



Ministry of
Transportation
and Infrastructure

TAC 2020 Educational Achievement Award Nomination

B.C. Ministry of Transportation and Infrastructure's Engineering and Geoscientist In-Training Program

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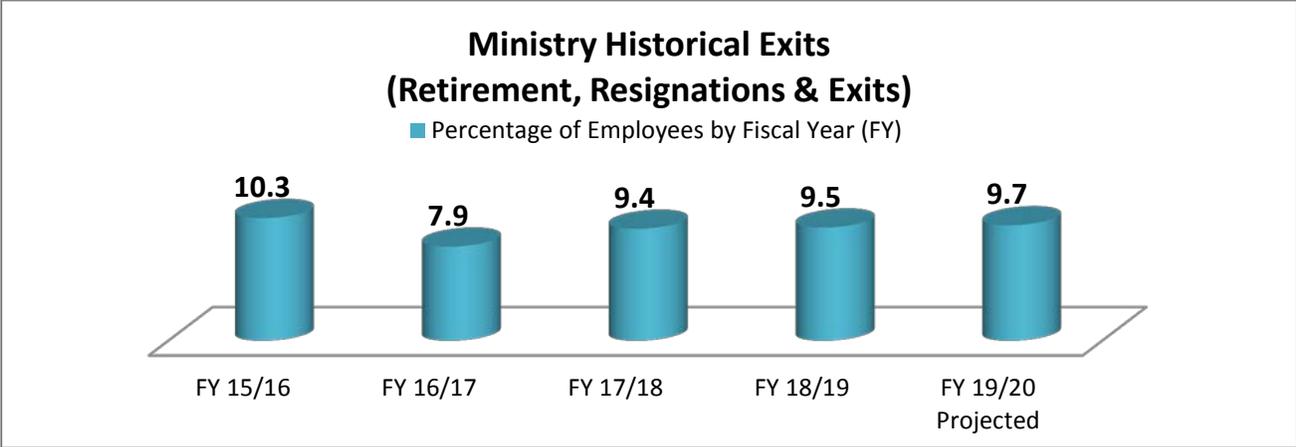
Opening Statement

With respect and gratitude we acknowledge all Indigenous peoples on whose territories we work live, and play. We honour their connections to the land and respect the importance of the diverse teachings, traditions, and practices within these territories.

