Traffic Related Electronic Data Strategy (TREDS) Pilot Project

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16. Abstract

This report details the findings of the Traffic Related Electronic Data Strategy (TREDS) pilot project, a joint venture between Alberta Infrastructure and Transportation, Transport Canada and Manitoba Public Insurance. The Traffic and Criminal Software (TraCS) software developed by the State of Iowa's Department of Transportation was piloted to determine whether the product would meet the needs of Canadian jurisdictions for collecting traffic safety data (e.g., collision information, traffic violation (tickets) and commercial vehicle inspections) in an electronic format to support provincial and national safety programs.

The pilot was conducted in Alberta with the involvement of two separate law enforcement agencies and Alberta Infrastructure and Transportation's Commercial Vehicle Enforcement Branch (CVEB). Using mobile computing technologies, the pilot used TraCS to capture and report incident data where it occurred using three key Alberta forms: collision report, traffic violation ticket and commercial vehicle inspection report.

The pilot concluded that TraCS is a viable alternative to costly development of new software to replace paper-based traffic reporting with a real-time electronic system, improve the accuracy and completeness of the information, automate the transfer of information between stakeholders, streamline the data collection processes, reduce duplication of effort and ensure a standardized provincial approach to collecting and transmitting traffic safety data.

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16. Résumé

Ce rapport rend compte du projet pilote Stratégie de données routières électroniques (SDRE), réalisé conjointement par Alberta Infrastructure and Transportation, Transports Canada et la Société d'assurance publique du Manitoba. Le logiciel TraCS (pour *Traffic and Criminal Software*), développé par le Département des transports de l'Iowa, a été mis à l'essai afin de déterminer s'il peut répondre aux besoins des administrations canadiennes en matière de collecte électronique de données sur la sécurité routière (p. ex., données sur les collisions, infractions au Code de la route [contraventions] et inspections des véhicules commerciaux), pour appuyer les programmes provinciaux et nationaux de sécurité.

L'étude pilote a eu lieu en Alberta. Deux corps de police, ainsi que la Commercial Vehicle Enforcement Branch (CVEB) d'Alberta Infrastructure and Transportation, y ont participé. Munis d'ordinateurs mobiles, les policiers/inspecteurs utilisaient le logiciel TraCS pour entrer les données et établir les rapports sur les incidents sur les lieux mêmes où ceux-ci se produisaient. Ils utilisaient à cette fin trois formules clés en vigueur en Alberta : rapport de collision, contravention, rapport d'inspection des véhicules commerciaux.

L'étude a mené à la conclusion que le système TraCS constitue une solution de rechange viable au développement, à grands frais, d'un nouveau logiciel, pour remplacer les rapports papier par un système électronique en temps réel, et ainsi améliorer la précision et l'exhaustivité de l'information, automatiser le transfert de données entre les intervenants, accélérer les processus de collecte de données, réduire le double emploi et normaliser à l'échelle provinciale la collecte et la transmission des données de sécurité routière.

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EXECUTIVE SUMMARY

The Traffic Related Electronic Data Strategy (TREDS) pilot project was a joint venture between Transport Canada, Alberta Infrastructure and Transportation, and Manitoba Public Insurance to pilot the TraCS (Traffic and Criminal Software) system developed by the Iowa Department of Transportation. The purpose of the pilot was to explore the practical and logistical issues for Canadian jurisdictions in using this package as an automated data collection tool to improve the data that is collected at the scene of traffic safety infractions. The pilot also supported Road Safety Vision 2010, which recommends the collection of traffic safety data so that corrections can be made at the source and the data transferred immediately to ensure accurate and timely data in the development of traffic safety programs.

In June 2003, a memorandum of understanding was signed by the TREDS partners that provided the funding for a pilot project over a three year period. The TREDS National Steering Committee selected Alberta as the pilot site.

Alberta embraced the opportunity as the pilot would also support the vision of Alberta's Traffic Safety Data Collection Project to develop a provincial approach to the data collection across Alberta by giving law enforcement vehicles (municipal police services, the RCMP, and Alberta Government inspectors of commercial vehicles) mobile roadside electronic tools for enforcement and selected ticketing purposes.

TraCS

Developed by the State of Iowa Department of Transportation, TraCS is a data collection and reporting tool for the public safety community. TraCS provides agencies with an information management tool to streamline and automate the capture and transfer of incident data in the field. Using the latest mobile computing technologies to capture and report incident data where it occurs, TraCS improves the accuracy, completeness, and timeliness of incident data and reduces the user's administrative duties and paperwork.

TraCS was selected for the TREDS pilot because, after a review of four software packages, TraCS most closely fit the Alberta police agency requirements. TraCS appeared to be flexible and, in particular, it could accommodate the three key Alberta forms: collision report, traffic violation ticket and commercial vehicle inspection report.

TraCS has been in existence since 1995 and is currently licensed by 17 states in the United States and 2 provinces in Canada (Alberta and Manitoba). The State of Iowa is currently rewriting TraCS into the .NET architecture. "TraCS 10", the rewritten TraCS, is scheduled to be ready for testing in late fall 2008.

Pilot Scope

Using the TraCS system, the pilot included the automation of three Alberta forms for data capture, printing and distribution:
- Collision reporting form
- Violation ticket
- Commercial Vehicle Safety Alliance (CVSA) inspection form

The pilot involved two police services (Calgary Police Service and Medicine Hat Police Service), CVSA inspectors (Commercial Vehicle Enforcement Branch of Alberta Infrastructure and Transportation) and 17 police/inspection vehicles. The TraCS system was deployed within the pilot vehicles and integrated with a number of current applications in order to be evaluated. Interfaces with required government and police applications were to be developed and implemented in the pilot environment.

Objectives

The pilot objectives were set out by the TREDS Steering Committee and were agreed to by the Alberta Traffic Safety Data Collection stakeholders.

The objectives of the pilot project were to:
- Determine whether the software (TraCS) is easily integrated with a minimum of two existing police record management systems;
- Determine whether the hardware/software solution can be integrated effectively with the Alberta Motor Vehicle System (MOVES), with the Alberta Justice JOIN system and with the Alberta Infrastructure and Transportation MOTRIS system;
- Develop an Alberta version of the electronic violation ticket, collision form and CVSA inspection form;
- Confirm that the development time is not extensive;
- Verify that the software is user friendly, requiring a minimum amount of training and support for the police officers and CVSA inspection officers;
- Confirm that the data integrity of the information collected meets the standards of the individual police agencies, the province of Alberta and Transport Canada.

The primary goal of the TREDS pilot project was to determine whether TraCS could meet the needs of the Canadian jurisdictions. In addition to this, the pilot project also provided many opportunities to better understand the complete data collection solution and to help assess the impact on business processes.

Approach

The TREDS pilot project was conducted in stages. Each stage implemented a portion of the overall project functionality and built upon the previous stages' functionality. With this approach the overall solution was able to be developed and implemented in approximately six-month increments. This provided an opportunity to evaluate the solution as it was rolled out and to take action to improve the solution or alter the pilot project plan based on the findings. It also provided tangible results to the project stakeholders in regular intervals over the duration of the pilot.

Based on feedback from the project stakeholders and analysis of the components of the overall solution, pilot projects were conducted for the following:

- Collision Reporting (in a front office environment and in a mobile environment)
- Violation Ticketing (in a mobile environment)
- Commercial Vehicle Inspection Reporting (in an office environment and in a mobile environment)

Medicine Hat Police Service executed a limited pilot (five vehicles) of the mobile collision report and Calgary Police Service conducted a limited pilot (five vehicles) of the violation ticket. The Commercial Vehicle Enforcement Branch (CVEB) of Alberta Infrastructure and Transportation conducted a limited pilot (seven vehicles) of the mobile CVSA Inspection Report. For a short period of time towards the end of the pilot, Medicine Hat Police Service also piloted the violation ticket.

Before the pilots could begin, the Architecture and Design phase was completed. This designed the technical infrastructure, application components, interfaces and database for the overall solution.

Each vehicle was equipped with a mobile computer with wireless access to the Alberta Motor Vehicle System (MOVES) database, a Pentax PocketJet thermal printer, and a 2D bar code scanner capable of scanning 2D data coded on a driver's licence. One vehicle had the mobile printer mounted on the console while the other vehicles had the mobile printers mounted in the glove box on a swing out arm.

Pilot Evaluation

Once the pilot was completed, an evaluation questionnaire was issued to all participants and personal interviews were conducted over the phone or in person. The evaluations provided an opportunity to have participants rate specific questions related to the pilot and to submit their feedback, comments and suggestions. The questions covered five topic areas with several questions under each topic:

- TraCS Usability – rating the software according to intuitiveness, ease of learning, time to capture information and error rates
- Training of Pilot Participants – rating the training provided and prior computer knowledge
- Forms and Functionality – rating the input screens, edits, auto-population features, start/end shift functionality and the printed versions of the form
- Equipment Usability – rating the bar code scanner and printer
- General – rating the response time, security, availability, documentation and overall ability to meet the requirements

Figure 1 provides a summary rating for each question that was scored by the officers as part of the evaluation.

5 excellent   4 very good   3 average   2 below average   1 poor   0 not applicable
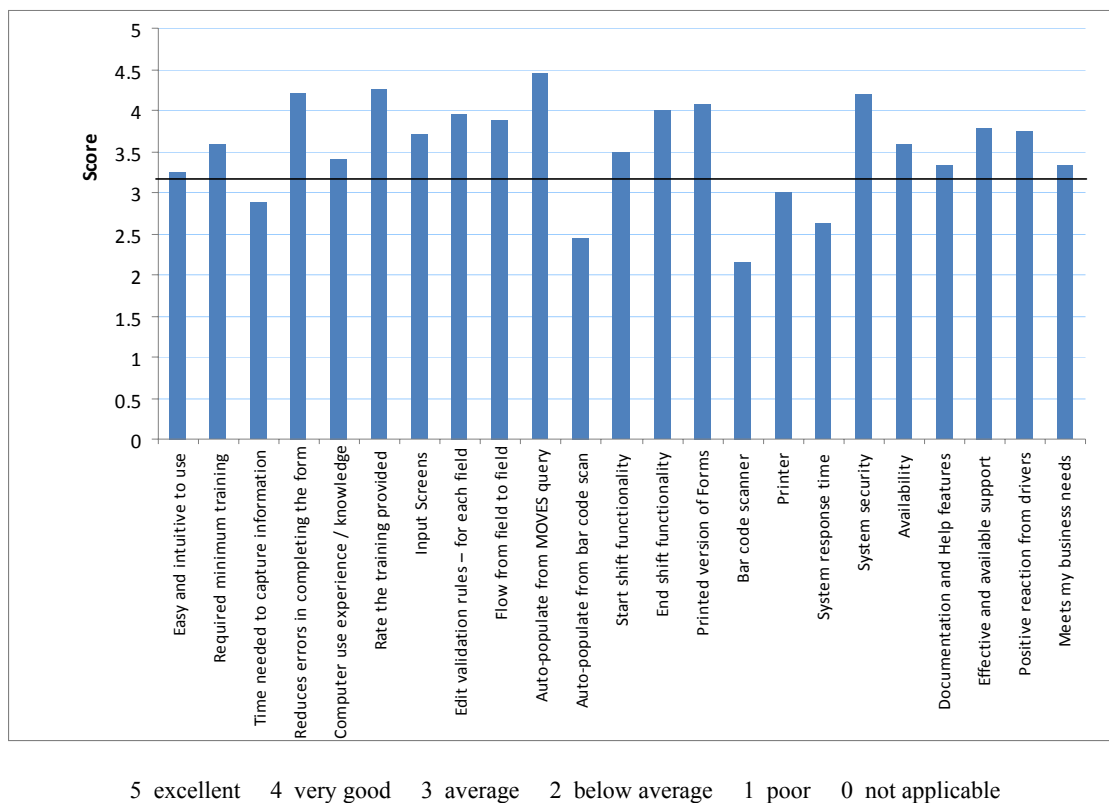
Figure 1 - Summary of Scores by Question

As indicated on the graph, all but four of the evaluation criteria received a rating of average (3.0) or above. An average rating was received in 4 percent of the questions asked and 79 percent of the questions received ratings ranging from slightly above average through to excellent. Twenty-seven percent of the summary responses were rated as very good to excellent.

The four criteria that received less than an average rating are not related to the software. Instead, they relate to the time required to print the forms in the vehicle, ability to use the bar code scanner when trying to scan a 2D bar code on an operator's licence, and slow response time (30 to 45 seconds or longer) experienced by

Medicine Hat and Calgary police agencies when accessing the MOVES interface to obtain driver and vehicle information.

To the participants in the two police agencies, it was difficult to separate the slow response time of the MOVES interface from TraCS and, as a result, officers tended to rate the overall solution lower. However, for the CVSA pilot, participants had an opportunity to use the next-generation wireless technology and found that response time for MOVES access was significantly better than the police agencies were experiencing (between 3 and 5 seconds) and, as a result, they rated the overall solution higher. It should be noted that the slow response time can be attributed to technical issues on the network between Service Alberta and the two police agencies. In addition, the CVEB staff had access to 1X EVDO, which is one generation newer for wireless technology than the Cellular Digital Packet Data (CDPD) being used by the two police agencies. Both agencies are looking at upgrading in the near future. The slow response time is an issue not related to TraCS.

Project Conclusions

The following conclusions provide a summary of the results achieved by the pilot project.

1. **TraCS Usability**

   Overall, TraCS was found to be user friendly; however, all three pilots identified a number of opportunities to enhance the software to make it easier for an officer to work with it in their particular environment. In particular, traffic officers indicated that the software would work well in a patrol environment but would require enhancements to work in a traffic environment.[1]

2. **Training**

   Officers were able to quickly learn the software and hardware as piloted. In order to train officers on the use of multiple forms and the full TraCS complement of features, it is recommended that two days be allocated for training both in a classroom and in the field so that officers become very knowledgeable and proficient with the software prior to actually issuing tickets or attending a collision or commercial vehicle inspection without support.

3. **Input Forms**

   Input forms for collision reporting, traffic violation tickets and commercial vehicle inspections were well received by the pilot participants. Business rules can be easily developed and incorporated into TraCS to ensure data quality and integrity. Development time required by the project team to develop the forms and incorporate business rules was realistic and acceptable.

4. **Integration with Other Systems (Auto-population)**

   TraCS was able to integrate very effectively and successfully with MOVES to auto-populate driver and vehicle information into the pilot forms. Officers were very pleased with the ability to auto-populate the forms with information that was accurate and up to date without having to enter the information themselves. As access to MOVES from TraCS was successful, it is highly likely that similar interfaces could be easily implemented to auto-populate forms with information from other systems.

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[1] "Patrol" is the service responsible for actively participating in crime prevention, community policing, traffic enforcement, and criminal investigations. "Traffic" is the service responsible for enforcing traffic regulations and controlling the flow of traffic.

5. **Start/End Shift**

Although not extensively used during the pilot, it was proven that forms could be uploaded successfully from a mobile computer to a central database or from a central database to a mobile computer using wireless technology at the end of a shift. It is also anticipated that the start shift/end shift could be used to download software and forms changes to mobile computers over a wireless connection without officers having to come into a central location every time there are updates available to the software.

6. **Equipment**

Both the printers and bar code scanner used during the pilot proved that they can be used with the TraCS solution. Based on the findings of the pilot, each agency would be required to look at its requirements to determine which printer, type of paper (single sheet feed or roll) and type of scanner would best meet its needs.

7. **Data Integrity**

It was proven that TraCS can be used to considerably improve data quality and integrity. By incorporating business rules into the input forms and allowing officers to validate their data prior to printing, officers were able to reduce their errors significantly, resulting in quality and accurate data being provided to both the driver and to other systems that use the data.

8. **Technology Infrastructure**

There were no technical issues that limited or constrained TraCS installation or deployment. The pilot project demonstrated that TraCS technology infrastructure is compatible with most police services.

9. **General**

The pilot project has identified that TraCS is a viable option as a data collection tool within Canadian jurisdictions. Concerns were noted by some of the pilot participants and decisions will need to be made by the jurisdictions and/or law enforcement agencies.

Recommendations

The following are the recommendations resulting from the pilot project:

1. **TraCS**

TraCS is recommended as a viable alternative to costly development or purchase of new software to electronically capture collision, traffic violation and CVSA inspection information.

2. **Handheld Computers**

It is recommended that a handheld solution be investigated to electronically produce traffic violation tickets.

3. **Training**

It is recommended that an officer receive a minimum two days of hands-on training. Training should include:

    a.   Classroom instruction using the same equipment available in the vehicle

b. A "ride along" with someone well versed in TraCS to provide support in the vehicle once classroom training has been completed

c. "Just-in-time" training so that the officer is immediately able to use the software without any gaps occurring (e.g. on vacation or scheduled days off following training, assigned to vehicle not having TraCS, etc.)

4. **Forms Development**

It is recommended that all forms development be completed based on:

a. Input received from the officers during the pilot
b. Officers directly involved in day-to-day use of the forms

5. **Printing**

It is recommended that printing of forms be minimized in the vehicle by:

a. Printing only copies required by drivers
b. Developing electronic interfaces to all other systems requiring information
c. Minimizing the amount of information that needs to be printed on the driver copy of the form

It is also strongly recommended that all interfaces to other systems requiring information gathered using TraCS be developed prior to any further implementation. Interfaces would provide manpower efficiencies by:

a. reducing and/or eliminating data entry, error investigation and correction
b. improving the timeliness of data captured in other systems (i.e. one day compared to many)
c. improving data accuracy, consistency and integrity
d. improving and/or eliminating manual business processes and workflows currently in existence for manually processing paper documents

6. **TraCS Support**

It is recommended that both software and hardware/technical support for users be provided during start up to address any questions and problems officers encounter. Support during the start up should be provided by:

a. A one day "ride along" with each officer in a mobile environment
b. On-site assistance for officers and administrative support in an office environment
c. A help desk for both business and technical support

7. **Champion**

It is recommended that a "champion" from within each organization be identified to support and drive any future implementation.

8. **Change Management Program**

It is recommended that change management principles be used to set and manage expectations.

9. **High-Level Review of the Software Technology Available**

   A high-level review should be conducted of the software currently available in the marketplace to determine whether any other products are available or have matured since the last analysis.

10. **Wireless Technology**

    It is recommended that the newest wireless technology be used to support transmission of data. The network teams must work together to ensure that the routing is as efficient as possible to support 1-3 second response time.

Next Steps

The TREDS pilot project has been completed and Manitoba Public Insurance, Transport Canada and Alberta Infrastructure and Transportation will need to analyze the information provided as a result of this pilot project and determine the next course of action.

Following are the recommendations for proceeding:

1. Findings should be presented at the 2007 Annual Meeting of the Canadian Council of Motor Transport Administrators as identified by the CCMTA Board of Directors.

2. Manitoba Public Insurance and Alberta Infrastructure and Transportation are to meet with stakeholders to present them with the results of the evaluation of the pilot project.

3. Jurisdictions will need to determine whether there is an interest in proceeding with an electronic data collection tool at this time and whether the approach will be at the provincial level or at the agency level.

4. Jurisdictions will need to work with stakeholders to determine whether TraCS is of interest to explore further or whether other software packages should be considered.

5. A TraCS pilot project should be conducted with the RCMP for a period of three months.

SOMMAIRE

Le projet pilote Stratégie de données routières électroniques (SDRE), réalisé conjointement par Transports Canada, Alberta Infrastructure and Transportation et la Société d'assurance publique du Manitoba, a fait l'essai du système TraCS (pour *Traffic and Criminal Software*), développé par le Département des transports de l'État de l'Iowa. Cet essai avait pour but d'étudier les aspects pratiques et logistiques de l'utilisation, par les administrations routières du Canada, de cet outil de collecte automatisée de données, pour améliorer la qualité de l'information recueillie par les policiers sur les lieux d'infractions au Code de la route. L'essai se trouvait également à appuyer Vision sécurité routière 2010, qui recommande la collecte de données sur la sécurité routière, pour que les problèmes puissent être corrigés à la base, et pour permettre le transfert immédiat des données, de façons que les concepteurs de programmes de sécurité routière disposent en tout temps d'une information précise et à jour.

En juin 2003, un mémoire d'entente a été conclu entre les partenaires engagés dans le projet SDRE, lequel accordait le financement nécessaire à un projet pilote d'une durée de trois ans. Le Comité de direction national du projet a choisi l'Alberta comme site de l'essai pilote.

L'Alberta a accueilli ce projet avec enthousiasme, y voyant un complément de son propre projet, intitulé *Traffic Safety Data Collection*, qui visait à élaborer un processus provincial de collecte de données en dotant les véhicules des corps de police (corps de police municipaux, GRC et inspecteurs gouvernementaux de véhicules commerciaux) d'outils électroniques mobiles pour l'application de la loi et l'émission de contraventions.

TraCS

Développé par le Département des transports de l'État de l'Iowa, le système TraCS est un outil de collecte et de communication de données destiné aux agences de sécurité publique. TraCS est un outil de gestion de l'information qui simplifie et automatise la saisie et le transfert des données d'incidents, pour les intervenants sur la route. Le système TraCS fait appel à des ordinateurs mobiles dernier cri pour la saisie et le transfert des données d'incidents, sur les lieux mêmes où ceux-ci se produisent. La précision, l'exhaustivité et l'actualité des données d'incidents s'en trouvent améliorées, et l'utilisateur est libéré de tâches administratives et travaux d'écritures souvent fastidieux.

Si le TraCS a été choisi pour l'essai SDRE, c'est que, après l'examen de quatre logiciels, il s'est révélé le plus apte à répondre aux exigences des corps de police de l'Alberta. De fait, le TraCS s'est montré souple et, surtout, compatible avec les trois formules clés en vigueur en Alberta : rapport de collision, contravention, rapport d'inspection des véhicules commerciaux.

Le logiciel TraCS existe depuis 1995 et il est présentement utilisé sous licence par 17 États des États-Unis et deux provinces canadiennes (l'Alberta et le Manitoba). L'État de l'Iowa est à remanier le TraCS pour qu'il s'insère à l'architecture .NET. «TraCS 10», le TraCS remanié, devrait être prêt pour des essais à la fin de l'automne 2008.

Portée de l'essai pilote

L'essai pilote a consisté à utiliser le système TraCS pour automatiser trois formules utilisées par les policiers albertains pour la saisie, l'impression et la diffusion d'information :
- Rapport de collision
- Contravention
- Rapport d'inspection de l'Alliance pour la sécurité de véhicules commerciaux (ASVC)

Ont participé à l'essai deux corps de police (ceux de Calgary et de Medicine Hat) et les inspecteurs ASVC (Commercial Vehicle Enforcement Branch d'Alberta Infrastructure and Transportation), appuyés par 17 véhicules de police/d'inspection équipés du TraCS. Le système déployé dans les véhicules était intégré à diverses applications existantes, pour évaluation. Des interfaces avec des applications gouvernementales et policières essentielles ont été élaborées et mises en œuvre au cours de l'essai.

