

**Manitoba Infrastructure and Transportation's
Training, Development & Recruitment Strategy:**

**Building the Infrastructure to a
Sustainable Workforce**

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**Manitoba Infrastructure and Transportation's
Training, Development & Recruitment Strategy:
Building the Infrastructure to a Sustainable Workforce**

Manitoba Infrastructure and Transportation (MIT) is the government department responsible for managing and ensuring the long term sustainability of a diverse provincial infrastructure network with an estimated replacement value of over \$10 billion.

Of MIT's 2,500 staff, approximately 1,600 are located in the department's Engineering and Operations (E&O) division. A large percentage of these staff are engineers or in a related discipline and oversee the maintenance, repair and renewal of thousands of culverts, bridges, drainage ditches, 19,000 kilometres of roads and over 2,000 kilometres of winter roads on an annual basis. E&O division's budget for 2009/2010 is \$545 million for capital, maintenance and preservation programs to operate and maintain Manitoba's infrastructure.

Manitoba's economic and future development is heavily dependent on the timely and effective management and renewal of this massive multi-billion dollar inventory of transportation, accommodation, water management and other community-related infrastructure. Manitoba Infrastructure and Transportation is responsible for meeting the challenges associated with this task which is increasingly complicated by external factors such as intense competition to recruit and retain skilled technical and engineering professionals.

The E&O division has a high demand for professional and paraprofessional staff due to most of the engineering services being provided in-house, using methods based specifications. Historically this has sustained a strong expert and knowledgeable core of technical staff. This workforce is now reaching a critical stage due to retirements and a lack of staff with 10 to 15 years experience. This situation was caused by many factors two large contributors were the industry and economic conditions in from the late 1980's through to the late 1990's; and public focus on other socio-economic issues resulting in budgetary restraint in regards to infrastructure which was followed by a inability to hire due to limited graduates from post-secondary institutions.

To address shortages and changing demographics in Manitoba's workforce, and their impact specifically on MIT, the E&O division is developing unique and creative methods of training, developing, recruiting, and retaining the skilled employees needed today and into the future. The approach of targeting construction and highway engineering opportunities is even more important with the increased funding focused on infrastructure renewal and the urgent need to address serious infrastructure deficits.

The Training, Development and Recruitment (TDR) team strategy is designed to raise student and public awareness of the career opportunities within the field of civil engineering and a rewarding future with E&O. This concept provides an aggressive and coordinated approach through presentations in high schools, post-secondary institutions, rural and northern communities, conferences, symposiums, and career/job fairs throughout the province.

The sustainable recruitment initiatives now managed by the TDR Team to increase awareness of E&O in MIT and career opportunities within the field of civil engineering include:

- Grade 11 and 12 High School Co-op Initiatives Program
- Civil Engineering, Technology and Technician Co-op Education Program
- Local Area Recruitment Program (Project Specific)
- Engineer-in-Training Program
- Internal training and annual career development reviews
- Project Manger Intern Program (2009 Pilot)

These programs have led to dramatic increases in recruitment and retention in rural Manitoba and the ability to develop technicians, technologists and engineers. With the implementation of the recruitment, development and training programs, MIT has become an employer of choice for technical and engineering positions.

Stakeholder Needs

In development of the strategy and programs the primary stakeholders were identified and consulted. MIT's E&O Division, participating universities and the public/industry sector were involved in the process to build a strategy to address the needs outlined.

MIT needs were identified as:

- Developing and implement a strategy to address existing and projected labour shortages
- Enhancing recruitment outcomes in a highly competitive labour market
- Securing a skilled and trained workforce capable of meeting infrastructure responsibilities
- Sharing/transference of senior staff experience/knowledge
- Increasing awareness of MIT career opportunities within engineering faculties
- Ability to deliver in-house engineering services
- Strengthening the department's current and long term ability to maintain infrastructure in a manner supportive of economic benefits/community sustainability
- Strong engineering capacity within the department's rural and northern offices

Student needs were identified as:

- Opportunities for field experience acquisition and structured skill development
- Programmed structure to complement rather than compete with formal studies
- Increased awareness of career path options
- Increased awareness of employment potentials

Public/Industry needs were identified as:

- Confidence in safety and sustainability of transportation infrastructure
- Confidence in the ability of MIT to manage, renew and maintain infrastructure
- Confidence in the professional qualification/expertise of department staff responsible for infrastructure design and safety standards

Following a series of consultations, a strategy was formulated to focus on recruitment in the civil engineering field, rural and northern areas. Programs were launched in the South West Region in 2000. The positive results reflected a strong potential for staff renewal. In 2007 the programs expanded provincially and the TDR team was given full responsibility for enhancing and expanding the programs to further develop this potential.

