations, be supplemented by discharge data collected under local government flow monitoring programs.

As part of the Canadian Geospatial Data Infrastructure (CGDI) database (to be adopted in 2018), also referred to as Canada's Spatial Data Infrastructure (SDI), BC has its DataBC portal at <http://www.data.gov.bc.ca/>, which provides access to iMapBC. This comprises mapping and metadata such as administrative boundaries, contours and many other layers. The contour interval of 20 m is not adequate for floodplain mapping work but the base maps are useful. Google Earth provides imagery that can be invaluable in the production of base maps. Other sources need to be tapped for higher resolution topographic data, such as LiDAR or ground-based surveys.

Bathymetric survey needs to be of sufficient resolution to pick up changes in channel slope, cross sectional area and roughness.

When preparing a flood map for a municipality, all relevant Provincial legislation and local government regulations and policies should be reviewed, particularly the technical basis for flood levels incorporated into any existing floodplain bylaws.

3.4 TOPOGRAPHIC MAPPING

3.4.1 Mapping Standards

Best practices in the generation of all types of flood maps should adhere to certain standards to ensure consistency and a level of utility that serves the users. For example, in Europe,

EXCIMAP (2007a) has produced a manual of best practices for flood mapping, which is shared by 24 countries. In the US FEMA (2016) maintains a series of standards for flood risk analysis and mapping.

3.4.2 Map Accuracy

Greater base map accuracy leads to greater flood map accuracy and utility. At present there are no Canadian guidelines for flood mapping accuracy. The national guidelines (AECOM, 2016) make reference to the FEMA accuracy requirements, which in turn depend on the flood risk. For example the highest specification level is for a consolidated vertical accuracy of 36.3 cm which corresponds to an equivalent contour accuracy of 0.6 m.

In rural, sparsely populated areas a lower degree of accuracy is acceptable, while in dense urban areas, higher accuracies are recommended, such as those obtained through LiDAR surveys. For the greatest utility, flood maps should be at the cadastre level, unless mapping is done on a river basin scale.

Vertical accuracy of LiDAR is in the 0.05 to 0.1 m range for smooth or hardened surfaces, while that from orthoimagery is in the 0.1 to 0.2 m range (Boyd et al., 2015). This may be hard to achieve where vegetation is dense. Therefore it can be advantageous to acquire LiDAR data in "leaf-off" conditions. LiDAR surveys can have gaps in locations where there is ponding water.

Minimum requirements for digital elevation models are considered to be 10 m by 10 m horizontal resolution (5 m by 5 m preferred) and 0.5 m vertical resolution (0.3 m preferred).

Datum, coordinate system and projection

The conventions in BC are currently North American Datum of 1983 (NAD83) for horizontal control and Canadian Geodetic Vertical Datum of 1928 (CGVD28) for vertical control. The latter is in the process of being replaced by CGVD2013, which was released in November 2013. More discussion on the implementation of the new datum and the Canadian Height Modernization Initiative, including approximate changes in benchmark elevations in different areas of BC, can be found on the GeoBC website (Government of BC, 2016a). Care will be required to ensure that flood maps make reference to the appropriate datum and note the conversion correction to the other datum.

The projection used for topographic mapping in BC is Universal Transverse Mercator (UTM) and coordinates are expressed in metres as northings and eastings within the UTM grid.

3.4.3 Mapping Technologies

Various technologies are available to generate the data required to construct digital elevation models (DEMs) required for flood mapping.

Ground surveys still provide the greatest accuracy. GPS surveys can be used to collect a large amount of data relatively quickly, with differential GPS overcoming the problem of vegetation obscuring the view of GPS satellites.

Photogrammetry can be used to provide high accuracy data.

LiDAR (Light Detection And Ranging) is becoming the preferred method for obtaining accurate data at competitive costs. It can be combined with orthorectified digital imagery.

SAR (Synthetic Aperture Radar) and its variations (IFSAR, GeoSAR, AIRSAR) use radar signals from aircraft to measure ranges to the ground.

3.5 INUNDATION MAPPING

Inundation (or flood extent) maps are topographic maps showing the extent of floodwater in plan, under defined flood events. The flood event is usually modelled across a floodplain area using one-dimensional or two-dimensional models. Inundation mapping from coastal flood events is also addressed in this section.

3.5.1 River Floods

Design floods

In most of British Columbia the design floods for traditional (formerly 'designated') floodplain maps have been those with return periods of 20 and 200 years. The 20-year flood levels have been used to apply Health Act requirements for septic systems, while the 200-year flood levels have been used to establish design elevations for flood mitigation works and flood construction levels. The exception to this is the lower Fraser River, where the 1894 flood of record is used.

For the wide spectrum of flood types addressed in the Legislated Flood Assessment Guidelines (Table E-1 in APEGBC, 2012) return periods of recommended design rainfall and snowmelt generated floods and ice jam floods range from 20 to 2500 years. The lower return periods (20 and 200 years) are suggested for lower flood risk situations, while the higher ones (500, 1000 and 2500 years) are recommended where there is moderate, high or very high loss potential.

There is increasing discussion (e.g. APEGBC, 2012) on the merits of using a risk tolerance-based approach rather than the present hazard or standard-based approach. Such an approach is applied in the dam safety community, where the classification of a dam is a function of the consequences (in turn a function of the risk) that would be caused as a result

of a dam failure. A dam spillway capacity is required to be able to convey a design flood corresponding to the downstream consequence as defined in the Dam Safety Guidelines (CDA, 2007). Return periods for reservoir inflow design floods range from 100 years where there is no population at risk to the probable maximum flood in cases where incremental (over the 'no dam' situation) loss of life would be greater than 100. The probable maximum flood has no associated annual exceedance probability.

The risk-based approach is also widely used for landslide risk management in BC and is the approach adopted in the EU Floods Directive (European Commission, 2016).

A risk-based approach leads to considerations of the areal extent over which protective works are required to be effective and the problem of mitigation works upgrades if the risk changes, for example as a result of further development.

In addition to rainfall and snowmelt flood events, floods can be generated by geomorphological processes such as failures of landslide dams. The implications of this are discussed in the APEGBC (2012) Legislated Flood Assessments Guidelines Appendix E5. It is suggested that design flood return periods should be increased to reflect the approximate return period of the geohazard. For example it is suggested that flood hazard maps for the Fraser River including the 1000-year and 2500-year return period events may be warranted as there have been several occurrences of rock avalanche dam outbreak floods originating in the Fraser Canyon. The same guidelines suggest that 200-year and 2,500-year flood maps would be appropriate for the Pemberton Valley and the Upper Squamish River Valley on account of the possibility of debris flows or landslide dam breaches. It is the responsibility of the QP to make the client aware of all potential flood generating processes. In the absence of detailed Provincial standards at present, reference should also be made to the Flood Hazard Area Land Use Management Guidelines (Govt. of BC, 2016b). The QP should recommend the design flow, but the client should make the final decision regarding design flow and may opt, for example, not to proceed with 2,500-year flood maps.

For some BC Interior rivers, ice jams may result in higher flood levels than normal flood conditions. While anecdotal information on past events remains important, analytical tools are available to help estimate river stages due backup caused by ice jams. For example, Lindenschmidt et al. (2015) used a dynamic model to generate stage frequency curves for open water, ice-cover breakup and ice jam events for the Peace River at the Town of Peace River. Similar work has been done on the Red River (Lindenschmidt et al., 2011). Beltaos et al. (2011) describe ice jam modelling on the Saint John River. Secondary to backwater flooding caused by ice jams, but potentially equally damaging, are floods downstream caused by the sudden release of ice jams. An approach to estimating ice jam flood levels is provided in the Prince George floodplain mapping case study in Appendix B.

It is the responsibility of the QP to ensure that ice jam floods are considered as part of determining the appropriate design flood.

If a design event is anticipated to contain a large amount of debris (a debris flood), it may be appropriate to apply a bulking factor to account for the increased volume of flow.

Hydraulic modelling

Hydraulic modelling of flood conditions in rivers ranges from simple steady state 1-dimensional modelling to dynamic 2-dimensional modelling. Three-dimensional modelling is rarely used in this context. The simplest topographic and bathymetric input to hydraulic models is a series of channel and valley cross sections at short enough intervals to describe the variation in terms of geometry, slope and hydraulic characteristics. More complex models require input in the form of digital elevation models. Such information should reflect local variations in topography caused by dikes, roads, buildings and other potential impediments to flow, as well as flow conduits such as culverts and bridges. Future development scenarios should also be considered, including complete build out, if policies are in place regarding infill development.

Boundary conditions reflect hydraulic conditions at the computational boundaries and will normally consist of known discharges and water levels or, for dynamic models, variations over time of these parameters. The output of 1-D models can be used as boundary conditions for 2-D models where more detail is required.

Standard practice for hydraulic modelling includes calibration of a model to a known data set, if available, such as a river profile or observed high water marks, by adjustment of model parameters, such as friction factors and other loss coefficients. In the absence of suitable calibration data, engineering judgement must be applied to estimate the required parameters. It also includes validation of a model by verifying that a calibrated model successfully simulates a second flood event.

Note that hydraulic modelling in this context does not normally include any representation of scour, erosion or deposition, which alter the channel geometry.

Freeboard

A freeboard allowance is a vertical distance typically added to calculated flood levels to account for uncertainty in the hydrological and hydraulic components of the analysis. In some cases (generally in riverine situations) it may be selected to accommodate phenomena such as waves and surges as well. In coastal situations freeboard is applied on top of wave, surge and sea level rise allowances.

In the regulatory context freeboard is used to determine the Flood Construction Level by providing an allowance above the design flood level (see Section 3.8). Typical freeboard values for 'water' floods that have been adopted in BC are 0.3 m above the maximum instantaneous design flood level or 0.6 m above the mean daily design flood level (whichever is higher). Larger freeboards are appropriate where there is potential for debris floods, debris flows, ice jams, debris jams, sedimentation and other phenomena that are harder to predict. In floodplain areas protected by dikes, freeboard is applied to flood elevations determined by dike breach analysis.

Traditional designated flood maps in BC have included freeboard when depicting flood extents and isolines. It is important to note whether or not a freeboard allowance is incorporated into an inundation map.

Encroachment analysis

The Alberta Government requires that an encroachment analysis be performed to determine the extent of a floodway, where the water is 1 m deep or greater, the local velocities are 1 m/s or faster and if the river were encroached upon, the water level rise would be 0.3 m or more (Alberta Environment, 2011). This approach has not been adopted in BC.

3.5.2 Alluvial Fans

Alluvial fans pose a special challenge when it comes to assessing flood levels. By their very nature they are subject to high flows embracing the full spectrum of geohydrological events from 'pure' water floods to debris flows. The accuracy of any assessment of flood levels decreases considerably as one moves from the water dominated events to those with high concentrations of sediment and debris. Furthermore, active alluvial fans are subject to channel avulsions, whereby a channel becomes choked with deposited sediment and/or wood debris, which causes flooding and erosion of a new channel (APEGBC, 2012).

A distinction can be drawn between active alluvial fans, such as those found in the high precipitation areas in coastal BC, and those in more arid areas such as interior BC, where fans were active in the post glacial period, but now have well incised channels in the upper and middle reaches of the fan (APEGBC, 2012). Such inactive fans are reasonably amenable to conventional hydrological and hydraulic analyses as applied to rivers and floodplains. Active fans, on the other hand, are subject to debris floods and debris flows.

Debris floods may contain between 4 and 20% sediment by volume. They can arise from water flood flows through entrainment of channel debris, but can also be generated by landslide, dam or glacial lake outbreak floods, other dam failures, hillslope and channel erosion and similar processes. Debris floods are highly erosive but can cause aggradation where channel slopes decrease, leading to avulsions and erosion.

Debris flows are landslide processes that typically can occur in creeks with an average channel slope of 15 degrees or more. Debris flows entrain channel debris at a rate that can produce peak discharges several times higher than a 200-year clear water flood discharge.

Active fans therefore require consideration of inactive channels, sediment supply and potential sources, vegetation and watershed condition in order to assess flood hazard. Clearly, former channels and anomalously low areas are more susceptible to flooding than surrounding areas of a fan, but no area may be immune. As active fans are aggrading features, conventional stage discharge relationships are of limited value and the most pragmatic approach to hazard assessment is through detailed fieldwork to identify likely avulsion sites and routes down the fan. Erosion can be accounted for through allocation of setbacks for varying degrees of hazard. Hazard zones for flood mapping can be determined

through identification of a combination of potential inundation areas and those subject to erosion.

For the purposes of these guidelines and their application to alluvial fans, it is recommended that a suitably experienced geoscientist be involved with assessment of the types of hazard that could occur. If this assessment suggests that geomorphic events (debris floods and debris flows) are predominant with the return periods of concern, then the hazard and risk assessments should be completed by the geoscientist with input from a hydrotechnical engineer. On the other hand, if critical events are likely to be water dominated flooding, conventional hydrological and hydraulic analyses can be conducted, with precautionary input from a geoscientist. As part of the hydraulic analysis the QP should provide allowances for potential channel aggradation through adjustment of hydraulic model cross-sections to account for anticipated sediment deposition during the design flood event.

3.5.3 Coastal Floods

Coastal flood hazards can be grouped under three headings:

- a) Storm surges in combination with high tides, waves and/or river flows

Design storm surges for different parts of the BC coast have been proposed in the Coastal Floodplain Mapping Guidelines and Specifications, KWL (2011). This document suggests deep water storm surges for various parts of the coast. These magnitudes are from the Sea Dike Guidelines (Ausenco Sandwell, 2011c).

Site-specific hydraulic modelling may be required to provide refined estimates of deep water storm surge to account for regional coastline type, local characteristics such as shoaling and shallow water, and nearshore features such as estuaries, spits and seawalls.

Higher high water large tide (HHWLT) levels are published by the Canadian Hydrographic Service for a number of reference stations and can be determined for a network of secondary ports. Reference stations and secondary port locations are shown in the Coastal Floodplain Mapping Guidelines (KWL, 2011).

Wave effects can be assessed by a coastal engineering study, taking into consideration a designated storm, the local geometry and substrate of the shore, and sea state. For semi-protected and semi-enclosed coastlines, regional scale 2-D wave propagation and wave transformation models should be utilized to determine localized effect on storm surge and wave climate. 1-D models may be adequate for sheltered coastlines (KWL, 2011).

In estuarine locations hydraulic modelling should take into consideration an appropriate flood flow in the river. This flow need not have the same return period as the storm surge, as this could lead to an unreasonable joint probability. However there are situations in which a storm surge could coincide with a heavy rainfall event.

To avoid the difficulties of a direct statistical joint probability analysis, a continuous simulation approach may be helpful, whereby long-term simulations are conducted of the hydraulic performance of the system, and the simulated annual peak floodplain water levels are subject to conventional frequency analysis.

b) Tsunamis

Tsunamis can be caused by nearby or distant earthquakes and large landslides (above or below water). As tsunami wave heights are very dependent on site specific conditions, detailed modelling is required to determine potential run-up at a given location (KWL, 2011). Resonance may be a consideration in some circumstances (e.g. Port Alberni).

The Institute of Ocean Sciences has modelled tsunamis generated by Cascadian subduction zone earthquakes west of Vancouver Island (Fisheries and Oceans Canada, 2016). However the results are preliminary at this stage and not intended as a basis for engineering design or policy. There are presently no tsunami criteria for flood mapping, and a comprehensive study to determine these has been recommended (KWL, 2011). Design elevations for emergency planning were established by the former Provincial Emergency Program (now EMBC), which when combined with ground elevations indicate areas for evacuation planning (KWL, 2011). However such levels do not appear in the more recent Tsunami Notification Process Plan (Government of BC, 2013a).

Natural Resources Canada has published a Tsunami Hazard Assessment of Canada (Leonard et al., 2014) and various associated online resources. According to this study the cumulative estimated tsunami hazard for potentially damaging run-up (more than 1.5 m) of the outer Pacific coastline is 40-80% in 50 years. For larger run-up with significant damage potential (over 3 m) this decreases to 10-30% in 50 years.

Ocean Networks Canada (2016), in collaboration with University of Rhode Island and NOAA has been developing new tsunami wave models for the area of Barkley Sound and the City of Port Alberni for emergency preparedness purposes.

c) Ongoing sea level rise

Rates of sea level rise (SLR) for BC have been estimated based on the latest research (Ausenco Sandwell, 2011a). Essentially a 1 m rise is suggested between 2000 and 2100 and a further 1 m by the year 2200, see Figure 3.1. Clearly these are subject to ongoing updates.