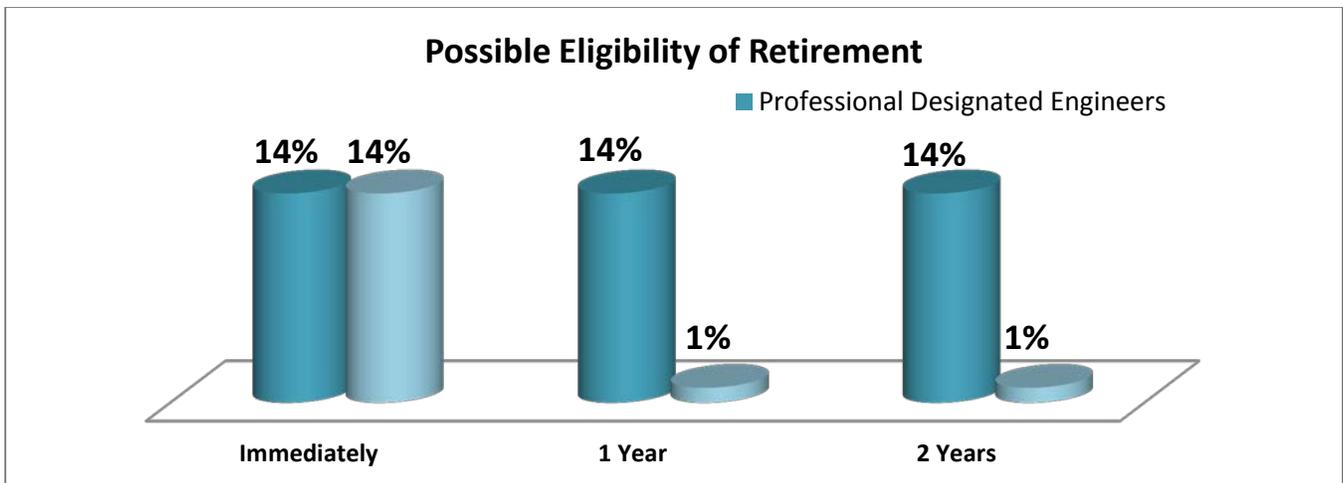
Introduction

The Ministry of Transportation and Infrastructure (ministry) believes that our employees are our most important strength. The ministry takes pride in its excellent quality of people and in producing excellent results. The Engineering and Geoscientist In Training (EIT/GIT) Program (program) leverages this diverse talent, supporting the ongoing growth and development of our employees and engineering professionals in the industry to establish and maintain a fully integrated transportation system that advances environmental, economic and social objectives, and moves goods and people safely within British Columbia and to markets beyond.

Not unlike other organizations in the industry, the ministry is facing demographic changes including retirement rates of senior leaders and professionals in engineering services. This program puts a focus on recruitment and retention, and demonstrates best practices for knowledge management and leadership development.



The program strategically considers forecasted vacancies and attrition within the engineering field and supports the growth and development of qualified professional engineers and geoscientists, builds leaders in the engineering field who become mentors and supervisors for new EITs/GITs, and senior leaders within the ministry.

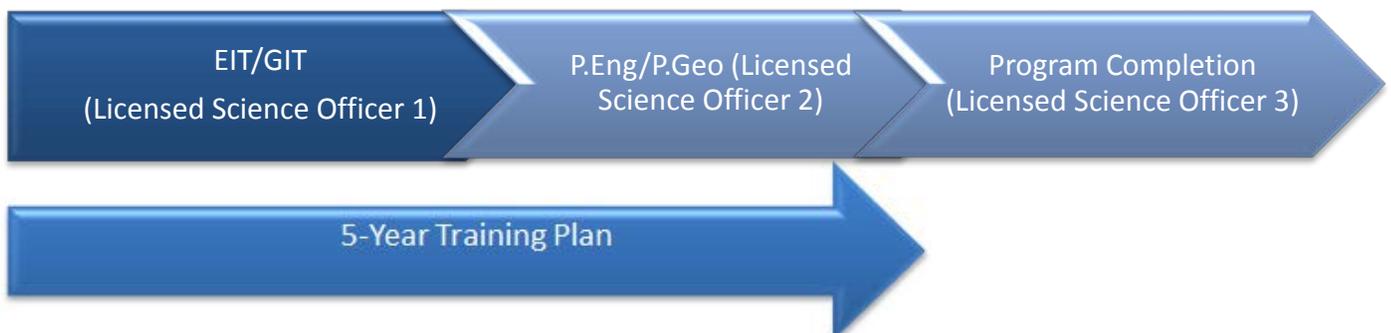


The program has evolved over the years to continuously meet industry standards and operational needs while providing our engineers the best possible work environment, the right tools to do their jobs effectively and the opportunity to excel professionally.

One of the unique factors of the program is that the ministry has achieved and maintains accredited employer status with the provincial engineering regulator, Engineers and Geoscientists British Columbia and ensures that participants are able to satisfy the association’s experience requirements when applying for their professional engineer (P.Eng.) or professional geoscientist (P.Geo) designation.

The program also provides an opportunity for participants to build on a strong educational foundation with first hand work experience throughout the province. Participants are hired into permanent full-time professional designated engineer positions and under-implemented while they gain the knowledge, experience, skills and abilities required of the position through a comprehensive training plan.

The training plans don’t end once an employee receives their professional designation, support, guidance and mentorship within the program continues for at least one year following this achievement. During this time, the focus is on how to best support the growth and development of the participant into the full working level of the position (Licensed Science Officer 3 – Designated Professional Engineer).