TDR Team Strategy

E&O created the TDR team to address the stakeholder needs by:

- Raising awareness of the career options within the department and the field of civil engineering
- Creating a training environment that will develop employees skill levels
- Sustaining a beneficial knowledge transfer process between experienced and new employees
- Staffing rural and northern communities

The TDR team based their recruitment and retention strategies on a multi-faceted approach to reach several identified potential target groups:

- High school students looking for career possibilities
- Civil engineering technician/technology students
- Civil engineering students
- Rural and northern communities
- Local area residents looking for career opportunities
- Existing staff wanting to develop technical and transferable skills

The resulting initiatives provide a distinct focus on increasing the awareness of career options, the pursuit of those options within the department and a combination of structured and non-structured learning scenarios to enhance employee development.

The key initiatives are:

Recruitment

Career fairs, focused hiring strategy, high school presentations

Development

Engineer-in-Training, Project Manager Intern, Co-operative Education Programs

Training

Internal Training Program

Career Fairs

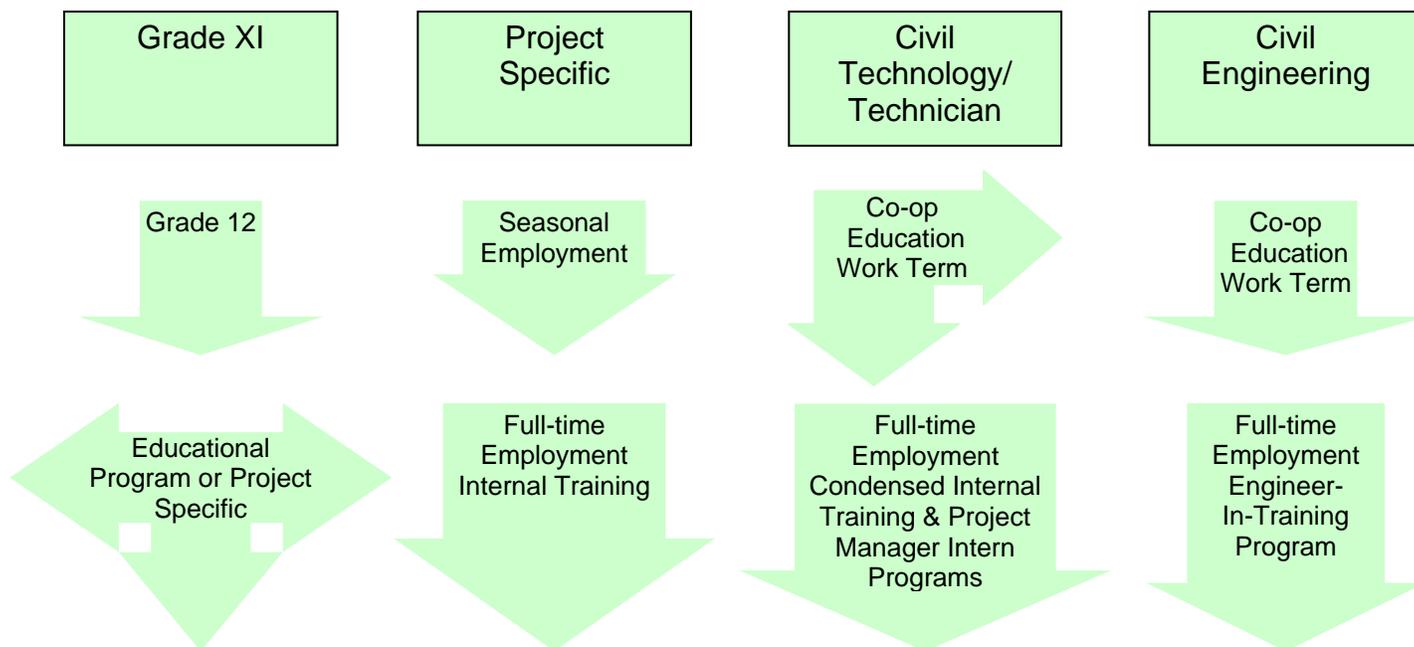
MIT participates in career fairs and events throughout the province to increase awareness. MIT, as an employer of choice, educates students and the public on opportunities available and our role as a provincial body. This is done through the development of effective handout materials, consistent messaging and providing information on current programs and employment opportunities.