Objectifs

Les objectifs de l'essai ont été établis par le Comité de direction du projet SDRE et avalisés par les responsables du programme *Alberta Traffic Safety Data Collection*.

Ces objectifs étaient les suivants :
- déterminer si le logiciel (TraCS) s'intègre facilement à au moins deux systèmes de gestion de dossiers de police existants;
- déterminer si le matériel/logiciel peut s'intégrer efficacement au Motor Vehicle System (MOVES) de l'Alberta, au système JOIN d'Alberta Justice et au système MOTRIS d'Alberta Infrastructure and Transportation;
- développer une version albertaine de la contravention électronique, du rapport de collision et du rapport d'inspection ASVC;
- confirmer que le développement de l'application peut se faire dans des délais raisonnables;
- vérifier que le logiciel est convivial, et que les agents de police et les inspecteurs ASVC peuvent l'utiliser moyennant un minimum de formation et de soutien;
- confirmer que l'intégrité des données colligées répond aux normes de chacun des corps de police, de la province de l'Alberta et de Transports Canada.

Le but premier du projet pilote SDRE était de déterminer si le système TraCS pouvait répondre aux besoins des administrations routières canadiennes. Mais outre cela, le projet a été l'occasion de mieux comprendre le logiciel dans son ensemble et d'évaluer son impact sur les processus opérationnels.

Démarche

Le projet pilote SDRE a été réalisé par étapes. À chaque étape, des fonctions s'ajoutaient aux fonctions mises en œuvre au cours des étapes antérieures. Ainsi, la solution complète a été développée et mise en œuvre progressivement, de six mois en six mois, environ. Cela a permis d'évaluer la solution à mesure de son déploiement et de l'améliorer, ou d'adapter le plan de travail aux résultats. Cette démarche permettait aussi d'avoir régulièrement des résultats concrets à communiquer aux parties intéressées pendant l'essai pilote.

À la lumière des commentaires des intervenants et de l'analyse des diverses composantes du système TraCS, il a été convenu d'organiser des projets pilotes pour les trois fonctions suivantes :
- Rapport sur les collisions (au bureau et sur la route)
- Contravention (sur la route)
- Rapport d'inspection de véhicules commerciaux (au bureau et sur la route)

Le service de police de Medicine Hat a fait un essai limité (cinq véhicules) du rapport de collision sur route, et la police de Calgary, un essai limité (cinq véhicules) de la contravention. La Commercial Vehicle Enforcement Branch (CVEB) d'Alberta Infrastructure and Transportation a réalisé un essai, lui aussi limité (sept véhicules) du rapport d'inspection sur route de l'ASVC. Brièvement vers la fin de l'essai, la police de Medicine Hat a aussi mis à l'essai la contravention électronique.

Avant que les essais puissent commencer, la phase Conception et architecture a été achevée. Celle-ci a consisté à définir l'infrastructure technique, les composantes de l'application, les interfaces et les bases de données, pour l'ensemble de la solution étudiée.

Chaque véhicule était équipé d'un ordinateur mobile permettant un accès sans fil à la base de données MOVES (*Motor Vehicle System*) de l'Alberta, à une imprimante thermique Pentax PocketJet, et à un lecteur de codes à barres 2D capable de lire les données codées qui se trouvent sur un permis de conduire. Dans un des véhicules, l'imprimante mobile était montée sur la console, tandis que dans les autres, elle était montée sur un support qui s'escamotait dans le coffre à gants.

Évaluation de l'essai pilote

Après l'essai pilote, un questionnaire d'évaluation a été envoyé aux participants, et des entrevues individuelles ont eu lieu, par téléphone ou en personne. Les participants étaient invités à coter divers aspects de l'essai et à faire part de leurs réactions, commentaires et suggestions. Les questions étaient regroupées sous cinq grands thèmes, comme suit :
- Convivialité du TraCS – place faite à l'intuition, facilité d'apprentissage, temps nécessaire à la saisie de l'information, taux d'erreurs
- Formation des participants – formation reçue, nécessité d'une connaissance préalable de l'utilisation d'un ordinateur
- Formules et fonctionnalités – écrans de saisie, modifications, caractéristiques de chargement automatique, fonctionnalités début/fin de quart, versions imprimées des formules
- Facilité d'emploi du matériel – lecteur de codes à barres et imprimante
- Généralités – temps de réaction, sûreté, accessibilité, documentation et aptitude globale à répondre aux exigences

La figure 1 résume les cotes attribuées par les participants lors de l'évaluation de l'essai.
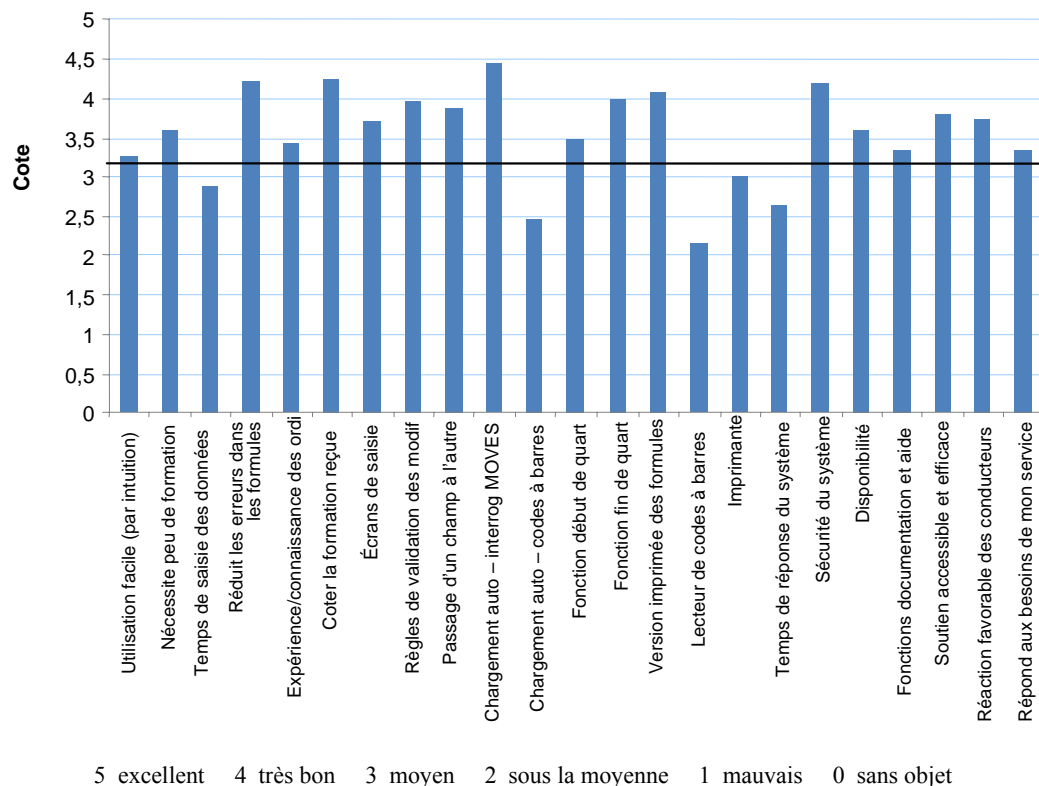

5 excellent   4 très bon   3 moyen   2 sous la moyenne   1 mauvais   0 sans objet

Figure 1 – Sommaire des résultats par question

Comme l'indique la figure, tous les critères d'évaluation sauf quatre ont reçu une cote au moins équivalente à «moyen» (3,0). La cote «moyen» a été attribuée à 4 p. 100 des questions, tandis que 79 p. 100 des questions ont reçu des cotes allant de «légèrement au-dessus de la moyenne» à «excellent». Vingt-sept pour cent des cotes se retrouvaient dans les catégories «très bon» à «excellent».

Les quatre critères qui ont reçu des cotes inférieures à «moyen» n'ont rien à voir avec le logiciel. Ils ont plutôt trait au temps nécessaire pour imprimer les formules dans le véhicule, à la capacité d'utiliser le lecteur de codes à barres pour lire un code à barres 2D sur le permis de conduire, et le temps de réponse (30 à 45 secondes et plus) imposé aux policiers de Medicine Hat et de Calgary qui communiquaient avec le système MOVES pour obtenir des données sur le conducteur et le véhicule.

Pour les participants des deux corps de police, il était difficile de faire la distinction entre la lenteur de l'interface MOVES et le TraCS. C'est pourquoi les policiers avaient tendance à coter faiblement la solution globale. Toutefois, les inspecteurs ASVC participant à l'essai ont pu utiliser la génération suivante, sans fil, du système et ils ont obtenu des temps de réponse beaucoup plus courts (3 à 5 secondes) que ce qu'avaient connu les policiers. Ils ont donc coté plus favorablement la solution globale. Il convient de noter que le temps de réponse excessif est attribuable à des problèmes techniques à l'intérieur du réseau qui relie Service Alberta et les deux corps de police. De plus, le personnel de la CVEB avait accès au 1X EVDO, qui appartient à une nouvelle génération de technologie sans fil, plus rapide que le protocole de transmission de données par paquets sur réseau cellulaire (CDPD) utilisé par les deux corps de police. Les deux corps de police envisagent d'ailleurs de moderniser leur technologie dans un proche avenir. Ainsi, le temps de réponse excessif est un problème qui ne relève pas du TraCS.

Conclusions

Voici un résumé des conclusions des résultats réalisés par le projet pilote.

1. **Facilité d'emploi du TraCS**

   Dans l'ensemble, le système TraCS s'est révélé convivial; toutefois, les trois groupes de participants ont souligné diverses améliorations qui pourraient être apportées au logiciel pour le rendre plus facile à utiliser dans le milieu de travail particulier qu'est celui des agents de police. Les agents de la circulation ont notamment indiqué que le logiciel serait bien adapté au travail de patrouille, mais qu'il devrait être amélioré pour donner pleinement satisfaction dans un service de la circulation.[1]

2. **Formation**

   Les agents ont appris facilement comment utiliser le logiciel et le matériel mis à l'essai. Pour enseigner aux agents comment utiliser les nombreuses formules et tirer parti de toutes les fonctions du TraCS, il est recommandé de prévoir deux jours de formation, en classe et sur la route, pour que les agents aient une parfaite connaissance du logiciel et puissent s'en servir pour émettre des contraventions, établir des rapports de collision ou inspecter des véhicules commerciaux, sans avoir besoin d'aide.

3. **Formules de saisie**

   Les formules de saisie pour l'établissement de rapports de collision, de contraventions et de rapports d'inspection de véhicules commerciaux ont été favorablement accueillies par les participants. Il est facile d'élaborer des règles administratives et de les incorporer au TraCS, pour garantir la qualité et l'intégrité

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[1] La «patrouille» est le service qui participe activement à la prévention du crime, à l'approche de police communautaire, à l'application des règlements de circulation et aux enquêtes criminelles. La «circulation» est le service responsable de l'application du Code de la route et de la régulation de la circulation.

des données. Le temps mis par l'équipe de projet pour élaborer les formules et incorporer les règles administratives était réaliste et acceptable.

4. **Intégration avec d'autres systèmes (chargement automatique)**

Le TraCS a pu être intégré très efficacement avec le système MOVES, de façon que les données sur le conducteur et le véhicule apparaissent automatiquement sur les formules. Les agents ont beaucoup apprécié cette fonction, qui fait qu'une information exacte et à jour se charge automatique sur les formules, ce qui les dispense d'avoir à faire cette recherche. Comme l'accès au MOVES à partir du TraCS est une réussite, il est très vraisemblable que l'on puisse facilement mette en œuvre des interfaces similaires pour le chargement automatique d'information en provenance d'autres systèmes.

5. **Début/fin de quart**

Même si cette fonctionnalité n'a pas beaucoup été utilisée au cours du projet pilote, il a été démontré qu'il était possible, à la fin d'un quart, de télécharger des formules d'un ordinateur mobile à une base de données centrale, et réciproquement, grâce à la technologie sans fil. Il est aussi prévu que la fonctionnalité début de quart/fin de quart pourra être utilisée pour télécharger le logiciel et de nouvelles formules dans les ordinateurs mobiles à l'aide d'une connexion sans fil, sans que les agents aient à se rendre à un bureau central chaque fois que des mises à jour du logiciel seront disponibles.

6. **Matériel**

Les imprimantes et les lecteurs de codes à barres utilisés pendant l'essai se sont révélés compatibles avec la solution TraCS. Selon les résultats de l'étude, chaque organisme devrait examiner ses propres besoins pour déterminer quelle imprimante, quel type de papier (alimentation feuille à feuille ou par rouleau) et quel type de lecteur lui conviendrait le mieux.

7. **Intégrité des données**

Il a été démontré que l'utilisation du système TraCS peut grandement améliorer la qualité et l'intégrité des données. L'incorporation de règles administratives pour l'établissement des formules et la possibilité pour les agents de valider leurs données avant de lancer l'impression ont mené à une forte diminution du nombre d'erreurs. D'où la fiabilité des données transmises au conducteur et aux autres systèmes.

8. **Infrastructure technologique**

Aucun problème technique n'a restreint l'installation ou le déploiement du système TraCS. Le projet pilote a démontré que l'infrastructure technologique du TraCS est compatible avec l'environnement de la plupart des services de police.

9. **Généralités**

Le projet pilote a permis de constater que le système TraCS constitue une option viable en tant qu'outil de collecte de données dans les administrations routières du Canada. Certains des participants à l'essai ont émis des doutes et il reviendra aux administrations et/ou aux corps de police de prendre les décisions qui s'imposeront.

Recommandations

Voici les recommandations formulées au terme du projet pilote :

1. **TraCS**
   Le TraCS est recommandé en tant que solution de rechange viable au développement ou à l'achat, à grands frais, d'un nouveau logiciel pour la saisie électronique de l'information sur les collisions, les infractions et les inspections ASVC.

2. **Ordinateurs à main**

   Il est recommandé d'étudier une solution fondée sur des ordinateurs à main pour établir électroniquement les contraventions.

3. **Formation**

   Il est recommandé de donner aux agents au moins deux jours de formation pratique. Cette formation devrait respecter les principes suivants :

   a. Formation en classe donnée avec le même matériel que l'on trouve dans les véhicules
   b. Jumelage d'un novice avec un collègue qui connaît bien le TraCS, pour qu'il puisse poursuivre sa formation dans le véhicule, après sa formation en classe
   c. Formation «juste-à-temps», pour que l'agent puisse immédiatement se servir du logiciel, sans temps mort (p. ex., vacances, congés, affectation à un véhicule non muni du TraCS, etc.) entre sa période d'apprentissage et la mise en pratique de ses nouvelles connaissances

4. **Élaboration de formules**

   Il est recommandé de tenir compte de ce qui suit dans l'élaboration des formules :

   a. Commentaires reçus des agents pendant l'essai pilote
   b. Commentaires des agents qui utilisent tous les jours les formules

5. **Impression**

   Il est recommandé d'imprimer le moins possible de formules à bord du véhicule en :

   a. imprimant seulement les copies à remettre aux conducteurs
   b. élaborant des interfaces électroniques vers tous les autres systèmes qui ont besoin de l'information du TraCS
   c. réduisant au minimum l'information qui doit figurer sur la copie imprimée du conducteur

   De plus, il est fortement recommandé de développer les interfaces vers tous les autres systèmes qui ont besoin de l'information du TraCS, avant toute autre mise en œuvre du logiciel. Ces interfaces entraîneront des économies de main-d'œuvre en :

   a. réduisant et/ou éliminant la saisie des données, et la recherche et la correction des erreurs
   b. améliorant l'actualité des données saisies dans les autres systèmes (battement de un jour plutôt que de plusieurs jours)
   c. améliorant la précision, la cohérence et l'intégrité des données
   d. améliorant et/ou éliminant les processus opérationnels manuels et les flux de travaux nécessaires au traitement manuel des documents papier

6. **Soutien du TraCS**

   Il est recommandé d'offrir un soutien technique aux agents, pour répondre à leurs questions et régler les problèmes qui pourraient se poser dans l'utilisation du logiciel et du matériel, après la mise en œuvre du système. Voici quelles formes devrait prendre ce soutien :

   a. Accompagnement de chaque agent pendant un jour, sur la route
   b. Aide sur place pour les agents, et soutien administratif au bureau
   c. Un service de dépannage offrant à la fois du soutien technique et du soutien opérationnel

7. Champion

   Il est recommandé de désigner un «champion» dans chaque organisation, qui appuiera et parrainera toute mise en œuvre future.

8. **Programme de gestion du changement**

   Il est recommandé d'appliquer les principes de gestion du changement, pour établir et gérer les attentes.

9. **Revue de haut niveau des logiciels offerts**

   Il est recommandé de procéder à un examen de haut niveau des logiciels offerts sur le marché pour déterminer si d'autres produits sont apparus ou ont évolué depuis la dernière analyse.

10. **Technologie sans fil**

    Il est recommandé de recourir à la technologie sans fil la plus récente pour la transmission des données. Les équipes du réseau doivent travailler ensemble pour faire en sorte que le routage soit le plus efficace possible et permette un temps de réponse de 1 à 3 secondes.

Prochaines étapes

Le projet pilote SDRE est terminé et la Société d'assurance publique du Manitoba, Transports Canada et Alberta Infrastructure and Transportation devront analyser l'information recueillie au cours de ce projet avant de déterminer les prochaines étapes.

Voici des recommandations concernant la suite à donner au projet :

1. Les résultats devraient être présentés à la réunion annuelle de 2007 du Conseil canadien des administrateurs en transport motorisé (CCATM), comme l'a prévu le Conseil d'administration du CCATM.

2. La Société d'assurance publique du Manitoba et Alberta Infrastructure and Transportation doivent rencontrer les intervenants pour leur présenter les résultats de l'évaluation de l'essai.

3. Les administrations devront déterminer s'il est judicieux, en ce moment, de mettre en œuvre un outil électronique de collecte de données et, le cas échéant, si cette mise en œuvre devrait se faire à une échelle provinciale ou à celle d'un corps de police.

4. Les administrations devront examiner, de concert avec les intervenants, s'il faut continuer à axer les travaux sur le système TraCS ou s'il serait préférable d'étudier d'autres logiciels.

5. Le système TraCS devrait faire l'objet d'un essai pilote de trois mois avec la GRC.

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1 INTRODUCTION

1.1 Background

In September 2000, Alberta Infrastructure and Transportation (INFTRA) completed the requirements definition phase for a major initiative known as the Traffic Safety Data Collection (TSDC) project. The requirements definition phase efforts:

- defined the high-level requirements for automation of the collection of collision information and for automation of the violation ticketing process; and

- developed a business case and a plan for moving forward in conjunction with other traffic safety initiatives, in particular the automation of commercial vehicle inspections in Alberta.

The business case indicated that automation of collision reporting, traffic ticket issuance and vehicle inspections would streamline the current processes for law enforcement and inspection officers, and reduce the administrative time and effort required of them. It also indicated that automation would improve the overall quality of the data collected and make it available to law enforcement and other stakeholders in a timelier manner. The value of these benefits was estimated to be in the neighbourhood of $15 million annually.

In 2001, Transport Canada and the provinces of Alberta, Manitoba and Quebec agreed to collaborate on a feasibility study to determine whether the system in use in Quebec (STARS) could be transferred to other jurisdictions. In June 2002, it was concluded that the modifications to STARS to meet Alberta and Manitoba requirements would be significant.

The Traffic Related Electronic Data Strategy (TREDS) Steering Committee was established and charged with recommending a product for implementation in Canadian jurisdictions to collect violation and collision data in an electronic format.

Since there would be a significant cost to proceed with the STARS system, the committee determined that other alternatives should be considered. Through research and stakeholder contacts, four software packages were selected for further consideration. After an independent consultant compared the software features with the Alberta and Manitoba requirements, the TREDS Steering Committee recommended that the TraCS (Traffic and Criminal Software) system, developed by the Iowa Department of Transportation, be evaluated further through a pilot project in Alberta.

1.2 Traffic Safety Data Collection Vision

Traffic safety data, which includes collision information, traffic violations (tickets) and commercial vehicle inspections, is increasingly being used to identify roadway improvements and to identify opportunities and priorities relating to provincial and national traffic safety programs. The TSDC project is an Alberta multi-stakeholder program aimed at automating the collection of traffic safety data at the scene of an event. The stakeholder group is made up of representatives from all Alberta law enforcement agencies, municipal transportation departments and representatives from Alberta Justice and the Attorney General, Alberta INFTRA, Alberta Solicitor General and Alberta Government Services.

This program focuses on a provincial approach. The vision is to have all Alberta law enforcement and Alberta INFTRA's Commercial Vehicle Enforcement Branch (CVEB) vehicles equipped with laptop computers, bar code readers, mobile printers and global positioning systems (GPS). The vision is to collect data, once, at the scene of the event. The information will be stored in a central location where it is available for distribution to authenticated and authorized parties. The data will be edited, via business rules in the software, while being entered at the scene, increasing the validity and accuracy of the information being collected. Real-time access to the Motor Vehicle database will be provided wirelessly in order to auto-populate forms with pertinent driver and vehicle information and to obtain suspension and registration status.

The longer-term project vision is to automate other Alberta government generated forms that relate to traffic safety, including Suspended Driver Vehicle Seizure forms, Graduated Driver Zero Alcohol / Administrative Licence Suspension forms and other Alberta forms related to driving offences.

The objectives are to replace paper-based traffic reporting with a real-time electronic system, improve the accuracy and completeness of the information, automate the transfer of information between stakeholders, streamline the data collection processes, reduce duplication of effort, improve location accuracy through GPS and GIS technology, and have a standardized provincial approach to collecting and transmitting traffic safety data.

1.3   Traffic Related Electronic Data Strategy

Collision data is used internationally to identify traffic safety issues within provinces and states as well as at the national level. This information is currently collected manually and contains errors. Collecting, cleansing and analyzing the data is time consuming and therefore traffic safety decisions and programs are being developed using information that is out of date. Road Safety Vision 2010 recommends the collection of traffic safety data so that corrections can be made at the source and the data transferred immediately to ensure accurate and timely data in the development of traffic safety programs.

