

**Training, Mentoring and Knowledge Management Initiatives  
Underway in Alberta Infrastructure and Transportation**

Tim Hawnt, P.Eng.  
Executive Director, Program Management Branch,  
Alberta Infrastructure and Transportation

Paper prepared for presentation at the  
In-Career Training, Mentoring, and Knowledge Management Initiatives Session  
of the 2006 Annual Conference  
of the Transportation Association of Canada  
Charlottetown, Prince Edward Island

## **ABSTRACT**

This paper will outline the various initiatives currently underway at Alberta Infrastructure and Transportation, as well as some other initiatives that have been tried, and abandoned. The paper will explain each initiative, and outline its development from inception, and "needs definition" through to its implementation, monitoring, and (in some cases) modification.

Some of the initiatives to be covered will include:

- **Transportation Infrastructure Career Development Program**

This is a program aimed at Civil Engineering undergraduates at the University of Alberta and University of Calgary and, in partnership with the Alberta Roadbuilders and Heavy Construction Association (ARHCA) and the Consulting Engineers of Alberta (CEA), provides transportation related full time work assignments (for durations of 4 or 6 months each) with a Contractor, a Consultant and the Department. This is an on-going program which has had about 50 participants.

- **The Mentoring Program**

This program is aimed at the technical level and has individuals (Contractors, Consultants, or Department staff) working for a few weeks (with a different employer) in areas in which they would like to gain more in depth knowledge. This program is currently underway and has had close to 100 participants.

- **Knowledge Transfer Program**

This program was envisaged as having 2 or more employees of equivalent abilities (but working for different sectors - Contractor, Consultant or Department) exchange jobs for a period of 6 to 12 months. This program received strong all round support initially, but despite several revisions to the original delivery, it proved difficult to implement. The program has now been abandoned.

- **Professional Rotation Opportunity Program**

This is an initiative which encourages and facilitates in house Department staff gaining experience in other related areas of work in the Department through temporary work assignments (3 to 12 month durations). This program is currently underway and has had 20 to 30 participants.

- **Co-op Program**

This program takes Civil Engineering undergraduates from the University of Alberta and the University of Calgary and provides work terms within the Department (a total of 3 or 4 assignments of 3 or 4 months duration each) to 4 or 5 students a year.

- **Internship Program**

This program takes recent graduates and provides up to two years of varied practical work experience with the Department.

- **The Team Program**

This program has several components:

- "Legacy Mentoring" is aimed at employees who are close to retirement.
- "Developmental Mentoring" deals with the traditional mentor relationship.
- "Associate Mentoring" encourages knowledge exchange between peers.

## **INTRODUCTION**

In 1998 Alberta Transportation and Utilities (now Alberta Infrastructure and Transportation [INFTRA]), along with the Alberta Roadbuilders and Heavy Construction Association (ARHCA) and the Consulting Engineers of Alberta (CEA) identified a potential future shortage of engineers and technologists to meet the anticipated increased demands which were expected to be placed on the highway construction sector. As well, there was a perception that as INFTRA had recently outsourced its engineering, construction supervision, material testing, and highway maintenance activities, that it needed to take steps to ensure that it continued to be a “knowledgeable owner”.

These two factors led to the formation of the Joint Workforce Development Initiative. Involved in this initiative were technical and Human Resource staff members from INFTRA, staff from the Ministry of Human Resources and Employment (HR), along with industry representatives from the contracting and consulting sectors.

### **The Joint Workforce Development Initiative (JWDI)**

The member associations and ministries comprising the Joint Workforce Development Initiative developed a suit of initiatives designed to attract, train and retain staff. To launch these initiatives, and to confirm the commitment of all parties, an Alberta Highways Workforce Development Charter was signed by the President of both associations, the Minister of Transportation and the Premier.

#### **Goal**

The Partners committed to undertake initiatives that will develop, attract and retain qualified and skilled people within the highway and bridge industry in Alberta.

#### **Actions**

The Partners agreed to implement joint initiatives to:

- Provide a well-rounded work experience program to Alberta’s engineering co-op and engineering technology students through successive work terms with a Contractor, a Consultant and with the Department, covering planning, design, construction and maintenance of highways and bridges.
- Provide mentorship and Career Awareness programs about opportunities in highways and bridge infrastructure, directed towards students in Alberta’s technical colleges, and towards students in secondary schools.
- Work with other agencies to develop a reliable forecasting system to predict the need for skilled people by the highways and bridge industry in the long term so that academic institutions and other agencies can respond appropriately.

This paper deals with the initiatives which resulted from the work of the JWDI and which were undertaken jointly with the associations or as follow-up initiatives developed by INFTRA.<sup>1</sup>

Each initiative developed following the JWDI was designed to address one or more of the five main areas of concern; i.e.