Career fairs provide an initial contact with high schools and potential job seekers the opportunity for MIT to establish its identity and branding. Initial exposure at the career fairs is followed up with presentations to students in the classroom. When the TDR team assumed responsibility for this activity, a positive department profile was created which earned the MIT booth the 'Best Display' award at the Rotary Club Career Fair, Manitoba's largest fair event, in both 2008 and 2009.

2009 Rotary Club Career Fair



Hiring Streams



Recruitment

Grade 11 and 12 High School Co-op Initiatives Program

Originally started in 2000 as a pilot program in MIT's South West Region operating district, the high school program (if its not the proper title-no caps) demonstrated the benefits to be gained from direct messaging to the community about civil engineering employment and career opportunities with the department. From this success came the development of additional programs designed to meet specific staffing needs within MIT. The subsequent success of these programs led to the TDR team in the Construction Support Services branch of the E&O division being given the responsibility for refining these initiatives and expanding the program across the department and the province.

The high school program is focused in rural and northern areas of the province that have either an existing MIT office or infrastructure projects in the area. This provides students an opportunity to explore the career possibilities within the E&O division.

Initial contact is made with potential participants through classroom presentations by the TDR team. The criteria to become a participant are:

- Grade 11 students must state an interest in the field of civil engineering or highway construction and have a valid driver's license to apply for the summer job program.
- Grade 12 students must be pre-registered in a civil engineering, technology or technician program and have a valid driver's license to apply for the summer job program.

Students participating in our high school program will be part of a survey crew or assist with compaction testing and other general field engineering duties. Throughout their employment, the student's development is tracked with discussions about educational options, experience development and future opportunities.

High School Close-out 2008



In August, just prior to returning to school all of the participating high school students are brought together for a close-out event at which information is shared about MIT, educational programs and team building exercises. Various department staff, new graduates, senior executives as well as instructors from the educational institutions are invited and seated with students by educational program as a way to meet others who are attending or have graduated from that program. This has been beneficial in building friendships and supports for young people as they move from rural and northern areas to attend school in larger cities.

Our High School Sponsorship Program, which is in its second year, provides five, \$1,000, awards annually to assist students enrolling with post-secondary education in an engineering-related discipline.

High School Sponsorship Program Recipients 2008/2009



L to R: Randy Pitz - Director of Construction Support Services, Jordan Kiez, Andy Horosko, Deputy Minister, Andrew Lepp, Steven Florko, Harmony McKinney-Bumstead - TDR Construction Support Services, Mike Neill, TDR Construction Support Services

In 2007, nine Grade 11 and twenty Grade 12 students took part across the province. In 2008, the number of Grade 12 students remained the same, but the number of Grade 11 students entering the high school program increased to twenty, indicating a substantial increase in awareness of MIT opportunities among the student population.

Civil Engineering, Technology, Technician Co-op Education Program

One of the foremost barriers facing MIT in addressing the infrastructure deficit is the increasingly intense competition to recruit and retain staff in the civil engineering disciplines. The Engineering, Technology, and Technician Program helps MIT train qualified students for the future combining educational studies with real-life experience.

Combined the programs have hired approximately 100 to 120 participants per year. Participants are guaranteed a minimum of 2 valued work experiences per work term in E&O branches such as Construction and Maintenance, Water Control and Structures and Highway Engineering. All training required is provided and paid for by the department including accommodations for placements outside the capital region.

The student's past experience and development requirements are documented along with discussions about educational options and future opportunities. An individual multi-phased plan based on this information is developed to provide a structured skill development opportunity and quality supervised training. Their tenure with the department starts with the Co-op Program and is transferable to permanent employment. The work experience is progressive and includes survey crew, checking/scaling, density testing, material testing & survey crew and then builds on previous experiences with additional responsibilities and assisting Roadway Construction Inspectors. This helps prepare graduates to be job ready when they graduate.