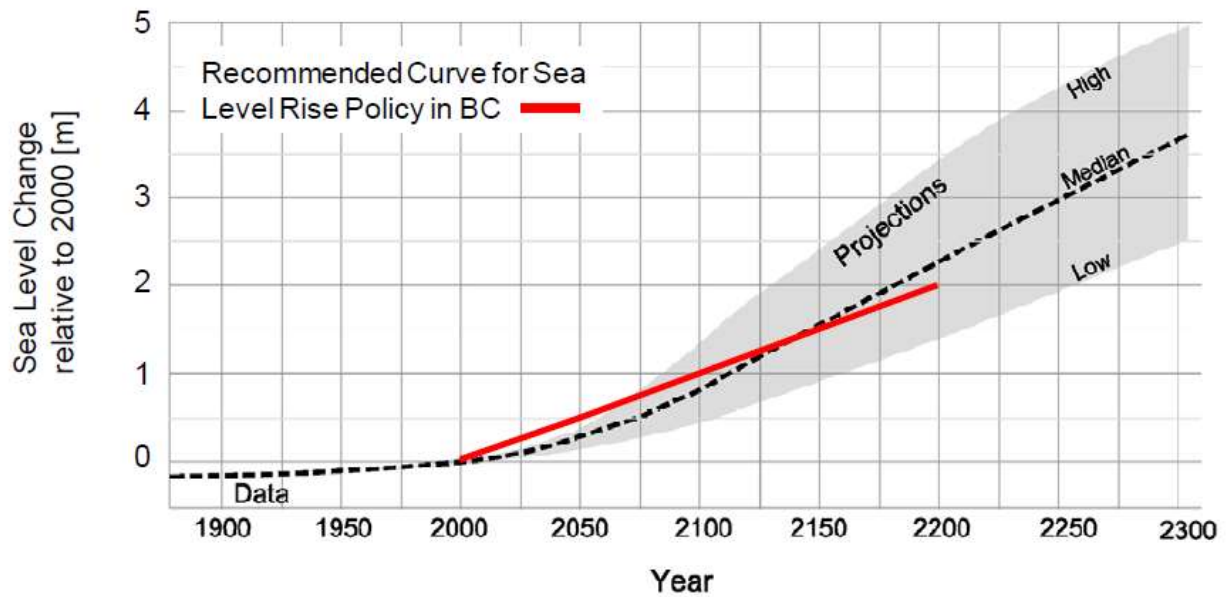


Figure 3.1 Projections of Global Sea Level Rise

Site-specific adjustments to sea level rise are required to account for the uplift or subsidence of the land surface in the area of interest. The ground appears to be generally rising along the coast, with local areas of subsidence. Some uplift and subsidence rates for coastal BC are given by KWL (2011). This information is subject to periodic updates also. Local governments may have regional information based on recent research.

The Flood Construction Levels (FCLs) required for preparation of coastal floodplain maps are derived from a combination of the components listed earlier, i.e. storm surge, HHWLT, wave effects and SLR with an additional amount for freeboard. This combination requires specification of the design storm (for storm surge and waves) and the planning time frame (for the sea level rise). Freeboard of 0.6 m is recommended by KWL (2011). It is not necessary to factor tsunamis into this approach as the probability of a tsunami occurring concurrently with the other components is considered remote. However, an estimate of tsunami elevation is required as, in some cases, tsunami levels may govern the FCLs. In an exposed coastal context, the FCL is equivalent to the Dike Crest Elevation (DCE), which is not the case in riverine situations. However, a short distance inland, wave effects are not an issue and FCLs can be reduced accordingly.

Amendments have been proposed to Section 3.5 (The Sea) of the BC Flood Hazard Area Land Use Management Guidelines (Government of BC, 2016b). The 4th draft amendments suggest that local governments consider defining SLR Planning Areas for which flood protection (sea dikes) and flood hazard management tools would be developed. These

areas should include those exposed to coastal hazards, diked areas and floodplains of tidally influenced rivers.

The 4th draft amendment describes two alternative approaches for determining the 2100 FCL for areas not subject to significant tsunami hazard. They both are based on an allowance for sea level rise to 2100, adjusted for regional uplift or subsidence. The resulting level is augmented by either:

- The 1:200, or 1:500 Annual Exceedance Probability (AEP) total water level as determined by probabilistic analyses of tides and storm surge;
- Estimated wave effects associated with the Designated Storm with an AEP of 1:200, or 1:500; and
- A minimum freeboard of 0.6 metres.

or (a more conservative “Combined Method”):

- Higher high water large tide (HHWLT);
- Estimated storm surge for the Designated Storm with an AEP of 1:200, or 1:500 as per Table 6-1 in Ausenco Sandwell (2011a);
- Estimated wave effects associated with the Designated Storm; and
- A minimum freeboard of 0.3 metres.

With regard to building setback the draft guidelines suggest the greater of 15 m from the future estimated Natural Boundary of the sea at Year 2100, or landward of the location where the natural ground elevation contour is equivalent to the Year 2100 FCL. More detail can be found in Ausenco Sandwell (2011b). Where some protection is provided by a natural bedrock formation, the approving official may agree to modify setback requirements as recommended by a QP. All aspects of the coastal flood hazard associated with Year 2100 water levels should be considered including waves, debris and related splash impacts. Any approval should be augmented through a restrictive covenant describing the hazard and building requirements, and including the QP’s report and a liability disclaimer. The setback may be increased on a site-specific basis, such as for highly erodible areas.

3.5.4 Dike Breach Flood Levels

Where rivers have extensive diking systems such as along the lower Fraser River, the modelled design flood water level can be much greater than the ground surface elevation at some locations. This is primarily because the dikes constrain the flow within the river channel which results in a higher flood profile than if the dikes were not present. Use of the dike-constrained flood levels to develop flood mapping is impractical in some situations. More realistic flood elevations in floodplain areas can be calculated by simulating dike breaches and modelling the propagation of resulting flood waves over the floodplain. This

approach also allows the development of flood hazard maps showing the variation in flow velocities across the floodplain.

Data on flood breach characteristics, primarily for BC and the Netherlands, has been compiled by WMC (2004). The WMC report recommends an ultimate breach width of 200 m for larger rivers such as the Fraser and 100 m for smaller rivers. Conservative assumptions are recommended for the timing of the maximum breach width at the peak of the hydrograph and for no reduction of the water surface profile in the river as a result of the breach.

Various breach locations should be assessed to establish the worst case scenario and combinations of breaches should be included in the analysis. Floodboxes and pumpstations are weak points in a dike system and a breach may be more likely at one of these structures. Malfunctioning of such components of a flood defence system is unlikely to be as significant as a dike breach.

Two dimensional hydraulic modelling is now the standard for representing the propagation of the flood wave from a dike breach across the floodplain. Such modelling should take into account all structures influencing the flow, such as roads, bridges and culverts, existing and future development, remaining dikes and other embankments. Output from this modelling can be used to indicate areas subject to flooding in the event of a dike breach.

It is possible that a dike breach causes a design flood level on the floodplain that is higher than the adjacent flood level in the river if water from a dike breach becomes trapped by a remaining dike further downstream.

In some circumstances breach modelling of coastal dikes may be warranted for flood mapping in coastal areas. Data compiled by WMC (2004) indicate an appropriate breach width of 200 m for coastal dikes. The approach described above using two-dimensional modelling should be applied with the additional considerations of timing of a breach relative to tide level variation and potential storm surges.

3.6 FLOOD HAZARD MAPPING

Hazard maps provide information on the hazards associated with defined flood events, such as water depth, velocity, and duration of flooding. Hazard maps typically indicate various degrees of hazard, such as low, medium and high, based on one or more parameters, e.g. depth or a function of depth and velocity.

3.6.1 Setbacks

Bank erosion can be a significant flood hazard particularly in areas adjacent to mountain rivers. Flood hazard maps should include appropriate setbacks from rivers to indicate areas that are threatened by bank erosion. The BC Flood Hazard Area Land Use Management Guidelines address setbacks (Government of British Columbia, 2004) where a minimum of 30 m is required from major watercourses. For rivers with active bank erosion, larger

setbacks should be established based on a fluvial geomorphological analysis. Consideration can be given to reduced setbacks where engineered and maintained bank protection exists. Setbacks can also be used as part of a floodway where part of the floodplain is allocated for conveyance of flood flows that are not impeded by man-made structures. Designation of a floodway can result in reduced flood construction levels on the rest of the floodplain.

The British Columbia *Riparian Areas Protection Act* calls on many local governments to protect riparian areas during residential, commercial, and industrial development. Setbacks established under the Act may be greater or less than flood hazard setbacks. Depending on the circumstances, flood hazard maps could include the location of riparian area setbacks in addition to flood hazard setbacks.

The issue of setbacks is also discussed in the Legislated Flood Assessments guidelines (APEGBC, 2012).

3.6.2 Hazard Ratings

There are a number of different ways to characterize flood hazards. Maps can be prepared to show variations in flood depths and flow velocity. Maps showing the timing of arrival of flood waves from dike breaches are included in the Flood Hazard Mapping Manual in Japan to provide information for emergency response. (Japan Ministry of Land, Infrastructure and Transport, 2005). Colour coding standards for flood depths have been developed in the Japan manual and were applied in coastal flood mapping for the City of Vancouver described as a case study in Appendix B. These are easier to distinguish than several shades of blue and the colours are more distinguishable if the map is photocopied to greyscale, which can be common during an emergency event.

Hazard ratings combining both flood depth and flow velocity have been developed in the UK, Australia and Japan. The UK has adopted a hazard rating formula (UK Environment Agency, 2006) to characterize hazard intensity as a function of inundation depth, water velocity, and the potential for floating debris and is primarily based on consideration of the direct risks to people exposed to floodwaters. The UK formula is:

$HR = d \times (v + 0.5) + DF$ where,

HR = (flood) hazard rating;

d = depth of flooding (m);

v = velocity of floodwaters (m/s);

and DF = debris factor (= 0, 0.5, 1 depending on probability that debris will lead to a significantly greater hazard).

It is useful to use a hazard rating classification framework as a proxy for physical hazard to persons directly exposed to inundation. For example a UK hazard rating classification

framework from Surendran et al (2008) is summarized in Table 3.2. This hazard rating classification system was used in the Squamish Integrated Flood Hazard Management Plan described as a case study in Appendix B.

Table 3.2: Hazard to People Classification

Hazard Rating (HR)	Hazard to People Classification
< 0.75	Very Low Hazard (Caution)
0.75 – 1.25	Danger for Some (includes children, the elderly, and the infirm)
1.25 – 2.00	Danger for Most (includes the general public)
> 2.00	Danger for All (includes emergency services)

For hazard and risk mapping on alluvial fans, Jakob et al (2011) developed a debris flow intensity index as the product of maximum expected flow depth and the square of the maximum flow velocity. The debris flow intensity index correlates with building damage and four classes of building damage were considered ranging from nuisance/flood/sedimentation damage to complete destruction.

Maps showing hazard ratings can be used to develop mitigation measures as part of land use planning at the local government level. These can be applied through Official Community Plans, zoning bylaws and floodplain bylaws. Maps of hazard ratings can also be used to develop consequence assessments as a precursor to flood risk mapping.

3.6.3 Impacts of Flood Mitigation on Flood Hazards

Flood mitigation can impact others in the floodplain in two primary ways:

1. The construction of dikes can result in increases in adjacent and upstream water levels in the main watercourse. Dikes can also increase water levels within a diked floodplain when there is an upstream dike breach.
2. Floodproofing, particularly with extensive fill placement, can increase water levels and velocities near adjacent properties within the floodplain if there is no dike or in the event of a dike breach. This is a transfer of risk that can be addressed by including

future development in the floodplain in two-dimensional modelling. Other topographic changes such as future road fills should also be included. Thus the mapped flood water elevations would account for the influence of future development.

It is the responsibility of the QP to ensure that flood mapping adequately represents these impacts.

3.7 FLOOD RISK MAPPING

Flood risk is the combination of the probability of a flood event and of the potential adverse consequences to human health, the environment and economic activity associated with a flood event (EXCIMAP, 2007). Flood risk maps extend the information shown on flood hazard maps by quantifying the risk from a range of possible flood events and the consequences of each event.

Risk assessment is the process of estimating a range of hazards, determining the consequences for each hazard, and combining results to obtain an overall estimate of the expected risk. Benefit-cost analysis is one well-known application of risk assessment.

Estimating the consequences of flooding is often more difficult than estimating the flood hazards themselves. Consequence assessments begin with output from a hydraulic model and combine it with extensive spatial databases that characterize the elements at risk (people, buildings, infrastructure, natural environment, archaeological sites, etc.). Consequence assessments consider the vulnerability of each element using damage functions that relate probability of death or injury or amount of property damage to variables like water depth, water velocity, or debris impact. Engineers must use their professional judgement to determine whether a damage function accurately represents the elements at risk. Guidelines for Flood Risk Assessment are provided in Appendix F of Professional Practice Guidelines for Legislated Flood Assessments in a Changing Climate in BC (APEGBC, 2012).

Flood vulnerability maps are simplified risk maps that provide inventories of elements at risk for a given flood hazard scenario. Flood vulnerability maps were prepared in two of the case studies featured in Appendix B. Flood consequence maps show the distribution of the economic, social and environmental damages from a given flood event.

A comprehensive flood risk map quantitatively combines a range of flood hazard scenarios with the likely flood consequences. Considerable judgement would be required to estimate probabilities of dike breaches and other flood scenarios and to quantify the combined social, economic and environmental consequences.

3.8 REGULATORY MAPPING

All types of flood maps can be used for regulatory purposes such as developing floodplain bylaws and informing Official Community Plans. The most common regulatory application is where inundation mapping is incremented by a freeboard allowance to establish Flood

Construction Levels (FCLs). The concept of Flood Construction Level has a long history of use in British Columbia. In floodplain mapping it is used to establish the elevation of the underside of a wooden floor system or top of concrete slab for habitable buildings (Government of British Columbia, 2004). In the case of a manufactured home, the ground level or top of concrete or asphalt pad on which it is located shall be no lower than the above described elevation. In a sense therefore, inundation maps that include a freeboard allowance serve as simple hazard maps, although no measure of the relative hazard is provided in terms of depth or velocity.

In the absence of inundation mapping, an assessed height above the natural boundary of the waterway or above the natural ground elevation may be used (Government of BC, 2004).

The appropriate freeboard to apply to inundation maps to obtain FCL values ranges between 0.3 and 1.0 m depending on the uncertainties in the inundation mapping and the risk tolerance of the regulating jurisdiction. With knowledge of the uncertainties in the development of a flood map, the QP should provide recommendations to the client regarding freeboard. Including freeboard on a flood map will increase the potential inundated area shown on the map.

Ultimately it is the decision of the client whether to add freeboard and how much freeboard to apply. The economic and social impacts on the community must be taken into account in this decision.

Flood Construction Levels and setbacks can be shown on the mapping, but they only take effect if a local government adopts a floodplain bylaw, or uses another tool (e.g. development permit areas) to implement these conditions. Production of the maps is only an interim step in the process and the local government must adopt specific land use regulations for regulatory mapping to take effect.

Dike crest elevation

In the 1970s and 1980s Flood Construction Levels were also used in British Columbia to establish minimum standard dike crest elevations. Dike design profiles including freeboard are now determined independently from inundation mapping studies.

3.9 DELIVERABLES

Output from the various mapping technologies are generally exported in one of a variety of GIS formats, which can then be used to generate maps. It is standard for flood maps to be generated digitally, providing the option for hard copy mapping with selected metadata appropriate to the needs of the users. The National Guidelines (AECOM, 2016) provide principles and standards for geospatial data, metadata, geographic information and data encoding. The expectation is that flood maps will be made available on line. Standards for web based maps are discussed in Section 3.8.4.

3.9.1 Map Notations

Flood maps have limitations that should be clearly noted on each map. Typical notations including disclaimers are as shown below (WMC, 2004). The sample floodplain map from the Prince George case study (Appendix B) has similar disclaimers and a disclaimer noting the quality of the base information might also be required.

- a) Flooding may still occur outside the defined floodplain boundary and the local government does not assume any liability by reason of the failure to delineate flood areas on this map.
- b) The floodplain limits are not established on the ground by legal survey.
- c) Building and floodproofing elevations should be based on field survey and established bench marks.
- d) The required or recommended setback of buildings from the natural boundaries of watercourses to allow for the passage of floodwaters and possible bank erosion may not be shown. This information may be available from the local government.
- e) Under the provisions of the Local Government Act (Sections 473, 488, 490, 491, 500 and 524), the Community Charter (Section 56) and the Land Title Act (Sections 86 and 219), local governments have the role and responsibility for making decisions about local floodplain development practices, including decisions about floodplain bylaws within their communities. Information on floodplain management guidelines can be found in the BC Flood Hazard Area Land Use Management Guidelines

3.9.2 Specifications

According to the national guidelines (AECOM, 2016) a map sheet should include the following blocks:

- a) Base map/photo & flood risk information block;
- b) Base map author & stamp block;
- c) Flood risk author & stamp block;
- d) Legend block
- e) North arrow & datum block
- f) Scale & contour interval block
- g) Map sheet index block

- h) Client logo block
- i) Title block
- j) Sheet number block

Furthermore the base map block should indicate the following:

- a) Location of all benchmarks and monuments,
- b) Location and name of all dikes and major erosion protection works,
- c) The floodplain area protected by specific dikes should be delineated so that the linkage between the protected (benefiting) area and the specific dike protection is clear;
- d) Location of all streamflow gauges and climate stations,
- e) Street names, park names, cultural information, etc,
- f) Administrative boundaries; i.e., cities, municipalities, townships, counties, etc,
- g) Watercourse name and flow arrow;
- h) Name of major water control structures;
- i) Cross section and cross section labels;
- j) Water surface elevation at each cross section;
- k) Gridded flood characteristic name and colour ramp categories;
- l) Upstream and downstream study limits and mapping limits;
- m) Match lines for overlapping map sheets; and
- n) Topographic information.

The BC guidelines for floodplain mapping (WMC, 2004) recommend the following mapping specifications:

- a) Scale: 1:5000 minimum, 1:2000 preferred
- b) Contour interval: 0.5 m
- c) DEM point spacing: 10 m minimum, 1.5 m preferred for hydraulic modelling. Alternatively a TIN (triangulated irregular network) can enhance breakline features.
- d) Vertical accuracy 30 cm; horizontal accuracy 1.7 m, based on 95% confidence levels

The current coastal floodplain mapping guidelines (KWL, 2011) provide similar specifications, but give 1:10,000 as a minimum scale with 1:5,000 preferred. The horizontal accuracy required is somewhat less in the coastal guidelines.