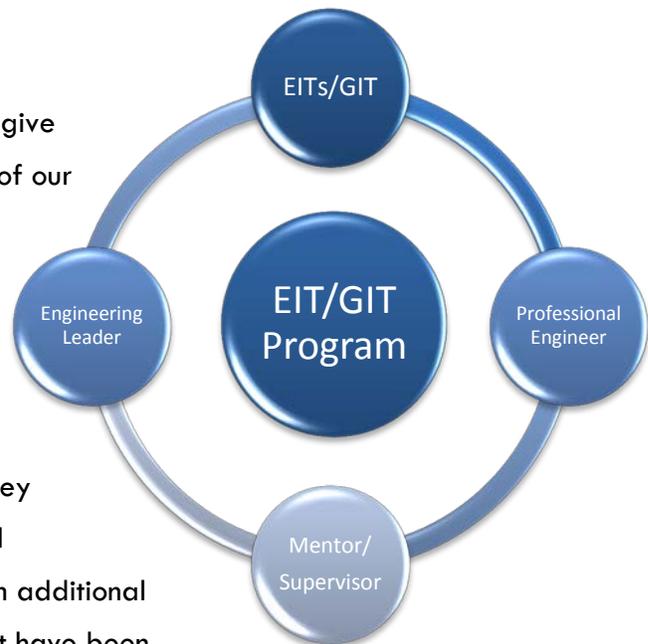


Education/training impacts on program participants

Over a five-year period, participants are assigned mentors who share their lifetime of work experience and provide them with advice and direction through a series of assignments or rotations in multiple work-units and geographical locations throughout the province. This experience provides the opportunity for EITs and GITs to gain applied technical and management experience by working on challenging projects with increasing levels of responsibility while building a diverse portfolio of experience and developing a thorough knowledge of the ministry.

Our mentors are engaged professionals who want to give back to the organization and contribute to the future of our workforce through knowledge transfer.

Many of our mentors are previous participants of the EIT and GIT program and they use this opportunity to continue to grow professionally and personally in the program through the relationships they develop, exposure to new ideas, problem solving and discussion. Participants also have the advantage of an additional network of experienced colleagues in the ministry that have been through and successfully completed the program who act as a ‘buddy’ and share their experience, best practices and advice with new EITs/GITs.



Mentors in the program also evaluate participants experience and validate their professional competencies during an EIT/GITs professional designation registration. Many of our mentors use this experience and give back to the engineering community in the province by becoming members of Engineers and Geoscientists British Columbia’s Member-In-Training Review Panel, reviewing applications from prospective engineers outside of the ministry.

Comprehensive Rotation Form & Training Guides (training plan) are designed and tailored to each engineering discipline to ensure our participants can gain the experience and requirements they need to achieve their professional designation and fully perform at the designated engineering professional level.

Discipline specific training plans include Structural, Electrical, Traffic & Safety, Highway Design, and Geotechnical. The program also offers training plans for District Engineer and Geoscientist positions; these have a greater emphasis on the operational requirements, while still meeting the professional designation requirements.

Training plans are comprehensive and include all of the information a participant and their mentor/supervisor needs to be successful. These plans outline important steps for onboarding and orienting a new EIT/GIT to ensure they are engaged and understand how to operate safely and effectively in the ministry and their work environment.

Training plans also include sixteen training/learning and development courses outside of the professional designation requirements that provide participants with a breadth of knowledge from procurement, privacy training, supervisory level training, project management, and negotiation skills.

An important factor in the training plans is the commitment to quarterly review meetings. These regular formal review meetings are necessary to ensure that the goals identified by EITs/GITs and their mentors are being met and the participant is gaining requisite experience

These plans also include necessary competency categories that EITs/GITs must demonstrate for their professional designation. In addition to the regulator's competence requirements, the ministry requires its EITs/GITs demonstrate certain behavioral competencies and competence in a variety of categories including social, economic, environmental and sustainability, e.g awareness of impacts of highway projects on environmental, property and Indigenous issues, and demonstrates an understanding of climate change and how it relates to an EIT's discipline.