In 2005 MIT put forward a hiring strategy outlining who is eligible to apply. Three types of competition were established;

- Open – all eligible

- Closed – only provincial employees

- Internal – only MIT employees

Classification dictates the type of competition that is preferred. The strategy looks to retain knowledge, allow for fresh ideas to come into the organization and encourage program participants to join the department permanently.

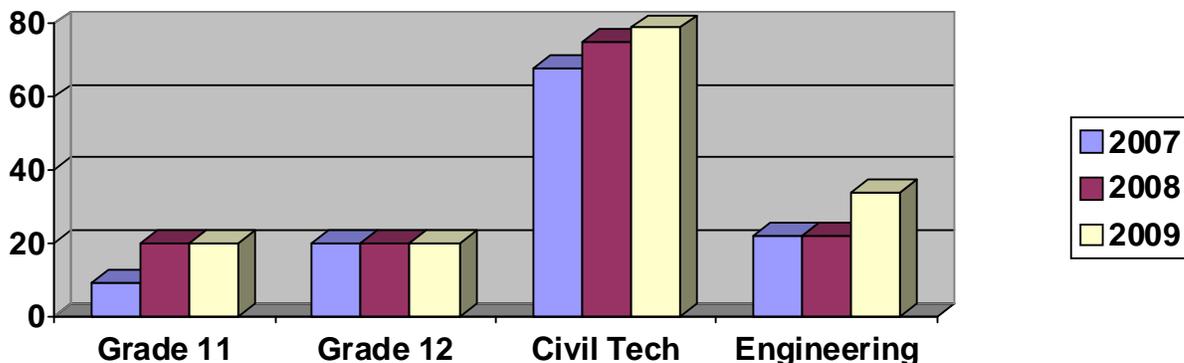
Hiring for technology and technician positions is held in two phases. Phase one is an internal competition for existing co-op participants. Phase two is an open competition which allows non co-op participants, recent graduates, term employees, and foreign trained individuals to obtain permanent positions with the department. The two phased approach was instituted in 2009 due to the large number of positions required.

In the past two years recruitment drives at the Universities of Manitoba, Saskatchewan, and Lakehead University has significantly increased the number of applicants to the department.

The MIT TDR team also contributes to the advisory boards of all three provincial colleges, continues to work with Manitoba's colleges and is actively building relationships with both Ontario and Saskatchewan technical colleges to increase Manitoba's pool of potential employees.

In 2007, 88 students participated in the Civil Engineering, Technology and Technician Co-op Education Program which has increased each year and is at 115 students in 2009. Future projections will remain at the 2009 level based on the provincial infrastructure program.

Student Hiring



Tracking

Co-op Program

A crucial component of the student programming, such as the Co-op Program, is the focus on the individual's development. Development is tracked through discussions and scheduled one on one meetings between the student and the TDR team to facilitate clear communication, address individual needs and ensure our commitment to their growth and development is met.

The TDR team meets with students 3 times per work term:

- Beginning of term - gathering previous experience, setting goals for current work term and discussing future plans for school and permanent placement
- Midway thru term - adding & documenting experience, receiving feedback from student and supervisor and identifying any areas that need to be addressed
- End of term - documenting all experiences from term, receiving written feedback from student and supervisor and discussing plans for next work term/employment

The TDR team continues to track the participant's development until they transfer to a permanent employment position or leave the program.

Local Area Recruitment (Project Specific)

This initiative focuses on hiring local people in rural communities and providing a means of stabilizing local MIT offices for the long term. This program provides an employment opportunity to local residents that may not have sufficient education to enter the Department workforce through traditional hiring practices but are interested in highway construction.

Initially hired for the length of a specific project, such as seasonal work, they are given the self directed Level 1 training material, which once completed would enable them to apply for a permanent entry level position. This approach enables the employer to fully assess skills and work habits without committing to the individual should their performance be below acceptable standards. Advancement from this program can be gained through a combination of further internal training and opportunities to broaden their experience.

Development and Training

Internal Training Program

The Internal Training Program was started in the mid-80s as a professional development tool to help existing staff enhance their technical knowledge. This coincided with MIT's initial of hiring civil technicians. Now delivered by Red River College, the Internal Training Program credits staff for courses taken that further their education as a technician or technologist.