The TREDS (Traffic Related Electronic Data Strategy) project is a joint venture between Alberta INFTRA, Transport Canada and Manitoba Public Insurance. The mandate of the project is to support the national Road Safety Vision 2010 by recommending a product for implementation in Canadian jurisdictions to collect violation and collision data in an electronic format. The TREDS partners agreed to conduct a jointly funded pilot project and entered into a memorandum of understanding between the three parties. A National TREDS Steering Committee was named to oversee the project. The TREDS committee members include Sesto Vespa, Transport Canada's Transportation Development Centre, Bill McCauley, Transport Canada's Road Safety and Motor Vehicle Regulation Directorate, Jeanette Espie, Roger Clarke and Ashvanee Bissonauth from Alberta Infrastructure and Transportation, and Carolyn Halbert and Barry Watson from Manitoba Public Insurance. The committee also included project team members Rick Bresciani and Rod Woren from EDS Canada Inc. and Teresa Churchill from Tri-global Solutions Group Inc.

The project consisted of a pilot of the State of Iowa's TraCS system to determine whether the product would meet the needs of the Canadian jurisdictions. The pilot was conducted in Alberta with the involvement of two separate law enforcement agencies and Alberta Infrastructure and Transportation's CVEB.

Phase 1 of the TREDS project completed the update, review and confirmation of the requirements and current situation documents with the project stakeholders, including law enforcement agencies and Alberta government departments. The stakeholders were also introduced to TraCS and were

asked for commitment to piloting the system in Alberta. At that time the Calgary Police Service committed to piloting the traffic violation ticket, the Medicine Hat Police Service committed to piloting the collision form and Alberta Infrastructure and Transportation's CVEB committed to piloting the Commercial Vehicle Safety Alliance (CVSA) inspection form.

Phase 2 of the TREDS TraCS pilot Canadianized the TraCS system, implemented the Alberta form format, established the business rules within the forms, developed a real-time interface with the Alberta Motor Vehicle System (MOVES), and executed limited pilot use at a Vehicle Inspection Station and at the Medicine Hat Police station.

Phase 3 of the pilot continued the refinement of the forms, executed a limited pilot of the violation ticket with the Calgary Police Service (five vehicles), executed a limited pilot of the mobile collision report with the Medicine Hat Police Service (five vehicles), executed a limited pilot of the mobile CVSA Inspection Report and Traffic Violation Report (TVR) with the CVEB (seven vehicles). Phase 3 also included testing interfaces to enforcement agencies' records management systems, testing the exchange of captured data with the destination agencies such as Alberta Justice and Attorney General, and Alberta Infrastructure and Transportation (INFTRA), and providing recommendations (in this report) regarding the use of TraCS in Alberta and Canada.

The primary goal of the TREDS pilot project was to determine whether TraCS met the needs of the Canadian jurisdictions. In addition to this, the pilot project also provided many opportunities to better understand the complete data collection solution. It provided experience to help assess the impact of the operation of these new technologies on business processes. The pilot also provided the opportunity to confirm whether the benefits envisioned can be achieved and whether the estimated costs were reasonable.

1.4   TraCS

TraCS is a data collection and reporting tool for the public safety community. TraCS provides organizations with an information management tool to streamline and automate the capture and transfer of incident data in the field. Using the latest mobile computing technologies to capture and report incident data where it occurs, TraCS is intended to improve the accuracy, completeness, and timeliness of incident data and to reduce the user's administrative duties and paperwork.

TraCS was developed by the Iowa Department of Transportation. It was designed and developed using a flexible architecture that, with minor modifications, could be transferable and easily adapted and customized for use by other agencies across North America. TraCS is currently licensed by 17 states and 2 provinces. The software is supported by Technology Enterprise Group Inc. (TEG). For more information about TraCS see www.tracsinfo.us.

To simplify the transition of the TraCS solution from one agency to another, a Software Development Kit (SDK) is provided with the TraCS suite of applications. The SDK allows Alberta or any other licensed users to manage the evolution of their own current paper forms into TraCS electronic forms while customizing the TraCS environment to meet their organization's needs. Putting the power into the hands of the province or state to modify the TraCS system through the SDK significantly minimizes the dependence on the TraCS system developers.

TraCS was selected for the TREDS pilot because of its flexibility and in particular because it could accommodate the three key Alberta forms: collision report, traffic violation ticket and commercial vehicle inspection report.

TraCS supports the vision of Alberta to have one single data collection tool for all law enforcement across the province with one set of business rules. In addition, TraCS has the capability of interfacing with law enforcement and government applications. It can also interface and share information with mobile applications such as computer-aided dispatch systems and mobile records management systems. With TraCS, Alberta can manage the provincial forms and their associated business rules, resulting in consistent data collection processes and improved data quality. Provincial management of forms also removes the cost of forms maintenance from the individual law enforcement agencies and eliminates timing issues that could arise with having to schedule provincial mandated form changes with law enforcement software vendors.

2 PILOT PROJECT OVERVIEW

2.1 Purpose of Project

The purpose of this project was to conduct a pilot of the TraCS system to determine whether the product meets the needs of Canadian jurisdictions. The pilot was conducted in Alberta with the involvement of two separate police agencies and Alberta Infrastructure and Transportation's Commercial Vehicle Enforcement Branch (CVEB).

2.2 Pilot Project Objectives

The pilot objectives were set out by the TREDS Steering Committee and were agreed to by the Alberta Traffic Safety Data Collection stakeholders.

The objectives of the pilot project were to:
- Determine whether the software (TraCS) is easily integrated with a minimum of two existing police record management systems;
- Determine whether the hardware/software solution can be integrated effectively with the Alberta Motor Vehicle System (MOVES), with the Alberta Justice JOIN system and with the Alberta Infrastructure and Transportation MOTRIS system;
- Develop an Alberta version of the electronic violation ticket, collision form and CVSA inspection form;
- Confirm that the development time is not extensive;
- Verify that the software is user friendly, requiring a minimum amount of training and support for the police officers and CVSA inspection officers;
- Confirm that the data integrity of the information collected meets the standards of the individual police agencies, the province of Alberta and Transport Canada.

2.3 Scope

This project was a pilot project of the TraCS system. The scope involved two police services, CVSA inspectors and 17 police/inspection vehicles. The TraCS system was to be deployed within the pilot vehicles and integrated with a number of current applications in order to be evaluated. Interfaces with required government and police applications were to be developed and implemented in the pilot environment.

2.3.1 Business Functions
The business functions to be automated by the application were:
- Collision data capture, printing and distribution
- Violation ticket data capture, printing and distribution
- CVSA vehicle inspection data capture, printing and distribution
- Alberta Infrastructure and Transportation collision report data updating and refinement

2.3.2 Data
The data to be captured by the application included:
- Collision data collected via existing Alberta collision form

- Violation data collected via existing Government of Alberta violation ticket
- CVSA data collected via existing CVSA inspection form

The only additional data to be captured was data that was specific to the TraCS application and was required for the TraCS application to operate.

2.3.3　　Application Components

The application components to be provided by the solution included:
- Collision data capture application
- Collision report print application
- Violation ticket data capture application
- Violation ticket print application
- CVSA vehicle inspection data capture application
- CVSA vehicle inspection data print application

It was necessary to ensure that all applications would be able to operate in both a mobile and office environment.

2.3.4　　Application Interfaces

The application interfaces to be provided by the solution included:
- Interface with current police mobile dispatch/reporting software to share vehicle and driver information
- Interface with police agency databases and records management systems (RMS)
- Interface with the Alberta Government Motor Vehicle System (MOVES) to obtain vehicle and driver information
- Interface with the Alberta Government Motor Transport Information System (MOTRIS) to obtain carrier snapshot information
- Interface with the Alberta Justice On-line Information Network (JOIN) system to provide electronic violation ticket information
- Interface with a central provincial collision and violation ticket database

2.3.5　　Technology Infrastructure

The technology infrastructure required to support the application included:
- Several GPS devices in select police/inspection vehicles
- Bar code scanning devices in police/inspection vehicles and office locations
- Printers in vehicles and office locations
- Mobile computer hardware in CVSA inspection vehicles
- Database servers
- Communication servers
- Application servers

It was agreed that all police vehicles in the pilot would already be installed with appropriate mobile computing devices.

Subsequently, the Steering Committee agreed to exclude GPS devices from the pilot as police already had GPS in their vehicles and felt that it was not necessary to pilot the GPS with the TraCS system. The project team was, however, able to demonstrate that TraCS could interface with a GPS.

Figure 1 illustrates the scope of the application and application components that were included in the pilot. The green highlighted area represents the components of the solution that are in the scope of the pilot project. The blue represents the functional components of the TraCS application.

Convictions

MOVES

Vehicle Information
Driver Information

CPIC

Criminal offenses

Carrier
Convictions

MOTRIS

Carrier
Snapshots

Police Mobile
Dispatch/Reporting
Application

Vehicle Driver
Information

Mobile Components

DATA
COLLECTION

Mobile /
workstation
database

DATA TRANSFER

Collision Reports; Violation Tickets &
CVSA Inspection Reports

SUPERVISOR
APPROVAL

Notifications &
Collision
Reports /
Violation
Tickets

Local Police
Database

TRANSFER TO
CENTRAL
DATABASE
(Administrator)

Office Components

COLLISION
REPORT
DATA

VIOLATION
TICKET
DATA

CVSA
INSPECTION
REPORTS

Provincial Workstation

COLLISION
REPORT
UPDATING

Collision Analysis
Reports

Transport Canada

Collision Analysis
Reports

Transportation
Applications

Violation Tickets

Justice Applications

Warning Tickets

MOTRIS

Inspection Reports

POLICE RMS

Subset of Collision Reports & Violation Tickets

Legend:
Process
Application Components
TraCs Application
In Scope of Pilot

Figure 1 - Scope Diagram

2.4   Out of Scope

The intent of the pilot was to test how the TraCS system addressed the Alberta requirements; therefore, the following changes were out of scope for this project:

- Refinements to the package software and custom components as a result of the pilot evaluation;
- Re-engineering of current business processes;
- Changes to collision, violation or CVSA data;
- Implementation beyond pilot vehicles and agencies;
- Collision information analysis reports;
- Violation ticket analysis reports;
- Inspection information analysis reports;
- Interface with the Canadian Police Information system (CPIC) to obtain criminal offence information;
- Additional data capture forms and reports.

2.5   Approach

The TREDS pilot project was conducted in stages. Each stage implemented a portion of the overall project functionality and built upon the previous stages' functionality. With this approach the overall

solution was able to be developed and implemented in approximately six-month increments. This provided an opportunity to evaluate the solution as it was rolled out and to take action to improve the solution or alter the pilot project plan based on the findings. It also provided tangible results to the project stakeholders in regular intervals over the duration of the pilot. The staged implementation also allowed the project team to manage the project in an efficient manner to meet the funding model. Funding for the project occurred over a three year period.

Based on feedback from the project stakeholders and analysis of the components of the overall solution, pilot projects were conducted for the following:
- Collision Reporting (in a front office environment and in a mobile environment)
- Violation Ticketing (in a mobile environment)
- Commercial Vehicle Inspection Reporting (in an office environment and in a mobile environment)

The following guiding principles were used in the determination of the pilot projects and stages:
- Look for quick wins
- Understand and leverage interdependencies of components
- Provide value (improved effectiveness) to users
- Minimize impact on stakeholder processes and plans

Figure 2 illustrates the pilot project phases that were conducted. Note that Stage 4 of the Collision Reporting Pilot (Front Counter Half Collisions) was subsequently removed from the scope of the pilot as agreed to by the Steering Committee.
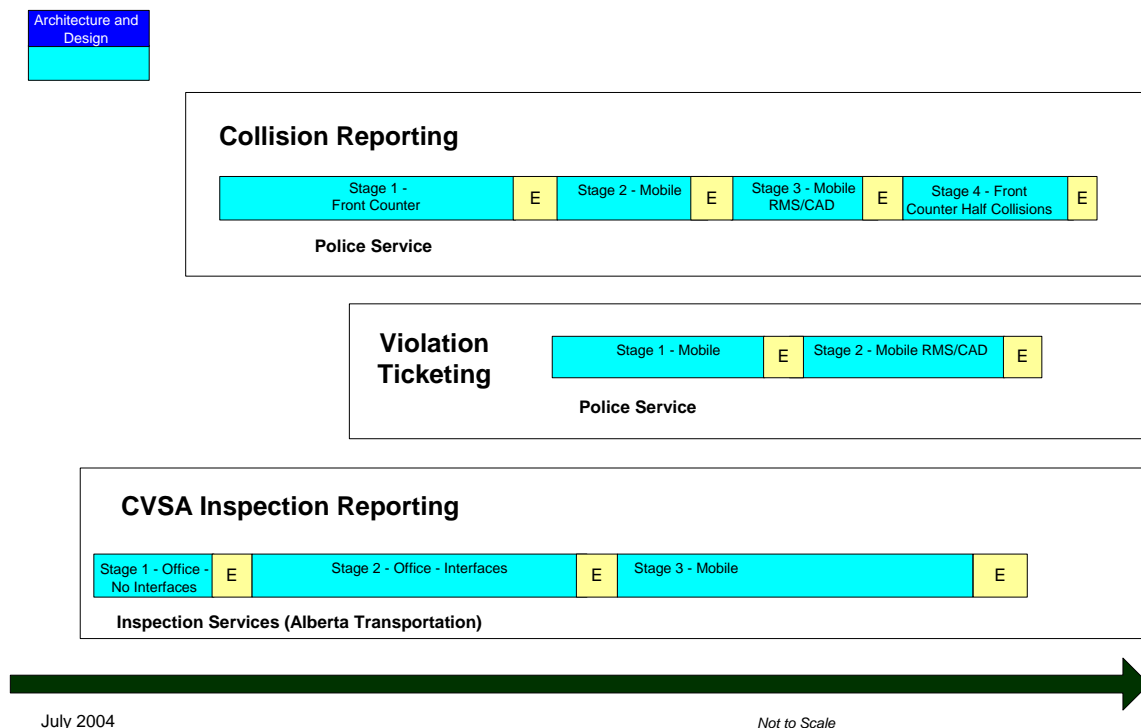
Figure 2 - Pilot Project Plan

Before the pilots could begin, the Architecture and Design phase was completed. This designed the technical infrastructure, application components, interfaces and database for the overall solution. Following Architecture and Design, two parallel streams of development were conducted.

Since CVSA inspection reporting could be deployed in an office environment with no interfaces, stage 1 was a quick win and was recommended as the first pilot project. This was an opportunity to implement TraCS components under limited conditions.

Stage 1 of Collision Reporting in a front counter environment occurred in parallel and was an opportunity to evaluate the collision data collection components and implement several TraCS interfaces in an environment that is less complex technically than a mobile environment.

Once these applications were in production in office environments, work on vehicle deployments began. Stage 1 of the violation ticketing was next. This project deployed the violation ticketing data collection in a police vehicle and was an opportunity to implement wireless communications and printers in vehicles.

Once TraCS was operating in a police vehicle for violations, work began on deploying the collision data collection components in a police vehicle. Following this, work began on development of interfaces for in-vehicle RMS/CAD applications.

Once Stage 1 of CVSA inspection reporting was operating effectively in an office, work began on interfaces and was deployed as stage 2 to the CVSA office. This was followed with deployment in inspection vehicles.

2.6   Stakeholder Involvement

An initial workshop was held in Red Deer with working group representatives from several law enforcement agencies and government departments. During the workshop, the high level business rules for the collision, CVSA and violation ticket were developed. Based on the high level requirements, EDS Canada developed the first version of the collision and CVSA form.

2.6.1   Equipment Selection

Each pilot site was provided the opportunity to select the printers and bar code readers. An equipment selection subcommittee was established with representation from EPS, RCMP, Calgary Police and Medicine Hat Police. Alberta Justice and Attorney General and Alberta Infrastructure and Transportation were also represented as the selection of printers would affect the violation ticket legislation. The committee came to a consensus that the printer would use 8½ x 11 inch paper and that the violation ticket would be modified.

2.6.2   MOVES Interface

The Edmonton Police Service volunteered to test the MOVES interface to TraCS. The TraCS system, with access to the MOVES interface, was installed on a desktop computer in the Traffic unit. EPS staff members were trained on the software and tested the interface using the collision forms.

2.6.3   Collision Form (Front Counter Form)

The Edmonton Police Service was the first law enforcement agency to test the front counter collision form developed based on business rules provided during the law enforcement review. The form was revised based on feedback provided by the officers.

The Medicine Hat Police Service (MHPS), responsible for the formal piloting of the software, sent officers and support staff to Edmonton. MHPS staff were trained on the software and their feedback was used to further refine the front counter collision form.

RCMP officers from K Division were also trained on the software and feedback received was incorporated into the form design.

2.6.4 Commercial Vehicle Safety Alliance Inspection

Officers from the Commercial Vehicle Enforcement Branch worked closely with the project team to identify the business rules and workflow for the desktop version of the CVSA Inspection form.

2.6.5 Violation Ticket

The Calgary Police Service and Alberta Justice worked with the pilot project team to develop a new version of the violation ticket that could be printed on any 8½ x 11 inch paper. In order to use this ticket within the pilot project, Alberta Justice added the new violation ticket to the Procedures Regulation under the Provincial Offences Procedure Act (POPA).

The business rules were developed through meetings with the Calgary Police Service and Alberta Justice and Attorney General staff members. In addition, meetings with Queens Printer and Legislative Council also took place to plan for the legislative search function required by the police. Crown Prosecutors and Court Services personnel from both Calgary and Medicine Hat participated in the approval of the legislative references and approval of the violation ticket.

In addition, the RCMP indicated an interest in participating in the pilot project. In order to facilitate their participation, the project team worked with the RCMP at K Division and in Ottawa to analyze whether TraCS could work within the RCMP mobile and office environments. In addition, the team supported analysis by xwave to ensure that TraCS could interface with a critical application within the RCMP mobile environment.

3 SOFTWARE DEVELOPMENT KIT

The Software Development Kit (SDK) enhances the functionality of TraCS by enabling users to design, build, implement and modify forms, reports, data validation rules, number definitions, and auto-populate rules to be used within the TraCS framework. The Software Development Kit gives the user full control over the forms and reports that are used within TraCS.

The SDK consists of the following eight major tools that enable a user to completely design and build custom forms and reports and fully integrate them into TraCS:

- *Forms Builder* used to create forms and reports;
- *Validation Builder* used to create validation rules for use within forms;
- *Number Builder* used to create number definitions that automatically insert a number into a field on a form;
- *Auto-populate Builder* used to create rules to replicate or auto-populate a form based on the content of the source form;
- *Database Builder* used to build underlying database tables for form data storage;
- *Process Flow Builder* used to design the statuses and business flow for a form;
- *Transmission Builder* used to extract, convert and transfer form data from the TraCS Office Database to any other location in any format desired;
- *TraCS Utilities SDK Toolset* used to integrate forms and reports into the TraCS framework.

In addition to the eight SDK Tools, there are numerous other customizable elements of the TraCS application that can be tailored to meet a particular agency's needs, including:

- Splash Screen and Technical Support;
- Online Help (CHM or HTML);
- The Violation Search Engine;
- Driver Exchange;
- External Search Functionality; and
- Event Logging.

3.1 SDK Evaluation

The SDK is the heart of the TraCS system and provides developers with the capability to construct and integrate forms, apply the business rules, produce and print reports, and import and export data.

The developers that participated in the project were sent to the one week training sessions in the use of the SDK (basic training). Their feedback on the training was that it was thorough and allowed them to immediately use the tools effectively. They were very satisfied with the length and quality of the training. There is an advanced training course that provides developers with the capability to use the advanced tools (such as creating advanced interfaces/extracts) that was not attended but was felt to be a mandatory requirement for a full roll out. The documentation that is provided with the system to assist the developer is excellent and was found to be very useful.

Each of the eight major tools were found to be reliable and functioned as identified. The following are some comments regarding the tools mainly used by the developer:

Forms Builder

The Forms Builder allowed the capability to construct the form in the format and layout that was desired. It was very effective in allowing both the movement of fields and adjusting the flow of the data but modifications are cumbersome. The development team rated the Forms Builder as average. Screen design is limited (single screen only) with limited graphic capabilities and no layout editors. Improvements to the Forms Builder are being made in the newer version of TraCS (TraCS 10) currently being rewritten.

Validation Builder

The Validation Builder was rated as excellent by the development team. It was found to be very effective in allowing the definition and implementation of the business rules into the form. Changes and modifications identified to the business rules during the pilot were easy to make and were implemented easily and quickly into the forms.

Number Builder

The development team rated the Number Builder as excellent. The ability to generate unique form numbers automatically for violation tickets, collision reports and CVSA inspections was easy with no problems encountered.

Auto-populate Builder

The Auto-populate Builder provided the capability to populate fields on multiple forms from a single entry of the data. This saved the officer from having to enter the same information more than once on multiple forms. The development team rated the auto-populate functionality as excellent.

Database Builder

The development team rated the Database Builder to be very good. From a database administrator's perspective, some limitations existed because of Microsoft Access capabilities; however, generated scripts can be modified to allow the database administrator full control in the design and architecture of the database.

Process Flow Builder

The Process Flow Builder had some standard form flows available but also allowed additional ones to be added. This allowed the ability to implement the required work flow to support the business process and proved to be reliable and very flexible.

Transmission Builder

This function allowed the assembly and export of data. It provided the capability for a number of ways that the data could be extracted and exchanged between the TraCS data captured and external database. Additional capabilities are available through the advanced training course that would allow greater flexibility and technical options in the movement of the data out of the forms.

External Search Functionality

This was one of the most valuable capabilities in the TraCS SDK. The functionality easily allowed for the exporting and importing of data out of and into the TraCS forms from external searches. It

proved to be very flexible and reliable. With advanced training, it also provides for greater flexibility and technical options not required for the pilot.

The TraCS support from Technology Enterprise Group Inc. (TEG) was excellent and timely. It provided assistance in many areas including:
- Answering questions regarding form development and layout
- Developing and implementing business rules
- Integrating various peripheral devices such as printers, scanners, bar-code readers, collision diagram tools, in-car hubs, etc.
- Developing and troubleshooting external interfaces
- Developing and implementing start and end shift
- General form and data flow questions

TraCS Mobile Set-up

The development team rated the ability to set up TraCS on a mobile unit as excellent. Standard start shift and end shift functionality used to download forms to a mobile unit or upload completed forms to a central database was easy to implement. Distribution and deployment of new software versions and changes to forms to mobile units were not piloted in Alberta. However, another project using the TraCS system in Manitoba did test and implement software and forms distribution to mobile units and did so easily and successfully.

Overall, the development team rated the SDK as very good. The team was impressed with the product and the support that was available and provided by TEG. It is also recognized that improvements to the SDK have been identified and will be made in the rewrite of TraCS currently being undertaken to make the product better and easier for the user.

4 APPLICATION INTERFACES

4.1 Pilot Overview

In addition to performing a pilot of the use of the TraCS forms and associated implemented business rules, there was a requirement to test the interface capability available with TraCS. It was highly desirable to pre-populate as many fields within and among the forms as possible using the interface capability that could be leveraged within TraCS. The following were mandatory interfaces that were to be tested, if cost justifiable, during the pilots.