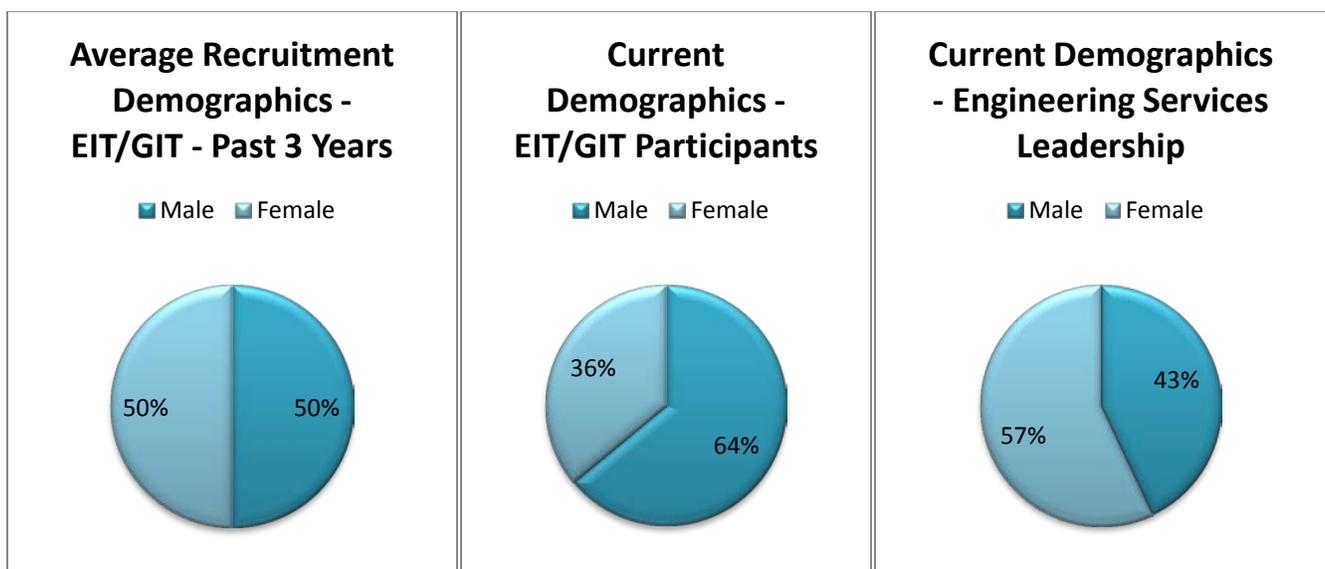
The program responds to an individual's development and growth. Each assignment or rotation is tailored to the individual and provides them with the necessary resources and experience opportunities based on a number of factors including: previous related work experience, their time in the program, competency experience, time of year and duration of rotation, as well as personal factors regarding relocation throughout the province.

Supporting diversity and inclusion

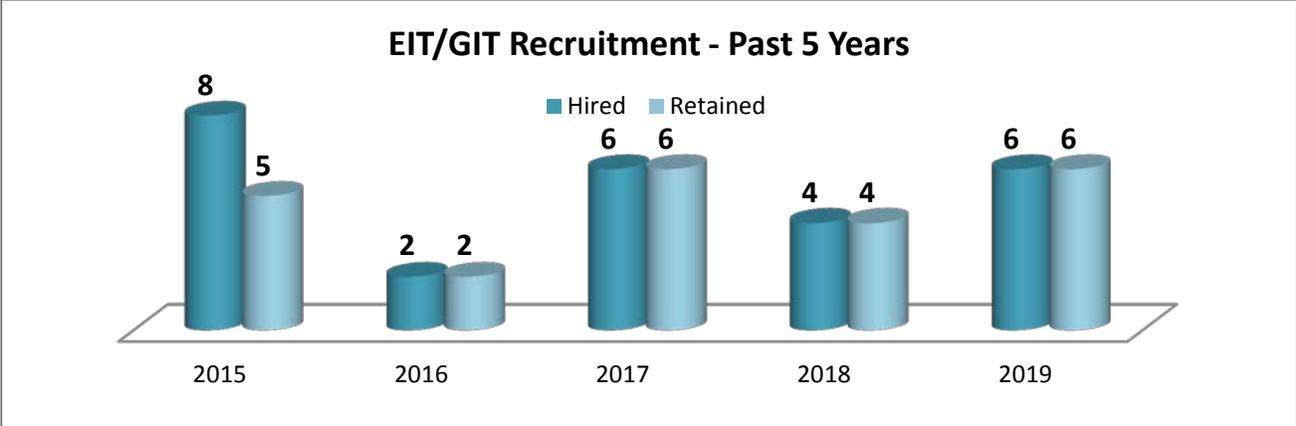
The EIT/GIT program is committed to promoting and encouraging a sustainable workforce that is innovative, diverse and inclusive. This is foundational to the program and efforts begin with attracting a diverse talent pool that represents the population we serve.