3.9.3 Reporting

As part of the 1987 to 1998 Federal-Provincial Floodplain Mapping Program, Design Briefs were prepared for each study and they are available on the Provincial Government website:

http://www.env.gov.bc.ca/wsd/data_searches/fpm/reports/

For each floodplain mapping project, the Design Briefs provide background information on historical flooding, assumptions made in the analysis, the method used to develop design floods, the hydraulic analysis used to determine flood levels and the limitations of the mapping data. More comprehensive reports would be required to document the analysis undertaken for flood maps that address dike breach modelling, ice jam floods and other complex flood scenarios.

Reports should be prepared to document all flood mapping studies and they should be signed and sealed according to the procedures established by APEGBC (2013).

3.9.4 GIS Platforms

Flood maps can be made available on Geographical Information Systems (GIS) platforms which can be a significant advantage to the end-user. The core principles of the guidelines for the implementation of a geospatial platform are set out in the National Flood Mapping Guidelines (AECOM, 2016):

- The platform should offer access to trusted geospatial data, services, and applications,
- It should increase information sharing across various levels of government and the private sector,
- It should comply with national or international standards as well as with policies,
- It should be independent of specific software and hardware,
- It should be interoperable, notably through the use of international encoding standards, and
- Must be adaptable to new trends and approaches.

The National Guidelines provide details on Federal standards for GIS platforms. Guidelines for British Columbia Ministry of Forests, Lands and Natural Resource Operations are available at this link:

<https://www.for.gov.bc.ca/his/datadmin/spatproj.htm>

The National Guidelines also provide a standard on a Geographic Information – Web Map Server Interface (WMS). A Web Map Service (WMS) produces maps of spatially referenced data dynamically from geographic information. The map is a portrayal of geographic information as a digital image file suitable for display on a computer screen. A map is not the data itself. WMS-produced maps are generally rendered in a pictorial format such as PNG, GIF or JPEG.

3.9.5 Updating

Flood maps should be reviewed about every 10 years and updated if any of the following have occurred:

1. There is a change in the design flood either because of changes to the criteria, climate change or a significant hydrologic change in the upstream watershed;
2. There have been significant changes in the channel geometry as a result of a flood or other event;
3. Significant local subsidence has occurred that changes the land elevation in relation to sea level rise;
4. New flood hazards are identified;
5. Significant diking works are constructed in the floodplain particularly if the diking alignments are new;
6. There are changes to the Official Community Plan within a floodplain that would nullify the assumptions made in the hydraulic modelling. For example, a development blocking a preferential overland flow route that was included in the model; or
7. There are significant changes in the floodplain such as community growth and urbanization.

3.10 CASE STUDIES

Case studies are included in these guidelines to illustrate flood mapping methods that have been applied in the Province. Three case studies were selected that show a range of flood mapping initiatives addressing different challenges. More information on the case studies is included in Appendix B.

1. Flood mapping was incorporated into the City of Vancouver Coastal Flood Assessment (2014). This study included sea level rise to the year 2200 combined

with 1 in 500 and 1 in 10,000 year coastal storm events. Inundation and flood hazard maps were prepared as well as maps showing flood vulnerability, displaced households and building losses.

2. Flood mapping was included as part of the Squamish Integrated Flood Hazard Management Plan (2016). This study addressed sea level rise, coastal storm events, dike breach flooding and impacts of flood mitigation works. Inundation maps, flood hazard maps and flood vulnerability maps were prepared.
3. Flood mapping for the City of Prince George in 2009 included assessment of both open water floods and ice jam events. The flood maps were incorporated in a city floodplain regulation bylaw.

4.0 QUALITY ASSURANCE/QUALITY CONTROL

A qualified APEGBC professional must carry out quality assurance/quality control (QA/QC) during all phases of flood mapping.

4.1 APEGBC QUALITY MANAGEMENT REQUIREMENTS

APEGBC professionals are obligated to abide by the quality management requirements set out in the APEGBC Bylaws. In order to meet the intent of those requirements, APEGBC professionals must establish and maintain documented quality management processes for their practices, including as a minimum:

- The application of the relevant APEGBC Professional Practice Guidelines;
- Engineers and Geoscientists Act, s. 4(1) and Bylaw 11(e)(4)(h);
- Retention of complete project documentation—Bylaw 14(b)(1);
- Regular, documented checks using a written quality control process—Bylaw 14(b)(2);
- Documented field reviews of engineering/geoscience designs/recommendations during implementation or construction—Bylaw 14(b)(3);
- Authentication of professional documents by the application of the APEGBC professional's professional seal—Engineers and Geoscientists Act, s. 20(9); and
- Professional engineering/geoscience activities can only be delegated to subordinates under direct supervision—Engineers and Geoscientists Act, s. 1(1) and 20(9).

4.2 DIRECT SUPERVISION

Direct supervision means taking responsibility for the control and conduct of the engineering or geoscience work of a subordinate. With regard to direct supervision, the QP having overall responsibility should consider:

- the complexity of the project and the nature of the flood hazards and/or flood risks;

- training and experience of individuals to whom work is delegated; and
- amount of instruction, supervision and review required.

Field work can be an important aspect of flood mapping. Therefore, careful consideration must be given to delegating field work. Due to the complexities and subtleties of flood mapping, direct supervision of field work is difficult and care must be taken to ensure that delegated work meets the standard expected by the QP. Such direct supervision could typically take the form of specific instructions on what to observe, check, confirm, record and report back to the QP. The QP should exercise judgment when relying on delegated field observations by conducting a sufficient level of review to be satisfied with the quality and accuracy of those field observations.

4.3 CHECKING AND REVIEW

As referenced in Section 4.1 of these guidelines and consistent with the requirements of APEGBC Quality Management Bylaw 14(b)(2), as a minimum, flood mapping reports and supporting documentation must undergo a documented checking and review process before being finalized and delivered. This process would normally involve an internal review by another APEGBC professional within the same firm. Where an appropriate internal reviewer is not available, an external reviewer (i.e., one outside the firm) must be engaged. Where an internal or external review has been carried out, this must be documented. The level of review is to be based on the professional judgment of the APEGBC professional (the reviewer). Considerations should include the type of map, complexity of the area and of the underlying conditions; quality and reliability of background information, field data, elements at risk; and the APEGBC professional's training and experience.

4.4 INDEPENDENT REVIEW

An independent review is an additional level of review beyond the minimum requirements of APEGBC Bylaw 14(b)(2) that may be undertaken for a variety of reasons by an independent APEGBC professional not previously involved in the project. At the discretion of the APEGBC professional, in consultation with the reviewer(s) involved in the regular checking/review process outlined above, this additional level of review may be deemed appropriate. Alternatively, a regulatory authority or the client may request an independent external review to support project approval. An independent review may be undertaken by another APEGBC professional employed within the same firm, or an external firm.

An independent external review process should be more formal than the checking/review process carried out under Bylaw 14(b)(2). An independent external reviewer should submit a signed, sealed, and dated letter or report that includes the limitations and qualifications with regard to the independent external review and the results of the independent external review.

The independent external review discussed above is not the same as an independent review or advisory service provided by an APEGBC professional who is retained by the regulatory authority or sometimes by the client.

5.0 PROFESSIONAL REGISTRATION; EDUCATION, TRAINING AND EXPERIENCE

5.1 PROFESSIONAL REGISTRATION

It is the responsibility of the professional engineer or professional geoscientist to determine whether he/she is qualified by training and/or experience to undertake and accept responsibility for the carrying out of flood mapping in British Columbia (APEGBC Code of Ethics Principle 2).

With regard to the distinction between professional engineering and professional geoscience, the following is an excerpt under Principle 2 of the Code of Ethics guidelines (APEGBC 1994, amended in 1997):

The professions are distinct and registration in one does not give a member the right to practice in the other; however, the Association recognizes that there is some overlap of the practices of engineering and geoscience.

Nothing in this principle authorizes a professional engineer to carry on an activity within the area of professional geoscience which goes beyond the practice of professional engineering and nothing in this principle authorizes a professional geoscientist to carry on an activity within the area of professional engineering which goes beyond the practice of professional geoscience.

The APEGBC professional who investigates or interprets complex geological conditions, geomorphic processes, in support of flood mapping is typically registered with APEGBC as a professional geoscientist in the discipline of geology or environmental geoscience, or as a professional engineer in the discipline of geological or civil engineering.

5.2 EDUCATION, TRAINING AND EXPERIENCE

Flood mapping, as described in these guidelines; requires minimum levels of education, training and experience in many overlapping areas of geoscience and engineering. The Qualified Professional taking responsibility for flood maps must adhere to the APEGBC Code of Ethics (to undertake and accept responsibility for professional assignments only when qualified by training or experience) and, therefore, must evaluate his/her qualifications and must possess the appropriate education, training, and experience to provide the services.

The level of education, training, and experience required of the APEGBC Professional should be commensurate with the complexity of the project. Typical qualifications for the lead APEGBC Professional or a team of professionals may include education and experience in:

- Hydrodynamic modelling;
- Watershed hydrology;
- Groundwater geology,
- Extreme value statistics and trend analysis;

- Ice effects;
- Air photograph and satellite imagery interpretation;
- Bathymetric and land based surveying;
- Hydrological studies including flood frequency analysis;
- Climate change and its effects on hydrological processes;
- Geomatics
- Knowledge of fluvial and coastal geomorphology principles and applications.

The academic training for the above skill sets can be acquired through formal university or college courses, or through continuing professional development. There may be some overlap in courses and specific courses may not correlate to specific skill sets. An APEGBC Professional should also remain current, through continuing professional development, with the evolving topics of flood mapping. Continuing professional development can include taking formal courses; attending conferences, workshops, seminars and technical talks; reading technical publications; searching the web; and participating in field trips.

6.0 REFERENCES AND RELATED DOCUMENTS

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APPENDIX A: FLOOD MAPPING ASSURANCE STATEMENT

To: The Client

Date: _____

Name (print)

Address (print)

Flood Mapping Project:

The undersigned hereby gives assurance that he/she is an APEGBC-registered Professional and the Qualified Professional for the project identified above.

I have signed, sealed, and dated the attached report in accordance with the *APEGBC Professional Practice Guidelines – Flood Mapping in BC*. The report must be read in conjunction with this Assurance Statement.

I have completed the following activities:

(Check the applicable items)

	Activity
<input type="checkbox"/>	Reviewed the relevant Provincial legislation and local government regulations, policies and floodplain bylaws
<input type="checkbox"/>	Reviewed available and relevant background information, documentation, and data
<input type="checkbox"/>	Visited the site and reviewed the conditions in the field that may be relevant
<input type="checkbox"/>	Considered the need for, and scale of, investigations that address future land use changes and climate change
<input type="checkbox"/>	Developed and executed the flood mapping in accordance with the criteria established by the client
<input type="checkbox"/>	Addressed any significant comments arising from internal or peer reviews
<input type="checkbox"/>	Prepared a flood mapping report along with the accompanying digital information

I hereby give assurance that the attached flood mapping report and supporting digital documentation has been carried out in accordance with the APEGBC Professional Practice Guidelines – Flood Mapping in BC.

Name (print)

Signature

Date

Address (print)

Telephone

(Affix professional seal here)

(email)

If the APEGBC professional is a member of a firm, complete the following:

I am a member of the firm _____,
and I sign this letter on behalf of the firm. (Print name of firm)

APPENDIX B: CASE STUDIES

B-1: CITY OF VANCOUVER COASTAL FLOOD ASSESSMENT

Sea level has increased over the last century and is expected to rise at an accelerated rate over the next century. This study assessed the potential for present and future flooding along four shoreline zones in the City of Vancouver to reflect the projected sea level rise (SLR). Detailed hydrologic-hydraulic modelling investigations were carried out for five scenarios, including simulating the base case (2013) and conditions in 2100 and 2200. Of particular interest was defining the floodplain extents, flood depths and flood construction levels (FCLs) to assess vulnerable areas and the consequences to people, property and infrastructure. The study was a first step in an overall strategy to explore options for mitigating and adapting to the flood risk across the City.

Detailed information on the study can be found at this link:

<http://vancouver.ca/green-vancouver/sea-level-rise.aspx>

Five scenarios were developed that encompass possible future SLR conditions to 2200 combined with design storm events:

Scenario 1, Year 2013, 0.0 m SLR, 1:500 year storm hazard

Scenario 2, Year 2100, 0.6 m SLR, 1:500 year storm hazard

Scenario 3, Year 2100, 1.0 m SLR, 1:500 year storm hazard

Scenario 4, Year 2100, 1.0 m SLR, 1:10,000 year storm hazard

Scenario 5, Year 2200, 2.0 m SLR, 1:10,000 year storm hazard

A continuous simulation (joint probability) approach was taken to establish the ocean levels affected by meteorological and oceanographic conditions corresponding to the selected return periods for each scenario. Ocean levels were then used as the boundary conditions for the overland flood models. The City was divided into four modelling zones, each having similar exposure and characteristics. Modelled flood levels were found to be relatively consistent across each zone for each scenario. Maps were developed that show the flood extents and flood depths spatially under each scenario.

Flood Construction Levels (FCLs) were set based on Scenario 3 and a freeboard of 0.6 m was added to modelled flood levels to give an FCL of 4.6 m Geodetic Datum (GD), consistent across the four flood-prone zones. A wave boundary was delineated and an additional 0.3 m wave effect allowance is to be applied seaward of the boundary to form the FCL in the wave zone (or alternatively a site-specific study is to be completed). As a point of comparison, an FCL of 3.5 m GD, assumed to have a return period of 1 in 200 years, was used by the City prior to the recognition that SLR will affect future conditions.

Depth map colours for City of Vancouver were based on the Japanese Flood Control Division, River Bureau, Ministry of Land, Infrastructure and Transport (MLIT) standard, which uses shades of yellow-green-blue-purple (Japan MLIT, 2005). These are easier to distinguish than several shades of blue. The colours will also be more distinguishable if the map is photocopied to greyscale, which can be common during an emergency event. An example inundation flood map from the Vancouver study is provided on the following page.

INSERT FLOOD MAP FROM VANCOUVER STUDY HERE

Areas within the City that are vulnerable during a Scenario 3 coastal flood event were assessed and “hot spot” maps produced. The mapping showed that emergency routes such as Main Street and Pacific Boulevard will be partly inundated. Important transportation hubs such as Waterfront Station could potentially be vulnerable. Current planned Gathering Areas in the Downtown core will have to be redefined as some will be flooded. Cultural and historic sites in Gastown and Chinatown will flood. Community services and housing centres in the Downtown Eastside, particularly between Carrall St and Main St, as well as school and childcare spaces in the Olympic Village, International Village and near Terminal Avenue are vulnerable, assuming no flood mitigation measures are taken. Maps were also produced showing locations of displaced households and building losses.

B-2: SQUAMISH INTEGRATED FLOOD HAZARD MANAGEMENT PLAN

The Integrated Flood Hazard Management Plan (IFHMP) for the District of Squamish considered a range of hazards in the area:

- flood hazards from the Squamish, Mamquam, Cheakamus, Cheekeye, and Stawamus Rivers;
- debris flow hazards from the Cheekeye River and smaller local creeks; and
- coastal flood and tsunami hazards from Howe Sound.

Detailed information on the Squamish IFHMP can be found at this link:

<http://squamish.ca/yourgovernment/projects-and-initiatives/floodhazard/resources/>

The coastal Design Flood Level for Howe Sound was based on a combination of tide, external storm surge, subsidence, local effects, and allowances for sea level rise of 1m to the year 2100. The combination of tide and external storm surge was based on a joint probability analysis and an annual exceedance probability of 1 in 200 years was selected. Wave effects were modelled using a 1 in 200-year storm. An inundation flood map of downtown Squamish was prepared showing the extent of inundation from the coastal design flood.

INSERT COASTAL FLOOD MAP HERE

The Mamquam River naturally divides the Squamish River floodplain into an upper floodplain area and a lower floodplain area. Existing dikes at the south end of the upper floodplain will

stop inflow from a dike breach from returning to the river, resulting in internal ponding. In this situation, water levels within the floodplain would rise higher than the river level, allowing water from the floodplain to flow over the dike back to the river. The sea dike around downtown Squamish will create a similar situation for the lower floodplain south of the Mamquam River.

At the District's request, the 2D floodplain modelling focused exclusively on assumed Year 2100 development conditions. A focus on Year 2100 conditions means that the results of the modelling will remain relevant as a target throughout the implementation of a long-term mitigation plan. However, results may not provide an accurate picture of flood hazard under present-day conditions.

Implementing Year 2100 assumptions involved modifying existing topography to account for new development and floodproofing. The resulting changes affect internal flood levels and the determination of corresponding FCLs. In addition, by Year 2100, each city block is assumed to experience infill development to the maximum footprint for its corresponding primary land use. The increase in building density is represented as a proportional increase in roughness for each city block. Floodways were incorporated by maintaining present-day ground elevations along selected corridors.

Flood hazards associated with dike breaches on the Squamish River / Mamquam River floodplain required specialized hydraulic modelling. The IFHMP dike breach model employed innovative approaches to account for the possibility of a breach at any point along the dike, preferential flow along roads and floodway corridors, and assumed Year 2100 development conditions. The model assumed that the dike breaches occur during the 1:200 year return period clear-water river flood. To support planning-level risk assessment and mitigation, results were presented as a maximum envelope of modelled conditions at any location in the floodplain. Mapping was prepared for maximum water surface elevation, water depth (under future development conditions), velocity and hazard rating.

Physical flood hazard was assessed using the concept of Hazard Rating (HR). HR results capture the most critical combination of velocity and depth, and can be compared to established thresholds for risk to exposed individuals. Hazard ratings were mapped for floodplain areas north and south of the Squamish River. Predictably, maximum values occur adjacent to the dike, along constricted floodways, and in areas where water ponds to significant depth. An example flood hazard map is shown overleaf.