- Motor Vehicle System (MOVES) to be used to query the motor vehicle and driver registry system for vehicle and driver's licence data.
- Enforcement Agency Computer Aided Dispatch System (CAD) to be used to query the Enforcement Agency dispatch system for call location and other data.
- Global Positioning System (GPS) that would use a global positioning device to capture the exact location of a collision or other incident.

As well, TraCS has the capability to draw collision diagrams, or integrate a diagramming tool to use, and store the diagram with the collision form. It was agreed that the TraCS collision drawing capability be used and additional software packages of diagramming tools also be used to test the flexibility. The following software packages were chosen as alternatives to the TraCS collision diagramming tool:

- CAD Zone, an integrated collision diagram system tool to create collision diagrams within the collision form.
- Easy Street Draw, an integrated collision diagram system tool to create collision diagrams within the collision form.

TraCS also has the capability to import scanned data via an attached scanner or card reader. The new Alberta Driver's Licence contains a 2D barcode that can be scanned and used to populate the form. The following scanners were piloted:

- IMAGETEAMT (IT) 4710 Image Reader (also known as the L-Tron 4710)
- 9930 SST MAGSWIPE READER

Once the data was captured and validated within TraCS, it was mandatory that the data be made available to the required stakeholders. TraCS extract capability was to be tested by creating and testing the following data extracts:

- Violation Ticket Data Extract - to extract the violation ticket data and transmit them electronically to the Alberta Justice and Attorney General database, Justice Online Information Network (JOIN).
- Commercial Vehicle Service Alliance Extract (CVSA) - to extract the CVSA form data and transmit them electronically to the Alberta Infrastructure and Transportation Motor Transport Information System (MOTRIS).
- Alberta Collision Information System (ACIS) - to extract the collision form data and transmit them to the Alberta Infrastructure and Transportation Alberta Collision Information System.

Each of these objectives were completed and the final evaluation contains the assessment of the impact of the interfaces.

4.2   MOVES Interface

Within the TraCS form there is a built-in capability to incorporate external searches to retrieve data to incorporate within the form. The data gathered from the search can also be held and used in other forms. For the pilot, an interface to the Alberta Government Services Ministry Motor Vehicle and Driver Licence Management system (MOVES) was developed. This system was selected based on the following:

- It contained all Alberta driver's licence data
- It contained all Alberta registered vehicle data
- It contained all Alberta registered vehicle plate data
- It provided access to the Canadian Police Information Centre (CPIC) query to retrieve the desired data in a format that the enforcement agents were familiar with

A web service available from Alberta Government Services was exposed to TraCS for use to query MOVES. The Service Oriented Architecture approach was used in that SOAP (Simple Object Access Protocol) messages incorporating encrypted and secured XML requests were submitted out of TraCS. The TraCS form and fields that was used to invoke the external search capability (vehicle plate or, driver licence or, last/first name DOB) passed the query data via a built in library object (DLL). A web service was written to format the TraCS external search request into the SOAP format and pass it over a secure channel to the Alberta Government Web Service. The web service then passed it to the MOVES system where the query was invoked. The results were passed back to the TraCS web service where they were decoded and used to populate the TraCS form fields based on the query type and calling form. The complete transaction was normally completed within 3 to 5 seconds depending on the location of the workstation doing the query (mobile devices were used as well).

The technical components that were required to make the interface work are:

a) Exposed web service, created by the Information Technology Service Provider that provides access to the target system and database.
b) Web service created by the TraCS Information Technology Support Team that handles the external search request from TraCS, formats the data in the SOAP transaction and communicates with the target web service.
c) Architecture of the SOAP transaction including:
- Security component
- Identity component
- Request component
- Response component
- Response XML schema
d) Architecture for the server component that would host the web service.
e) Architecture for the certificate component used for authentication.
f) Architecture for the encryption component that would be used for security.

Overall, the integration of the web service with TraCS was straightforward and worked well. The main challenges that were encountered were:

a) Securing the web service and transaction. The use of certificates created a number of problems including:
- Certificate expiration.
- Certificates became invalid and shut down the web service. The certificate had to be re-deployed.

- Incorrect security settings within the certificate created slow response times when executing the query.

b) Securing a server to host the web service. Problems encountered were:
- Server clocks were not synchronized and the web service viewed the query request as being expired.
- The service provider supporting the server would invalidate the certificate by performing maintenance on the server.
- Securing a server and/or one that had the correct version of operating system.
- Having the server service provider implement the web service when it was not architected by them.

c) Wireless Network Response. Each enforcement agency that participated had a different wireless network provider. Issues encountered were:
- The wireless network service provider chose not to troubleshoot the response time issues as the version of the network software used by the enforcement agency was outdated. This issue caused the response time to vary to a degree that in the vehicle, the query could not be executed in a manner that supported the ticketing process (response times would take up to a minute or more).
- The enforcement agency chose not to troubleshoot the response time issue as their wireless network was being replaced.
- The enforcement agency chose not to implement the web service as it was a potential security risk.
- Variables such as location and device configuration impacted the response time.

The Alberta Infrastructure and Transportation Commercial Vehicle Enforcement Branch officers used mobile devices within their vehicles. As they performed roving patrols, they found the external search using the web service over a 1X wireless network to be satisfactory in terms of reliability and performance.

4.3   CAD Interface

In order to evaluate the ability of TraCS to interface with a Computer Aided Dispatch (CAD) system, the pilot project worked with the Calgary Police Service and the CAD system they have deployed called I/Mobile. I/Mobile is an Intergraph software product which provides a means to allow messaging from car-to-car, car-to-dispatch and dispatch-to-car. The next version of I/Mobile software was capable of being enhanced to interface with TraCS, however, the version deployed in the Calgary Police Service was not. After considerable investigation it was determined that Intergraph would not be able to provide an interface within the pilot project timeframe and budget. As a result the QuickImport functionality from Advanced Public Safety (APS) was found to be a workable option.

QuickImport is an application for agencies that utilize the TraCS system to complete electronic forms, including accident reports and citations. QuickImport[1] enhances the functionality of the TraCS system by providing a direct interface between TraCS and the agency's mobile software. The QuickImport application populates the fields of any TraCS form with data received from motor vehicle, or other databases. After receiving information from a mobile query, an officer is able to populate fields in the TraCS form with just two keystrokes.

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[1] Quickimport is a product of Advanced Public Safety (APS). Refer to the APS website at www.aps.us for additional information.

For the pilot project, QuickImport read the communication record between the Intergraph CAD application and the screen, and stored it in a record layout that was imported into TraCS. The detailed data elements of the record layout were identified and provided to APS to implement in its tool. A trial was performed and it was demonstrated that the information could be extracted out of the CAD system and subsequently imported by TraCS.

4.4   GPS

It was envisioned that the collision form and CVSA forms would make use of a global positioning system to identify the location of the collision or vehicle inspection. TraCS has the capability of interfacing with a GPS location tool and specifically the Garmin OEM GPS 35 GPS locator. This peripheral was hooked up to TraCS and worked accurately at the first test. TraCS provides a list of devices that have been tested with the software. The peripheral device tested during the pilot had been identified by TEG Inc. as being compatible with the TraCS software.

4.5   Collision Diagram Tools

TraCS provides functionality that allows the enforcement officer attending a collision the ability to reconstruct the collision site using a set of diagram objects. If an enforcement agency has a standard collision diagramming tool, TraCS allows for the tool to be integrated.

Two diagramming software packages were tested with TraCS. CAD Zone and Easy Street Draw were both loaded on the workstation and integrated with TraCS. There were no issues encountered and the diagrams as created were correctly loaded and stored in TraCS in the form. The integration was straight forward and easy. In the trial of the software, only the standard TraCS diagramming tool was used by the enforcement officers. Many officers found the tool to be adequate but were not collision reconstructionists and therefore may not have taken advantage of the additional capabilities that the diagramming software may have provided.

4.6   Scanners

TraCS has the capability to use scanning devices to input data, for example, from a driver's licence into the application. This reduces keying required by the officer and improves data accuracy. This is similar functionality to that provided by the MOVES interface; however, in the situation where the network is unavailable or an out-of-province driver may be stopped, the officer would have an alternate method to populate the fields on the form. The scanner would be used to scan the barcode on the driver's licence and use the results to populate the form. The data could also be used to trigger the MOVES external search.

In Alberta, the driver's licence has a 2D barcode that contains the information that appears on the document but in an encrypted format. For the pilot project, the decryption method was developed and TraCS was modified to utilize it.

A committee, including officers from the pilot agencies, agreed to use the IMAGETEAMT (IT) 4710 Image Reader (L-Tron 4710) 2D scanner for the pilot as it was certified to work with TraCS and was the most popular scanner being used by TraCS users. This scanner was used throughout the pilot agencies and it was successfully demonstrated that the bar code from the licence could be read into TraCS and used to auto-populate fields in the TraCS form.

Since this was a hand held scanner, the committee recommended that the project team continue to investigate other scanners especially to find a mountable scanner that could read 2D barcodes as well as mag-stripes.

During the pilot project, numerous other barcode scanners were investigated. However, in all cases, modifications to TraCS were required (by TEG) before the scanner could be tested by officers and as a result this became low priority and additional scanners were not evaluated.

4.7   MOTRIS Interface

The TraCS data extract function referred to as the Transmission Builder was used to export, in an XML format, CVSA data that TraCS had collected. The data was extracted and, using a file transfer process, was transferred to a server where an FTP process was used to transmit the data to a mainframe. A data import routine was used to load the extracted data into the target database. The extracted data was analyzed by the application support team and was found to be accurate and complete. The data quality and process was acceptable as an update procedure.

The violation ticket extract was not attempted because the data captured can be formatted in the existing electronic interface format and sent to the JOIN system. The existing functionality was used during the pilot.

4.8   ACIS Interface

The collision data that was captured in TraCS must be loaded into the Alberta Collision Information System (ACIS). The record layout for the ACIS collision format was made available to the TraCS team. The extract of the data out of TraCS was tested by extracting CVSA data and there was a high level of confidence that the collision data could be extracted in the required format for ACIS. Print outs of the TraCS collision forms were forwarded to the Collision Research team at Alberta Infrastructure and Transportation and the contents were reviewed and validated. There was a high level of confidence that the data was accurate and would be accepted by ACIS.

4.9   Justice (JOIN) Interface

The violation ticket data that was captured in TraCS is destined to be loaded into the Justice Online Information Network (JOIN) and into MOTRIS. As in the ACIS interface evaluation, the record layout was made available to the team. There is a high level of confidence that the data could be extracted and transmitted to the appropriate system using the TraCS data extract function, Transmission Builder, to export, in an XML format, violation data that TraCS had collected.

4.10 SAMM

The Status and Messaging Module (SAMM) by xwave[2] is used by the RCMP to interface their CAD system with the RMS system used in the vehicles. TraCS would need to interface with the SAMM to retrieve the CAD information to be populated in the forms. The project team worked with xwave

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[2] xwave provides off the shelf products to police, fire and EMS. The RCMP currently use an xwave product in the vehicle.

representatives to analyze if the products could successfully interface. xwave determined that an interface was possible and provided the RCMP with the costs that would be incurred to develop the interface with SAMM. This interface was not built within the pilot project as the RCMP were in an analysis phase only,

4.11 Interface with Police Records Management Systems

Over the course of the pilot the project team was not able to interface the TraCS data with a records management system. The Medicine Hat Police Service creates pdf versions of the collision forms and stores them in the MHPS records management system. In discussions with their RMS service provider, it was identified that if the TraCS data could be extracted in an XML format, the RMS could import the data. The import capability would have to be adjusted by the RMS service provider but the process was attainable. No commitment could be gained by the service provider to perform the changes but the extract of TraCS data in XML format was proven by the TraCS team. There was a high level of confidence that the TraCS data could be extracted in a number of formats that could be used by an RMS to import in.

5 EVALUATION CRITERIA

This section describes the requirements that the solution was evaluated against based on the findings of the pilot project. These requirements were identified in a 2003 terms of reference document. Additional requirements were identified by law enforcement stakeholders through a series of meetings and workshops.

5.1   Business Requirements

The following describe key requirements of the business that must be satisfied by the integrated solution:

a.   The solution must make effective use of police officer time.

b.   The solution must improve data quality and timeliness.

c.   Users must be able to easily access information and applications, and get the services and products when and where they desire.

d.   The solution should be simple and easy to use from a user perspective. It must support the business process rather than limit or restrict it. Human interfaces should be intuitive and consistent in purpose and use.

e.   The solution must be acceptable to the Courts.

f.   The solution must be usable for public service; for example, tickets can be printed out and presented at roadside.

g.   The solution must have user buy-in from the major stakeholders.

5.2   Technical Requirements

The following describe technical requirements that must be satisfied by the integrated solution:

a.   **Interoperability** - The solution must be capable of interfacing effectively with current solutions in place in the various police agencies. Applications and computers from different vendors/police agencies must be able to work together on a network. Machines must be able to connect and share data and processes as appropriate.

b.   **Flexibility** - The solution must be adaptable to new technologies and changing environments. The solution must be capable of responding quickly to business changes.

c.   **Availability** - The solution must meet or exceed agreed upon levels of reliability so that it is available to the user when required.

d.   **Support** - Vendors must be capable of providing an agreed upon level of support to their products. The applications, platforms and networks must be maintainable, provide performance, and audit information to allow fault detection, correction, and monitoring. The support should be 24 hours a day seven days a week.

e.   **Durability** - The solution must comprise products that are durable; for example, products that can withstand Canadian winters and rough treatment in a police vehicle.

f.   **Security and Privacy** - The solution must comply with the Freedom of Information and Privacy Act (FOIP). A secure network is required so that data cannot be accessed by the unauthorized.

5.3   General Requirements

The following describe key general requirements of the business that must be satisfied by the integrated solution.

5.3.1   User Interface

For the pilot, the following were identified as user interface requirements to be evaluated as part of the TraCS solution:

a. Ease of use – the simplicity of using this application, the clarity and definitions of menus and commands, and its intuitiveness
b. Flow from field to field
c. Field edit validations – too tight, too loose
d. Field control – only enter fields necessary based on other selections
e. Start shift / end shift process
f. Ease of use for both workstations and touch screen laptops
g. Auto-populate from MOVES Query
h. Auto-populate from bar code scan

5.3.2   Data

The following were identified as data requirements to be evaluated in the pilot as part of the TraCS solution:

a. Data integrity – data is secure and not modifiable without appropriate approvals and audits
b. Data accuracy – field edits force improved accuracy
c. Fewer errors and rejections – we used to get "x" errors and now only "y" – gather metrics
d. Improved timeliness – ACIS gets collision data sooner, Justice gets tickets sooner, etc.

5.3.3   Training

The following training requirements were to be evaluated in the pilot:
a. Requires minimum training – how much per officer – is this adequate and effective

5.3.4   TraCS

For the pilot, the following were identified as requirements for the TraCS system that were to be evaluated as part of the TraCS solution:

a. Easy and intuitive to use
b. Easy to learn requiring minimum training
c. Time needed to capture information in the form as compared to doing it manually
d. Reduces the number of errors in completing the form

5.3.5 Business Process

The following were identified as business process requirements to be evaluated in the pilot as part of the TraCS solution:
a. Improved business processes
b. Reductions in duplication of effort
c. Organizational scalability
d. Process benefits – reduce time and associated costs resulting in improved productivity
e. Court time – bench mark before and after
f. Reductions in data entry are real

5.3.6 Other

In addition, a number of other areas were identified to be evaluated as part of the pilot project:
a. System response time – did not negatively impact the contact duration
b. System security – meets requirements
c. Availability – the application is available when needed
d. Documentation and help features
e. Reports
f. Support was available and effective
g. Reaction from public (driver)
h. Overall, software meets business needs

6 OUTCOME OF PILOT

Following the pilot, an evaluation questionnaire[3] was issued to all participants. The evaluations were an opportunity to have participants rate specific questions related to the pilot and to provide their feedback, comments and suggestions. The questions covered five topic areas with several questions under each topic:

- TraCS Software Usability – rating the intuitiveness, ease of learning, time to capture information and error rates
- Training of Pilot Participants – rating the training provided and prior computer knowledge
- Forms and Functionality – rating the input screens, edits, auto-population features, start/end shift functionality and the printed versions of the form
- Equipment usability – rating the bar code scanner and printer
- General – rating the response time, security, availability, documentation and overall ability to meet the requirements

The scoring used on the questions was:

> 0 – Not Applicable
> 1 – Poor
> 2 – Below Average
> 3 – Average
> 4 – Very Good
> 5 – Excellent

Sections 6.1 to 6.3 provide a summary of each pilot and the evaluations conducted including tables summarizing the ratings, range of ratings and feedback provided by the participants. Section 6.4 provides a summary of the combined ratings for all three pilots.

6.1   Collision Reporting Pilot - User Evaluation Feedback

6.1.1   Collision Reporting Pilot Overview

Medicine Hat Police Service was the site identified for the Collision Reporting Pilot. In February, 2005 Phase 1 of the pilot introduced the TraCS software to the police for use at the front counter to handle the front counter walk in collision reporting. Two workstations were set up with the TraCS software with one at the front counter and one in the Traffic Section office for officers to practice. For a period of several months, officers used the TraCS software to prepare collision forms for collisions reported by the public who come into the police station. During this time period, a number of changes were identified by the police which required both software changes by the software developer as well as changes to the screen layout of the forms used for capturing the collision information by the project team. Changes were implemented in releases with both on-site and off-site support.

During phase 1, the decision was made to pilot the TraCS software in a mobile environment based on the success of the pilot at the front counter. In Phase 2 which began in January 2006, five police cruisers were equipped with mobile computers, each with wireless access to the MOVES database, a Pentax PocketJet 2 or PocketJet 3 printer, and a 2D bar code scanner. Four of the vehicles had the

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[3] See *Appendix A*.

mobile printers mounted in the glove box on a swing out arm while one of the vehicles had the printer mounted in the console. The software loaded on the laptops in the police vehicles provided the officers with the ability to complete an investigation of a collision using the full collision reporting form.

In Phase 2 of the pilot, the collision stub was introduced providing a one page of summary of driver and vehicle information that was given to the driver instead of the full collision report. The project team worked with the Collision Research section of Safety Services within Alberta Infrastructure and Transportation and the Insurance Bureau of Canada to develop a shortened version of the collision form that a driver could provide to their insurance company with only the information that the insurance company required. This eliminated the need for officers having to print multiple copies of the full collision forms in the car.

During Phase 2, the Medicine Hat Police Service expressed interest in piloting the traffic violation ticket that was being piloted by Calgary Police Service. The decision was made to proceed with Phase 3 and provide the MHPS with the violation ticket. Prior to going live with issuing tickets to the public, Medicine Hat Police Service issued a communiqué to the media (including both television, radio and newspaper – see *Appendix D*) indicating they would be piloting some new software for electronic ticketing and advising the public that the new ticket was valid. The ticket was piloted for only a short period of time as Medicine Hat Police Service decided to end their participation in the pilot because of limited availability of resources.

The project team travelled to Medicine Hat on several occasions to provide support for technical installations and training.   Two employees of the Medicine Hat Police Service were assigned part time to provide technical support to the officers on a part time basis. The City of Medicine Hat also provided technical support and expertise when necessary.

Initial meetings were held with Versaterm, the Medicine Hat Police Service's records management system (RMS) vendor to determine if an interface could be developed between TraCS and the Medicine Hat police RMS system. An agreement could not be reached with the vendor on how to approach the interface and as a result, it was excluded from the pilot project.

The final TraCS evaluation was completed with the officers and technical support team by telephone interview, using the TraCS evaluation forms developed by the project team. During the pilot approximately 95 collision forms were completed using the TraCS software and 8 tickets were issued.

6.1.2   Collision Pilot - Evaluation Commentary

TraCS Software Usability

Officers reported a slightly above average rating for ease of learning the TraCS Software and the intuitive nature of the software was rated as slightly below average. Although officers commented that the software could be more user friendly, once they had been trained, the software was easy to use and the navigation was workable. One officer reported that it was difficult to use initially but the more he used it, the easier it became and the more he liked it.

Some officers indicated that the software needs to be more user friendly while others found it very user friendly and easy to navigate through, especially being able to jump from one section to another section on the form using the Navigation Tree on the side of the screen. The majority of the officers liked the diagramming tool to draw the collision but found the tool at times difficult to use on the

laptop's touch screen. Many of the officers indicated that they would print off the collision report and then hand-draw the collision diagram because it took too long to use the tool.

The time needed to capture the information in the form was reported as slightly below average. Officers indicated that further refinement of the business rules was necessary and that the response time for the MOVES query affected the time it took to complete the form. The ability to pre-fill the occupant information was well liked however response time through the network was an issue throughout the pilot.

Many of the officers indicated that it took them longer to capture the information on the form at a collision and print the collision report off as compared to doing it manually while others indicated they really did not notice any difference. Some technical issues were experienced with the printer all of which were outside the TraCS software. Many of the officers indicated that if these issues were resolved, they would have no problems with using the software provided that the changes requested could be made.

Other features of the software officers liked included the dropdown lists for selecting valid data, edits and business rules built into the fields. Overall, the officers rated the software as very good in reducing the number of errors made in completing the collision report. Another feature officers liked was the ability to "build" the form based on the number of objects involved in the collision. If a collision involved more than two vehicles, officers were able to identify how many objects were involved and the software would build the form to incorporate as may objects as required using one collision number. Using the existing manual forms, only 2 objects were allowed on the form and officers would have to use more than one form when investigating the collision resulting in having to cross reference the manual forms used.

Those officers that participated in piloting the traffic violation ticket toward the end of Phase 3 as well as the collision form, indicated they were impressed with how easy it was to add a ticket to a collision form and select the driver and vehicle information to populate the ticket without having to conduct another MOVES search or by having to re-enter common information between the collision and ticket forms. Adding another form to one already created was easy and saved time for the officer.

Training Results

Training was addressed by two separate methods. Two officers and a technical support staff member were trained in Edmonton and worked with the pilot project team over 1.5 days in preparation for Phase 1. In addition both Phase 1 and 2 training included 5 hours of training in a classroom setting complemented with a Collision Report User Guide and quick reference guides. Computers with the TraCS software were used by the officers during the training. They received hands-on training with the software and collision report form. Officers were able to train using bar code scanners and printers during the training session. One computer in the traffic section was also loaded with TraCS so that officers could practice with TraCS if they found the time.

In Phase 3 officers received four hours of classroom training on the traffic violation ticket form complemented with a Traffic Violation Ticket User Guide and quick reference guides. Once the training was completed, project team members were available to do "ride alongs" with some of the officers to answer any questions an officer might have.