While the selection of a candidate is always based on the principle of merit to ensure decisions are non-partisan and reflect competence and ability to do the job, focus on marketing and attracting a broad applicant pool is key. The program will continue to identify opportunities to support these efforts through consultation and collaboration across the industry, including participation in discussions identifying some of the challenges associated with advancing women in engineering and technology.

The recruitment process ensures an inclusive candidate experience, making an effort to remove barriers that may prevent equitable employment. Geographical restrictions are not placed on successful candidates, the ministry provides relocation services to support new employees in helping them to participate in the program and become employed by the BC Public Service. In addition, our program has a focus on supporting our relationship with Indigenous peoples and, Indigenous Relations Behavioural Competencies can be assessed during the competitive process.



Once our successful candidates are hired, the program places a strong emphasis on onboarding and orientation as research shows that a fulsome process supports employee engagement and retention. During this time the program imbeds opportunities for participants to better understand, value and model diversity and inclusion in their roles.



In support of this, training is prescribed and/or encouraged to enable participants to:

- apply a Gender-Based Analysis+ (GBA+) lens on the work that they will be doing in support of the principles outlined in the Canadian Charter of Rights and Freedoms and the Canadian Human Rights Act;
- to build capacity with indigenous peoples and make positive & committed actions towards a Reconciliation journey with Indigenous peoples in BC;
- understand unconscious bias and promote respectful work environments where everyone feels included and able to produce excellent results;
- understand the corporate values of the BC Public Service; and,
- understand and acknowledge the ethics framework and the standards of conduct.

Many of our participants share their experience and perspectives beyond the program by participating in committees and working groups focussed on GBA+, knowledge transfer, employee engagement, and Indigenous Relations. In support of our journey to building meaningful and long-lasting relationships between Indigenous and non-Indigenous peoples, the program introduces events and gatherings with a traditional territorial acknowledgement, and encourages all EITs/GITs to show gratitude, appreciation and respect by introducing their gatherings in the same way.

Innovation in program approach and execution

While the program has been in place since the 1960's, it has evolved with technology and ministry requirements. A critical success factor is supporting our participants in their journey to obtaining their professional designation. In 2015 the ministry underwent an evaluation to become an Accredited Employer with the provincial Engineering Regulator. As part of the process, the ministry demonstrated its commitment to supporting its EITs/GITs in this process while ensuring compliance with all requirements, primarily through our comprehensive training plans. In 2016 the ministry successfully entered into a Memorandum of Understanding with Engineers and Geoscientists British Columbia.

This accreditation allows us to recommend our participants for Engineers and Geoscientists British Columbia's member-in-training program therefore providing a streamlined and 'low risk' pathway for applicants. This is a great benefit for the ministry as we are able to market this during recruitment to attract top quality applicants into the program. On average, the program receives 200-300 applications each intake period.

This agreement also provides opportunities to identify internal assessors and reviewers and provide them with ongoing learning and development; it keeps them current on the regulatory requirements and contributes to their professional development hours.

The program creates a sense of community for its participants and creates space for collaboration and sharing of diverse perspectives, knowledge transfer, and learning from each other. At a minimum, the program offers quarterly virtual meetings inclusive of all EITs/GITs participation regardless of geographical location. The program also hosts an annual general meeting (AGM) with a focus on professional and personal development. This knowledge transfer opportunity is a core element of the program, and supports the ministry's succession planning initiative by strengthening our ability to grow employees from within. The AGM allows program participants to learn more about important ministry and government priorities and initiatives, and participate in informative site visits that allow them to gain knowledge about ministry projects they may not otherwise be exposed to. Feedback continuously shows that participants value the learning and networking experiences it provides.

The program is assigned a dedicated program administrator (Manager of Workforce Programs, Strategic Human Resources) who works in collaboration with the Chief Engineer and Executive Director of Engineering Services. Having this dedicated resource provides an additional level of support to participants, mentors/supervisors, and discipline directors throughout an individual's progression through the program.