INSERT FIGURE 2-8 FROM OPTIONS REPORT

Economic consequences were modelled using the HAZUS-MH model and were considered a lower bound estimate on expected damages. Social consequences were mapped using a GIS-based process that considered displacement of residents, disruption of employment, and interruption of important community services. Social consequence intensity maps were provided for floodplain areas north and south of the Squamish River. Maximum intensities were governed by inundation of critical community facilities such as schools, wastewater treatment infrastructure, and fire halls.

Environmental consequence mapping was completed using a similar GIS process that focused on environmentally sensitive areas as well as the potential mobilization of hazardous materials. Environmental consequence sites are distributed throughout both floodplains.

A one-dimensional Stawamus River hydraulic model was used to assess the 1:20 year return period clear-water flood as well as 1:200 year and 1:1,000 year return period debris flood hazards. Flood and debris flood hazard areas are concentrated along the lower reach of Little Stawamus Creek, near Highway 99, and along the downstream river estuary. The Valleycliffe community would only be flooded if excessive sediment deposition or a bridge blockage at the Mamquam FSR causes a river avulsion. A flood hazard map for the Stawamus River is shown overleaf.

INSERT FIGURE 4-2 FROM OPTIONS REPORT

A one-dimensional model was also used for modelling and mapping on the Cheakamus River. The modelled flood levels were projected across the floodplain to develop flood hazard maps.

B-3: PRINCE GEORGE FLOODPLAIN MAPPING

The City of Prince George experienced severe ice-related flooding during the winter of 2007-08, when inundation of lands along the lower Nechako River caused extensive damage. This ice event had an estimated return period of about 90 years. Just a few months before, in the spring of 2007, high water levels in the Fraser River had caused localized flooding of low-lying areas along the Fraser and in the area of the Nechako-Fraser confluence. This spring event had an estimated return period of about 20 years.

In the Fraser River, flooding normally occurs in the spring, caused by melting of large snowpacks combined with sudden rises in temperature and/or heavy rains. In the Nechako River, on the other hand, the most critical condition is ice-related flooding that occurs during fall freeze-up. When November-December flows in the Nechako exceed a certain threshold and there is a prolonged period of cold weather, ice-related flooding may occur. Since 1957 the Nechako flow at Prince George has been partly regulated by Rio Tinto Alcan's Kenney Dam, almost 300 km upstream. The current mode of operating the reservoir tends to reduce winter flows during freeze-up and to delay the summer peak until after the Fraser River has peaked, thereby reducing the risks of both open-water and ice-related flooding.

Floodplain mapping was prepared for Prince George taking into account regulation of the Nechako River by Kenney Dam and the potential for ice jam events. The floodplain mapping was incorporated into an updated City of Prince George Flood Plain Regulation Bylaw which was adopted in 2011. Information on the bylaw and the floodplain mapping analysis can be found at this link:

<http://princegeorge.ca/citybusiness/currentplanning/floodplainbylaw/Pages/Default.aspx>

For the development of design flows, flood frequency analyses were conducted to determine the appropriate freshet design flows for the Fraser River above the Nechako River confluence, for the Nechako River at Prince George, and for the Fraser River below the confluence. The flood frequency results were used for calculating 200-year water surface profiles along the rivers.

Hydraulic modelling was undertaken to simulate open water (freshet) flood profiles corresponding to the estimated Nechako and Fraser River design flows, using HEC-RAS. The developed model was calibrated and validated to observed water levels and then used to simulate design profiles. Its sensitivity to variations in roughness, flows and starting conditions was also assessed.

The ice-related profile was developed using probability analysis. The probability of experiencing a given freeze-up level at any location each year is a function of:

- the probability of experiencing a given flow at freeze-up;
- the probability of experiencing the required amount of cold weather to allow an ice cover to form at that location; and,
- the probability of a stable equilibrium ice cover forming at that location.

These probabilities were combined using a Monte Carlo simulation to develop simulated frequency curves of annual peak freeze-up levels. For the floodplain mapping, the Nechako River 200-year open water flood profile was compared to the 200-year ice-related profile and the higher of the two taken as the design condition. A sample floodplain regulatory map is shown overleaf.

INSERT SAMPLE PRINCE GEORGE FLOODPLAIN MAP

Volunteer Guidelines

Welcome to Our Team

On behalf of APEGBC's Council and staff, it is my privilege to express our deep appreciation for the volunteers that commit their time and expertise to our association and the professions of engineering and geoscience. APEGBC's accomplishments are due in large part to the engaged participation of volunteers like you.

We want to ensure that you receive the resources and support necessary for you to achieve success and enjoy your volunteer experience with us. These guidelines outline your role as a volunteer and are intended to support you during your volunteer time with APEGBC. Please take a few minutes to familiarize yourself with the information below. If you have any questions about these guidelines or any of our policies or procedures, please contact APEGBC's Human Resources Manager, Kevin O'Connell, at koconnell@apeg.bc.ca.

After you have read through and reviewed the guidelines, you will be asked to acknowledge that you have read, understand and agree to abide by them by checking a box at the bottom of the page and clicking "Submit".

The knowledge and experience you contribute as a volunteer is essential to enabling APEGBC to support and promote the professions as a trusted partner and progressive regulator. Thank you.

Ann English

Chief Executive Officer & Registrar

Welcome to APEGBC

Dedicated volunteers are at the heart of APEGBC's work as the engineering and geoscience licensing and regulatory authority for BC, and play a part in almost every aspect of the association—from reviewing applications for professional registration to participating on committees that set and uphold practice standards.

OUR MISSION, VISION, & VALUES

Vision

Professional engineers and geoscientists creating a better future for all.

Mission

To support and promote the engineering and geoscience professions as a trusted partner and progressive regulator that serves the public good.

Values

Integrity
Accountability
Innovation

Much of the work our volunteers do links directly to our 3-year Strategic Plan. Learn more about our Strategic Plan [here](#).

GOVERNANCE STRUCTURE

APEGBC's purpose and duties as the provincial licensing and regulatory body for engineering and geoscience in BC are defined by legislation, the *Engineers and Geoscientists Act*. APEGBC is governed by a council of 13 elected members and four government appointees. Council is accountable to the public through the Ministry of Advanced Education and to the members for both the governance and management of the association.

VOLUNTEER COMMITMENT

Volunteering with APEGBC provides ongoing opportunities for:

- Giving back to your profession and industry;
- Meeting new people and building your network;
- Earning professional development credits;
- Learning and developing skills;
- Contributing your ideas; and
- Receiving recognition of your contributions.

In return we ask that you approach your role with enthusiasm, a team mentality, and a genuine interest in giving back. We also ask that you:

- Respect confidentiality;
- Arrive on time for meetings and events;
- Be prepared for meetings and events;
- Encourage a respectful working environment;
- Provide constructive feedback; and
- Be accountable.

We understand our volunteers lead busy lives and we are grateful for the time they dedicate to volunteering with us. As such, we ask that you recognize when you are unable to meet the commitments of the volunteer position and work with the group

leader to identify a solution.

APEGBC is committed to ensuring that its operations and business are conducted in an ethical and legal manner. We ask that you support this by familiarizing yourself with, and to adhering to, all policies and procedures during your time as a volunteer with APEGBC.

CONFIDENTIALITY

Some of the information accessed by volunteers during their activities with APEGBC is confidential. A volunteer must maintain the confidentiality of all confidential information to which they are privy, unless otherwise permitted or required by APEGBC.

If you are unsure whether the information shared is of a confidential nature, please check with your volunteer group's APEGBC staff support person.

Anyone, either during the course of, or subsequent to, becoming a volunteer of APEGBC, must not:

1. Divulge any confidential information communicated to, produced, or acquired as a result of his or her participation in activities with APEGBC;
2. Divulge any confidential information acquired in the performance of APEGBC related duties and responsibilities to any person or third party not authorized by APEGBC or by law to have such information;
3. Benefit directly or indirectly in consideration for revealing any confidential information; and
4. Use confidential information in any personal undertaking in which he or she may be, or may become, involved.

These terms of confidentiality are of a general nature and apply to all volunteers. Some volunteers working with specific groups may be required to uphold additional confidentiality requirements. Should an additional confidentiality agreement be required, your volunteer group's APEGBC staff support person will discuss this with you.

OWNERSHIP OF COPYRIGHT

Volunteers sometimes assist APEGBC by authoring documents, such as reports or guidelines, or by making contributions to the authorship of such documents. Whenever a written work product or any other type of intellectual property is created for APEGBC in the course of volunteering, the copyright will belong to APEGBC.

CONFLICT OF INTEREST

Volunteers should perform their duties for APEGBC in such a manner that confidence and trust in the integrity, objectivity and the impartiality of the process are observed.

A conflict of interest arises, or may appear to arise, when a volunteer's private or public interest takes precedence over, or competes with the voluntary duties or responsibilities to APEGBC. Conflicts of interests may be real, perceived or potential, and may evolve at any time before, during, or after appointment to, voluntary participation with APEGBC.

The recognition of a real, perceived or potential conflict of interest is a matter of judgment and the primary responsibility for recognizing a conflict of interest rests with each volunteer in the course of his or her participation in activities with APEGBC. If you feel you may be in a real, perceived or potential conflict of interest, discuss this with your volunteer group's APEGBC staff support person. If a conflict arises at any point, the volunteer will be expected to declare and excuse him or herself from the conflicting portion of volunteering activities.

GIFTING, HOSPITALITY AND OTHER BENEFITS

As an APEGBC volunteer you choose to volunteer your time and service to APEGBC and understand that in doing so you are not considered to be employed by APEGBC at any time. You understand that you will not be compensated in any way for the service you provide as an APEGBC volunteer. As a volunteer, you are free to stop volunteering your time and service to APEGBC at any time.

From time to time, a volunteer might receive gifts from APEGBC in recognition for their contributions. These gifts are ethically acceptable for volunteers to receive because they are given as tokens of appreciation, are non-compensatory in nature, and do not hold significant value.

However, there may be other times when a volunteer is presented with gifts from other sources, and these may be inappropriate. Gifts, hospitality, or other benefits should not be given by, or received by, any volunteer in the course of his or her participation in activities with APEGBC, if that gift, hospitality, or other benefit could – or be perceived to – influence the volunteer's judgement or performance of their duties and responsibilities with APEGBC, or be viewed as compensation. Giving or receiving an inappropriate gift can easily create a conflict of interest or the appearance of one – for instance, a volunteer might be swayed to act more favorably than he or she otherwise would towards a person who has given them a gift. If there is any doubt as to the perceived effect of the gift, hospitality, or other benefit, please bring it to the attention of your volunteer group's APEGBC staff support person.

ALCOHOL AND DRUGS

As a volunteer of APEGBC, you may be invited to attend social events or other functions where alcohol may be served. If you (including guests) choose to enjoy an

alcoholic beverage, it is expected that you will drink responsibly and will not put yourself or others at risk of injury, or drink and drive.

We expect that you will represent the association in a professional manner. When at an APEGBC function, please ensure the following:

- If you consume alcohol, do so responsibly.
- You will not operate or have care and control of a motor vehicle while under the influence of alcohol.
- You ensure your safety and the safety of others by having a designated driver or alternate method of transportation home.
- You will be free from the effect of any illegal drugs.

EXPENSE REIMBURSEMENT

APEGBC will reimburse preauthorized travel expenses. Please contact your APEGBC staff support person to confirm what expenses you are eligible for and to receive a reimbursement form.

Receipts must be submitted together with the expense reimbursement form before the end of the fiscal year in which the expenses occurred. APEGBC's fiscal year runs from July 1–June 30.

POLITICAL ACTIVITIES

Non-Partisan Stance In circumstances where APEGBC or any volunteers participate in the public policy arena **on behalf of APEGBC**, this participation shall be of a non-partisan nature. These occurrences can include: direct relations with the government, engagement in lobbying activities or attendance at political campaigns, conferences or events. APEGBC volunteers will be expected to participate with all political parties, with no preference or undue advantage being extended to any one political party, political figure or political ideology over another.

Activities in Personal Capacity Members and volunteers must receive authority from APEGBC before identifying they are representing the interests of APEGBC. Under any circumstances where a volunteer is acting in a personal capacity, he or she must exercise scrupulous judgment to avoid the appearance of representing the interests of APEGBC.

BULLYING, HARASSMENT AND VIOLENCE

APEGBC is committed to providing a positive environment in which all individuals are treated, and treat each other, with respect and dignity. We expect all employees and volunteers to support and contribute to a positive and respectful environment. As an APEGBC volunteer, supporting a respectful environment includes ensuring respectful

behaviour during volunteer activities related to your role, as well as while traveling, at conferences, training sessions and seminars you attend. It also includes volunteer-related phone calls, emails, text messages and other communications, during volunteer-related social events sponsored or supported by APEGBC and elsewhere if you are there as a result of your responsibilities to APEGBC.

Bullying or harassing behaviour includes any conduct or comment (whether verbal or written) by a person towards another that is inappropriate, vexatious, or offensive and that was known or reasonably ought to have been known by the alleged bully or harasser to be humiliating, insulting, threatening, or intimidating. This behaviour includes inappropriate or offensive conduct, or comments that are based on a protected ground of discrimination as defined in the *Human Rights Code* and will not be tolerated by APEGBC.

The offender could be another volunteer or someone other than a volunteer, but with whom the volunteer is required to be in contact as part of their volunteer work for APEGBC.

Although bullying and harassment is generally considered in terms of a pattern of ongoing behaviour, it may include behaviour that occurs on a one-time basis.

Examples of behaviour that may constitute bullying or harassment include but are not limited to:

- Jokes or gestures that are abusive or degrading;
- Personal ridicule and malicious gossip;
- Abuse of authority to intimidate or coerce, improperly control, or influence someone;
- Racial epithets or slurs;
- Taunting or ostracism;
- Displaying derogatory, humiliating, or offensive objects, cartoons, drawings, or photos; and
- Sexual harassment, which is defined as one or more incidents involving unwelcome conduct of a sexual nature.

Accusations of bullying and harassment are serious and are reserved for serious behaviours. Not all interpersonal conflict, differences of opinion, or disputes that are rude or thoughtless will constitute bullying or harassing behaviour unless the behaviour was also inappropriate.

Should a volunteer ever encounter a violent situation, he or she should never attempt to intervene directly in a physically dangerous or violent situation; however such situations should be reported immediately to APEGBC and the proper authorities. Volunteers must advise of any and all incidents of bullying, harassment and/or violence at APEGBC or at APEGBC-sponsored meetings or events of which they have knowledge, are witness to,

or in which they are involved. Incidents should be reported to APEGBC's Human Resources Manager.

BREACHES OF CONFIDENTIALITY, CONFLICTS OF INTEREST OR INCIDENTS OF BULLYING, HARASSMENT OR VIOLENCE

APEGBC is committed to ensuring that its operations and business are conducted in a fair, ethical and legal manner and that volunteers support and contribute to a positive and respectful work environment. In the event that APEGBC becomes aware of an alleged breach of confidentiality, conflict of interest or an incident of bullying, harassment or violence, the Registrar will conduct an independent investigation in a suitable manner as is required in the circumstance, respecting principles of procedural fairness. For APEGBC members, this process may initiate a formal investigation under the *Engineers and Geoscientists Act*.

Complaints may be referred directly to the Registrar at registrar@apeg.bc.ca or your volunteer group's APEGBC staff support person.

CRIMINAL RECORD CHECK

For specific circumstances, volunteers may be required to undergo a criminal record check. Your volunteer group's APEGBC staff support person will advise if this applies to you.

SOCIAL MEDIA

APEGBC uses social media to enhance member engagement and communication with members, stakeholders and the public, and to promote the professions of engineering and geoscience. We encourage volunteers to actively engage in online discussions and dialogue through social media channels. APEGBC has corporate accounts on the following social media platforms:

Twitter - [Follow us @APEGBC](#)

LinkedIn - [Join the APEGBC Discussion Group](#)

YouTube - [View and share APEGBC videos promoting engineering and geoscience](#)

Facebook - [Like the APEGBC Student Program page](#)

In posting material relating to APEGBC on personal social media accounts (such as Twitter, LinkedIn, Facebook, Instagram or YouTube) either directly through a mention of

APEGBC, using relevant hashtags, or indirectly, we ask that you adhere to the following principles:

- Respect APEGBC, its members and staff: Social media sites are public spaces and we expect you to be respectful of the association, staff, volunteers and members.
- Use common sense: Think before you post. Social media accounts are accessible to the public and what you post could have significant consequences. If you would not be comfortable with your supervisor, co-workers, or APEGBC staff reading your words, do not write them.

In posting material relating to APEGBC on personal social media accounts either directly through a mention of APEGBC, using relevant hashtags, or indirectly, you agree not to:

- Post material that is profane, obscene, offensive, libelous, defamatory, threatening, harassing, abusive, inappropriate, inflammatory or otherwise objectionable towards any individual or entity.
- Post material that infringes on the rights of APEGBC or any individual or entity, including privacy, intellectual property or publication rights.
- Disclose any information that is confidential or proprietary to APEGBC or any third party that has disclosed information to APEGBC.

To maintain consistency in our brand and communications, APEGBC's corporate social media accounts are managed by the association's Communications Department. Our online dialogue thrives when volunteers participate in the conversation. Although you may have your own personal social media accounts, volunteers must not create an APEGBC branded account.

APEGBC reserves the right to ask volunteers to remove or edit posts on social media sites at any time should they violate the principles noted in this policy.

If you have questions or would like more information on appropriate use of social media, email APEGBC's Acting Manager, Communications, Laurel Buss, at lbuss@apeg.bc.ca.

INTERACTION WITH THE MEDIA

The objectives of APEGBC's media relations efforts are to create positive public awareness about the professions of engineering and geoscience, and to increase awareness of APEGBC and its duty of ensuring public safety through the work of the association and its members.