During the three phases of the pilot, a number of changes to both software and the collision input screens were made. Additional training sessions were provided when required and documentation was provided for distribution to the officers.

Overall, officers reported the training to be excellent but indicated more hands-on training prior to using it in the field would be very beneficial. Many of the officers indicated that in Phase 1 and Phase 2 that although they received the training, they were not able to use it right away because they had to wait for the software or software changes to be loaded on their laptop in the vehicle or there were problems with the hook-up of the printers and scanners. Some officers suggested that in the future, it would be helpful to have someone ride along with them as occurred in Phase 3 of the pilot so that if officers ran into problems or had questions, someone was there to answer them right away.

Collision Reporting Input Form (Input Screens)

The functionality of the input screens for the forms were reported to be slightly above average, the layout was considered good however there is a requirement to fine tune the form. Officers noted that they would like them more user friendly by changing field descriptions on the input screen to be more meaningful, separate sections on the form with bold lines, and more use of colour or shading. One officer reported that it took too long to have the form changed when it was identified that a change was needed to the form layout. It should be noted that it was not possible with pilot project funding to make all suggested improvements. However, all suggestions for improvement were captured to be considered for development following the pilot project.

The edit validation rules and the flow from field to field were also rated as slightly above average. Officers noted that the edits were good and that some of the officers found no problems with the flow. Some suggested that depending on the type of collision, perhaps a method of displaying only the required fields for data entry so that the officer doesn't have to tab through each field to get to the required fields. For a complete list of changes identified by the officers during the pilot but not implemented, refer to *Appendix B - Collision Form.*

During the pilot, officers indicated they really liked the drop down lists to select data from but suggested that it would save them time if defaults could be set for some of the fields. Officers would then only have to select a different value if different from the default saving the officer time in completing the form. In Phase 3, officers were trained on how they could set their own defaults so that certain fields in the form would be pre-populated with the default values each time they opened a new collision form. For example, each morning, the officer could set up defaults for the weather and road conditions for the day so that these fields could be bypassed when completing the forms or if different from the default, another value selected. Officers started using the defaults and indicated that they liked the ability to set their own defaults.

Some officers indicated that although they liked the edits and business rules built into the fields, they often became frustrated when having to correct the errors indicating that some business rules were too tight and they were not able to print the collision report off until all the errors were corrected in order to give it to the driver at the scene of the collision. In some instances, officers indicated they had to mail the collision report or collision stub to the driver after they had left the collision site because they weren't sure on how to correct the error at the time. The supervisor responsible for reviewing collision reports for accuracy however, indicated that fewer collision reports were returned to officers to correct during the pilot because of errors or missing information.

Traffic Violation Ticket Input Form (Input Screens)

Officers piloted the violation ticket for only a short period of time. During that time period, they rated the input screens as very good for being able to capture the information required. In particular, they liked that driver and vehicle information auto-populated on the form directly from MOVES. As

well, they found the ability to search for a charge to be very beneficial. Overall, they found the ticket input screen very easy to work with and were disappointed that they were not able to pilot the ticket further.

Auto-populate from MOVES Query

Officers rated the MOVES query and ability to auto-populate the collision form with Alberta driver and vehicle information as very good to excellent. Using the search capability built into the online form, officers were able to search MOVES using an Alberta operator licence, motor vehicle identification (MVID) number, plate number or vehicle identification number (VIN). If there was a match, TraCS provided the most current driver and vehicle information from MOVES from which the officer was able to populate the form without having to enter the information. This saved officers a considerable amount of time having to enter driver and vehicle information; however, the response time to do a MOVES query in Medicine Hat was extremely slow ranging from 30 seconds to minutes in some cases. Officers saw the potential for improving the speed and accuracy of completing the form however the slow response time was very frustrating. It was noted that officers indicated that had the query taken only a few seconds, completing the collision form would have been much more positive experience. It should be noted that the slow response time is not a TraCS issue but due to the wireless network and infrastructure the police service had in place at the time of the pilot.

Officers also indicated they would like to see as much information about a driver, the vehicle and the registered owner as possible on the form. Information such as the driver is under suspension, reason for the suspension, vehicle reported stolen etc., would be very beneficial would help the officer investigating the collision. It was suggested that colour or flashing fields be used to highlight this information to quickly alert the officer to any important information.

Officers indicated that because of the location of Medicine Hat being close to the Saskatchewan and US borders, many of the drivers in the city are from out of province and that they manually had to enter driver and vehicle information into the forms. In the future, they would like to have the ability to search for out of province drivers and vehicles.

Auto-populate from Bar Code Scanner

Officers rated using the bar code scanner to auto-populate the forms from a driver's licence as below average to poor. They indicated they preferred using the MOVES query to search for driver information as they felt driver information retrieved from MOVES was more current than the information retrieved from the operator's licence. Because of problems and difficulties officers had in using the scanner and, that many of the drivers did not have 2D bar codes on their operator's licence because they were from out of province, the majority of officers did not use the scanner and manually entered the information into the forms instead.

Start Shift and End Shift

Although trained in the use of the Start and End Shift functionality to send completed collision forms to a central database for review by their supervisor, only a few of the officers took advantage of using this feature. Due to technical issues not related to the TraCS software, most officers ended up printing the collision forms and submitting them to their supervisor for review instead. The supervisor was trained in the start and end shift functionality, received some completed forms and did find it easy to use however, this pilot did not use the functionality to its true potential. MHPS chose to use USB devices to transfer the information to the office for the most of the term of the

pilot. The use of USB devices worked well but added additional work for the officers to download collision reports to a central workstation in the office before providing them to their supervisor for review.

Printed Collision Report and Collision Stub

The majority of the officers rated the printed collision report and collision stub as very good to excellent. Collision reports and the collision stub were clear, concise and easy to read for the most part. Officers did indicate that the printed copies of the collision report were rather bland and perhaps could be a bit more pleasing to the eye. Font size in particular was indicated as being too small.

Officers also indicated that having to print multiple copies of the collision report for both the driver and internal use in the vehicle was very time consuming since the new collision report was often multiple pages for only a two vehicle collision compared to one page with the old form. This was not considered an issue at the counter as high speed printers were available but did pose a problem in the vehicle using the mobile printer. The mobile printer was slower and had to be fed one page at a time. Officers indicated they were pleased when the collision stub was introduced in Phase 2 so that they only had to print one page in the vehicle. Print time was reduced considerably and officers could print their collision reports for internal use back at the station using a high speed printer. Officers indicated the collision stub was clear and concise. Refer to *Appendix F* for samples of the printed Collision Report and Collision Stub.

Bar Code Scanner Usability

The bar code scanner received a below average to poor rating. Officers found the bar code scanner difficult to use and would prefer a reader that was mounted without a cord. With the proximity to the Saskatchewan border, MHPS encounter a high percentage of Saskatchewan drivers. The bar code scanner did not work with the Saskatchewan driver licence and officers entered the information manually.

Individuals responsible for support in Medicine Hat also had numerous problems with the USB hubs and port settings for the scanner which also added to the frustration of the officers. Quite often, the officers went to use the bar code scanner and found that it was not working.

Printer Usability

The printer selected by MHPS was the Pentax PocketJet 3 Plus. The rating for the printer was average, with responses ranging from below average to excellent. Officers experienced some problems with the placement of the printer in the glove box. Four of the five vehicles installed with TraCS had mobile printers installed in the glove box. It was found to be inconvenient and some had difficulty with having the printer swing out to a place where the paper could be fed through the printer. The console was the main suggestion for printer placement. Some officers found the printing to be slow, in the range of 30 seconds to a minute per page. The one vehicle that did have a printer installed on the console was identified as the vehicle of choice.

Officers were split with regards to the single sheet paper used in the pilot. Some officers did not mind feeding the printer one sheet at a time while others found it difficult and time consuming. Officers opposed to the single sheet paper recommended roll paper to be used to speed up the

process. Initially, officers were concerned about the quality of the paper and how the ink would hold up but this did not seem to be an issue during the pilot.

System Response Time to Complete Forms

Officers rated the system response time during a contact as below average to poor. The primary reason was the slow response time with the MOVES query. Some officers indicated that it took two to three times longer on average to complete the forms because of having to wait for a response from the MOVES query. Officers indicated that if the response time could be reduced to a few seconds, they believed that the time to complete the forms would be reduced from having to complete them manually.

It should be noted that the slow response time can be attributed to technical issues on the network between Service Alberta and the Medicine Hat police service. In addition, a newer version of wireless technology is now available. The slow response time is an issue not related to the TraCS software. Three to five second response times for MOVES access were reported within the CVSA pilot. This pilot used newer wireless technology, and the pilot team was able to address network delays between Service Alberta and Infrastructure and Transportation.

System Security

Officers indicated that the system security built into TraCS was very good to excellent. Use of logon ID's and passwords met their needs.

System Availability

Officers rated system availability of TraCS anywhere from poor to excellent. Those that rated the system availability poorly, cited either hardware problems in the vehicle or the system froze up when they tried to do a MOVES query.

Support Availability and Effectiveness

Officers rated the overall support for TraCS from below average to very good. For the majority of the pilot, support was provided by a contact person assigned to the project by Medicine Hat Police Service. Some officers indicated that it would have been better to have someone dedicated to the pilot who could respond to problems quickly as sometimes it was difficult to contact the support individual and get an immediate response.

Reaction from Public

Overall, officers rated reaction to the new collision reporting form and stub was average overall. Officers indicated that when they ran into problems completing or printing the collision form resulting in increased time spent at a collision, officers felt that reaction from the public was negative. Officers felt that having to tell those involved that they were having problems with the system and/or printer as well as having to mail the collision form or stub to those involved after the investigation, left a bad impression with those involved. Other officers who did not experience problems indicated that there was no real reaction from the public. Anecdotally, officers who did not

experience problems indicated that the public did not react in a positive or negative manner. As most individuals are not in multiple collisions, it appeared that the public was unaware of the change.

<u>*Overall – Software Meets My Business Needs*</u>

The majority of officers felt that if the problems experienced could be resolved and changes identified to the input screens and software made, TraCS would meet their business needs. However, as the solution now stands, many officers felt that TraCS fell short in meeting their business needs and rated the software as below average with the major issues being the poor response time with the MOVES interface and the time it took to print the collision reports using the mobile printer. The majority of the officers indicated that they still believe the concept is an excellent one and that moves in the right direction are being made to capture collision information electronically. Many of the officers indicated that they would be more than willing to pilot the software again once the changes identified have been made and both the MOVES response time and printing issues were resolved.

6.1.3 Collision Reporting Pilot Summary of Ratings and Feedback – Officer Evaluations

Table 1 summarizes the scores from nine of the Medicine Hat Police Service pilot participants who responded to the pilot questionnaire. The first column identifies the aspect of the collision reporting pilot being evaluated, the second column indicates the average score of the respondents and the third column indicates the lowest and the highest scores submitted by the respondents for that question.

Table 1 - Collision Reporting Pilot - Summary of Scores

Pilot Evaluation Criteria	Average Rating	Range of Ratings
TraCS Software		
Easy and intuitive to use	2.71	1-3
Easy to learn - required minimum training	3.43	3-4
Time needed to capture information in the form as compared to doing it manually	2.29	1-5
Reduces errors in completing the form	3.57	1-4
Training		
Rate your computer use experience and knowledge	3.43	3-5
Rate the training provided	4.43	4-5
Form		
Collision form (input screens)	3.14	3-4
Edit validation rules – for each field	3.43	2-4
Flow from field to field	3.43	3-4
Auto-populate from MOVES query	4.14	2-5
Auto-populate from bar code scan	2.29	1-5
Start shift functionality	2.50	2-3
End shift functionality	3.00	3
Printed version of Collision Form	4.29	4-5
Printed version of Collision Stub	4.29	4-5
Equipment		
Bar code scanner	2.00	1-5
Printer	3.17	2-5
General		
System response time - did not negatively impact the contact duration	2.14	1-4
System security - meets requirements	4.43	4-5
Availability - available when I need it	3.00	1-5
Documentation and Help features	4.00	4
Reports	0	0
Support was available and effective	3.29	2-4
Reaction from public (driver)	3.14	1-5
Overall - software meets my business needs	2.57	1-4

5 excellent   4 very good   3 average   2 below average   1 poor   0 not applicable

Summary of Other Comments and Suggestions for Improvement:

The comments and suggestions for improvements listed in Table 2 were provided by the Medicine Hat Police Service on their piloting of the Collision Report Form.

<p style="text-align:center">**Table 2 - Collision Reporting Pilot - Summary of Comments**</p>

Topic	Medicine Hat Police Service Comments
TraCS Software	- More user friendly. - Could complete the form manually faster than it took to use the software – response time needs to be improved for MOVES. - Sometimes found it frustrating when errors resulted and tried to correct them but would still get errors. Really liked pre-filling occupant information. - When the system is doing a search, show the hourglass as at times wasn't sure if the system froze or just taking a long time to do the search. - Easy to learn. - Wanted to print off copy of collision report to give to driver but couldn't because of errors caused by not having all the information – should have an override to allow printing even if there are errors. - Diagramming tool is nice to have but takes too long – can hand draw faster. - Navigating in the software is OK. - Initially found the software difficult to get used to but the more he used it, the easier it became and the more he liked it. - Once familiar with the software and forms, was able to complete the collision in the same amount of time using the software as completing the forms manually. - The amount of errors on the forms received while a supervisor, were significantly reduced. Would like the ability to correct someone else's form if the error was simple without having to return the form to the originator. - Diagram tool was OK but not great. The printed diagram of the collision was too small. Ended up printing the collision form and then hand drawing the diagram. - Diagramming tool was simple to use and officers liked it; however, not geared towards a touch screen. Couldn't rotate objects with a finger and a stylus not always available or easy to use.
Training	- Training was hands on in Edmonton. - Officers initially received 1 day training and then other smaller sessions when changes were made over the pilot. In total feels he received 3 days. - More hands on training. - Because the software wasn't loaded right away or problems were experienced and needed to get resolved, officers were sometimes not able to apply what they learned right away. As a result, they felt they had forgotten things. Would like to ensure things are working properly (printer especially) so that once training was received, the software could be used immediately. - Training documentation and handouts were excellent and easy to follow. - Would have liked someone to do a ride along to answer questions as was done later in the pilot.

Topic	Medicine Hat Police Service Comments
Forms	• System sometimes froze up or took forever for MOVES response and couldn't do anything else on the form. Had to wait which was very frustrating. • When it worked it was great – just too slow. • Would like the forms to be more user friendly. • Collision diagram was too small when printed. Difficult to use with the mouse on the laptop to do any drawings. Drawing diagrams at the counter was easier because the mouse at the workstation was much better. • Layout of forms was good – no problem with the flow. • Took too long to get changes made to the form/screen layout – had to work with problems until they were resolved or changes made. • Edits for fields were pretty good. • Liked the drop down lists. • Pre-fill the collision form with information from CPIC so that a second search does not have to be done. • Liked the ability to tab quickly through fields not relevant to the collision or to jump to particular sections using the Navigation Tree. • Medicine Hat gets lots of drivers from out of province so need something similar to MOVES to make things quicker. • Diagram aspect – wasn't user friendly. • On the print out – the diagram needed to be bigger.
Data Quality	• The amount of errors on the forms received while acting as supervisor, were significantly reduced. • Officers got away with the manual forms by not necessarily entering all the required information whereas now they were forced to enter all the required data which from a supervisor's perspective was great. • The printed copy of the collision report was legible for all to read. Received comments from insurance companies that they were very pleased with the collision reports in that they were easy to read and didn't have to guess with some of the hand written reports or make phone calls to the police officer to get clarification. • Collision reports and Violation Ticket are easier to read because information is typed and not handwritten. • The best thing was when you are done, everyone can read it. It fixes poor penmanship and prevents bad data.
Productivity	• Took 2 – 3 times as long at a collision to complete the form than hand writing. • Drivers were often frustrated that it took so long – some drivers asked if the officer could mail the report to them. • Would definitely use it if things worked smoothly and reduce the overall time required to complete the form. • MOVES access must be faster. • Only did a couple of violation tickets and thought it was OK – many of the same comments as the collision form – too slow for MOVES access, printing all copies in the car too slow.

Topic	Medicine Hat Police Service Comments
Bar code Scanner - Wand L-Tron 4710	- Scanner didn't really meet needs – not that it wasn't used or had problems with it but because it didn't work on Saskatchewan driver's licences or the States, usually just entered the information manually. - Scanner didn't always work – problem with hubs. - Would prefer a scanner that you could swipe a card as it took some time to get used to using the bar code scanner. - Need a scanner that is mounted rather than with a cord – too awkward.
Printers - Pentax PocketJet 3 Plus	- Printer was OK but having it mounted in the glove compartment was not very effective. If there were 2 people in the car, it was difficult to get the printer out of the glove compartment and left little room for the 2nd officer. Needs to be mounted somewhere else – console would be better. Found it affected officer safety. - Paper was good.
General	The best things about TraCS or the overall solution are: - Liked the concept and believes that it could work if some of the issues/problems could be cleared up. - Liked the technology portion of it. - The concept for capturing information electronically. - The auto-populate helped a lot. - Once you know where the information is located it's fine. - The best thing was when you are done, everyone can read it. It fixes poor penmanship and prevents bad data. The most disappointing things about TraCS or the overall solution are: - Didn't always work when needed – response time for MOVES too slow. - Collision diagram was too small when printed on the report. - The length of time it takes to complete the form. - Difficult to scroll down and find the field that you are looking for.

6.1.4 Collision Reporting Pilot – Summary of Ratings and Feedback – Collision Research Data Entry Evaluations

Table 3 summarizes the scores of the two staff from Alberta Infrastructure and Transportation's Collision Coding and Processing unit who data entered the TraCS collision reporting forms into ACIS.

The first column identifies the form criteria being evaluated, the second column indicates the average score of the respondents and the third column indicates the lowest and the highest scores submitted by the respondents for that question.

Table 3 - Collision Reporting Pilot - Data Entry - Evaluation Scores

Pilot Evaluation Criteria	Average Rating	Range of Ratings[4]
TraCS Collision Form		
Easy and intuitive to use	2.00	2.0
Easy to learn - required minimum training	3.00	3.0
Easy to use and handle	2.00	2.0
Reduced errors on form	3.00	3.0
General		
Form handling time – did not negatively impact the handling of the form	3.00	3.0
Reaction from drivers/insurance companies	0	0
Overall – software meets my business needs	5.00	5.0

5 excellent   4 very good   3 average   2 below average   1 poor   0 not applicable

Summary of Other Comments and Suggestions for Improvement:

The comments and suggestions for improvements listed in Table 4 were provided by the staff at INFTRA's Collision Coding and Processing unit on their piloting of the Collision Form.

Table 4 - Collision Reporting Pilot - Data Entry - Summary of Comments

Topic	INFTRA's Collision Coding and Processing unit Comments
TraCS Collision Form (8 ½ x 11)	- Layout difficult for data entry because it didn't flow the same as the current collision form. - May be easier to have all information about a vehicle together on the form rather than the way it is now. May be easier to data enter one full vehicle and then the other. - Add a new edit – if an animal involved – don't allow another object type. - Printed collision report has words printed today and the description had to be translated into codes in some cases for data entry – using the codes on the old form would be preferable. - Doesn't match the data input screen layout. Change the form or the screen.

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[4] The range is a single digit as there was no variance between scores of the pilot evaluators

Topic	INFTRA's Collision Coding and Processing unit Comments
General	The best things about TraCS or the overall solution are: • Easier to read than hand written forms. The most disappointing things about TraCS or the overall solution are: • Form layout did not match the data entry screens. • Font size on the printed collision report is too small.

6.2   Violation Ticket Pilot - User Evaluation Feedback

6.2.1   Violation Ticket Pilot Overview

The initial pilot participants consisted of a combination of staff from Calgary Police District 2 and the Traffic unit. This involved five police cruisers with mobile computers with wireless access to the MOVES database. The vehicles were equipped with a Pentax PocketJet 2 or PocketJet 3 printer, which was mounted in the glove compartment and a bar code scanner. Prior to going live with issuing tickets to the public, Calgary Police Service issued a communiqué to the media indicating they would be piloting some new software for electronic ticketing and advising the public that the new ticket was valid. The media blitz included both television and newspaper coverage (see *Appendix E)*.

Phase I of the violation ticket pilot began in October 2005. The Calgary Police Service had technical constraints and a decision was made to implement Phase I without the Start/End shift functionality. This resulted in the officer having to print two copies of the ticket and the police notes from within the police car.   In addition, the performance of the query over the Calgary/GOA networks to the MOVES system was poor, resulting in added time during the traffic stop. The project team and the Calgary Police Service technical support worked together to attempt resolution of the issues when technical support was available. Numerous system projects within the CPS precluded obtaining dedicated resources to address the issues. During Phase I, a number of changes were also requested and as a result, changes were made to the TraCS software and the ticket input screen. During the time period required to have the changes made by the software vendor and project team, many of the officers were reassigned and no longer available to the pilot.

During Phase II of the pilot, many of the requested changes to the TraCS software and to the electronic form were implemented. The Start/End Shift and the network performance to the MOVES query issues continued. The Traffic unit volunteered to complete the pilot and a new set of officers were trained in the use of the software.

The Calgary Police Service worked with the project team to address the two technical issues. A resolution to the Start/End shift was found and the officers were now able to print a copy of the violation ticket for the driver and print the remaining copies back at the office on a high speed printer. This significantly reduced the time at a traffic stop. In addition, some progress was made on the network response time however the issue was not resolved. Due to the time delays in addressing the technical issues, an abbreviated Phase III pilot was initiated. Members of the TREDS pilot project team trained the officers regarding the changes that had been made and accompanied the officers over a two day period at which time, the final evaluations were completed.

Over the course of the pilot, 625 tickets were issued by the officers who participated in the pilot. Of the 625 tickets issued*,* it is worthy to note that less than .05% of the tickets were quashed by the courts. This was a significant improvement over the 10% quash rate that was reported by Calgary Police Service during the development of the business case for the Traffic Safety Data Collection project. Out of the tickets issued, eight were withdrawn by the police for various reasons prior to going to the courts, one was withdrawn because the officer gave the court copy to the offender in error and six tickets had the wrong offence date on the ticket and also were withdrawn.

6.2.2 Violation Ticket Pilot Evaluation Commentary

TraCS Software Usability

On average, officers found the software easy and intuitive to use. Some officers indicated that the more they used it, the easier it was to use. Officers did find that using the databar to enter all information into the form, did take some getting used to as most officers are used to clicking into a field where it appears on the screen and then entering the data directly into the field.