- attract staff (either at the high school or undergraduate stage)
- train existing staff
- retain staff
- transfer knowledge
- improve working relationships between Contractors, Consultants and INFTRA staff.

Some programs were developed jointly with the industry associations, and some were developed by INFTRA for in-house use only. The following summaries of each initiative will identify which concern was being addressed (needs identification), explain the main facets of the initiative and how the initiative was developed, explain what changes were made to the original initiative and why they were made.

## **PROGRAMS DEVELOPED JOINTLY WITH INDUSTRY**

### **Transportation Infrastructure Career Development Program (TICDP)**

#### **Needs Identification**

This initiative was designed to satisfy two needs. Firstly, it was designed to attract undergraduate Civil Engineers at the U of A and U of C to a career in the transportation industry. And secondly, it was designed to expose undergraduates to a career with Contractors, Consultants and the Department so that upon graduation, they would have a better appreciation of the factors that drive each of the three parties thereby improving their working relationships.

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<sup>1</sup>There are also a number of Government wide initiatives currently being employed at INFTRA as well, but they are outside the scope of this paper. As well, as part of this initiative, the Alberta Roadbuilders and Heavy Construction Association developed several initiatives of their own to attract school age children to careers in highway construction. For example:

- The co-production (with partial INFTRA funding) of a 13-minute video entitled "Heavy Metal Machines: Your Career in Roadbuilding and Heavy Construction." This video was sent to every high school and career centre in Alberta and aired repeatedly on Access TV.
- Development of an entry-level training program, called the Roadbuilding and Heavy Construction Training Program, currently offered at NAIT and Red Deer College, (and to be offered in 2007 at SAIT and Medicine Hat College in Alberta).
- Development of a Job Bank web site, where ARHCA member companies may post job openings, and the general public may post resumes and view job listings. This Job Bank is advertised across Canada.
- Working with other groups such as Women Building Futures to attract female employees, and the Canadian Construction Association to attract aboriginal workers.

These ARHCA initiatives are outside the scope of this initiative, but for further details contact Heidi Harris of the ARHCA ([heidi@arhca.ab.ca](mailto:heidi@arhca.ab.ca)).

## **The Program**

Undergraduates are offered 4 or 5 month work experiences with a Contractor, a Consultant and the Department, either consecutively (15 consecutive months), or each summer during their 4 year course of study. Between 2 and 6 students a year enters this program. A total of 27 students so far have gone through the program.

The program was designed jointly by the ARHCA, the CEA and INFTRA. At the beginning of each year, individual Contractors, Consultants and the Department identify the number of students they are able to accommodate jointly. An open house reception is held each year in each University for first year Civil Engineering students to introduce them to a career in transportation and to explain the benefits of the TICDP. Students apply to be part of the program. Interviews are carried out by Department staff along with a Contractor and a Consultant (usually one of the Contractors or Consultants who are part of the program for that particular year). The successful candidates are offered jobs with each of the three partners, and the locations and durations of each 4 or 5 month work period is outlined in the Letter of Offer. The HR staff of INFTRA administers and tracks the program.

Students are required to submit written reports of their work experience to INFTRA HR staff at the conclusion of each component.

## **Observations**

The administration of students working for 15 months straight is relatively straightforward. Administration of students working their summer “vacation” months is more difficult, as occasionally the “employer” needs to be reminded that 3 years hence he has agreed to provide work to a certain individual during a particular timeframe. Also, there have been occasions in which the prospective employer is unable to provide work, and so in these cases, a replacement has to be found (by the program). Some of the feedback from students required the program to emphasize to employers that the principal objective of the program is to attract students to a career in transportation, and therefore the work provided needs to be of a nature to achieve that goal. All employers have to realize that the TICDP program has longer term goals than simply satisfying short term staffing needs.

## **Mentoring Program**

### **Needs Identification**

This program is directed to existing staff, and was designed to address several concerns: knowledge transfer, staff retention, staff training (or upgrading) and improving working relationships between the three parties. All three parties (ARHCA, CEA and INFTRA) agreed that there was a need for staff to experience work periods with other partner sectors, and were involved in designing and implementing the program.

## **The Program**

Staff members are seconded for short durations (initially one week, at the outset of the program) to work in other sectors of the industry in order to gain experience or gain knowledge of a particular facet of the business. The program is coordinated by INFTRA and staff members of the ARHCA and CEA.