In general, when responding to inquiries from the media, only designated spokespeople are permitted to speak on behalf of APEGBC. If you are contacted by a journalist to offer comments on behalf of APEGBC, please refer them directly to the Acting Director, Communications & Stakeholder Engagement, Melinda Lau, at mlau@apeg.bc.ca.

In certain circumstances, the CEO or President will appoint subject-matter experts for technical issues, and volunteers who participate on committees may be called on to speak to media by APEGBC media relations staff. If contact is initiated directly by journalists however, volunteers should first contact APEGBC.

Volunteers involved in organizing local events on behalf of APEGBC branches may sometimes be approached by journalists regarding these activities. Before speaking to journalists, volunteers are asked to seek advice from APEGBC media relations staff who can help with effectively engaging media, or if this is not feasible, to inform staff after the interaction has taken place.

PHOTOS AND VIDEOS

At times, APEGBC may be photographing or videotaping events, sessions, workshops, or even meetings where you might be volunteering and your likeness may be used to promote APEGBC. If you do not wish to participate, please advise your volunteer group's APEGBC staff support person.

POLICY REVISIONS

APEGBC reserves the right to amend these policies and guidelines from time-to-time in our judgment to address issues that may arise and changes in our operations or the law.

ADDITIONAL INFORMATION

If you have any questions regarding your role as a volunteer or APEGBC, please feel free to connect with your volunteer group's APEGBC staff support person.

UPDATE ON WOMEN IN ENGINEERING AND GEOSCIENCE TASK FORCE RECOMMENDATIONS

January 25, 2017

Recruitment

1.	Create or revise marketing materials / branding of professions to better recognize what is important to women when choosing a career	<p>A survey was conducted in early 2014 to determine the most effective ways to engage females. Using this research, materials were developed to support outreach to elementary school kids including a sticker, postcard and Doodlebook. These materials continued to be used as part of APEGBC's career awareness outreach activities. The 6th Annual Science Games is scheduled for March 4, 2017 and the event continues to be very popular with all girl groups. At this year's event 50% of participating teams registered are all girl teams. In support of APEGBC's commitment to the 30 by 30 goal, the Science Games Steering Committee also made the decision to ensure that at each future event, a minimum of 30% of registered groups are all girl groups. APEGBC continues to be an active sponsor of a number of engineering camps and events.</p> <p>APEGBC's re-brand is scheduled to launch in June 2017. Putting a modern and progressive face on APEGBC was considered important by members in promoting the association to the public and potential members, as well as, representing the professions and the association as diverse and inclusive.</p>	Ongoing
2.	Increase the number of women who do outreach visits to schools	<p>Since 2014, the number of female career awareness presenters has been on the rise. In the 2015/16 fiscal year, 42 female volunteers participated in career awareness activities. This does not include the career awareness outreach done by our branches. Branches continue to support the 30 by 30 goal and re-committed for the 2016/17 year to have 30% or more of their Career Awareness outreach involve at least one female participant with career related experience in engineering and geoscience. Branches will also be discussing appointing 30 by 30 champions at the branch level during their February meeting. Two branches have already made appointments.</p>	Ongoing

		When APEGBC receives presentation requests from all girl group (e.g. Girl Guide presentation), we ensure that a female volunteer visits those groups.	
3.	Provide training to all engineers / geoscientists who visit schools to deliver activities and messages that empower girls to embrace science, technology, engineering and the tools used in these areas	A career awareness video was developed in 2014. The video includes women presenters and focusses on the contributions that engineers and geoscientists make to society. The messaging of presentation material used for school visits was also updated in 2014. A new online resource for Career Awareness volunteers was launched in January 2017. This online resource centre includes messaging for volunteers and highlights themes that are more appealing to girls. All career awareness volunteers are now encouraged to use the new resources.	Ongoing
4.	Train the teachers to be more aware of careers in engineering and geoscience and how to communicate the careers in a way that is attractive to girls	The addition of a career awareness coordinator in 2016 allows us to enhance our career awareness efforts. We are currently working on strengthening our relationships with school districts to be able to better facilitate training of teachers. We are also planning to connect and learn from other organizations and universities that provide this training.	In process
5.	Support universities in recruitment efforts	APEGBC continues to support camps and events organized by universities to engage girls in STEM. For the 2016/17 fiscal year, we have already allocated \$4,500 of the Career Awareness Grant budget to support summer camps and other activities that specifically engage girls in STEM. APEGBC also looks for opportunities to work with universities to learn more about their recruitment efforts so that we can coordinate and knowledge share.	Ongoing

Retention

1.	Encourage Engineers Canada, Geoscientists Canada, and ACEC to coordinate efforts and lobby the federal government to improve employment insurance provisions so benefits are not	APEGBC previously connected with Engineers Canada, Geoscientists Canada, ACEC-Canada on this issue. Engineers Canada did discuss the issue with the federal government; however, this initiative at the time was not a top priority for the federal government. With the change in government, APEGBC asked Engineers Canada to re-visit the topic.	Ongoing
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	clawed back due to part time work while on parental leave.	Engineers Canada is engaging with the federal government on this issue. Engineers Canada is proposing a national conversation on maternity and parental leave be a public consultation with relevant stakeholders to properly understand the realities facing professionals who take employment leaves. This would better inform the government on how best to structure and administer the employment leave benefit programs and will allow the federal government to make a well-informed decision on whether maternity and parental leave actually belong within the Employment Insurance program.	
2.	Assess APEGBC policies to ensure they do not create unnecessary barriers to retaining women in the professions (e.g. Return to practice policy).	Policies were reviewed to ensure they do not create unnecessary barriers. Policies are gender neutral. New policies are to be reviewed through this lens as they are developed. In 2016, a diversity consultant was contracted to review the language in the APEGBC Human Rights & Diversity Guidelines.	Ongoing
3.	Support employers in building a gender diverse workforce by providing access to existing guidelines and workshops (e.g. post on APEGBC website, promote at APEGBC events, host events as appropriate). In the longer term, create APEGBC gender diversity training programs and certify organizations that undergo training and adopt practices that support gender diversity.	Resources on gender diverse workplaces are posted on a dedicated page on the APEGBC website. This includes a link to workshops hosted by WWEST. Since 2014, APEGBC has hosted numerous professional development sessions related to gender diversity including a full day Women in Leadership stream at the 2014 APEGBC conference and a full day Diversity stream at the 2016 APEGBC conference. In 2016, Engineers Canada & Geoscientists Canada released a Managing Transitions document for national use which is a guide designed to assist employers and engineers and geoscientists who are considering a maternity or parental leave. The document is available on the APEGBC website and a seminar on the guide was offered at the 2016 APEGBC conference. Advice on WIEG initiatives were also presented at the 2015 Industry Luncheon. The APEGBC Human Rights and Diversity Practice Guideline is now available and a seminar and webcast on the guideline is scheduled for February 2017.	Ongoing
4.	Enhance mentoring programs by increasing the number of female mentors and providing non-traditional mentoring structures (e.g. virtual mentoring, speed	Currently 82 female mentors are registered in the program (17%). The application process allows mentees to specify if they wish to have a female mentor. So far, 12 applicants have requested female mentors. All those who request a female mentor are accommodated. We also ask	Ongoing

	mentoring, social networking, etc.).	applicants how they would like to be mentored, e.g. face to face, long distance through Skype. Most participants are open to all types of mentoring.	
5.	Develop professional standards of practice/ guidelines for APEGBC members similar to those of APEGA and PEO.	APEGBC's Human Rights and Diversity Professional Practice Guidelines were released in January 2017 and an overview of the guidelines was provided at the 2016 APEGBC Annual Conference. A session is also scheduled for February 2017 which will be recorded so that it can be provided as an online resource for members and employers.	Complete
6.	Create a gender diversity award to recognize companies that promote and support gender diversity in their organization.	<p>Generic funding for new awards was proposed as part of the 2014/15 budget. It was removed by the Executive Committee.</p> <p>APEGBC's Standing Awards Committee has expanded its outreach to solicit nominations for APEGBC's President's Awards. This includes targeted outreach to the Society for Canadian Women in Science and Technology (SCWIST), the Canadian Coalition of Women in Engineering, Science, Trades and Technology (CCWEST), Westcoast Women in Engineering, Science, & Technology (WWEST) and Division of Women in Engineering and Geoscience (DAWEG). The committee has also expanded its reach to include the Tetra Society and the Neil Squire Society. The committee is very keen to see an increase in the number of female award nominees. They are committed to working on outreach to encourage members, employers and others to nominate outstanding men and women across the board.</p>	Discontinued

Recruitment and Retention

1.	Support and promote leadership and diversity workshops such as those developed by WINSETT, and WWEST.	Through the professional development program and APEGBC conference, leadership and diversity workshops are offered regularly. Gender diversity events are posted on APEGBC's calendar of events as we become aware of them. The WWEST and WINSETT workshops are listed on the APEGBC website. WWEST papers related to diversity have been co-branded and posted on the APEGBC website. In 2014, a special	Ongoing
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		<p>event was held at APEGBC's conference to celebrate the successes that women have realized in the professions of engineering and geoscience over the last 25 years. DAWEG also continues to engage women through regular meetings and events. In-kind sponsorship has also been provided to WWEST to assist in promoting the 2017 Creating Connections 5.0 conference and APEGBC's COO has been invited to speak at the event as part of panel discussion on unconscious bias. In Summer 2017, APEGBC will be meeting with WinSETT and WWEST to discuss programming strategies and potential collaborations and partnerships.</p>	
2.	<p>Recommend to the Canadian Engineering Accreditation Board (CEAB) the adoption of a competency based approach for engineering undergraduate programs (e.g. <i>Graduate Attributes</i>)</p>	<p>Graduate attributes included in the CEAB process.</p>	Completed
3.	<p>Continue the APEGBC compensation survey, report the results based on gender, and assess how results can be utilized more strategically.</p>	<p>Survey is conducted every two years. The report includes a section on salary and gender. The last survey was completed in 2016. When requested, data tables are shared with UBC to help with their ongoing research.</p>	Ongoing
4.	<p>Utilize volunteers to seek sponsorships to financially support gender diversity activities.</p>	<p>APEGBC continually sponsors career awareness and diversity activities. In 2015, over \$81K was donated to the Sheri Plewes Scholarship Fund. Members of Council also raised and provided funds to support the 2014 Celebration of Women Event. Employer sponsorships were sought by Branch volunteers for the Sea to Sky Branch Women in Engineering event. DAWEG volunteers conducted a t-shirt drive to promote women in engineering and geoscience.</p>	Ongoing
5.	<p>Measure and report success by developing key performance indicators (e.g. number of women entering/ staying in the professions, compensation equity, career advancement, etc.) and reporting on outcomes in the APEGBC annual</p>	<p>KPI's for the number of women in the profession, and the number of newly registered professionals that are female are tracked and reported yearly. Compensation is tracked through the compensation survey. APEGBC has retention data (the number of female members vs. male members who resign/ revoked membership) available for the 2010 – 2014 period and can determine this data going forward on a yearly</p>	Ongoing

	report.	basis. APEGBC has membership retention data from most other Constituent Associations of Engineers Canada. APEGBC seeks gender data from other organizations such as Engineers Canada as needed.	
6.	Form partnerships with other organizations to coordinate efforts and maximize each organization's unique role in supporting gender diversity.	Council and staff continue to support DAWEG and the Branches on their diversity initiatives. There is continued engagement with Engineers Canada and the Constituent Associations on matters related to women in engineering including the sharing of data and best practices. Advice on APEGBC WIEG initiatives was presented at the 2015 Industry Luncheon. There is ongoing dialogue with WINSETT regarding cross promotion of events and services. The Society of Canadian Women in Science and Technology (SCWIST) participated at APEGBC'S Career Development Event in 2015 and 2016. APEGBC continually assesses participating/ sponsoring WIEG events hosted by others.	Ongoing
7.	Continue to research how gender diversity in the professions can be improved	APEGBC is providing support to a 7 year research project being conducted by UBC and 3 other Canadian Universities to identify evidenced-based best practices for increasing girls' and women's participation and success in STEM throughout the pipeline of education, training, and professionalization. The project is subject to funding approval from the Social Sciences & Humanities Research Council of Canada. A decision on the funding will be made in Spring 2017. The findings from this project can be utilized for career awareness and retention of women in the professions.	Ongoing

APEGRBC KEY PERFORMANCE INDICATORS		<div>On Track</div> <div>Monitoring Closely</div> <div>Unlikely to achieve</div>								
FOR THE REPORTING PERIOD JULY 1, 2015 - JUNE 30, 2016										
Metrics	Key Performance Indicator Measure	2015/16 Target (YR2)	Results at June 30, 2016 (end of Year 2)	Status at June 30, 2016	Comments on Status	2016/17 Target (YR3) Set September 2016	Results at Dec 30, 2016 (first 6 months of Year 3)	Status at Dec 30, 2016	Comments on Status	
Our goal is to make BC professional engineers and geoscientists synonymous with the highest standards of professional and ethical behavior.										
1	Increase awareness of, access to, and compliance with professional practice and ethics guidelines and resources.	Member survey on awareness and use of guidelines; number of APEGRBC website hits on guidelines webpage.	Satisfaction baseline established via survey: 15,000 hits on Guidelines web page.	78% satisfied with current available guidelines. 13,535 hits on Guidelines webpage to date.	<div></div>	Total of 78% satisfied is combined of 54% satisfied and 24% somewhat satisfied.	79% Satisfied as per survey; 8,000 or more guidelines webpage hits.	7,713 hits on Guidelines webpage	Guideline website hits are at 96.4% of target for the year. New member declaration requirement regarding guidelines contributed significantly to website hits. Guideline satisfaction is measured in next fiscal year.	
2	Increase participation in APEGRBC's mentoring program.	Number of participants in the program measured by the number of mentors and mentees applying for the program, and the number of new and retained matches.	# of Mentor applications - 20% more than targeted mentor applications (82) # of Mentee applications - 20% increase (68) # of New Matches - 20% increase - (66) # of Retained Matches - Maintain - 283	61 Mentor applications 158 Mentee applications 154 New Matches 360 Retained Matches	<div></div>	*Mentors were not actively pursued as we currently have twice the number of mentors in our system than mentees. Have surpassed all other year end targets.	Total increase over 3 yrs: # of Mentor applications - 30% increase # of Mentee applications - 30% increase # of New Matches - 30% increase # of Retained Matches - Maintain	34 Mentor applications 73 Mentee applications 100 New Matches 317 Retained Matches		
3	Increase in the percent growth of membership	Percent of overall membership growth with breakdown analysis by membership category.	Fiscal 2016 vs Fiscal 2015: 9% membership growth, not including student members.	4.30%	<div></div>	Increase of 16% over 2014 membership numbers.	Calendar 2016 vs Fiscal 2014: 10.13% growth.	<div></div>	This percentage could drop by 2-3% (retroactively) due to resignations and renewals for non-payment of annual fee that take place early in March after the 2 month grace period.	
4	Increase in awareness of the engineering and geoscience professions.	Level of public respect & familiarity with what engineers and geoscientists do in their jobs as measured by a public opinion survey; number of requests from educators.	30 requests from educators for classroom/career awareness presentations.	43 requests from educators for classroom/career awareness presentations. Public opinion not measured this year.	<div></div>	Achieved.	Familiarity for what engineers do (90%), what geoscientists do (65%). Respect for engineers (80%). Respect for geoscientists (95%). 40 requests from educators for classroom/career awareness presentations.	19 requests from educators for classroom/career awareness presentations	The "19 requests from educators" only includes requests from educators (e.g. teachers, GIN, GuideSoc leaders), which we were able to fill during the first 6 months of the fiscal year. It does not include special events (e.g. Around the Dime, Catalyst Conference, library events). Public opinion not measured this year (anticipated July/August 2017).	
Member's Employers and Clients										
Our goal is to be regarded as a valued partner by clients and employers in all sectors, supporting the delivery of engineering and geoscience services in the public interest.										
5	Increase year over year employer awareness and participation in key APEGRBC programs.	Level of industry participation as measured by attendance at APEGRBC events such as student industry nights, response for company representatives on APEGRBC committees, number of firms who have registered to participate in OCM, number of companies in Employer Accredited MIT program.	# of Exhibitors - 37 (max space allows) # of Sponsors - 18 New OCM Firms registered to participate - 15 Employees in MIT program - 5 Science games sponsorship \$5000	# of Exhibitors = 37 # of Sponsors = 14 # New OCM Firms registered to participate - 15 # Employees in MIT program = 5 \$10,300 Science Games	<div></div>	Exhibitor target met, sponsorship short by 4, exceeded new firm participation in OCM, about 1 employer for MIT program participation.	# of Exhibitors - 45 # of Sponsors - 20 # OCM Firms registered to participate in OCM - 500+ # Employees in MIT Program - 28 Science Games sponsorship increased to \$6500.	# of employers in MIT Program: 10, # of Exhibitors: 44, # of Sponsors: 39, 27 new companies have registered to participate in OCM since July 2016 so on track for 50 new firms this fiscal year.	18 AC2016 Sponsors, 4 Student Event Sponsors and 1 conference sponsors. Science Games activities mostly in second half of year.	
6	Decrease processing time for applicants who participate in accredited employer and enhanced EIT/GIT training programs.	Processing time for applicants who participate in Accredited Employer MIT program as compared to other applicants.	All Canadian Trained P.Eng. Applicants: 85% within 60 days, Average 55 days. All Internationally Trained new P.Eng. Applicants: 85% within 100 days, average 65 days. All EIT to P.Eng. Applicants: 85% within 80 days, Average 60 days.	Processing time for P.Eng. applicants in accredited programs: 1 applicant processed in P. 16 - 30 days as required review by Registration Committee as required audit. Anticipated processing time for remaining applicant is less than 10 business days. For Other Categories, Estimated Processing times: All Canadian Trained P.Eng. Applicants: Estimate 85% within 90 days, Average 48 days. All Internationally Trained new P.Eng. Applicants: estimate 85% within 96 days, Average 48 days. All EIT to P.Eng. Applicants: estimate 85% within 85 days, Average 42 days.	<div></div>	Results for other categories are estimates as data set analysis report generation still under development.	All Canadian Trained P.Eng. Applicants: 85% within 70 days, Average 35 days. All Internationally Trained new P.Eng. Applicants: 85% within 75 days, average 40 days. All EIT to P.Eng. Applicants: 85% within 50 days, Average 30 days.	Report not available.	N/A	
7	Increase the awareness and use of APEGRBC risk management tools and programs.	Increased use of risk management tools and programs as measured by the number of practice reviews, number of certified OCM companies, number of participants in APEGRBC seminars, reported compliance with CPD guideline.	100 Practice Reviews completed/year; 200 firms OCM certified; 100% CPD Compliance 3,400 Seminar attendance	113 Practice Review Completed and 201 firms OCM Certified 53.3% CPD Compliance 2916 seminar attendance	<div></div>	Number of practice reviews exceeded target as did total number of OCM firms now certified. CPD Compliance is higher than ever before but still well short of 100% compliance by practicing members. Seminar attendance goal was not achieved.	100 Practice Reviews completed/year; 200 firms OCM certified; 100% CPD Compliance 3,600 Seminar attendance	49.95% CPD Compliance (as of January 16, 2017) 1,279 seminar attendance, 29 practice reviews have been completed since July, 235 firms are now OCM certified.		
8	Increase the number of practice guidelines developed for emerging fields of practice.	Number of new professional practice guidelines published for emerging fields of practice.	Metric no longer being assessed to allow refocusing of effort to regulation of companies consultation.	Activity discontinued	N/A	N/A	One guideline completed - second one not started	Discontinued	Discontinued	
9	NEW 2015/16 - Decision made on the course of action for the Regulation of Companies.	Phase 1 complete	Consultation with stakeholders underway.	Phase 1 Consultation launched June 2016. Survey issued with background to consult with membership.	<div></div>	On track for recommendation to Council in April 2017.	Decision to proceed or not and if so the types of companies to be regulated (e.g. consulting firms, others).	<div></div>	The Advisory Task Force on Corporate Practice is on track in providing the APEGRBC Council with a recommendation at their meeting in April 2017. Phase 2 consultation launched in September 2016. Task Force discussion paper released, 2nd consultation survey, branch events and stakeholder outreach meeting concluded. A draft of the Consultation summary report has been prepared for review at the task force meeting scheduled for Jan. 30, 2017.	
10	Improved resolution of complaints against members through better education on appropriate resolution processes.	Target to close or send to the Investigation Committee 85% of complaint files within 5 months.	Target to close or send to the Investigation Committee 85% of complaint files within 5 months.	For files opened in 2016, 85% in 4.4 months.	<div></div>	Target to close or send to the Investigation Committee 85% of complaint files within 4 months.	Of the files we have closed or sent to the Investigation Committee: 85% have been closed or sent to the committee in the following times: For files opened in fiscal 2015 - 4.7 months For files opened in fiscal 2016 - 5.7 months For files opened in fiscal 2017 - 5.3 months	<div></div>		
11	Increase outreach to individuals and organizations in various sectors on the value of engaging APEGRBC professionals.	Number of new corporate engagement initiatives and resources undertaken/produced.	Efforts to be refocused to the regulation of companies.	N/A	N/A	N/A	Efforts to be refocused to the regulation of companies.	Discontinued	Discontinued	