Officers indicated that they found using the software generally took them longer to capture the information on the form as compared to doing it manually. However, much of the time taken can be attributed to the length of time experienced by the officer waiting for a response from the MOVES interface (approximately 30 to 60 seconds) when conducting a search on operator licence number or plate number (refer to MOVES interface for more information on the response time issue). However, once the data was retrieved, the officers were impressed that the data retrieved automatically populated the forms saving them time in having to enter the information into the form. The officers liked the fact that the operator and registration status was provided but would also be interested in receiving back information from CPIC as well.

Of the many features and functions the software has to offer, officers particularly liked the ability to set defaults in certain fields so that the defaults appeared when they created a new ticket. One of the other features officers were impressed with, was the "replicate" feature which could be used to quickly create more than one ticket for an offender with most of the information entered on the first ticket (i.e. offender and vehicle information, officer notes), defaulting to the second ticket. Officers usually only had to select the appropriate charge and the ticket was complete.

Officers were impressed with the reduced number of errors encountered when creating the ticket as is evident from less than .05% of the tickets being quashed by the courts due to errors. With the ability to build business rules around the data entry fields, select valid data from drop down lists and ability to print a ticket only once the ticket has been validated with no errors, the TraCS software received high ratings for reducing the number of errors encountered.

Overall, the officers in the pilot indicated that the overall TraCS solution for the ticket as it now stands, would far better meet the needs of patrol officers rather than traffic officers. Officers indicated that for the solution to work in the traffic section, a hand held solution would better meet their needs as they typically complete the ticket while standing by the offender and find that having to go back and forth to the vehicle to complete and print the ticket takes too long. Whereas an officer can typically write up a ticket in one minute manually, it was taking four to five minutes to complete and print the ticket prior to issuing the ticket to the offender. In Calgary, 42% of all tickets issued are done so by the traffic section while 58% are issued by the patrol section.

Officers indicated that they liked the concept but improvements must be made before it could be used by the Traffic unit due to the volumes and the need to complete the ticket away from the police vehicle. A handheld device would be necessary.

Training Results

Due to officer resource issues, training included less than one day of training (3 to 4 hours) in a classroom setting complemented with a Traffic Violation User Guide and quick reference guides. The officers used laptops with the TraCS software installed during the training to gain hands-on

practice with the software and violation ticket form. Bar code scanners and printers were also available for the officers to use.

Many of the officers indicated that not enough time was spent with hands-on practice prior to actually using the software to issue tickets. Some officers recommended that it would be very beneficial to have a trainer in the vehicle on a ride along so that they could ask any questions or get assistance if they encountered any problems.

Traffic Violation Input Form (Input Screens)

During the pilot, many changes were made to the input screens based on feedback received from officers using the TraCS software. Many of the changes recommended came from officers during the training sessions where they had hands-on experience practicing with the forms. For a complete list of changes identified by the officers during the pilot but not implemented, refer to *Appendix B – Traffic Violation Ticket Form.*

The majority of officers found the input screens easy to work with but indicated that depending on the charge, many of the fields displayed on the form were not required and took officers additional time to work through the form. One of their suggestions at the end of the pilot to speed up the process for completing a ticket was to have templates developed for the most common charges (i.e. speeding, seatbelts etc). The officer would select from a list of templates based on the charge and when the template is displayed, information would be pre-filled (i.e. charge number, charge description, violation amount etc.) and only the required fields to be entered by the officer would be displayed in the form saving the officer time to complete the form.

Officers were generally pleased with the flow from field to field on the form and the edit rules built into each field. In particular, they found the drop down lists easy to use and very beneficial in that they ensured only valid information was available for an officer to select from. Although a bit time consuming, officers indicated that the ability to validate the information prior to issuing a ticket was very beneficial in that errors were caught prior to printing the ticket.

Another feature of the ticket form that officers liked was the ability to search for and select a particular charge code. Approximately 200 of the most common charges in the Specified Penalty List were reviewed and provided by Alberta Justice and Attorney General in Calgary. The department reviewed the sections of the act and provided wording that would be acceptable to the courts. Officers indicated that they liked the ability to search for a charge and have the description populated into the ticket automatically along with the amount of the fine. Based on the charge selected and whether the offender was an adult or youth, TraCS automatically populated the ticket with the charge description, amount of the charge, court location information (i.e. adult or youth court), court date and time based on the court calendar provided by Alberta Justice and business rules used by Calgary police for calculating court dates. Officers indicated they liked the search capability and that it helped reduce and eliminate potential errors.

A Court Calendar was provided by Alberta Justice to automatically populate the ticket with the court date and court locations. The pilot used Calgary Police Service business rules to determine court dates appearing the ticket based on whether the offender was an adult or youth to ensure the ticket reflected accurate court dates.

NOTE: For additional comments provided by the Medicine Hat Police who also piloted the traffic violation ticket for a short period of time, refer to *Section 6.1.2 Collision Pilot – Evaluation Commentary – Traffic Violation Ticket Input Form (Input Screens)*

Auto-populate from MOVES Query

All officers rated the MOVES query and ability to auto-populate the ticket with Alberta driver and vehicle information very highly. Based on the search capability built into the online form, officers were able to search MOVES using an Alberta operator licence, motor vehicle identification (MVID) number, plate number or vehicle identification number (VIN). If there was a match, TraCS auto-populated the forms with the most current driver and vehicle information from MOVES. This saved officers a considerable amount of time having to enter driver and vehicle information; however, the response time to do a MOVES query in Calgary was extremely slow (30 to 45 seconds or longer). This frustrated officers to the point that they often reverted back to writing manual tickets because the query was taking too long. Officers indicated that if the response time was 3 to 5 seconds, their experience with completing the violation ticket would have been much more positive.

Some officers indicated that they would prefer to have information about the driver and vehicle come from the CPIC inquiry so that they wouldn't have to do another search in TraCS. As well, they would like as much information about the driver, the vehicle and the registered owner as possible. Information such as the driver is under suspension, reason for the suspension, vehicle reported stolen etc., would be very beneficial to the officer to assess the entire situation.

Auto-populate from Bar Code Scanner

Unlike the MOVES query, officers rated using the bar code scanner to auto-populate the forms from a driver's licence with the 2D bar code as poor. Officers found the bar code scanner difficult to use and preferred using the MOVES query to search for driver information based on the operator licence number instead. As well, officers indicated they felt that driver information retrieved from MOVES provided the real time suspension status of the driver.

Start Shift and End Shift

Most of the pilot was conducted without the "end shift" function due to CPS technical constraints. As a result the officers were required to print two copies of the ticket and the officer notes at the time the driver was stopped. This added significantly to the time required to issue a violation ticket. The last stage of the pilot saw the implementation of the "end shift" functionality that allowed the officer to print the offender copy of the ticket and transfer the remaining information back to the CPS server where the additional copies could be printed on a high speed printer to submit to Court Services. The "end shift" functionality was rated by the officers as very good to excellent. The significance of being able to transmit the information electronically was important to the officer and the future potential for a paperless system was apparent. Under these circumstances officers were much more receptive to printing the ticket in the car.

Printed Violation Ticket

The printed version of the ticket was rated slightly above average by the police officers. The ability to clearly read the information was positive, however the size of the form was challenging and the offender copy contained information from both the front and back of the previous form, rendering the copy cluttered. The Court Evaluation found the new ticket to be very good and easy to use and handle. Both the officers and the Court staff rated the reduction of errors as close to excellent (4.60 out of 5). Court staff sited the clarity of the printing and the reduction of errors provided significant time savings. The Court staff found it easy to envision a new paperless transmission of the

information from the police agencies. Refer to *Appendix G* for samples of the printed Violation Ticket.

Officers indicated that the offender had no real reaction to the new ticket. It was identified that officers would like some means of being able to easily identify the court copy from the offender copy by perhaps using different colored paper or by some other means. In one situation, the officer gave the offender the court copy of the ticket instead of the offender copy and had to withdraw the ticket.

Bar Code Scanner Usability

Officers rated the bar code scanner as poor. They indicated that the scanner was difficult to use and that they spent too much time trying to scan the 2D bar code. Officers suggested that if a bar code scanner were to be used, they would prefer one that they could swipe a card instead.

Printer Usability

Calgary Police Service selected the Pentax PocketJet for the pilot. Officers rated the printer as below average. The printer mounted in the glove compartment was sighted as a health and safety issue. It was difficult to reach and difficult to operate when two officers were in the vehicle. The single feed was also an issue. Several officers indicated a preference for a roll of paper removing the need to load paper with each violation ticket. This was particularly an issue when three 81/2 x 11 inch sheets of paper were needed prior to the implementation of the end shift functionality. It was also noted that the printing was slow, again exacerbated by the need to print three sheets during the majority of the pilot.

Officers did not believe that this type of printer would work for those who rode a motorcycle and indicated that they would require a handheld solution.

System Response Time to Complete Forms

The system response time did negatively impact the traffic officer in completing the violation ticket. This was rated between poor and below average. The Courts however rated the form handling time as very good.

The primary reason for the low rating was the slow network response time with the MOVES query and printing. On average, officers indicated that they can manually create a ticket in approximately one minute but found that it took 4 to 5 minutes to create a ticket using TraCS. In some instances, officers indicated that while they were waiting for a response from MOVES, they created a manual ticket and issued it to the offender faster than the network could process the MOVES response.

It should be noted that the slow response time can be attributed to technical issues on the network between Service Alberta and the Calgary Police service. In addition, a newer version of wireless technology is now available. The slow response time is an issue not related to the TraCS software. Three to five second response time for MOVES access were reported within the CVSA pilot. This pilot used newer wireless technology, and the pilot team was able to address network delays between Service Alberta and Infrastructure and Transportation. Officers did indicate that if the MOVES response time had been faster, the time required to complete the ticket would have been about the same. However, having to load the printer with a sheet of paper and wait for the ticket to print did slow down the process. Some officers found that while the ticket was printing, they were able to

complete the officer's notes section which they typically did not complete with the manual ticket until they issued the ticket to the offender.

System Security

Officers indicated that the system security of logon ID's and passwords met their needs.

System Availability

Officers indicated that other than some hardware issues encountered, TraCS was always available when needed.

Support Availability and Effectiveness

Officers rated the overall support for TraCS as very good. For the majority of the pilot, support was provided by a contact person assigned to the project by Calgary Police Service. This individual became quite knowledgeable with TraCS and was able to provide support to the officers regarding any technical and software issues. He was also the point of coordination for technical issues requiring the assistance from the Calgary Police IT support unit. The TREDS pilot team worked with both the contact and the IT unit to work on resolutions to the technical issues.

Reaction from Public

Overall, officers rated reaction to the new ticket as average to very good. The public seemed to be indifferent to the new ticket and only a few comments were received regarding the new look, none of which were negative.

Overall – Software Meets My Business Needs

Overall the traffic officers indicated that, as currently configured, the solution did not meet their business needs, ranking the fit as below average with responses ranging from "not applicable" to "excellent". The Court Services staff rated the solution as near excellent in meeting their business needs.

Many of the officers agreed that the concept is excellent and would like to see the move to electronic ticketing. Some of the Traffic Officers indicated that the solution as it was piloted would work better for patrol and that for the solution to work in the Traffic Section, a hand held solution needs to be investigated.

6.2.3 Violation Ticket Pilot Summary of Ratings and Feedback - Officer Evaluations

Table 5 summarizes the scores from five of the Calgary Police Service pilot participants who responded to the pilot questionnaire. The first column identifies the aspect of the violation ticket pilot being evaluated, the second column indicates the average score of the respondents and the third column indicates the lowest and the highest scores submitted by the respondents for that question.

Table 5 - Violation Ticket Pilot - Summary of Scores

Pilot Evaluation Criteria	Average Rating	Range of Ratings
TraCS Software		
Easy and intuitive to use	2.80	2-4
Easy to learn - required minimum training	3.00	2-4
Time needed to capture information in the form as compared to doing it manually	2.80	2-4
Reduces errors in completing the form	4.60	4-5
Training		
Rate your computer use experience and knowledge	2.60	1-3
Rate the training provided	4.00	4
Forms		
Violation Ticket (input screens)	3.60	2-5
Edit validation rules – for each field	4.40	4-5
Flow from field to field	3.60	3-4
Auto-populate from MOVES query	4.40	4-5
Auto-populate from bar code scan	1.00	1
Start shift functionality	0	0
End shift functionality	4.00	4
Printed version of Violation Ticket	3.80	1-5
Equipment		
Bar code scanner	1.00	1
Printer	2.20	2-3
General		
System response time - did not negatively impact the contact duration	1.00	1
System security - meets requirements	3.25	3-4
Availability - available when I need it	3.75	1-5
Documentation and Help features	0	0
Reports	0	0
Support was available and effective	4.00	4
Reaction from public (driver)	3.40	3-4
Overall - software meets my business needs	2.60	1-4

5 excellent   4 very good   3 average   2 below average   1 poor   0 not applicable

Summary of Other Comments and Suggestions for Improvement:

The comments and suggestions for improvements listed in Table 6 were provided by the Calgary Police Service on their piloting of the Traffic Violation Form.

Table 6 - Traffic Violation Pilot - Summary of Comments

Topic	Calgary Police Service Comments
TraCS Software	- Easier to use once officers used it for a while. - Some officers found it fairly easy to learn while others did not. - Time needed to capture information on form in Traffic is below average. Overall, the solution is better for Patrol than for Traffic. - Reduction in number of errors is very good. - Liked the templates built for speeding charges with many of the data fields from user defaults identified. Would be great to be able to pull up a template and use it depending on the violation – i.e. seatbelt, speeding (10 – 15 templates). - Would like to see the form in one view. - Would work for general patrol but not for traffic as is. - Safety issue – so much time is spent looking at the form and trying to complete it in the vehicle but would work with hand held in traffic. - Night time is more of a safety issue since you have to type rather than be able to write. - Need electronic signature.
Training	1 day training – some hands on and in the field. - Less than 1 day training. - Liked 1 on 1 training. - Not enough time spent with hands on. - Go out on a call and issue some sample tickets.
Forms	- Would like to be able to click in the field – maybe an option could be provided to give either the databar or to bypass the databar. - When the information auto-populates from MOVES, the cursor should go to the name field so you can make changes rather than skipping all of the name information and going to the next field requiring entry. - Preferred to enter the operator's licence number and plate number to do the search rather than using the bar code scanner. - End shift was easy and simple to use for printing court copies and officer notes back at the station. - Concerned about officer safety – head is down too much and can't observe driver. - Would like to use a hand held instead of having to go back to the car to complete the ticket. - Make replicating the form easier.

Topic	Calgary Police Service Comments
	- Didn't know how to fix some of the errors. - Didn't like "validation" as to how it is set up. - Have the forms as buttons on top of the screen. - Have tabs on the left side instead of the navigation tree – too small to use with touch screen. - Would like big black lines separating the information on the form (i.e. offender) to distinguish information quickly. - Have the signature box "X" with a grey background. - Use different color of paper for different copies (i.e. yellow, pink). - Move details above other information. - Police File Number should be on the form. - Bypass the court information but be able to change it if required. - Would like drivers licence stats pop-up and colored for suspended drivers. - Would like electronic signature. - Be able to save or display tickets by last name of person, ticket number, date or time. - People didn't really react to the ticket. - People are used to having different color paper. - System is drastically improved from the previous time used.
Productivity	- Don't like having to get in and out of the car. Hand held would be ideal in Traffic. - Completing the ticket in the car is too slow a process. - Some people did mention it took a long time to wait for their ticket. - Send electronic copy to courts. - Would like to see a report of officer statistics developed.
Data Quality	- Tickets are clear and easy to read compared to the handwritten tickets. - Errors almost non-existent – unless you select the wrong charge by accident.
Bar code Scanner - Wand L-Tron 4710	- Too much fooling around with the scanner to make it work properly. - Scanner didn't really meet needs for out of province or out of country driver's licences so usually entered the information manually. - Scanner didn't always work – problem with hubs. - Would prefer a scanner that you could swipe a card as it took some time to get used to using the bar code scanner. - Need a scanner that is mounted rather than with a cord – too awkward. - Didn't like using the bar code scanner.

Topic	Calgary Police Service Comments
Printers - Pentax PocketJet 3 Plus	- Printer was OK but having it mounted in the glove compartment was not very effective and is a safety concern. If there were 2 people in the car, it was difficult to get the printer out of the glove compartment and left little room for the 2nd officer. - Printer needs to be mounted somewhere else – console would be better or Velcro on dashboard. - Don't like to feed 1 piece of paper into the printer at a time. - Need place for paper - put paper in the door. - Left side under the dash would be a good place for the printer. - Could affect officer health and safety with having to stretch to reach the printer out of the glove box and spend time feeding in one sheet at a time. - Single sheet paper was good. - Prefer to use a roll of paper so that you don't have to feed in one sheet at a time – too time consuming. - Need to free up officer – safety concern. - Printing the ticket is too slow in the car. - Paper was difficult to tell which was the right side to feed into the printer. - Paper (8 ½ x 11) is too big.
General	The best things about TraCS or the overall solution are: - Likes the concept but improvements must be made before it could be used in traffic. - Very good tool – need to tighten up the form. The most disappointing things about TraCS or the overall solution are: - Time required to complete the ticket was too long – took 5 minutes for a ticket – sometimes up to 1 minute for response from MOVES and another 1 minute for printing a ticket. - Time it takes in completing the ticket is too slow. - Connection time to do searches is too slow.

6.2.4 Violation Ticket Pilot Summary of Ratings and Feedback – Court Evaluations

Table 7 summarizes the scores of three of the Calgary Court Services pilot participants responding to the pilot questionnaire. The first column identifies the aspect of the violation ticket pilot being evaluated, the second column indicates the average score of the respondents and the third column indicates the lowest and the highest scores submitted by the respondents for that question.

Table 7 - Violation Ticket Pilot - Summary of Court Evaluation Scores

Pilot Evaluation Criteria	Average Rating	Range of Ratings
TraCS Violation Ticket (8 ½ x 11)		
Easy and intuitive to use	4.00	3-5
Easy to learn - required minimum training	4.67	4-5
Easy to use and handle	4.00	2-5
Reduced errors on form	4.67	4-5
General		
Form handling time – did not negatively impact the handling of the form	4.00	3-5
Reaction from the public (driver)	4.00	4
Overall – software meets my business needs	4.67	4-5

5 excellent   4 very good   3 average   2 below average   1 poor   0 not applicable

Summary of Other Comments and Suggestions for Improvement

The comments and suggestions for improvements listed in Table 8 were submitted by the Calgary Court Services on their piloting of the Traffic Violation Form.

Table 8 - Violation Ticket Pilot - Summary of Court Evaluation Comments

Topic	Calgary Court Comments
TraCS Software	• Font size needs to be bigger. • Difficulties telling a Part 2 (Summons) from a Part 3 (Offence Notice) quickly. • Storage was difficult – didn't fit in the "pigeon holes", had to fold tickets in half. • Looking forward to paperless. • Would be better if we received the information electronically.
General	The best things about TraCS or the overall solution are: • Not having to deal with paper tickets in the future when tickets can be sent electronically.

Topic	Calgary Court Comments
	- Can't lose the court copies as easy. - Clarity of the printing. - Time savings. The most disappointing things about TraCS or the overall solution are: - Size of paper was difficult but if it is received electronically, it will be okay. - Nothing was disappointing. - Nothing about the software. - Not being able to do a larger pilot.

6.3 CVSA Inspection Reporting Pilot - User Evaluation Feedback

6.3.1 CVSA Inspection Reporting Pilot Overview

The initial pilot roll out began with the implementation of the Commercial Vehicle Safety Alliance inspection form in the inspection shed of the Leduc Vehicle Inspection Station (VIS). Officers from the Commercial Vehicle Enforcement Branch (CVEB) of Alberta Infrastructure and Transportation (INFTRA) were the first to use the TraCS software in a production environment in November 2004.

The pilot project team planned the initial roll out within the INFTRA environment in order to learn and understand the TraCS software, rollout and support issues. The Leduc Vehicle Inspection Station was close to the project team and was within a technical environment with which the team had easy access to support and knowledge of the environment.

The initial pilot introduced the CVSA form with the changes made by Technology Enterprise Group Inc. (TEG) to Canadianize the software. Changes were introduced to accept miles and kilometres, standard date changes acceptable to law enforcement in Canada, etc. In addition, the decryption code developed by Canadian Bank Note was also introduced to allow the officers to use a 2D bar code scanner to read the new Alberta Driver's Licence. The 2D bar code scanner interprets information stored in the 2D bar code and auto populates the information into the TraCS CVSA form. In situations where a driver presented an old Alberta Driver's Licence or an out of province licence without a 2D bar code, the officers were required to manually type the driver information into the CVSA form. The first TraCS installation took place on a desktop computer in the Leduc shed, where trucks are brought in for full inspections.

Once some of the officers were comfortable with TraCS and the software had been tested in a production environment, the TraCS software was installed on a second computer, at the front counter of the vehicle inspection station. In Phase II the MOVES interface was first introduced into a production environment at the Leduc VIS.

In November 2005, one vehicle was equipped with TraCS installed on a mobile computer having a wireless aircard with access to the MOVES database, a Pentax PocketJet 3 mobile printer and a bar code scanner. The vehicle was used by one transport officer to test and work with TraCS and the mobile equipment to identify changes to the TraCS software and forms prior to rolling out the software to other mobile users. In April 2006, TraCS was installed in six additional Commercial Vehicle Enforcement vehicles used in various districts including Red Deer, St Paul, Edson, Balzac, Radway, Stettler and Ardrossan bringing the total number of vehicles equipped with the TraCS to seven. The initial response was positive (see *Appendix C – CVSA Mobile Pilot Email*).

Over the course of the pilot, approximately 1552 CVSA inspection reports were created. Worthy of note is that those officers involved in the pilot are continuing to use TraCS to complete their commercial vehicle inspections even though the pilot is over.

6.3.2 CVSA Inspection Reporting Pilot Evaluation Commentary

TraCS Software Usability

The majority of transport officers found the software very easy and intuitive to use with minimal training required. Some officers indicated that if the "bugs" and suggestions for changes could be implemented, they would rate the software as excellent and that it would fully meet their requirements both in an office and mobile environment.

Officers indicated that they found using the software generally took them about the same time to complete the inspection report. However, if the inspection resulted in multiple forms having to be created (i.e. CVSA Inspection Report, Traffic Violation Report (TVR) and Certificate of Weight), it took less time because of having information auto-populated when going from one form to another. Officers particularly liked the ability to quickly create the TVR once the inspection report was completed using the "replicate" feature. By using the "Replicate" button, relevant information entered on the CVSA form was auto-populated onto the TVR and the officer was only required to enter a minimum amount of information to complete the form.