The recognition of a number of factors led to the creation of the program. For example, experience had shown that staff were typically limited in their exposure to workplace situations that could advance their technical skills or training. In addition, limited funding for new staff hires often required existing staff to have a more flexible or varied range of skills to meet job assignments, but opportunities to diversify or enhance their skills were lacking. Senior technical management also needed a greater awareness of employee skill levels in order to ensure regional staffing priorities were met efficiently.

The Internal Training Program is a three level program providing employees with combined classroom and laboratory instruction on a voluntary basis. Course content includes: introductory to mathematics, survey and quality control at Level 1, and progresses to higher level training in Levels 2 and 3. The courses provided through Red River College are eligible for credits towards technician or technology certification.

The Technical Training Program allows the E&O division to increase the level of expertise needed to remain current with changing technologies and

effectively deliver the infrastructure renewal program while also ensuring that all employees have professional development opportunities and are treated in a fair, equitable, and consistent manner.

Depending on level of formal education all technical and engineering professionals take part in the internal training program:

- Level 1 – math, survey and materials (self instructional)
- Level 2 – math (self instructional), survey and materials A, B & C
- Level 3 – survey, design and design management guide
- Principle of Management – modules 1 through 5 which provide training in supervision and management techniques such as the role of the supervisor, employee feedback and communication.

Additional specialized training is developed and provided for advanced survey, CADD, computer design and testing as required.

Annual development meetings are held with all employees to assess their technical and professional growth, identifying strengths and future areas of development that can be addressed through experience, technical and competency training.

On an annual basis, the Internal Training Program hosts approximately 300 to 350 participants in all courses.

The Internal Training Program format includes:

1. Annual employee and supervisor meetings to discuss career goals for the next 1-5 years.
2. Identification of training and technical expertise needed for future promotional opportunities.
3. Documentation of previous task assignments and discussion of assignments for the next construction season.
4. Scheduling and planning of required training or experience.
5. Staff has recognized that management follows through on their development.
6. Engagement of staff in their current work and encouraging them to look to future department opportunities.
7. Promoting staff to a higher and more career satisfying positions.

8. Providing long term staff with an opportunity to improve their skill and take on more challenging roles.
9. Ensuring new employees can foresee future advancement and a clearer career path.
10. Ensuring staff have the tools and knowledge to access the appropriate resources within the organization.

Engineer-in-Training Program (EIT)

The EIT Program offers individualized multi-disciplinary learning experiences which provide training and development in support of their goals of working towards registration as a professional engineer. The formalized structured includes rotations through various areas of E&O to enhance the understanding of the internal networks, processes and how the department works.

The program was formalized and launched in 2007; one of the best addition an to the program is that all EITs are assigned a mentor. The EIT Program stipulates regular meetings between the EIT supervisor and mentor. Also in 2009 TDR will be meeting and tracking development plans twice a year.

Two EIT group meetings are held each year. The first meeting is an orientation meeting when the EITs' start generally in May. At this event the EITs' are given their development binder which provides program information, reference manuals and links with development plans and guides. As well the EITs' are introduced to their mentors and supervisors. Presentations about the department operating areas, expecting the EITs' and the roles supervisors and mentors play. The second meeting is held in the fall for all EITs and is structured more as a peer event. At this event the EITs' give development presentations to their peers describing the work they completed, challenges they faced and what they have learnt.

Construction Project Manager Intern Program

This intern program is currently under development and the intial intake of candidate started in July 2009. This program is designed to identify prospective candidates among MIT staff and fast track their development to qualify them as Project Managers. The program will offer individualized multi-disciplinary learning experiences which provide training and development in support of their goals towards project management. Participants will be assigned a mentor when they enter the program.

Through the TDR programs, MIT is able to develop the essential professional workforce required to meet stakeholder needs.

Benefits of the Programs

Situational Improvement

From the late 1990's into early 2000's limited hiring and interest in the department that did not address the long-term sustainability of the department. With the implementation of the recruitment, development and training programs MIT has become an employer of choice for technical and engineering positions.