APEGBC KEY PERFORMANCE INDICATORS		On Track Monitoring Closely Unlikely to achieve								
FOR THE REPORTING PERIOD JULY 1, 2015 - JUNE 30, 2016										
Metrics	Key Performance Indicator Measure	2016/16 Target (YR2)	Results at June 30, 2016 (end of Year 2)	Status at June 30, 2016	Comments on Status	2016/17 Target (YR3) Set September 2016	Results at Dec 30, 2016 (first 6 months of Year 3)	Status at Dec 30, 2016	Comments on Status	
Government, Public and Other Stakeholders										
Our goal is to enhance public confidence in our members through leadership in regulatory, engineering and geoscience best practices.										
11	Increase in earned media and stakeholder interactions that provide positive exposure for APEGBC.	Increase in number of actual earned media and stakeholder interactions.	15 instances of successful media engagement; 12 instances of APEGBC supplied experts cited; 10 media resource materials released; 7 documented forms of recognition/interaction with various stakeholders that provide positive exposure for APEGBC.	19 Media inquiries fielded; 35 instances of APEGBC or APEGBC experts referenced in media; 12 media resource materials released (includes media/public-facing key messages plus news releases); Completed 7 documented forms of recognition/interaction with various stakeholders that provide positive exposure for APEGBC.		20 instances of successful media engagement; 15 instances of APEGBC supplied experts cited; 15 media resource materials released; 7 documented forms of recognition/interaction with various stakeholders that provide positive exposure for APEGBC.	7 instances of successful media engagement; 10 instances of APEGBC or APEGBC supplied experts cited; 5 media resource materials released; 10 documented forms of recognition/interaction with various stakeholders that provide positive exposure for APEGBC.		Priorities around media outreach have shifted. Greater focus and resources allocated to member and stakeholder engagement.	
12	Growth of collaborative interactions and formalized partnerships with private and public sectors, and with other professional associations in areas of common interest to build on existing successes.	Growth in number of collaborative interactions such as partnerships to produce PD seminars, joint submissions to authorities having jurisdiction, joint guidelines, joint initiatives	2 or more documented collaborative submissions/guidelines/initiatives 2 PD partnerships	7 collaborative submissions 3 PD partnerships		7 or more documented collaborative submissions/guidelines/initiatives 7 PD partnerships	2 more documented collaborative submissions/guidelines/initiatives 2 PD partnerships (5 currently being planned for early 2017). One with the Architectural Institute of BC to offering the Advanced Building Code Training course and the Certified Professional course in seminars from Jan to April 2017. One with the Association of BC Forest Professionals in cooperation with the Ministry of Forests, Lands and Natural Resource Operations on climate resilient designs for forest roads and forest coverings.			
13	Demonstrated confidence of government through continued or increased usage of the professional reliance model and/or requirements that specify the expertise of APEGBC members in support of the public interest.	Maintain existing legislation utilizing APEGBC members and licensees as qualified professionals. Attempt to achieve new pieces of legislation.	2 additional documented efforts to maintain or increase the appropriate use of APEGBC professionals in govt legislation	2 completed		Three efforts to maintain or increase the appropriate use of APEGBC Professional in government legislation.	1 more documented effort to maintain or increase the appropriate use of APEGBC professionals completed as seen through the contract with the BC Ministry of Health for \$20,000. Purpose is to reinforce the role of Professional Engineers in developing risk management plans for water and waste water treatment plants in BC.			
Enabling Goal										
Our goal is to provide a solid foundation for the sustainable delivery of the association's mission.										
14a	Demonstrate financial prudence on a consistent basis.	Budgeted surplus/deficit vs. actual surplus/deficit to be less than 3%	Budgeted surplus/deficit vs. actual surplus/deficit to be less than 3%	Budgeted deficit (\$50K) vs. Actual surplus \$549K = 10.79% variance.		Higher than expected membership revenues, unused contingency, and savings in staff vacancies.	Budgeted surplus/deficit vs. actual surplus/deficit to be less than 3%	As at Dec 31, 2016 budgeted surplus of \$43K vs. Actual surplus \$721K = 1,588% variance.		Higher than expected membership revenues, staff vacancies and timing differences.
14b		Produce a clean audit ie. An unqualified opinion.	One or less material annual audit adjustments.	Clean audit report received with no adjustments.			One or less material annual audit adjustments.	On track.		Audit occurs in July 2017 TBD.
14c		No additional annual membership fee increase outside of what is budgeted for 2015-2017	Established in budget \$35 fee increase in 2015, \$0 fee increase in 2016, \$0 fee increase in 2017.	No fee increase in 2016/17.		Achieved.	Established in budget \$35 fee increase in 2015, \$0 fee increase in 2016, \$0 fee increase in 2017.	No fee increase in 2017.		Achieved.
14d		Budgeted surplus/deficit vs. actual surplus/deficit to be less than 3% of gross budgeted revenue.	\$456,501	\$539,806 surplus which is 3.5% of gross budgeted revenue.		Additional 0.5% surplus	<3% of budgeted gross revenue	As at Dec 31, 2016 \$721K surplus which is 9.2% of gross budgeted revenue.		Heading towards approximately \$500K surplus for June 30, 2016 which is close to target.
15	Gain membership approval for bylaw amendments which advance the work of the organization and the profession.	Members ratify bylaws.	Approval of CPD Bylaw.	CPD Bylaw failed.		Not achieved.	Achieve member ratification.	N/A		
16	Increase diversity and new volunteer participation in the volunteer program.	Enhanced diversity as measured by the number of new volunteers to APEGBC, the number of women, and the number of young professionals participating.	10% increase of female speakers and participants at Student Program events. Maintain 20% volunteer workforce as new volunteers. Decrease M:F ratio of volunteers to 4:1. Decrease # of volunteers >age 40 vs <age 40 to 2:1	Increase in New Volunteers: 27.2%. Active Male/Female Volunteers: 5:1. Active >Age 40 vs <age 40: 3:1. 60, out of a total of 316 (19%) female industry participants at Student Program events to date.		Exceeded target for number of new volunteers, did not reach target for age or gender diversity.	20% of total volunteers are new. Ratio of 7.5:1 Male/Female and 4:1 <40 to >40. 10% increase of female speakers and participants at Student Program events. 50% of available openings are new volunteers.	16% of the volunteers are new volunteers. Male/Female Ratio 5:1. Ratio of Volunteers >age 40 vs < age 40 is 3:1.		
17a	Increase the number of women in the professions.	The percentage of women in the professions.	Total Female Membership (12.5%) - P.Eng and Eng.L. (10.8%) - P.Geo and Geo.L. (21.2%) - EIT & Provisional Member (Eng) (23.1%) - GIT & Provisional Member (Geo) (49.1%)	No longer tracking this statistic as Active Membership provides a more accurate reflection.	No longer tracking this statistic as Active Membership provides a more accurate reflection.		Total Female Membership (15%) - Engineering P.Eng. & Licensees (11.7%) - Geoscience P.Geo. & Licensees (23%) - EIT & Provisional Member (Eng) (25%) - GIT & Provisional Member (Geo) (50.0%)	No longer tracking this statistic as Active Membership provides a more accurate reflection.	N/A	
17b	Percentage of Active Members (in training & provisional) or with Practice Rights that is female.	Total Active Female membership 13.8%	Total Active (Practising and Active) that is Female: 13.5% - P.Eng. and Eng.L. (11.0%) - P.Geo. And Geo.L. (20.4%) - EIT & Provisional Member (Eng) (18.4%) - GIT & Provisional Member (Geo) (40.4%)		Target missed by 0.3%	14.8%	Total Active (Practising and Active) that is Female: 13.8% - P.Eng. and Eng.L. (11.0%) - P.Geo. And Geo.L. (20.0%) - EIT & Provisional Member (Eng) (18.8%) - GIT & Provisional Member (Geo) (40.5%)			
17c	Percentage of New Registrants excluding NRLs that is female.	20.2%	Registered in FY 16: 15.8% - P.Eng. (14.8%) - P.Geo. (23.9%) - EIT (18.2%) - GIT (16.6%) - Eng.L. (10.5%)		Target missed by 4.2%	20.70%	Registered in FY 17: 16.3% - P.Eng. (16.2%) - P.Geo. (25.0%) - EIT (18.9%) - GIT (16.2%) - Eng.L. (4.8%)			Registered July 2016 to December 31, 2016

***Strategic Plan Progress Report
December 30, 2016***

The information below covers major activities that have occurred in the past six months that support the delivery of the strategic plan.

Goal 1:

Our goal is to make BC professional engineers and geoscientists synonymous with the highest standards of professional and ethical behaviour.

Progress on activities that support Goal 1:***Objective 1.2******Canadian Environment Experience Requirement:***

Working in Canada Seminar great success. Extension for completion of Canadian Environment project granted by BC Government to May 2017.

Automation of application and registration systems:

Member Relationship Management system (MRM) fully supports licensing members.

Mentoring Program:

The participation in the mentoring program is progressing well and is on target. APEGBC is piloting a new approach to better assist members-in-training (MIT) with their professional membership application through the creation of a new Registration Mentor/Mentee category as part of APEGBC's Mentoring Program. A new online training session on current registration requirements was introduced to Mentors in November 2016. After completing this training session, these Registration mentors will have a better understanding of what APEGBC Assessors are looking for in the experience requirements, which allows them to provide better guidance on the types of experiences a mentee should include. An online version of the mentor orientation session continues to be available and accessible by all mentors participating in the program. Resource materials are available on the mentoring program webpage.

In the 2016 member satisfaction survey, 82.56% of respondents indicated awareness of the mentoring program.

Induction Ceremony:

The first ceremony of the fiscal year was held in September and the second will be held in February. Attendance at these events continues to increase.

Knowledge and Awareness Improvement:

Organizational key messages revised to better reflect APEGBC's regulatory role; implementation and delivery of messaging currently underway through outward-facing communication with members, and at key engagement opportunities such as the member induction. Member engagement visits to Branch executives communicating APEGBC's regulatory role nearing completion.

Objective 1.2**Professional Practice Guidelines:**

The 3 new guidelines and one revised guideline have been approved by Council so far this fiscal year.

Practice Committee Collaboration:

Four seminars have been presented in collaboration with APEGBC practice committees this year.

Certified Professional Program:

Delivery of CP Course commenced on Wednesday, January 11, 2017. Course is at capacity with 28 registrants.

Objective 1.3**New Brand Strategy:**

Name and logo direction approved at September 2016 Council meeting. Brand roll-out plan created, in process of implementation.

Objective 1.4**Addressing Practice Issues:**

A number of practice issues continue to be identified through the professional practice advice tracking tool, OQM audits, member complaints, and practice reviews. Articles have been published in Innovation, guidelines have been created, professional development seminars have been offered, and FAQs published on the website to assist in broadening awareness of members' responsibilities in these areas.

Goal 2:

Our goal is to be regarded as a valued partner by clients and employers in all sectors, supporting the delivery of engineering and geoscience services in the public interest.

Progress on activities that support Goal 2:**Objective 2.1****OQM certified organizations:**

So far this year 27 firms have registered to become OQM certified. The target for the year is 50.

Accredited Employer Training:

Four companies are accredited; with interest from others; the first EIT has been registered; Registration Coach training is developed and implemented at one employer

Student Program Participation:

Industry participation (as measured through industry attendance at student events) is on track to surpass both the target, as well as the previous years' attendance. Most student events are hosted in the second half of the fiscal year and at halfway through the year, we have reached 78% of the targeted 10% increase. More prominent promotion of sponsorship opportunities has contributed to increased industry uptake over the prior year.

Objectives 2.2, 2.3**Corporate Practice Regulation (Regulation of Companies):**

Consultation phase 1 complete; phase 2 underway. Discussion paper and 2nd survey distributed for member and stakeholder comment, supported by webcast and branch consultation visits, which are nearing conclusion. Consultation summary report in progress. Advisory Task Force on Corporate Practice on track to delivery recommendation to Council in April.

Goal 3:

Our goal is to enhance public confidence in our members through leadership in regulatory, engineering and geoscience best practices.

Progress on activities that support Goal 3:**Objective 3.1****Safety Submissions:**

A submission has been made to the BC Safety Authority on the Elevator Regulation.

Seismic Retrofit Guidelines:

We are working with the Earthquake Engineering Research Institute, City of Vancouver and District of North Vancouver in delivering a workshop funded by the federal government to demonstrate the advantage of carrying out proactive seismic retrofits which includes the use of the Seismic Retrofit Guidelines.

Labour Market Research:

Phase 2 of the Labour Market Research Study is underway. A final report will be available in Spring 2017.

Objective 3.2**Building Modernization Submissions:**

A submission has been made on the revisions to the BC Building Code.

Government Requests:

A submission has been made to the Federal Expert Panel Reviewing the Canadian Environmental Assessment Processes.

Objective 3.3**Climate Change Professional Practice Guidelines:**

Flood guideline revisions underway.

Water Shed Assessment Guidelines:

Third draft currently under review. Additional time required to deal with complex multi-disciplinary issues regarding watershed assessments in the resource sector.

Goal 4:

Our goal is to provide a solid foundation for the sustainable delivery of the association's mission.

Progress on activities that support Goal 4:**Objective 4.1*****Building Plan:***

Renovation completion expected by early February 2017.

Insurance Coverage Review:

Insurance policies reviewed each year and improvements on coverage are reviewed by Audit Committee and Staff. Current year insurance needs have been met and replacement cost valuation of the building will be completed when renovations are complete for a more comprehensive valuation to be done.

Strategic Plan Delivery:

We are in the final year of the current strategic plan. Progress updates are reported to Council semi-annually along with Key Performance Indicators status. Summaries of progress and the KPIs are posted on the public website and are included in the Annual Report.

Next Strategic Plan 2017 - 2020:

The 2017 - 2020 Strategic Plan Framework has been developed and service plan and budget development is underway. Full roll out of the new plan will occur late spring.

Council Governance Training:

New Council members received an orientation in November 2017. Eli Mina, a board effectiveness consultant, presented to Council on November 25, 2016 about running effective meetings and making effective decisions.

Objective 4.2***Past Presidents Forums: (0% Completed)***

November Past Presidents Forum cancelled due to low attendance. Next forum will be scheduled for late Spring/early Summer.