Mobile TraCS users found the software great for conducting roadside inspections. Using a laptop with a wireless air card, officers were able to quickly conduct an inspection, complete the appropriate forms and print the relevant copies for the driver using the Pentax Pocket Jet printer.

The TraCS software received high ratings by the officers for reducing the number of errors encountered when completing the forms. Officers like the "validate" feature in the software to identify errors the officer may have made. Supervisors responsible for reviewing inspection reports and individuals responsible for data entry were pleased with the reduced number of errors that were experienced during the pilot.

Overall, the officers in the pilot indicated they found the TraCS software to be excellent. Even though the pilot is over, the majority of the officers who used TraCS continue to use it.

Training Results

All training was done in a 1 day, hands-on session in Edmonton in a classroom setting. Participants were provided with a CVSA & TVR User Guide and quick reference guide to assist them back in the field. Transport Officers used samples of previous inspection reports to get hands-on practice with the software and CVSA inspection, TVR and Overweight forms. Bar code scanners and printers were also available for the officers to practice with.

Overall, transport officers were very pleased with the training provided, especially having the ability to have hands-on practice with sample inspections previously conducted. Those officers trained from the Leduc Inspection station in turn provided hands-on training to other officers in the station once they became familiar with the TraCS software. This seemed to work very well as these individuals also provided front end support to any questions or problems officers experienced while on site.

CVSA Inspection Report, TVR and Certificate of Weight Input Forms (Input Screens)

The majority of officers rated the input screens very good to excellent finding them very easy to work with and navigate through. Many suggestions for improving the input screens were provided by officers involved in testing the software to improve the layout and flow of the forms. For a

complete list of changes identified by the officers during the pilot but not implemented, refer to *Appendix B – CVSA and TVR Form.*

Officers were particular impressed with the amount of information that was able to default into the forms (i.e. district, location, date, time, officer name and badge number) reducing the overall amount of information to be entered and the time spent in completing the forms. Another aspect of the forms officers really liked was that when additional forms such as the TVR were required, information already entered on the CVSA (i.e. officer information, driver name and address) defaulted to the TVR saving time in having to re-enter the information.

Officers rated the flow from field to field on the forms and the edit rules built into each field as very good to excellent. They really liked the drop down lists which were easy to use and provided valid data to select from which helped reduce the number of errors.

Auto-populate from MOVES Query

The majority of officers rated the MOVES query and ability to auto-populate the forms with Alberta driver and commercial vehicle information as excellent. Based on the search capability built into the online form, officers were able to search MOVES using an Alberta operator licence, motor vehicle identification (MVID) number, plate number or vehicle identification number (VIN). Unlike the other 2 pilots, response time to do a MOVES query took on average, only 3 to 5 seconds. Officers involved in the mobile phase of the pilot using a laptop with a wireless air card, also experienced the quick response time although in some areas on the fringe, MOVES access occasionally was not available and officers had to manually enter driver and vehicle information into the forms.

As with the other pilots, transport officers would like to see additional driver information available in MOVES including whether the driver is under suspension, reason for the suspension and additional registration information. Although not available in MOVES, officers indicated they would also like to be able to search and obtain information for out of province drivers. The favourable response time was due to the wireless equipment used in the pilot and the network tuning that occurred between Alberta Infrastructure and Transportation and Alberta Government Services.

Auto-populate from Bar Code Scanner

Officers rated using the bar code scanner to auto-populate the forms from a driver's licence as average. As with the other pilots, officers found the bar code scanner difficult to use and preferred using the MOVES query to search for driver information as information retrieved from MOVES was more current than the information scanned from the operator's licence.

Start Shift and End Shift

The start and end shift functionality was implemented during Phase 3 of the pilot to download inspection reports from one of the mobile laptops to the server. The functionality was used to download completed inspection reports from a mobile laptop to a server where a supervisor used TraCS to review each inspection report for errors or changes required, and if necessary, send the report back to the officer to correct. Both participants indicated the functionality worked very well and would meet their needs.

Printed CVSA Inspection Report, TVR and Certificate of Weight

The majority of the officers rated the printed reports as very good to excellent. Reports were clear, concise and easier for the driver to read the results of the inspection. Supervisors responsible for reviewing inspection reports indicated that they were much easier to read than handwritten reports. Individuals responsible for data entry of the forms into MOTRIS also rated the printed reports as very good indicating they were easy to read with reduced errors. Data Entry did indicate the format of the report was not the same as the old report which did slow down data entry somewhat although this would not be an issue if the reports were submitted electronically. Refer to *Appendix H* for samples of the printed CVSA Inspection, TVR and Certificate of Weight reports.

Bar Code Scanner Usability

Officers rated the bar code scanner as average. As with the other pilots, they indicated the scanner difficult to use and preferred using the MOVES search for Alberta operator licences to auto-populate driver information on the forms with. Officers indicated that they would prefer to use a swipe card instead.

Printer Usability

The majority of officers rated the Pentax PocketJet mobile printer average to very good. Officers did indicate that although the printer worked well, they did find it slow in printing. Many of the officers would print the driver copy in the vehicle using the PocketJet printer and then print their copy in the office using a high speed printer. Officers indicated they would prefer to use roll paper rather than having to feed single sheet paper into the printer as they found it difficult to determine which side to feed in and time consuming.

System Response Time to Complete Forms

The response time required to complete the forms during an inspection was rated as very good. The majority of officers indicated that it took about the same time or less to complete the required forms during the contact. Officers indicated the MOVES response time of 1 to 3 seconds (on average) to do a search for Alberta drivers was very good though in some of the fringe areas, there was no access to MOVES with the air card or connectivity sometimes dropped. This resulted in officers having to manually enter information that would normally be auto-populated through the MOVES search. Some officers indicated they found the time to complete the inspection report for out of province drivers a bit slower as they had to manually enter driver and vehicle information into the forms. However, on the whole, they did not find this to be too difficult or onerous a task, pointing out that fewer errors were created using the software.

System Security

Officers indicated that the system security of logon ID's and passwords was very good to excellent and met their requirements.

System Availability

Officers indicated that TraCS was always available when needed and gave the software a rating of very good to excellent.

Support Availability and Effectiveness

Officers rated the overall support for TraCS as very good to excellent. For the pilot, support was provided by project team members from Edmonton. Two of the individuals initially trained at the Leduc Inspection station were the first point of contact to resolve any issues at the station. If required, these individuals contacted project team members in Edmonton for additional support. For the mobile pilot, one officer was also identified as a contact to handle any issued. This individual provided excellent support to the officers regarding any technical and software issues and only contacted Edmonton when required.

Reaction from Public

Overall, officers rated driver reaction to the inspections as very good to excellent. Officers indicated that from their perspective, drivers seemed to react positively to the printed inspection report. Many of the officers indicated that reviewing the printed report with the driver was much better than the hand written reports as they were easier to read by both the officer and the driver.

Overall – Software Meets My Business Needs

Transport officers rated the TraCS software as very good to excellent in meeting their business needs. Officers participating on the pilot remained very positive and supportive throughout the pilot indicating that they pilot was moving in the right direction. Even though there are some problems/bugs with the current version of the forms and software used during the pilot, many officers have continued to use the software even though the pilot is complete. Many officers in the pilot indicated that they would like to see the software rolled out to all Transport officers across the province.

6.3.3 CVSA Inspection Reporting Pilot Summary of Ratings and Feedback – CVSA Inspection Officers

Table 9 summarizes the scores from thirteen of the Commercial Vehicle Enforcement Branch pilot participants responding to the pilot questionnaire. The first column identifies the aspect of the inspection form pilot being evaluated, the second column indicates the average score of the respondents and the third column indicates the lowest and the highest scores submitted by the respondents for that question.

Table 9 - CVSA Inspection Reporting Pilot - Summary of Scores

Pilot Evaluation Criteria	Average Rating	Range of Ratings
TraCS Software		
Easy and intuitive to use	3.75	3-5
Easy to learn - required minimum training	3.92	3-5
Time needed to capture information in the form as compared to doing it manually	3.25	2-5
Reduces errors in completing the form	4.42	3-5
Training		
Rate your computer use experience and knowledge	3.67	2-5
Rate the training provided	4.25	3-5
Forms		
Inspection Report (input screens)	4.08	3-5
Traffic Violation Report (input screens)	4.08	3-5
Edit validation rules – for each field	4.08	3-5
Flow from field to field	4.25	3-5
Auto-populate from MOVES query	4.67	4-5
Auto-populate from bar code scan	3.5	3-5
Start shift functionality	4.5	4-5
End shift functionality	4.5	4-5
Printed version of Inspection Report	4.08	3-5
Printed version of TVR	4.08	3-5
Equipment		
Bar code scanner	2.87	1-4
Printer	3.27	1-5
General		
System response time - did not negatively impact the contact duration	3.58	1-5
System security - meets requirements	4.44	3-5
Availability - available when I need it	3.91	2-5
Documentation and help features	3.00	3
Reports	0	0
Support was available and effective	4.00	2-5
Reaction from public (driver)	4.25	3-5
Overall - software meets my business needs	4.08	3-5

5 excellent 　　 4 very good 　　 3 average 　　 2 below average 　　 1 poor 　　 0 not applicable

Summary of Other Comments and Suggestions for Improvement:

The comments and suggestions for improvements listed in Table 10 were submitted by the Commercial Vehicle Enforcement Branch on their piloting of the Inspection Form.

Table 10 - CVSA Inspection Reporting Pilot - Summary of Comments

Topic	CVEB Officers Comments
TraCS Software	- If problems could be fixed, all would be a "5". - Definitely meets the business needs. - Adding the information on Acts and Regulations would really help on the TVR. - Netmotion wasn't always available. - Did not use any of the help or documentation. - Software is great – just needs some fine tuning. - Time frame to roll out for full implementation. - Awkward to search. - Plate search was an extra step. - Scan should auto-populate if you are in the right field. Shouldn't go to common area. - When toggling between forms not all the information is brought over. - The driver's licence suspended flag needs to be highlighted. - The fact that the bugs were minor and they were unable to get them fixed because of time and money. - The time it takes to fill out the form. - Great for conducting inspections roadside using the laptop. - Software is easy to use and to catch onto quickly. - Really likes the program – sees where it would be very beneficial to the Transport Officers and to the business. - They had lots of technical problems with the laptop itself so were unable to use the TraCS application a lot – not the software's problem. - Very good when things are working – there have been numerous problems in the shed with the software not being the same version as in the office. - Very easy to catch on to. - Minimum reduction in errors – very meticulous in his work. - Overall, very satisfied with the way TraCS works. - Would be great if all the problems could be fixed and working properly. - When writing in teams, need the ability to change who did the inspection (most important at checkstops). - Took longer when inspecting out of province vehicles and drivers. - Good standardized wording. - Overall, it is a good system; however, some of the bugs cause him to be disgruntled. - Not all system capabilities are known. - Need to fix the bugs.

Topic	CVEB Officers Comments
	• If the bugs were fixed it really could improve the error rate. • Reduces errors (provided the bugs are fixed). • There are some significant items that need to be changed and if they are changed the system will be awesome. • Excellent, if bugs are fixed. The potential is awesome. • Using a laptop and "hunt and peck" can be difficult to type. • Touch screens would be easier.
Training	• Trained at the Twin Atria and on the road. • One day – provided plenty of training. • Received hands on training in Edmonton. • One day session. • Hands on training was great. • Received hands on training primarily. • Liked the training and the material provided. • 4 to 6 hours – just right. • Liked having real CVSA and TVR inspections as examples to enter during the training session. • Training was great. • Received training from someone already trained in the office. • Some adhoc training when there were any changes. • System is very easy to catch on to. • 5 hours. • Hands on training at Stony Plain. • One hour. • Trained at Twin Atria. Hands on training. It is not difficult to learn. • 2 – 3 hours. • Minimal. • At Leduc and then more training at the Twin Atria. • 3 – 4 hours. • One of the Transport Officers already trained also helped with training. • Good that one of the project team member's came to Leduc and discussed issues.
Forms	• Still some bugs in the program but it has come a long way and is good. • The system auto-defaults a report back date. Often this is not necessary; let the officer make the decision. • When the report prints it sometimes says page 1 of 2 and then page 2 is blank. • Found entering brake measurements time consuming – need to find a better way.

Topic	CVEB Officers Comments
	• Really liked that the weights were calculated automatically and auto-populated the Weight Certificate – that was a time saver.
	• Edit rules were great.
	• Lists to select from were great.
	• Overall very good – just needs some improvement.
	• Printed versions clear and concise. Drivers seemed indifferent to the written report versus the TraCS report although from his perspective, it was better as it is easier to read the reports rather than the handwritten report.
	• Scanner OK but preferred just entering the operator's licence number and plate numbers to get accurate information from MOVES instead.
	• Some changes to the report required to make it work properly – otherwise, it works very well.
	• 3 – 5 second response time was OK. No complaints regarding MOVES access (wireless card being used).
	• Leduc Weigh Station seems to be slower than the wireless.
	• Supervisor did have some problems using the Start/End Shift.
	• Sometimes information (i.e. weight) would get dropped on TVR – seemed like when you toggled back and forth from CVSA to TVR.
	• CVSA and TVR are easier to read because information is typed and not handwritten.
	• Would like to change sections in the dropdown lists.
	• Would like additional information displayed on the input forms from MOVES and MOTRIS (i.e. registration, suspended driver, etc).
	• Would like to see current information instead of information scanned from licence – information could be out of date.
	• Liked the drop down lists except for entering brake measurements – would prefer to just enter them rather than having to select them.
	• Sometimes information disappeared on the printed form and you had to write it in once the inspection printed.
	• Really liked the replicate feature to copy information from one form to the other.
	• The edits provided to ensure data was correct was great – very few errors resulted when completing the forms.
	• Very easy to use the software.
	• Found it confusing at first on how to add additional vehicles and violations.
	• Liked the drop down lists to select correct data.
	• Easy to record the required information.
	• Easy to understand the forms and complete the information required.
	• Easy to work with.
	• Very quick – likes the MOVES auto-populate.
	• Doesn't use the scanner too often – data more accurate if just entering the operator licence number.
	• Drop down lists make it easy to select correct data.
	• Easy to navigate.

Topic	CVEB Officers Comments
	• Some of the problems are frustrating – some data does not carry over onto the TVR (i.e. location), the shed's version is different than the office, shed has more problems and doesn't think anyone is using it any longer.
	• Printed copies are easy to read.
	• No real reaction from the driver.
	• Software in the shed is not always available (sometimes TraCS could not be accessed, different version).
	• Easy to use.
	• TVR – it would be nice to add a database for the sections; it's difficult to type sections. Touch screen would be better.
	• Didn't like the printing when it forces an unnecessary 2nd page.
	• Still need more validations.
	• Need the CVSA form to be able to be differentiated from photocopies, need to be able to tell an original.
	• Permit numbers should show revision numbers.
	• TVR sometimes goes to 2 pages. This doesn't work.
	• Overload: Weights are missing in TVR when printed if you had to toggle back and forth between forms. It was hit and miss (about 25% of the time).
	• When validated it lost district.
	• The first version of the form was better.
	• MOVES query was sometimes slow.
	• The edit bugs that exist are a source of frustration for the staff.
	• MOVES query was excellent (when it worked).
	• The bar code scanner was sensitive.
	• Brakes section – gives too many options and most do not apply. You can cut out 70% of the information.
	• Need to clean up the response time for MOVES. Took about 30 seconds.
	• Easier way to enter brake measurements.
	• Would like to have the charge sections in the dropdown lists instead of having to enter them manually.
	• Change the weigh scale certificate. It has a statement that says, "I, _____" when it prints out it shows the last name and then the first. It should be first name then last name.
Productivity	• Sometimes the response time was slower and it impacted the time taken to complete the inspection.
	• Sometimes couldn't get MOVES access in the fringe areas and had to enter information in manually but that didn't happen too often.
	• Thought there would be more of a time saving and so far, he hasn't really seen it.
	• Mobile response times were really good.
	• More time would be saved if the electronic copy could be put in place.
	• Officer error rate being affected because of the data problems not being fixed yet.

Topic	CVEB Officers Comments
	• Liked the connectivity to MOVES using the air card; however, in some areas, connectivity was lost and had to type information in manually. • MOVES Response time was great – no problems. • Good support provided if problems encountered. • There are a few little things that need to be fixed to improve business processes. • Depended on shift. Support was only available 8 – 5. • System was not always available. Sometimes other officers would be using it.
Data Quality	• Having a clear and concise report to review with the driver – drivers also seemed to like it in that they could read the report easily. • Reduced the amount of errors made significantly – only had a few returned from his supervisor to correct or add missing information. • Reduced error rate. • Legible. • Error rate went way down. • Accuracy and neatness – easily understood by client.
Bar code Scanner - Wand L-Tron 4710	• Bar code scanner would not install properly. • Scanner OK but preferred just entering the operator's licence number and plate numbers to get accurate information from MOVES instead. • Scanner awkward to use in car. • Always appeared to be in the way. • Didn't use the bar code scanner that often - preferred to have current information from MOVES. • Didn't have a scanner so didn't use it. • Has limited use of the bar code scanner – prefers entering the data to get accurate information from MOVES. • Nice to scan driver's licence – it would be better if the scanning, forced an online search for realtime information. • Bar code scanning didn't always work (finicky). • Swipe system might be easier. • Never used the scanner because could not get the current information (i.e. suspension status).
Printers - Pentax PocketJet 3 Plus	• Printer is slow, lose time printing 2 copies. • Need a way to easily distinguish original copies. • Sometimes the printer printed 2 copies when the officer had manually changed it to 1 copy. • Ran into a problem with printing one time when in that the form was lost somehow and couldn't print it back in the office – not sure why but it didn't seem to save the completed form. • Takes too long to print – sometimes printed in office instead because it was faster. • Paper met his needs – no problems.

Topic	CVEB Officers Comments
	• Printers are great – works well. • Some initial problems with the printer but don't have any problems now. • Printer was OK. • Paper – sometimes frustrating when trying to figure out which side was the shiny side to put it into the printer. • Printing was OK but sometimes an extra page would print with just the CVSA or TVR number on the second page and nothing else – seemed to depend on how much information was entered and whether it went to more than one page For the most part, printed other copies required once getting back to the office on the high speed printer which saved time in the vehicle. • Wasn't always easy to figure out which was the shiny side when feeding the paper into the printer. • Would rather have a printer that you didn't have to feed the paper into. • Printer was user friendly. • Would like to have the ability to print only certain pages sometimes (i.e. only print page 1 and not page 2). • Has not used the mobile printer but in the office works OK just too many pages. • Has heard others who use the mobile printer that it is a pain to load the paper 1 sheet at a time. • Printing one at a time is difficult. Would prefer a roll of paper. • Printer did a decent job. • Need printer improvements. Sometimes when the printer won't work, need to reset up some of the privileges. • Encountered power supply problems with the printer. The printer worked intermittently, less rather than more.
General	The best things about TraCS or the overall solution are: • Ease of the form. • Replicate function. • Sharing information between forms. • Simple to use. • Very user friendly. • The speed in which you are able to complete the form(s). • The ability to auto-populate the forms with information about the driver, vehicle and then the Weight Certificate with calculated overload information. • Bringing information over from MOVES. • Replicating the TVR and bringing over data from the CVSA. • Officers are still using TraCS even though the pilot is over. • Definitely should go ahead and implement the software. • Need dedicated time to fix up some of the minor problems/issues. • Overall, entering the inspection information at the roadside was faster – really liked using the laptop to enter the information. • Having a clear and concise report to review with the driver – drivers also seemed to like it in that they could read the report easily.

Topic	CVEB Officers Comments
	• Reduced the amount of errors made significantly – only had a few returned from his supervisor to correct or add missing information.
	• Auto-populating. Being able to get the driver's licence status and registration information was great. Huge time saver.
	• Reduced error rate.
	• Legible.
	• Not retyping information.
	• Replicating.
	• Time saving.
	• Overall a great system.
	• Error rate went way down.
	• Accuracy and neatness – easily understood by client.
	The most disappointing things about TraCS or the overall solution are:
	• Distance between the various districts and Edmonton made support a little more difficult.
	• When doing an inspection, it was hard walking back and forth from the truck to the laptop to enter the information.
	• Thought there would be more of a time saving and so far, he hasn't really seen it.
	• The dropping of information sometimes occurs when going back and forth between the CVSA and TVR for some reason.
	• Connectivity was lost in some roadside areas when doing the inspection and ended up having to do the inspection manually.
	• The ability to have more than one officer signed on to use the application - sometimes they used the laptop in the office and he had to sign off and the other officer had to sign on – would like an easier way to change officer ID's.
	• Getting half way through the inspection and then running into problems and then end up having to redo the inspection manually.
	• Do not require all the information on the brakes. Relax the edits. Perhaps only force completion when it is at "2" inches. If this was relaxed the mark would be a "4".
	• Auto-populate from MOTRIS, pull inspection number.
	• Registered weights kept disappearing.
	• Didn't like the brakes/pod size.
	Changes:
	• Would like to see access to information regarding out of province drivers.
	• Would like to have the Traffic Violation Ticket as well – would make things easier by being able to create the ticket based on information already entered in the CVSA.
	• Would like to see it update MOTRIS in real time.

6.3.4 CVSA Reporting Pilot Summary of Ratings and Feedback – Commercial Vehicle Enforcement Data Entry

Table 11 summarizes the scores of the Carrier Services staff responding to the pilot questionnaire. The first column identifies the aspect of the inspection form pilot being evaluated, the second column indicates the average score of the respondents and the third column indicates the lowest and the highest scores submitted by the respondents for that question.

Table 11 - CVSA Inspection Reporting Pilot - Data Entry - Summary of Scores

Pilot Evaluation Software	Average Rating	Range of Ratings[5]
TraCS CVSA 8 ½ x 11 Form		
Easy and intuitive to use	4.00	4
Easy to learn - required minimum training	3.00	3
Easy to use and handle	4.00	4
Reduced errors on form	4.00	4
General		
Form handling time – did not negatively impact the handling of the form	4.00	4
Reaction from drivers/insurance companies	0	0
Overall – software meets my business needs	4.00	4

5 excellent 4 very good 3 average 2 below average 1 poor 0 not applicable

Summary of Other Comments and Suggestions for Improvement

Table 12 summarizes the comments of the Carrier Services staff responding to the questionnaire.

Table 12 - CVSA Inspection Reporting Pilot - Data Entry - Summary of Comments

Topic	Comments
TraCS CVSA Form (8 ½ x 11)	- Printed version is not laid out the way the information is entered on MOTRIS (had to jump around on the screen). - If electronically submitted, this would not be an issue. - Information on the form that is not needed in MOTRIS (i.e. Brake Type and Pin #). Is this information really needed?
General	The best things about TraCS or the overall solution are: - The fact that the plate and driver information was edited. The most disappointing things about TraCS or the overall solution are: - Not receiving the data electronically.