The program administrator plays a key role in the ministry's accredited employer status and acts as the primary liaison with Engineers and Geoscientists British Columbia, leads the development and revision of training plans, provides dedicated onboarding and orientation within the program, provides general human resources support, processes program graduations and position classification changes, and continuously evaluates the program through regular feedback and consultation with its participants. This oversight and support function provides a level of diligence and continuity to the program.

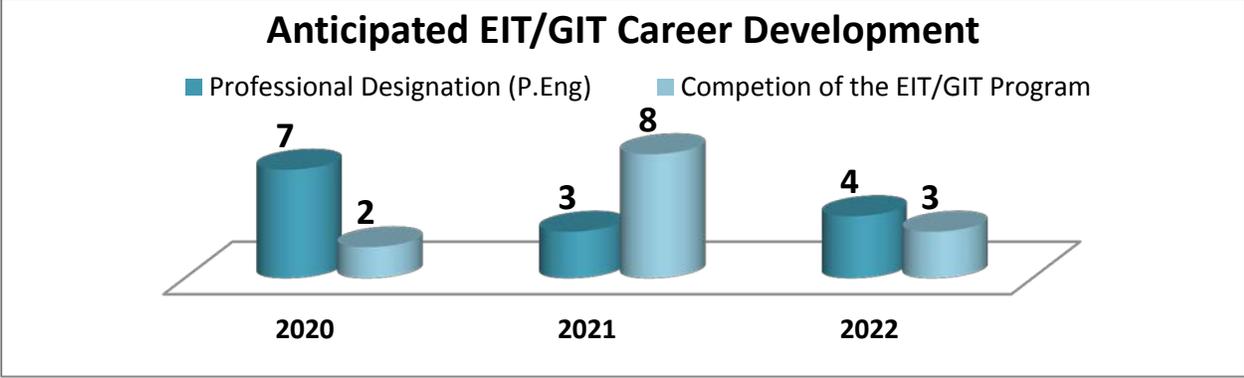
EITs/GITs are also encouraged to share their expertise, skills and abilities within the program to further support enhancements and efficiencies; e.g. an EIT is pursuing the opportunity to greater streamline the training plan review process by developing an application based/online tool.

Payoff or benefits achieved

Since its inception, the program has welcomed more than 150 EITs/GITs. The program has successfully supported 100% of participants (who remained in the ministry throughout the process) in achieving their professional designation. The value placed on our EITs/GITs and the commitment to their success leads to engaged, qualified, competent, high performing engineers and geoscientist, and leaders within the organization.

Retention rates for program graduates average approximately 70% within the ministry and within the BC Public Service. This does not include EITs/GITs that have become valued senior leaders within the organization. Past program graduates have become Executive Directors, Chief Engineers, Assistant Deputy Ministers and Deputy Ministers, sharing the foundation of experience and knowledge that they gained through collaboration across the industry.

Not only does the program support career development towards a professional designation, but it continuously builds knowledge through the opportunity to become a future mentor/supervisor, growing our leadership capacity. Mentors and supervisors also benefit from accumulating professional development hours and their own personal growth and development sharing with and learning from their EITs/GITs.



Contribution to improved practices, skill sets, and the overall transportation community

The ministry has engineers and geoscientists working across the province in varied disciplines. Approximately half of our ministry’s current engineering professionals have or currently participate in the program as an EIT or mentor.

Without these professionals the province would not be able to lead the way in the delivery of some of its key priorities. EITs/GITs are critical to support our ministry’s teams in the delivery of highway safety improvements, infrastructure improvements, and supporting federal priorities.

Some of these priorities include making the transportation system more accessible and reducing greenhouse gas emissions through initiatives like our ministry’s active transportation strategy – designing bridges and intersections to make cycling, transit and walking safer for British Columbians and cleaner for the environment.

The subject matter expertise and leadership of Chief Engineer, Executive Director, Engineering Services, and program administrator, ensures the maintenance of program standards and integrity – ensuring a consistent and objective lens is applied to all participants.

This expertise provides ample opportunities for improvement of varied skill sets including but not limited to: developing and understanding engineering and environmental solutions to support the provincial transportation system, understanding, implementing and complying with transportation engineering standards, policies and procedures.