Staff members identify, on an annual basis, areas of knowledge they would like to gain, and the sectors in which they would like to gain this knowledge. These needs lists are shared between INFTRA, CEA and ARHCA, and matches for the needs are found (usually). The staff member and the organization volunteering to share that knowledge are put in contact with each other and final arrangements are made at that level. At the conclusion of the assignment, program participants are required to submit a report on what they learned, and how well the experience provided matched their need. Typically between 10 and 30 Department staff members avail themselves of this program annually. There have been few instances of Consultants and Contractors providing these opportunities to their staff (less than 10% of the mentoring opportunities do not involve Department staff), although the program is envisaged and designed as a fully three way program.

## **Observations**

This program is one of the programs used by INFTRA to ensure it remains a “knowledgeable client”. Staff members who are looking for hands on experience in some facet of the business are able to gain that experience, usually with a Contractor or a Consultant, to remain up to date and current in their chosen field. As the program evolved, the need for participants to accurately detail the experience they sought became obvious, as some of the initial assignments were only partially successful. Also, the duration of assignments became more flexible, with participants working with their “mentor” over longer periods of time, but not necessarily continuously.

The “mentoring” organization needs to support the initiative, and understand its long term benefits, as it does take effort to work with the participants. The fact that organizations continue to accept requests for “mentoring” demonstrates that the program is considered worthwhile, not only by participants but also by the organizations providing the mentor.

## **Knowledge Transfer Program**

### **Needs Identification**

The needs for this program were identical to those of the mentoring program; the only difference being that this program was designed to have staff work for much longer periods in a different sector, with the idea that two organizations would “exchange” employees for a period of time.

## **The Program**

The program was developed by all three parties with the intent that individuals within each organization would identify areas to which they sought in depth exposure, and “matches” within other partner organizations would be found that would enable staff to be “exchanged” for periods of up to one year. The program was administered jointly by the ARHCA, CEA and staff from INFTRA. It was envisaged that the program would not only provide knowledge transfer opportunities, but would also help foster better understanding of the drivers at play in other sectors with a resulting improvement in working relationships.

## **Observations**

Initially, it was hoped that organizations would be able to “exchange” employees at similar levels for long periods of time, (thereby maintaining capacity and also addressing the “compensation” issue). This proved impractical, so the idea of “exchanging” employees was dropped, and instead the notion of “secondments” was entertained. It was envisaged that individuals seeking a certain type of work experience would be seconded to an employer able to provide this experience. This too proved difficult to operationalize, and fewer than half a dozen employees were able to take advantage of the program.

Even though this program has been discontinued, the Department has successfully employed programs with similar objectives with the cities of Calgary and Edmonton, in which Department staff members work with the cities for long periods of time, and visa-versa. This knowledge exchange worked particularly well when the Department became responsible for major highways in these cities. There have been a total of 4 long term secondments between INFTRA and the cities, and these secondments have been very successful in allowing the different jurisdictions to work better together.

## **PROGRAMS DEVELOPED FOR INFTRA IN-HOUSE**

### **Professional Rotation Opportunity Program (PROP)**

#### **Needs Identification**

INFTRA has an ongoing program of knowledge transfer, mentoring and succession planning, and it has started to include temporary work assignments in different areas for its own staff who have expressed an interest in career growth. These rotation opportunities offer staff members the chance to work in other areas to learn new skills in a hands-on setting, as a way of augmenting “training” courses which are traditionally used to broaden knowledge.



## **The Program**

INFTRA staff, identify on an annual basis, areas in which they would like to gain experience as part of their career plan. Senior managers in the Department share these needs and attempt to find matches. Or alternatively, if a work unit has a medium duration assignment or need (not a permanent need) then that need can be advertised, and interested employees can apply. Assignments are for 3 to 12 months and are usually “lateral transfers” (i.e. the assignment is usually (but not always) at the same level as the employee’s current position). Typically 3 to 6 employees are on a “PROP” rotation at any particular time.

## **Observations**

This program requires significant commitment from the participant’s manager as the staff member will be away for several months, and the immediate benefits on her/his return is not always apparent. Indeed it is usually the “host” work unit that gains in the short run, and the Department that gains in the long run, (and not necessarily the individuals “home work unit”). In order to encourage management to release staff to participate in the program, quotas for each branch were established.

Uptake with staff has been good, and results have been positive, so much so, that the program has now been made available to all technical staff (not just professional staff).

## **The Co-op Program**

### **Needs Identification**

This program is designed to offer undergraduates real work experience of a one year duration, with one employer. INFTRA participates in order to attract students to a career in transportation.

### **The Program**

The Universities of Calgary and Alberta each administer a co-op program. The program is between the universities and a particular employer, (either the Department, a Contractor or a Consultant). Co-op students with the Department are typically offered three or four work experiences in different areas of the Department, each of a few months duration. The Department typically employs 3 to 6 co-op students per year, and this period of employment forms part of their overall university education.