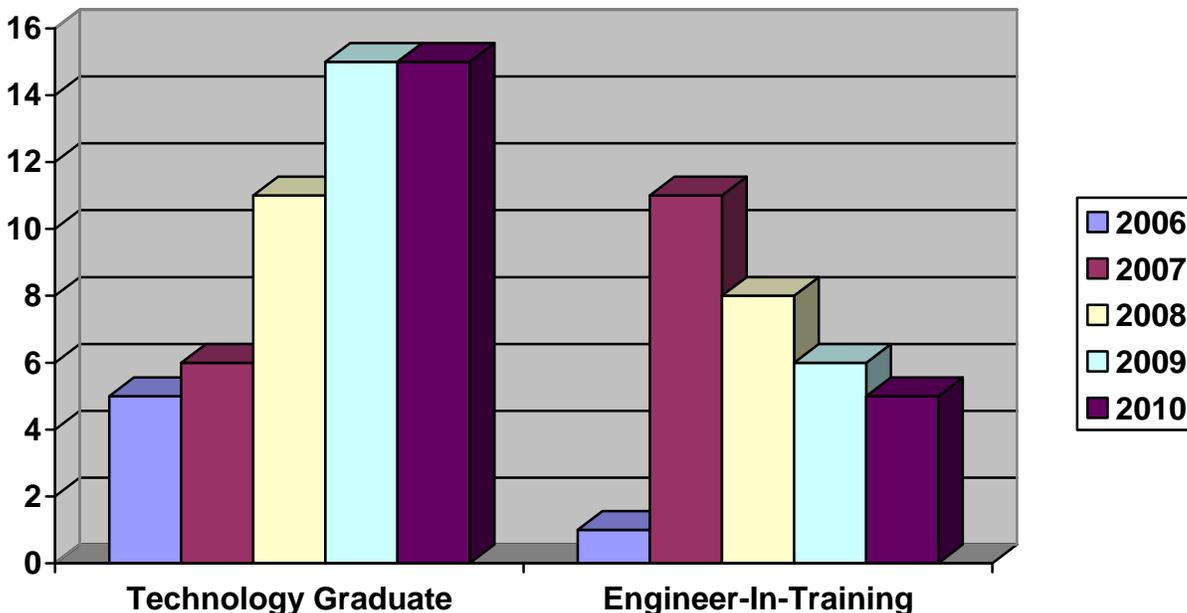
There has been a significant increase in the number of applications for entry level technology and engineering positions that has led to the best and the brightest coming into the department throughout the Province of Manitoba. This is in part due to the increase in Department recognition through career fairs, classroom presentations and the co-op programs. This has led the revitalization of the department's rural offices and is the basis of a promising and sustainable workforce for the future.

The co-op programs expanded significantly from the initial commitment of 25-35 students annually in the early 1990's to 60–115 positions in 2007 through 2009 and for the foreseeable future due to the increase in department funding, specifically in the area of capital construction and system renewal.

This was accomplished by multiple factors, an increase in classroom presentations and recruiting, competitive wages, co-op development and tracking, commitment to multiple experiences through the work term, accommodations for placements outside the capital region and benefits.

The increase in new permanent and co-op staff coming into the organization has had an impact on existing staff in terms of an increase in training, managing and rotating individuals through their projects and the requirement to mentor, coach and support new staff. This has led to growth opportunities, challenges and development of long term staff as well. The initial task and time is significant but managers have found that after the initial adjustment they have staff that can perform multiple functions and adjust quickly to changing requirements of the project.

Number of Permanent Hires by Educational Program



Conclusion

The TDR team strategy has raised student and public awareness of the career opportunities within the field of civil engineering and a rewarding future with the E&O division. The aggressive and coordinated approach through presentations in high schools, post-secondary institutions, rural and northern communities, conferences, symposiums, and career/job fairs throughout the province is building a sustainable departmental engineering workforce.

These programs have led to dramatic increases in recruitment and retention in rural Manitoba and the ability to develop technicians, technologists and engineers. With the implementation of the recruitment, development and training programs, MIT has become an employer of choice for technical and engineering positions. As well, the influx of new employees has rejuvenated existing long term staff through mentoring, coaching and their own professional development.

The sustainable recruitment initiatives managed by the TDR team have been so successful that they are now the model for other divisions within MIT to recruit to other professions and fields.