FEC & FGC Nominees:

FEC and FGC online nomination application available online. Nominations will be presented in early 2017.

Objective 4.3***New Brand Strategy:***

See 1.3.

Objective 4.5***PCI Compliant Procedures:***

Should be completed by April 2017.



Report


CBA Pilot Planning Meeting

Jan 17-18, 2017
APEGBC Office – Burnaby, BC

Participants

Engineers PEI - Jim Landrigan	Engineers Nova Scotia - Sandy Oickle	APEGNB - Kate Sisk
Engineers Canada - Kathy Sutherland - Kyle Smith - Heidi Theelen	APEGS - Tina Maki - Kevin Ness	APEGA - Matthew Oliver
APEGBC		
- Don Gamble - Jason Ong - Gillian Pichler	- Mark Rigolo - Neil Russell -	- Tony Chong - Ann English - Janet Sinclair

Meeting Objectives

- Confirm Online Competency-Based Assessment Plans and ensure alignment and a shared understanding of current efforts, ongoing challenges & next steps
 - Identify general and regulator-specific issues with respect to use, adoption and implementation of APEGBC competency assessment framework, online tool and training
 - Confirm Roles and Responsibilities of Participants (APEGBC, Participating Users, Engineers Canada, others)
 - Confirm Overall Plan (timing, milestones, deliverables)
 - Address requirements for funding
- 

Meeting Outcomes

1. Confirmed intent and interest of 7 regulators to pilot and/or adopt the APEGBC Competency Framework and online tool
 - on a Software as a Service basis
 - in a staged approach over approximately 2.5 years beginning March 2017
 - with regulator approval from June 2017 through December 2017 to begin transition of engineering experience evaluation to CBA
 2. Initiated development of a framework for project ownership, delivery approach, working culture, structure (roles & responsibilities) and funding
- 

Meeting Outcomes cont'd

3. Developed project stages and preliminary timeline for post-piloting commitment, adoption and volumes (subject to regulator approval)
4. Identified readiness and challenges for each regulator to
 - proceed with the initial pilot stage
 - begin transition to competency-based assessment
5. Agreed on suggested minor rewording of competency framework to modify APEGBC-specific language

Meeting Outcomes

6. Identified considerations for the definition of the overall project
 - key stakeholder communications (boards, government, others)
 - involvement in project by non-participating regulators
 - branding of 'Canadian Engineering Competency-Based Assessment Site'
 - discussing and addressing regulator-specific IT considerations related to adoption
 - creating an assessor community for sharing best practices and support
 - moving toward a common CBA assessment

Enhancement Stages for Online Solution

Stage	Expected Duration (Months)	Description
0	3 to 6	Regulators participate as assessors or AC assessments to learn about CSA Regulators invite pilot participants to complete BC competency assessment for assessment by regulator's assessor Regulators begin to rework their internal business processes
1	6	Regulators provide assessors/regulator applicants are assessed APSGAC manages the assignment of assessors No educational information is collected or visible as part of an assessment
2A	6	Regulators manage their own assessments and assessments via web admin screen
2B	3	Training materials made multi-jurisdictional Training materials task level is made more BC specific Learning Management System (LMS) is brought on-line
2C	4	CSA Registration and login is separated from BC systems Applicants have clearer registration and login process
3A	3	Collection of educational information from either applicant or the Regulator's systems Educational information included in information used for assessment
3B	3	Computer to Computer interfaces allowing Regulators tight integration between their systems and CSA
4A	3	Make CSA multi-language capable (includes FA translation)
4B	3	Make LMS multi-language capable (includes FA translation)

Estimated Volume Uptake by Participating Regulators

Completed and Validated Assessments						
Estimated volume	AB	SK	NB	PE	NS	Total
During Project						
Year 1 (Jul '17 - Jun '18)	0	0	0	10	30	40
Year 2 (Jul '18 - Jun '19)	0	75	50	25	130	300
Year 3 (7 months) Jul '19 - Jun '20	1,750	200	150	25	300	2,425
Post Project						
Year 4	3000	450	250	25	300	4025
Year 5	3000	450	250	25	300	4025
Year 6	3000	450	250	25	300	4025

- * Initial assessment fee for project \$155 for completed, validated, submitted assessment
- ** 1,400 assessments annually @ \$155 are needed to support ongoing support costs
- *** A/PEGA to confirm its plan to adapt system in year 3 when 'national' version is available

High Level Project Timeline Estimate



Project Structure



High Level - Roles and Responsibilities



Role & Composition of User Steering Group

- Champions of Competency-Based Assessment for R.Eng. registration at their regulator and with other regulators
- Ongoing Contributions and decisions on enhancements for national CBA
- Sharing best practices, policies
- 'Harmonization' of competency process – decision making
 - Opportunities for sharing information, transferring competency assessments
 - Branding of national landing site
 - Compliance with privacy legislation
- Support assessor community – liaison to Assessors, concerns
- Cross-jurisdictional reporting progress, issues, solutions
- Keep CEOs informed – individually and as a Group
- Liaise and facilitate decisions at regulator to support CBA implementation and process
- Responsible to plan and deliver project



Role & Composition of Business Model Group

- Accountable for Approval and Adherence to Pilot/Project Plan
- Provides Input and Feedback to Funding Model
- Develops Agreements (MOU)
- Confirms commitment of regulators to CBA and Project
- Reports to CEO Group & their respective regulator Boards on Pilot/Project Progress



Proposed Next Steps

- **Project Plan & Funding**
 - Participating Regulators present progress to Councils, Assessment Boards/Committees – January/February 2017
 - Statements of 'Intent to Commit' to Project by All Participating Regulators if applicable – In progress
 - Initial Benefits Analysis by current and prospective users (pilot) – February 2017
 - Regulators, User Steering Group and Business Model Group provide specific plans, including EC support and resource needs to Engineers Canada for span of project – February 2017
 - Overall Project Plan and Deliverables are approved by Participating Regulators and Engineers Canada – March 2017

Proposed Next Steps cont'd

- **Stage 0 is Launched - January - March 2017**
 - Assessors are recruited, trained and begin assessments
 - Training ,familiarizations & assessments in APEGBC Site
 - Support and Advice from APEGBC
 - Project Monitoring & Reporting (EC and Project Team)

Proposed Next Steps cont'd

- **General Approval of Project Plan and Funding**
 - Engineers Canada Board - April 2017
- **User Group and Business Model Group (April/May 2017)**
 - Confirm Funding Plans with EC
 - Develop/Implement
 - Collaboration Strategies
 - Change Management/Adoption Strategies for Stages 0 & 1
 - MOU for Pilot & Project participation



Election Policy

Purpose

Members and holders of limited licences must elect the President, all Vice Presidents and 10 Councillors. (*Engineers and Geoscientists Act* sections 6 and 9 and Bylaw 3)

Each year, there must be an election for the President, the Vice-President(s) and five Councillors. Council may, from time to time, determine the manner~~(s)~~ of balloting, ~~including on-line voting instead of or in addition to letter ballot,~~ in accordance with this Policy and may contract with third-party service providers to administer the election process and provide the results to the Registrar.

The Registrar is the Chief Electoral Officer and is responsible for the conduct of the election.

Nominations

1) Candidates may be considered for election to Council through either of the two following methods:

- a) The Nominating Committee shall nominate one or more candidates for the office of President and at least one more candidate than there are offices of Vice President to be filled. Such nominations shall be made, in the case of President, from members who shall have served for at least 2 full years as a Councillor prior to the date of taking office and, in the case of Vice President, from members who shall have served for at least one full year as a Councillor prior to the date of taking office, provided that in each case such members are available. (Bylaw 3(b)). The Nominating Committee shall also nominate at least 3 more candidates than there are vacancies to be filled on the Council, provided that there are candidates available. (Bylaw 3(c)); and
- b) Nominations of candidates for President, Vice Presidents and Councillors may also be made in writing by any 25 or more members or limited licensees. (Bylaw 3(e)). The only requirement for candidates nominated by 25 members is that they be members or limited licensees and that they are in good standing.

The two methods of nominating candidates are complementary and members of the Nominating Committee will not hinder the nomination of candidates pursuant to Bylaw 3(e) and will not interact inappropriately with candidates nominated pursuant to Bylaw 3(e).

- 2) In order for potential nominees to be included on the slate list of nominees presented by the Nominating Committee, a completed "Potential Nominee Profile and Declaration Form" must be submitted to the Nominating Committee by the published due date.
- 3) The list of candidates nominated by the Nominating Committee, signed by the chair of the Nominating Committee, and accompanied by the written consent of the nominees shall be placed in the hands of the registrar and shall be published at least 90 days prior to the annual meeting. (Bylaw 3(d))
- 4) Nominees pursuant to Bylaw 3(e) must be submitted no later than 30 days after the publication of the list of candidates nominated by the Nominating Committee. (Bylaw 3(e)). The date of posting the list of Nominating Committee candidates' names on the APEGBC website is deemed the date of the publication of the list of Nominating Committee candidates.

5) 25 members or limited licensees in good standing (the "25 Nominators") have the ability to nominate members or limited licensees in good standing (Bylaw 3(e)). The identity and APEGBC license number of each of the 25 Nominators and each of the nominees must be clear on each nomination form and must be accompanied by the written consent of each nominee. The name or names of each nominee must be printed on each signature page of the nomination form to be signed by the 25 Nominators. APEGBC will provide a nomination form to be used by the 25 Nominators. Once the original signatures (handwritten) are collected on a nomination form, the form can be scanned by the nominee and sent electronically to APEGBC. Nominators may be contacted for verification. Signatures of nominators for candidates nominated by 25 members do not need to be original signatures (electronic signatures of nominators are acceptable). Responsibility for collection of these signatures rests with the nominee.

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6) The Registrar will confirm that all nominees and nominators regardless of the method of nomination are members in good standing or current holders of limited licences.

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Comment [D01]: This clause has been modified to provide clearer direction and ensure that each page of a nomination submission contains the identity of the person or persons being nominated and those individuals that are making the nomination. Handwritten signatures are being requested to reduce risk of copying and pasting of signatures to multiple nomination forms. Nomination forms can continue to be scanned and sent electronically to APEGBC.

Candidate Statements

4)7) The election materials shall contain a description of the nomination process, including the role of the Nominating Committee, and a statement encouraging all members and limited licensees to vote.

2)8) The election materials will identify which candidates have been put forward by the Nominating Committee and which ones have been put forward pursuant to Bylaw 3 (e).

3)9) Candidate statements are to be listed by office and in alphabetical order in the election materials with the exception of the ballot.

4)10) Candidate statement word limits:

a) Council candidates: Limit of 400 words including Education, Professional History, APEGBC Activities, Related Professional Activities, Awards and Honours, and Community Involvement listings.

b) Vice Presidential and Presidential candidates: Limit of 800 words including Education, Professional History, APEGBC Activities, Related Professional Activities, Awards and Honours, and Community Involvement listings.

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5)11) The top of the candidate statement, next to the candidate's picture, will list in bold; the name of the candidate, his/her APEGBC professional designation(s) (P.Eng., P.Geo., Struct.Eng., Eng.L., Geo.L.) and his/her Engineers Canada or Geoscientists Canada honorary designations (FEC, FGC, FEC (Hon.), FGC (Hon.)). No other degrees or professional designations will be included in the title.

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6)12) The published format for educational degrees is to be as indicated in the Association's APEGBC database. Prior to publication, the candidate must provide to the Association's APEGBC verification of degrees that are not listed in the Association's APEGBC database. If the degree is an engineering degree (e.g. civil engineering), "civil engineering" will be indicated.

7)13) Only degrees conferred upon the candidate will be included.

8)14) Candidate statements will be formatted as per the examples provided on the Candidate Statement Form. Any description of activities is to be included in the Statement Section.

9)15) Any individual awards, honours or recognitions, e.g. honorary titles candidates wish to

include are to be listed under the Awards and Honours category.

~~40)16)~~ All activities listed by candidates shall be current or past activities (not future or anticipated activities).

~~44)17)~~ The Election materials will identify any candidates who are facing a disciplinary inquiry with APEGBC.

~~12) Staff may not advise candidates on the content of candidate statements (e.g. suggest messaging, advise on anything that is not published fact).~~

~~13)18)~~ Candidate statements may be verified for factual content. Any content deemed by the Registrar to be inappropriate, defamatory, or which cannot be substantiated by the candidate easily verified may not be published, in the Registrar's sole discretion. Staff will advise candidates of content that is unacceptable. Candidates are reminded of tenet 7 of the Code of Ethics to conduct themselves with fairness, courtesy and good faith towards clients, colleagues and others, give credit where it is due and accept, as well as give, honest and fair professional comment.

~~19)~~ Subject to clause 18, APEGBC staff may not provide campaign advice to candidates.

~~20)~~ APEGBC's style conventions will be applied to the election material. ~~Editing conventions used in Innovation magazine will be applied to the Election materials.~~

~~44)21)~~ External web links may not be included in candidate statements.

~~45)22)~~ Candidate statements must be submitted by the due date specified by the Chief Electoral Officer. Late submissions will not be accepted for publication in the Election Materials.

~~46)23)~~ Candidate statements may not be edited after the due date, except at the request of ~~the Association's APEGBC elections staff editor after the due date.~~

~~47)24)~~ A-The final formatted wording copy of the candidate's statement will be provided to the candidate for review and acceptance. is to be reviewed and signed off by the candidate to indicate acceptance of the candidate's statement to be published. If acceptance is not provided by the specified time, the latest version of the statement as emailed to the candidate will be published.

~~48)25)~~ All candidate statements are confidential prior to publication and will not be released to anyone other than the candidate and those Association-APEGBC staff and contractors involved in the publication of the Election materials.

~~26)~~ In the Election materials, continuing councillors are to be listed noting APEGBC designations only. Lieutenant Governor appointees are to have professional designations noted only.

~~49)27)~~ Candidates may be invited to participate in additional opportunities that allow members to learn more about candidates. Participation in these activities is on an optional basis.

Ballots

~~28)~~ The Registrar shall prepare a ballot containing the names of all properly nominated candidates.

~~29)~~ Voting information Notice of voting and, if applicable, letter ballots and other election materials, shall be sent to members and limited licensees at least 42 days prior to the Association's Annual General Meeting. Ballots shall be sent to the last recorded preferred address on record for the member or limited licensee.

Comment [D02]: This clause has been re-numbered to clause 19 below and it has been amended as it contradicts with practice. Staff must advise candidates if content is unacceptable.

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Comment [D03]: Provides more clarity as to the types of content that will be unacceptable and reminds candidates of their obligation under the Code of Ethics.

Comment [D04]: Revised to reflect current practice (refers to formatting)

Comment [D05]: Although not previously addressed in the election policy, recent practice has allowed for external web links to be published. Going forward, it is recommended to not publish external web links.

Comment [D06]: The question was raised as to what we would do if the candidate did not provide the final OK; would we publish as is or publish nothing? The clause has been amended to clarify the process. Also removed the words "formatted copy" as the content will be formatted slightly different for PDF versions and web page versions.

Comment [D07]: This is intended to allow for the inclusion of a Q&A with candidates and anything else that Council wishes to pursue.

Comment [D08]: Revised to reflect current practice of online voting.

- | ~~30)~~29) All ballots (either letter or electronic) will contain a prominent statement indicating that submission of more than one ballot by a member or limited licensee will invalidate all ballots received from that member or limited licensee.
- | ~~31)~~30) Council positions will appear in the following order on the ballot: President, Vice President, Councillor.
- | ~~32)~~31) Candidates are to be listed on the ballot in the random order drawn by the Registrar (or delegate).
- | ~~33)~~32) The candidate's city listed on the ballot is to be the preferred home address as indicated in the Association's APEGBC database. The candidate's address will be changed to another recorded address at the request of the candidate.
- | ~~34)~~33) The candidate's APEGBC professional designation(s) will be listed on the ballot. Other professional designations and degrees will not be listed.
- | ~~35)~~34) Candidates elected by acclamation will be listed with the office they were acclaimed to.
- | ~~36)~~35) For letter ballots, two envelopes are to be provided for return of marked ballots.
 - a) The first (outer) envelope is to have the ballot return address as the primary address on the front of the envelope and a place for members and limited licensees to mark their name and member ID or limited licence number.
 - b) The second (inner) envelope is for members or limited licensees to place marked ballots in. No mark identifying the member or limited licensee is required on this envelope. This envelope is to be placed in the first envelope by the member or limited licensee.
- | ~~37)~~36) For any other balloting method, the provider of the balloting service will ensure:
 - a) Only registered members and holders of current limited licences are able to vote;
 - b) The system is secure and cannot be accessed by unauthorised persons;
 - c) Each member or limited licensee can only vote once;
 - d) The ballots of members and limited licensees who voted can be identified and, in the case of a member or limited licensee who voted by more than one method, the ballot can be destroyed and the tally recalculated;
 - e) The service provider will track the number of voters voting by regions and other demographic criteria, as specified by Council from time to time;
 - f) Subject to items ~~iv-37 d)~~ and ~~e)~~ above, each member's and limited licensee's vote is kept confidential and in no circumstances will how a member or licensee voted be disclosed to APEGBC;
 - g) No one other than the service provider will have access to voting results until after the closing of voting; and
 - h) After the close of voting and at least 10 days prior to the Association's APEGBC Annual General Meeting, tally sheets are provided to the Registrar.

Comment [D09]: Most candidates prefer their home address to be listed as part of the election material. "Preferred" address is used for APEGBC correspondence purposes. Suggest changing the default to "home" address. Candidates can still request to use an alternative address.