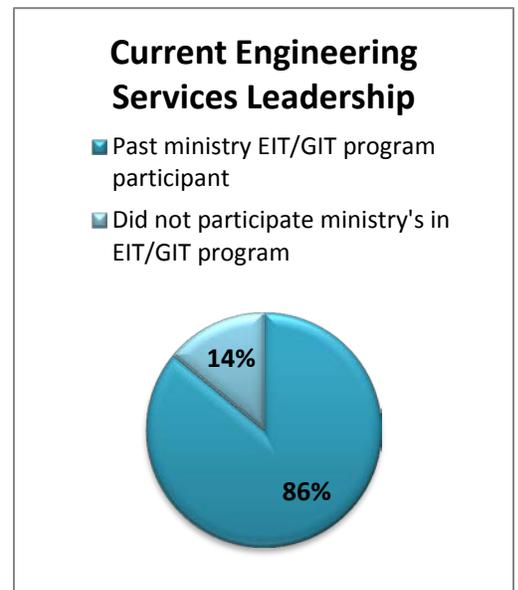
Summary

The program is the cornerstone of the ministry’s succession planning program for engineering. The program’s success is clearly demonstrated in its ability to attract, retain and develop quality engineers, geoscientists, and leaders. Of the current engineering leadership in the ministry today, 86% began their career as an EIT/GIT in the program.

Similar to the mission of TAC, the program places value on working together; building knowledge; sharing ideas; promoting best practices; fostering leadership; and encouraging innovation, through the right collaboration, mentorship and training, while striving to support the future of the industry and its professionals and to create a culture of diversity and inclusion.

This multi-faceted workforce planning tool can be adopted by individual private or public sector organizations across the industry based on the requirements outlined by its provincial regulator.

This submission acknowledges with gratitude the contributions, perspectives, and experiences of all of our colleagues that support the EIT/GIT program and the transportation community.



Testimonials

'Being an EIT Mentor has been a great experience, sharing knowledge and staying current on new technology and research. Working with EIT's has helped me take the time to question the way things have always been done, improve the way I explain processes, and how engineering judgement can be applied. It is a pleasure to mentor EITs and then watch them succeed as Professionals.'

– Leanne Garand, P.Eng, Senior Highway Design Engineer

"When I was nearing graduation, trying to decide where to apply was daunting. I was immediately interested in the Ministry after getting more information about their EIT/GIT development program during a session they held on campus. I am so fortunate I did, because what I found was that the entire program molded and responded to my development as I worked toward my professional designation. The entire program is structured on a plan directly aligned with Engineers and Geoscientists British Columbia through their accredited Member in Training Employer program meaning I got my P.Eng as soon as I was eligible. I was able to change offices and entire disciplines to find how I could best contribute my strengths and skills to the real world, while also fulfilling key roles within the Public Service. The success of the program is clear, with many in the Ministry's Executive Team having gone through the program themselves as both participants and mentors. Indeed, moving from participant to mentor is a hallmark of the program and I look forward to rejoining in a mentorship capacity, paying back the investment and contributing to the success of the next generation of EITs. This is how the Ministry has elevated the concept of university recruitment from a basic hiring scheme into a fundamental component of hiring and training its future leaders."

– Trevor Demerse, P.Eng, Traffic Operations Engineer

'What attracted me to the EIT program with the Ministry was having a seamless process that allows for the freedom to move and try out various roles. It has been a great help so far, connecting me with people who have gone through it before and have given me helpful tips on how to make the most of my time as an EIT as well as how to make sure I'm properly prepared when the time comes for me to apply for my P.Eng. What I am looking forward to most from the program is the ability to explore the province and become better acquainted with it!'

- Shena Changirwa, Traffic & Highway Safety EIT

'The Ministry of Transportation and Infrastructure provides a detailed and well-organized training program. Participation in the Accredited Employer Member-in-Training Program has allowed their engineers-in-training to progress to a professional level in a supportive and streamlined manner. They have worked collaboratively to make sure their work environment supports engineering applicants in meeting Engineers and Geoscientists BC's experience requirements and we look forward to continuing to work together through this initiative.'

- Leila Lagroix, Member-in-Training Program Administrator, Engineers and Geoscientists British Columbia

Appendix A: Example Structural Training and Rotation Guide