## **Observations**

As with the TICDP program, employers occasionally have to be reminded that the objective is to provide interesting and meaningful work to the program participants, so that they pursue a career in transportation upon graduation, and is not to be treated simply as another source of additional staff.

## **Internship Program**

### **Needs Identification**

This program was started in 2002 and was designed to attract Civil Engineering graduates to a career in transportation, and to provide them with a broad range of work experiences within the Department over a two year period. Graduates from this program provide a pool of people from which the Department can recruit, and for those who chose to work in another related industry sector, their solid understanding of what drives the Department, should have a positive impact on working relationships.

### **The Program**

Program participants are recruited by the Department directly from University for a two year period. Between 2 and 4 participants are recruited each year, and so at any given time, there are 6 program participants employed. The Department provides a varied set of work experiences for each participant in the several of the Department's Branches. HR monitors the program and conducts in-service and exit interviews.

### **Observations**

During their two years, participants are given meaningful work that needs to be done. They gain a good understanding of the issues that drive the Department, and usually have a better appreciation of the Department's needs, should they take up employment in industry. Half of the graduate interns are still with the Department. The balance are working in other industry sectors. Almost 30% of the intake participants leave before completing the two period for permanent positions in industry (the Department does not have the types of experience sought by some new grads., (e.g. hands on design and construction experience for entry level) and interns at some stage into the program are looking for job security and may leave the program to take a full time position. Not all supervisors have the ability to support and coach learners as the learners need on-going challenges for the length of the program to keep interest. The program is popular, and on-going.

## **OTHER INITIATIVES BEING USED BY INFTRA**

### **C-TEP – A Continuing Education and Technology Development Program**

Centre for Transportation Engineering and Planning (CTEP) was established ten years ago as a public-private partnership in Alberta to promote technology transfer and research. In 1996, Alberta Transportation outsourced its engineering activities to engineering consultants. To remain as a knowledgeable owner, knowledge management was identified as one of the risk factors under outsourcing. CTEP was formed to provide knowledge development and transfer opportunities within Alberta and outside of Alberta. Current CTEP members are universities, cities, provincial agencies, engineering consultants and suppliers. In 2005 and 2006, the University of Manitoba and University of British Columbia and Yukon also joined as members.

Over the past ten years, more than twenty transportation related courses in Geometric Design, Roadway and Bridge Construction and Road Safety Audit have been developed and presented to all transportation sector workers. Recently, CTEP in collaboration with Alberta Infrastructure and Transportation development two Alberta focused courses in road and Bridge Project Inspection aimed at the promotion of knowledge enhancement for junior staff in both public and private sectors. It is envisioned that training opportunities will be coordinated and offered on a timely bases (annually as required) to the transportation industry. Overall, CTEP has sponsored or co-sponsored 23 research projects.

### **Management Development Program - Senior Executive Management Development Program**

#### **Needs Identification**

The program was started by the Government of Alberta in 1999, in partnership with the University of Alberta to provide leadership development for managers, and to enhance competencies of the managers in the public service (not just INFTRA).

#### **The Program**

The program is available to managers and senior professional/technical staff, who take five or more of the nineteen 2 to 5 day modules offered. The modules cover competencies specific to the GOA and general leadership and public service topics. The modules are offered on a continuous basis and those registered have several opportunities to select modules.

## **Observations**

The University of Alberta has credibility, and courses are delivered by faculty or other visiting university level faculty, and are annually updated for currency. Classes typically comprise 20 or so managers from different government departments. This provides an opportunity for networking, and helps establish a core of government leaders with similar and compatible basic leadership competencies. It typically takes several years to complete the necessary modules as the time required is significant. The program is always well subscribed, although it is not always possible to immediately put some of the concepts learned into practice.

## **Team Program**

### **Needs Identification**

Like many organizations, INFTRA is involved in knowledge management, knowledge transfer and succession planning, especially for its "close to retirement" employees. This program (which is government wide) seeks to put a structure around how these needs might be addressed.

### **The Program**

This program has several components:

- The first, "Legacy Mentoring" is aimed at employees who are close to retirement, and allows them to remain on staff but "step aside" for a number of months prior to their retirement, and either mentor their successor in his new position, or assist a number of incumbents who act in the (soon to be vacated) position for a number of months. During this period, the mentor, in addition to working with prospective successors, is also typically involved in other short term special, or corporate initiatives. Legacy mentoring allows the "training" of several potential incumbents, which broadens the Department options when choosing a permanent successor.
- Next, "Developmental Mentoring" creates short term assistant roles providing employees to develop skills associated with their mentor's role.
- And "Associate Mentoring" encourages relationships between peer employees through regular meetings for the purpose of mentoring and knowledge exchange.

## **Observations**

This program is currently underway, but so far has had few participants and no statistics nor performance measures are yet available.