Ballot Count

- 38) Letter ballots returned to the Registrar shall be placed in the ballot box. All voting shall be closed at noon on the 15th day prior to the Annual Meeting (Bylaw 3(h)).
- 39) Returned letter ballots:
 - a) Outer envelopes are to be scrutinized to ensure they are from a registered member or

current limited licensee by comparing the member name and ID or limited licence number with the [Association's APEGBC](#) database.

- b) Return of ballot will be marked in the member's or limited licensee's record to ensure only one ballot is counted per member or limited licensee.
 - c) Outer envelopes with valid markings will be opened after the close of voting and after it has been determined that only one ballot has been received from that member or limited licensee. At that time the inner envelope will be removed and placed in the appropriate regional ballot box. (Ballots are sorted by region as per Annual General Meeting motion)
 - d) Outer envelopes that do not have valid markings identifying the sender will not be opened or marked in the member's or limited licensee's record. Unopened outer envelopes will be placed in a separate box for review by election Scrutineers.
- 40) Prior to opening the letter ballots, a comparison will be made of the list of members and licensees who voted by letter ballot and the list of members and licensees who voted by alternate means.
- 41) The ballots of any member or licensee who voted twice will not be counted.
- 42) Letter ballots shall be opened and counted at least 10 days prior to the Annual General Meeting under the supervision of 3 members appointed by Council (Bylaw 3(j)) as the Ballot Counting Committee to act as the Scrutineers. Council shall appoint, or, failing that, the Ballot Counting Committee members shall elect, one member of the Committee as Chair, who shall act as the Chief Scrutineer.
- 43) Tally counts from the ballot service provider shall be added by the Scrutineers to the letter ballot tallies for each candidate's total votes.
- 44) Voting for less than the full slate of candidates shall not invalidate the ballot. (Bylaw 3(i)).
- 45) The letter ballot count is a closed session and only the Registrar or delegate, the Scrutineers and the ballot counters directly involved in the counting of the ballots will be admitted.
- 46) Letter Ballot Validation
- a) All votes for the election of President, Vice President and Councillors shall be cast by making a mark on the ballot against the names of the officers to be elected and against the names of the Councillors to be elected. (Bylaw 3(i))
 - b) Voting for more than the number of officers or Councillors to be elected shall render that part of the ballot invalid. (Bylaw 3(i))
 - c) Ballots sent in non-conforming outer envelopes will be reviewed by the Scrutineers and will be considered valid if:
 - i) The member or limited licensee sending the ballot can be clearly identified.
 - ii) Only one ballot of any sort has been received from the member or limited licensee.
 - d) Ballots with markings other than those indicating a vote for a candidate will be considered valid if the conditions above are met and the mark does not interfere with the determination of which candidate is being voted for in the opinion of the Scrutineers.
- 47) The successful candidates for the offices of President, Vice President and Councillors shall

be those who have received the largest number of votes. (Bylaw 3(k)).

- 48) When there is more than one office of Vice President, the candidate receiving the largest number of votes shall be elected first Vice President and the candidate receiving the second largest number of votes shall be elected second Vice President. (Bylaw 3(k)).
- 49) If there are any vacancies in Council to be filled the candidate or candidates receiving the next highest number of votes shall be elected for the unexpired term or terms to be filled. (Bylaw 3(k)).
- 50) In the event of a tie vote between 2 or more candidates, the person or persons to be declared elected shall be the most senior in membership or licensure of the Association. (Bylaw 3(k)).
- 51) On completion of the counting of the ballots, the Chief Scrutineer shall deliver to the Registrar the results of the poll, together with the letter ballots and tally sheets. (Bylaw 3(k)).
- 52) The officers and councillors so elected shall take office at the close of the Annual General Meeting. (Bylaw 3(k)).
- 53) Results of the ballot count will remain confidential until such time that the Registrar advises they may be published.
- 54) Should the vote total between the two candidates be less than 25 votes, a recount will be done for those candidates.

Publication of Results

- 55) The President or the Registrar shall inform each candidate in the election of the results prior to the general publication. ~~(Bylaw 3(k)). The Registrar shall advise each candidate by email of the results prior to general publication, including the number of votes he/she received.~~
- 56) The number of votes received by each candidate will be published on the Association's website.
- 57) The results shall be announced at the Annual Meeting (Bylaw 3(k)).
- 58) The results of the election shall be published on the APEGBC website, in the Association's APEGBC magazine/journal and e-newsletter, and by news release.

Comment [D010]: Revised to reflect current practice.

Comment [D011]: General practice is to do a news release but it is not required to be listed here as part of the policy.

*For the purpose of this policy, the term "published," relates to any method deemed appropriate by the Registrar where **all** members and limited licensees are sent a notification unless otherwise noted.*

- *Should any provision in this Policy be in conflict with the Act or bylaws, the Act and/ or bylaws shall prevail.*

Approved by Council: January 24, 2014 (CO-14-42)

Minor editorial changes made January 27, 2016

Election Policy

Purpose

Members and holders of limited licences must elect the President, all Vice Presidents and 10 Councillors. (*Engineers and Geoscientists Act* sections 6 and 9 and Bylaw 3)

Each year, there must be an election for the President, the Vice-President(s) and five Councillors. Council may, from time to time, determine the manner of balloting, in accordance with this Policy and may contract with third-party service providers to administer the election process and provide the results to the Registrar.

The Registrar is the Chief Electoral Officer and is responsible for the conduct of the election.

Nominations

- 1) Candidates may be considered for election to Council through either of the two following methods:
 - a) The Nominating Committee shall nominate one or more candidates for the office of President and at least one more candidate than there are offices of Vice President to be filled. Such nominations shall be made, in the case of President, from members who shall have served for at least 2 full years as a Councillor prior to the date of taking office and, in the case of Vice President, from members who shall have served for at least one full year as a Councillor prior to the date of taking office, provided that in each case such members are available. (Bylaw 3(b)). The Nominating Committee shall also nominate at least 3 more candidates than there are vacancies to be filled on the Council, provided that there are candidates available. (Bylaw 3(c)); and
 - b) Nominations of candidates for President, Vice Presidents and Councillors may also be made in writing by any 25 or more members or limited licensees. (Bylaw 3(e)). The only requirement for candidates nominated by 25 members is that they be members or limited licensees and that they are in good standing.

The two methods of nominating candidates are complementary and members of the Nominating Committee will not hinder the nomination of candidates pursuant to Bylaw 3(e) and will not interact inappropriately with candidates nominated pursuant to Bylaw 3(e).

- 2) In order for potential nominees to be included on the list of nominees presented by the Nominating Committee, a completed "Potential Nominee Profile and Declaration Form" must be submitted to the Nominating Committee by the published due date.
- 3) The list of candidates nominated by the Nominating Committee, signed by the chair of the Nominating Committee, and accompanied by the written consent of the nominees shall be placed in the hands of the registrar and shall be published at least 90 days prior to the annual meeting. (Bylaw 3(d))
- 4) Nominees pursuant to Bylaw 3(e) must be submitted no later than 30 days after the publication of the list of candidates nominated by the Nominating Committee. (Bylaw 3(e)). The date of posting the list of Nominating Committee candidates' names on the APEGBC website is deemed the date of the publication of the list of Nominating Committee candidates.
- 5) 25 members or limited licensees in good standing (the "25 Nominators") have the ability to

nominate members or limited licensees in good standing (Bylaw 3(e)). The identity and APEGBC license number of each of the 25 Nominators and each of the nominees must be clear on each nomination form and must be accompanied by the written consent of each nominee. The name or names of each nominee must be printed on each signature page of the nomination form to be signed by the 25 Nominators. APEGBC will provide a nomination form to be used by the 25 Nominators. Once the original signatures (handwritten) are collected on a nomination form, the form can be scanned by the nominee and sent electronically to APEGBC. Nominators may be contacted for verification.

- 6) The Registrar will confirm that all nominees and nominators regardless of the method of nomination are members in good standing or current holders of limited licences.

Candidate Statements

- 7) The election materials shall contain a description of the nomination process, including the role of the Nominating Committee, and a statement encouraging all members and limited licensees to vote.
- 8) The election materials will identify which candidates have been put forward by the Nominating Committee and which ones have been put forward pursuant to Bylaw 3 (e).
- 9) Candidate statements are to be listed by office and in alphabetical order in the election materials with the exception of the ballot.
- 10) Candidate statement word limits:
 - a) Council candidates: Limit of 400 words including Education, Professional History, APEGBC Activities, Related Professional Activities, Awards and Honours, and Community Involvement listings.
 - b) Vice Presidential and Presidential candidates: Limit of 800 words including Education, Professional History, APEGBC Activities, Related Professional Activities, Awards and Honours, and Community Involvement listings.
- 11) The top of the candidate statement, next to the candidate's picture, will list in bold; the name of the candidate, his/her APEGBC professional designation(s) (P.Eng., P.Geo., Struct.Eng., Eng.L., Geo.L.) and his/her Engineers Canada or Geoscientists Canada honorary designations (FEC, FGC, FEC (Hon.), FGC (Hon.)). No other degrees or professional designations will be included in the title.
- 12) The published format for educational degrees is to be as indicated in the APEGBC database. Prior to publication, the candidate must provide to APEGBC verification of degrees that are not listed in the APEGBC database. If the degree is an engineering degree (e.g. civil engineering), "civil engineering" will be indicated.
- 13) Only degrees conferred upon the candidate will be included.
- 14) Candidate statements will be formatted as per the examples provided on the Candidate Statement Form. Any description of activities is to be included in the Statement Section.
- 15) Any individual awards, honours or recognitions, e.g. honorary titles candidates wish to include are to be listed under the Awards and Honours category.
- 16) All activities listed by candidates shall be current or past activities (not future or anticipated activities).
- 17) The Election materials will identify any candidates who are facing a disciplinary inquiry with APEGBC.

- 18) Candidate statements may be verified for factual content. Any content deemed by the Registrar to be inappropriate, defamatory, or which cannot be substantiated by the candidate may not be published, in the Registrar's sole discretion. Staff will advise candidates of content that is unacceptable. Candidates are reminded of tenet 7 of the Code of Ethics to *conduct themselves with fairness, courtesy and good faith towards clients, colleagues and others, give credit where it is due and accept, as well as give, honest and fair professional comment.*
- 19) Subject to clause 18, APEGBC staff may not provide campaign advice to candidates.
- 20) APEGBC's style conventions will be applied to the election material.
- 21) External web links may not be included in candidate statements.
- 22) Candidate statements must be submitted by the due date specified by the Chief Electoral Officer. Late submissions will not be accepted for publication in the Election Materials.
- 23) Candidate statements may not be edited after the due date, except at the request of APEGBC elections staff.
- 24) The final wording of the candidate's statement will be provided to the candidate for review and acceptance. If acceptance is not provided by the specified time, the latest version of the statement as emailed to the candidate will be published.
- 25) All candidate statements are confidential prior to publication and will not be released to anyone other than the candidate and those APEGBC staff and contractors involved in the publication of the Election materials.
- 26) In the Election materials, continuing councillors are to be listed noting APEGBC designations only. Lieutenant Governor appointees are to have professional designations noted only.
- 27) Candidates may be invited to participate in additional opportunities that allow members to learn more about candidates. Participation in these activities is on an optional basis.

Ballots

- 28) The Registrar shall prepare a ballot containing the names of all properly nominated candidates.
- 29) Voting information shall be sent to members and limited licensees at least 42 days prior to the Association's Annual General Meeting. All ballots (either letter or electronic) will contain a prominent statement indicating that submission of more than one ballot by a member or limited licensee will invalidate all ballots received from that member or limited licensee.
- 30) Council positions will appear in the following order on the ballot: President, Vice President, Councillor.
- 31) Candidates are to be listed on the ballot in the random order drawn by the Registrar (or delegate).
- 32) The candidate's city listed on the ballot is to be the home address as indicated in the APEGBC database. The candidate's address will be changed to another recorded address at the request of the candidate.
- 33) The candidate's APEGBC professional designation(s) will be listed on the ballot. Other professional designations and degrees will not be listed.
- 34) Candidates elected by acclamation will be listed with the office they were acclaimed to.

- 35) For letter ballots, two envelopes are to be provided for return of marked ballots.
- a) The first (outer) envelope is to have the ballot return address as the primary address on the front of the envelope and a place for members and limited licensees to mark their name and member ID or limited licence number.
 - b) The second (inner) envelope is for members or limited licensees to place marked ballots in. No mark identifying the member or limited licensee is required on this envelope. This envelope is to be placed in the first envelope by the member or limited licensee.
- 36) For any other balloting method, the provider of the balloting service will ensure:
- a) Only registered members and holders of current limited licences are able to vote;
 - b) The system is secure and cannot be accessed by unauthorised persons;
 - c) Each member or limited licensee can only vote once;
 - d) The ballots of members and limited licensees who voted can be identified and, in the case of a member or limited licensee who voted by more than one method, the ballot can be destroyed and the tally recalculated;
 - e) The service provider will track the number of voters by regions and other demographic criteria, as specified by Council from time to time;
 - f) Subject to items 37 d) and e) above, each member's and limited licensee's vote is kept confidential and in no circumstances will how a member or licensee voted be disclosed to APEGBC;
 - g) No one other than the service provider will have access to voting results until after the closing of voting; and
 - h) After the close of voting and at least 10 days prior to the APEGBC Annual General Meeting, tally sheets are provided to the Registrar.

Ballot Count

- 38) Letter ballots returned to the Registrar shall be placed in the ballot box. All voting shall be closed at noon on the 15th day prior to the Annual Meeting (Bylaw 3(h)).
- 39) Returned letter ballots:
- a) Outer envelopes are to be scrutinized to ensure they are from a registered member or current limited licensee by comparing the member name and ID or limited licence number with the APEGBC database.
 - b) Return of ballot will be marked in the member's or limited licensee's record to ensure only one ballot is counted per member or limited licensee.
 - c) Outer envelopes with valid markings will be opened after the close of voting and after it has been determined that only one ballot has been received from that member or limited licensee. At that time the inner envelope will be removed and placed in the appropriate regional ballot box. (Ballots are sorted by region as per Annual General Meeting motion)
 - d) Outer envelopes that do not have valid markings identifying the sender will not be opened or marked in the member's or limited licensee's record. Unopened outer envelopes will be placed in a separate box for review by election Scrutineers.
- 40) Prior to opening the letter ballots, a comparison will be made of the list of members and licensees who voted by letter ballot and the list of members and licensees who voted by

alternate means.

- 41) The ballots of any member or licensee who voted twice will not be counted.
- 42) Letter ballots shall be opened and counted at least 10 days prior to the Annual General Meeting under the supervision of 3 members appointed by Council (Bylaw 3(j)) as the Ballot Counting Committee to act as the Scrutineers. Council shall appoint, or, failing that, the Ballot Counting Committee members shall elect, one member of the Committee as Chair, who shall act as the Chief Scrutineer.
- 43) Tally counts from the ballot service provider shall be added by the Scrutineers to the letter ballot tallies for each candidate's total votes.
- 44) Voting for less than the full slate of candidates shall not invalidate the ballot. (Bylaw 3(i)).
- 45) The letter ballot count is a closed session and only the Registrar or delegate, the Scrutineers and the ballot counters directly involved in the counting of the ballots will be admitted.
- 46) Letter Ballot Validation
 - a) All votes for the election of President, Vice President and Councillors shall be cast by making a mark on the ballot against the names of the officers to be elected and against the names of the Councillors to be elected. (Bylaw 3(i))
 - b) Voting for more than the number of officers or Councillors to be elected shall render that part of the ballot invalid. (Bylaw 3(i))
 - c) Ballots sent in non-conforming outer envelopes will be reviewed by the Scrutineers and will be considered valid if:
 - i) The member or limited licensee sending the ballot can be clearly identified.
 - ii) Only one ballot of any sort has been received from the member or limited licensee.
 - d) Ballots with markings other than those indicating a vote for a candidate will be considered valid if the conditions above are met and the mark does not interfere with the determination of which candidate is being voted for in the opinion of the Scrutineers.
- 47) The successful candidates for the offices of President, Vice President and Councillors shall be those who have received the largest number of votes. (Bylaw 3(k)).
- 48) When there is more than one office of Vice President, the candidate receiving the largest number of votes shall be elected first Vice President and the candidate receiving the second largest number of votes shall be elected second Vice President. (Bylaw 3(k)).
- 49) If there are any vacancies in Council to be filled the candidate or candidates receiving the next highest number of votes shall be elected for the unexpired term or terms to be filled. (Bylaw 3(k)).
- 50) In the event of a tie vote between 2 or more candidates, the person or persons to be declared elected shall be the most senior in membership or licensure of the Association. (Bylaw 3(k)).
- 51) On completion of the counting of the ballots, the Chief Scrutineer shall deliver to the Registrar the results of the poll, together with the letter ballots and tally sheets. (Bylaw 3(k)).
- 52) The officers and councillors so elected shall take office at the close of the Annual General

Meeting. (Bylaw 3(k)).

- 53) Results of the ballot count will remain confidential until such time that the Registrar advises they may be published.
- 54) Should the vote total between the two candidates be less than 25 votes, a recount will be done for those candidates.

Publication of Results

- 55) The President or the Registrar shall inform each candidate in the election of the results prior to the general publication.
- 56) The number of votes received by each candidate will be published on the Association's website.
- 57) The results shall be announced at the Annual Meeting (Bylaw 3(k)).
- 58) The results of the election shall be published on the APEGBC website, in the APEGBC magazine and e-newsletter.

*For the purpose of this policy, the term "published," relates to any method deemed appropriate by the Registrar where **all** members and limited licensees are sent a notification unless otherwise noted.*

- *Should any provision in this Policy be in conflict with the Act or bylaws, the Act and/ or bylaws shall prevail.*

Approved by Council: January 24, 2014 (CO-14-42)

Minor editorial changes made January 27, 2016