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[5] Note: There is no variance in the range as a single user handled the pilot forms and provided the evaluation.

6.4 Consolidated Summary of Pilot Evaluations

6.4.1 Full Pilot Overview

The first installation of the TraCS software began in November 2004, using the CVSA inspection on a desktop in the shed at the Leduc Vehicle Inspection Station. Shortly after, a second desktop had the software installed and officers used the TraCS software to complete CVSA inspections whenever possible. In November 2005, the pilot rolled out into a mobile environment with one vehicle and in April 2006, an additional six vehicles were added. The CVSA pilot did not experience any major interruptions and therefore some CVEB staff members have been using the software for two years in a front counter mode. The mobile portion of the CVSA pilot has run uninterrupted for nine months. Twelve CVEB officers were included in the final evaluation.

The Medicine Hat Police Service installed the TraCS software with the counter version of the Collision form in February 2005 on two desktop machines. The pilot ran for several weeks, at which time officers provided input into changes that were required. The pilot was put on hold as the counter reporting computer was in a logistically difficult location for officers to interact adequately with the driver reporting the collision. In addition, new officers were assigned to the front counter. These officers had not been trained. During the pilot hiatus, the TREDS project team made changes to the front counter collision form and continued to work with Medicine Hat Police resources to develop the mobile version of the collision report form.

In January 2006, the mobile version of the collision report form was implemented into five police vehicles. The pilot ran intermittently due to problems encountered with printer ports, slow response times to MOVES queries and some issues with the forms. Changes were made to the forms and new releases were introduced. The violation ticket was rolled out for a short period of time to introduce the value of sharing information between forms. Seven MHPS officers responded to the final evaluation questionnaire.

The Calgary Police Service began Phase I of the violation ticket pilot in October 2005. This involved printing three copies within the police vehicles. Phase I was implemented for several weeks, feedback from the officers was obtained and changes were made to the violation ticket based on these comments. These changes did include changes to the forms that were made by the TREDS pilot project team, however some of the changes required involvement from TEG Inc. These changes were made and Phase II commenced with a new version of the software and of the violation ticket. The pilot ran for several more weeks; however, the officers experienced frustration with the slow MOVES queries, printing issues and requests for additional changes to the forms. Phase III introduced the start/end shift allowing the officers to print only the offender copies. This was a short term phase and the officers worked directly with members of the project team. Five members of the Calgary Police Service responded to the final evaluation.

A total of 24 officers responded to the final evaluations. Table 13 provides a summary of the officers ratings which resulted from the questions asked in the evaluations. The evaluations were conducted via in-person or telephone interviews using standardized questionnaires for each of the CVSA, Violation Ticket and Collision pilot phases. Evaluations were complete on December 14, 2006.

6.4.2　　Overall Pilot Evaluation Commentary (Officers)

A summary of the overall ratings indicated in the following sections are based on the evaluations conducted with the officers and are provided in Table 13.

TraCS Software Usability

Overall, the officers found the ease and intuitiveness of the software to be just slightly above average (3.25), rating the ease of learning higher (3.58) between above average and very good. The median scores were 3 and 4 (average and very good) respectively. Officers from each pilot group indicated that although the intuitive nature of the software could be improved, it was not difficult to learn and once trained; the software was easy to use. The more the software was used, the easier it became for many of the officers.

TraCS ability to reduce errors in the collection of information through the three pilots was rated between very good and excellent (4.21). Although the range of opinions on the effectiveness of error reduction was wide, from poor to excellent, 87.5 % of the respondents rated the error reduction effectiveness as very good and excellent, with a median score of 4.

The time required to capture the information in the form was rated slightly below average at 2.88 with the range of responses rating from poor to excellent. 46% of the respondents rated the time required to capture the information in the form either below average or poor. 54% rated the time as average to excellent. The median rating was average (3).

Some of the dissatisfaction with the time to capture information can be attributed to poor response times on the driver and vehicle queries. Response times in some cases were from 30 seconds to a minute, with a minimum of two queries per service, the delays were significant. In addition, printing numerous pages using the Pentax PockJet printer also prolonged the time with the driver.

The responses on the other end of the spectrum can also be attributed to the driver and vehicle queries and printing. Response times on these queries for CVEB officers were 3 – 5 seconds and officers needed to print only one page.

Training Results

Officers rated their own personal computer knowledge as an average of 3.42 between average and very good. The range however rated the officer skills from below average to excellent. The median score shows officers with average computer knowledge and experience.

In assessing the training, the officers reported an average of 4.25 (between very good and excellent) with the variance between average and excellent. A limited number of officers from each pilot group were involved in in-depth training, testing and exposure to the software during the requirements and development phases of the project. Most officers however received between 3 – 5 hours of training. With some additional training to learn about new functionality as the forms were revised between phases. The full suite of TraCS software functionality was not used during the pilot.

Input Form (Input Screens)

Both the Input screens and edit validation rules received above average ratings with some room for improvement. The averages were slightly below very good (3.71 and 3.96 respectively) and the

median scores were both 4 (very good). The variances ranged from below average to excellent. 33 % of the officers rated the input screens as average and 58% of the officers rated the input screens as very good to excellent.

Although the response to the input screens is overwhelmingly positive, many excellent suggestions for changes were received and will require some analysis (see *Appendix B* for a list of all changes identified for the three pilots).

Auto-populate from MOVES Query

The auto population functionality of the TraCS software was overwhelmingly positive with 96% of respondents rating the functionality as very good to excellent, with a median score of excellent (5). The valuable impact of this functionality was fully understood by all officers involved in the pilot. There was significantly less satisfaction with the execution of the query within the Medicine Hat and Calgary pilots.

The poor response time can be attributed to network delays between the Alberta Government and the pilot police service sites and the wireless technology that is currently in use. Both police services have plans to upgrade the wireless technology within the service. It is expected that the MOVES response issues can be resolved as a similar query function is used directly from CPIC to MOVES and is available with good response time within the police vehicle.

Auto-populate from Bar Code Scanner

The auto-populate function from the bar code scanner received a much lower rating coming in at below average (2.45) with ratings from "not applicable" to excellent. 37% of the officers rated the function as poor, while the remaining 63% of the responses were fairly evenly distributed between below average to excellent. The median rating was below average (2).

Much of the dissatisfaction appeared to come from the actual bar code scanner equipment. Some officers found the device to be difficult to find the correct angle to read the driver licence bar code. Other officers reported that many licences did not have bar codes. When the bar code auto-population was used the driver licence status was not available. This is only available through a real time search on MOVES or through CPIC.

Start Shift and End Shift

The start and end shift functionality was used within the pilot by a limited number of officers however officers within each pilot group were able to test the functionality. Four officers responded to the Start shift evaluation question with the functionality being rated as 3.5, slightly above average for both the mean and the median.

The end shift functionality was used by twice as many officers and the functionality was rated as very good (4) with responses ranging from average to excellent. The end shift function was seen as an important aspect of the TraCS system. Using the end shift, officers were not required to print as many documents within the police vehicle, in addition it allowed for the sharing of information with other systems.

Printed Forms

The overall consensus for the printed version of the form was very good. The printed format made the documents easier to read for the drivers and the officers. Suggestions for improvement were provided, however; the overall consensus was that the printed form worked well, 79% of respondents rated the printed forms as very good or excellent.

Bar Code Scanner Usability

The bar code scanner was less popular with the officers involved in the pilot. The scanning equipment was rated as below average at 2.16, the median rating was poor (1). Officers reported that 21% did not use the technology, while 42% rated the equipment as poor. Interestingly, 37% rated the equipment as very good to excellent. There does appear to be a polarizing effect, where officers really liked or really disliked the technology with only 25% rating the scanner as below average or average.

Printer Usability

The printer on the other hand was rated as average (3.00). The main issue was the mounting of the printer in the vehicle. For two of the agencies the printers were mounted in the glove box. Officers found this to be awkward. The printer speed was also an issue. The printing was slow and therefore officers wanted to minimize the amount of printing that was required. In addition, traffic officers were looking for a handheld printer that could be taken to the driver's vehicle.

System Response Time to Complete Forms

The overall consensus was that the solution did negatively impact the contact duration with the driver. The rating was between below average and average (2.63) with a median rating of 2.5. It should be noted that 50% of the officers rated the response time as poor or below average. Some of the negative impact can be attributed to printing numerous pages and poor response time for the driver and vehicle queries. Officers also had many good suggestions for changes to the forms to maximize efficiency.

System Security

Overwhelmingly the system appeared to meet the officer requirements for system security with a rating between very good and excellent (4.20).

System Availability

System availability was rated as between average and very good (3.59), with a median score of 4. Concerns regarding availability were most often related back to hardware problems rather than the availability of the TraCS software.

Support Availability and Effectiveness

Support was rated as between average and very good receiving an overall rating of 3.78. The pilot team has recognized that the distance between the project team and the pilot participants did impact

the ability to react quickly to issues, however; overall, the officers appeared to find the support effective.

Reaction from Public

The reaction from the public was rated between average to very good. Many officers indicated that the public did not react either positively or negatively, appearing not to notice any significant difference. The ratings however show that 62% of the officers felt that the public's reaction was very good to excellent.

Overall – Software Meets My Business Needs

The overall evaluation found that the officers believed that the solution was slightly above average for meeting their business needs at 3.33 with a median score of 4 (very good). Most officers noted that they could appreciate the benefit and could see a solution of this type being very effective.

There were some limiting issues that prevented the officers from being fully committed to this solution. One of the major issues was that in the pilot, the funding and overall objectives were well defined and finite. A number of improvement suggestions were not implemented due to time and cost constraints. As well, the performance issue relating to the real-time queries in MOVES did not make the auto-populate functions as effective as it could have been. Other capabilities such as importing data from the CAD system, end shift to move data to the enforcement agency records management system, half collision report match, etc. were not realized and would possibly increase the satisfaction with the software.

6.4.3   Overall Pilot Summary of Ratings and Feedback

Table 13 represents the overall pilot ratings from the officers. The summary rating is the average rating of all the officers who responded to the evaluation. The range of responses represents the lowest and highest scores received, noting that "0" means "not applicable".

It should be noted that under the range of responses, each and every item received a minimum of one excellent response.

Table 13 - Overall Pilot - Summary of Scores

Pilot Evaluation Criteria	Average Rating	Range of Responses	Median Score
TraCS Software			
Easy and intuitive to use	3.25	2-5	3
Easy to learn - required minimum training	3.58	2-5	4
Time needed to capture information in the form as compared to doing it manually	2.88	1-5	3
Reduces errors in completing the form	4.21	1-5	4
Training			
Rate your computer use experience and knowledge	3.42	2-5	3
Rate the training provided	4.25	3-5	4
Forms			
Input Screens	3.71	2-5	4
Edit validation rules – for each field	3.96	2-5	4
Flow from field to field	3.88	3-5	4
Auto-populate from MOVES query	4.46	2-5	5
Auto-populate from bar code scan	2.45	0-5	2
Start shift functionality	3.50	2-5	3.5
End shift functionality	4.00	3-5	4
Printed version of Forms	4.08	2-5	4
Equipment			
Bar code scanner	2.16	0-5	1
Printer	3.00	0-5	3
General			
System response time - did not negatively impact the contact duration	2.63	1-5	2.5
System security - meets requirements	4.20	3-5	4
Availability - available when I need it	3.59	0-5	4
Documentation and Help features	3.33	0-5[6]	3
Support was available and effective	3.78	0-5	4
Reaction from public (driver)	3.75	1-5	4
Overall - software meets my business needs	3.33	2-5	4

5 excellent   4 very good   3 average   2 below average   1 poor   0 not applicable

---

[6] Note: 21 respondents replied "not applicable"

6.4.4   Overall Pilot Evaluation Commentary (Administrative)

TraCS Software Output

Table 14 provides a summary of the scores for Administrative Staff. Administrative staff reported a rating of above average (3.57) for both the ease of reading the new forms and the handling of the new form. The ease of learning the new form was rated as very good. The reduction in errors was also found to be above average with a rating of 3.86.

Reaction from the public was deemed to be very good with a rating of 4; however, it should be noted that 85% of the administration recorded a response of 'not applicable' meaning that there was no reaction from the public, either positive or negative.

The most notable response from the administrative users was a rating of 4.71, or nearly excellent rating, for how well the solution meets their business needs.

Table 14 - Overall Pilot - Administrative Feedback - Summary of Scores

Pilot Evaluation Criteria	Average Rating	Range of Ratings
TraCS Form		
Easy and intuitive to use	3.57	2-5
Easy to learn - required minimum training	4.00	3-5
Easy to use and handle	3.57	2-5
Reduced errors on form	3.86	3-5
General		
Form handling time – did not negatively impact the handling of the form	3.86	3-5
Reaction from drivers/insurance companies	4	4
Overall – software meets my business needs	4.71	4-5

5 excellent   4 very good   3 average   2 below average   1 poor   0 not applicable

7 EVALUATION ANALYSIS

7.1 Officer Evaluations

Figure 3 provides the summary rating for each question that was scored by the officers. As indicated on the graph, all but four of the evaluation criteria received a rating of average (3.0) or above.
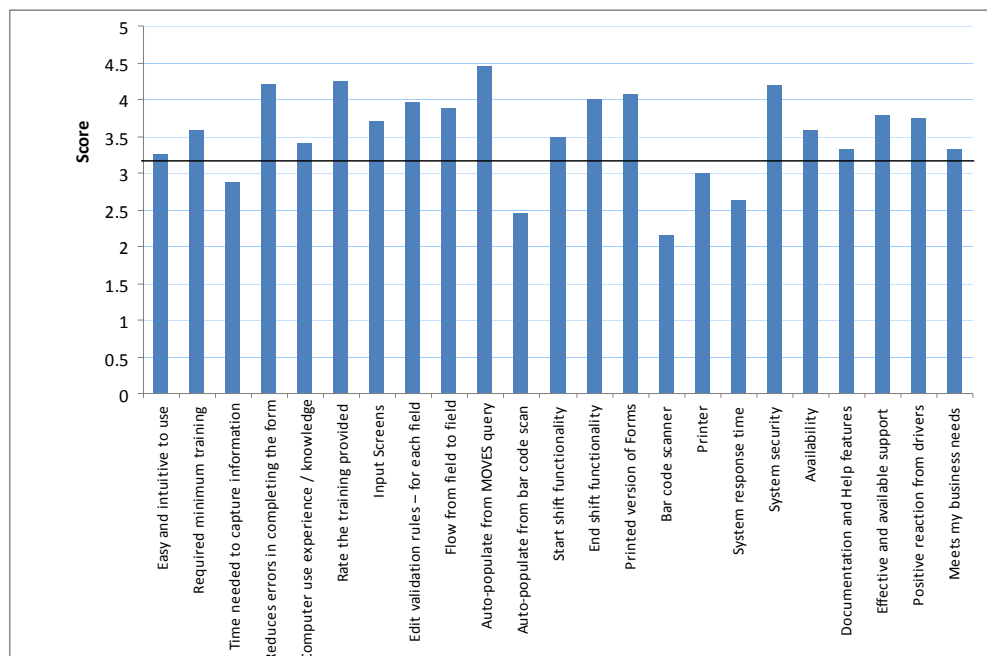
Figure 3 - Summary of Scores by Question

An average rating was received in 4% of the questions asked and 79% of the questions received ratings ranging from slightly above average through to excellent. 27% of the summary responses were rated as very good to excellent.

The four questions that rated between below average and average were related to two areas, contact time with the driver and bar code scanning. The time needed to capture information was rated at 2.88 and the question "system response time did not negatively impact the contact duration" was rated at 2.63. These ratings can be attributed to:

1. Slow driver and vehicle query response times

   In Medicine Hat and Calgary, response times to the driver and vehicle queries were in the area of 30 seconds to one minute. A violation ticket requires two searches and the collision form, in most cases, requires a minimum of four searches. In many cases, a violation ticket can be hand written within 1 – 2 minutes if the officer pre-writes information prior to attending the traffic stop.

2. Printing

   The printer added 30 seconds to one minute to the traffic stop for each page that required printing. CPS in particular found this difficult as three pages were needed to be printed during most of the pilot.

3. Bar code scanner

   Officers rated the bar code scanner as poor. They had difficulty lining up the reader with the bar code on the licence at the right angle to read the bar code immediately. Eventually, the officers quit using the scanner to auto populate the forms.

4. Traffic officers

   The Calgary Traffic unit volunteered to pilot the violation ticket. Traffic Officers generally pre-write the tickets and issue the ticket while standing at the window of the driver's car. The additional time taken to go back to the police vehicle to enter the ticket information and print the ticket caused concern on behalf of the officer. Several of the officers indicated that the solution could work well for general patrol. In Calgary, 42% of all tickets issued are done so by the traffic section while 58% are issued by the patrol section.

5. Streamlined collision form

   Medicine Hat Police also requested changes to the form that would reduce the time required to complete the forms. As examples, officers requested that the mandatory fields be highlighted and also requested additional business rules such as "Load conditions should be greyed out on the collision form for some vehicles (i.e. car)".

Figure 4 shows the mean scores reported by the officers. The mean scores show a more positive response with 61% of the responses being very good to excellent and 26% responding between average and very good.
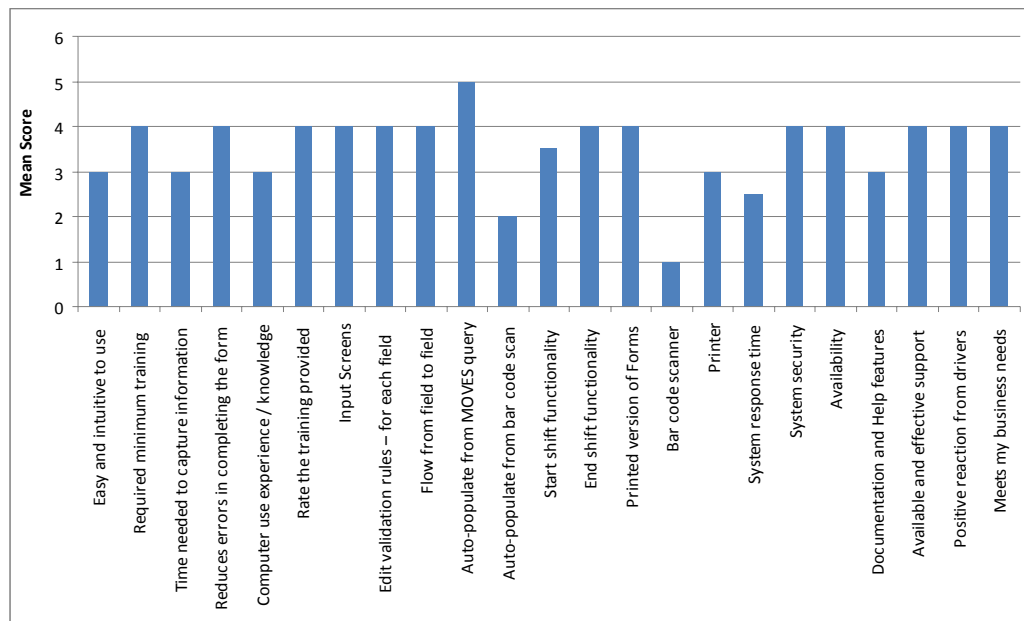
Figure 4 - Summary of Mean Scores by Question

The bar code scanner continues to be an issue receiving a poor rating. System response time is also reported to be between below average and average.

7.2   Administrative Staff Evaluations

The administrative staff using the data and the forms rated 100% of their responses between above average and excellent. The administrative staff had several suggestions for changes to the printed documents; however, they reported a 4.71 out of 5 fit for meeting their business needs.

7.3   Analysis of the Suggestions for Improvement

During the course of the pilot, participants were encouraged to provide feedback and suggestions for improvement. Many of the ideas were incorporated into the input screens as the project was in progress; however, due to the nature of the pilot not all ideas could be incorporated. *Appendix B* lists the suggestions for improvements that were provided by pilot participants during the course of the pilot and during the evaluation phase. For each issue, six elements are documented:

- **Problem/Change** – A brief description of the issue, concern or suggestion as communicated by a pilot participant.

- **Comments** – The comments come from the project team explaining how this issue could be addressed, provide a workaround to the issue or provide other supplementary information.

- **TraCS Software Change Required** – a √ indicates that a change to the source code of TraCS by Technology Enterprise Group Inc. (TEG) would need to be performed to accommodate the request.

- **Form Change or Business Decision Required** – a √ indicates that a form change or a business decision is required to accommodate the request. These changes can be made by the province using the SDK module of TraCS. These changes are easier to complete and are within the control of the agencies and the province.

- **Technical** – a √ indicates that the issue is technical in nature and outside the realm of the TraCS system.

- **Agency Decision Required** – a √ indicates that a form change or a business decision is required to accommodate the request by the agency. In this case, agency means a specific law enforcement agency.

The request for changes were categorized by the form type with some requests which are general to the main application. Table 15 shows the breakdown of the number of requests reported by the type of form being piloted. The majority (55%) of the requests came on the Traffic Violation Ticket Form as the pilot was proceeding. Many of the ideas came from group sessions with representatives from the Calgary Police Traffic unit. The officers were concentrating discussions on how to make a solution such as TraCS work effectively to meet their needs.

Table 15 - Count of Issues by Form

Forms	Count of Suggested Changes	% of Total
Traffic Violation Ticket Form	67	55%
Collision Form	29	24%
CVSA, TVR and Certificate of Weight Forms	19	16%
General Requests	6	5%
Total	**121**	**100%**

Table 16 presents the number of requests reported by the type of action that is required to address the change being requested. The majority of the requests – 78% – can be accepted and changes made within the jurisdiction. These changes would require the consensus of the participating agencies within the jurisdiction before these types of changes could proceed. Of this 78%, 7% can be made directly by an agency without consultation with the other agencies in the jurisdiction. The remaining 22% of requests have to come before an external committee that represents all jurisdictions using the TraCS system.

Table 16 - Analysis of Requests by Type

Forms	Controlled by IOWA DOT	Controlled by the Jurisdiction		
	Count of TraCS Software Changes Required	Form Change or Business Decision Required	Technical	Agency Decision Required
Traffic Violation Ticket Form	13	46	1	6
Collision Form	11	14	2	2
CVSA, TVR and Certificate of Weight Forms	3	17	2	0
General Requests		6		
Total	**27**	**83**	**5**	**8**
Percentage of Requests by Type of Action	22%	67%	4%	7%
Percentage of Requests by Controlling Group	22%	78%		

Figure 5 portrays the counts of the various types of requests. Note that a form change or business decision is all that is required to accommodate the majority (74%) of the requests.
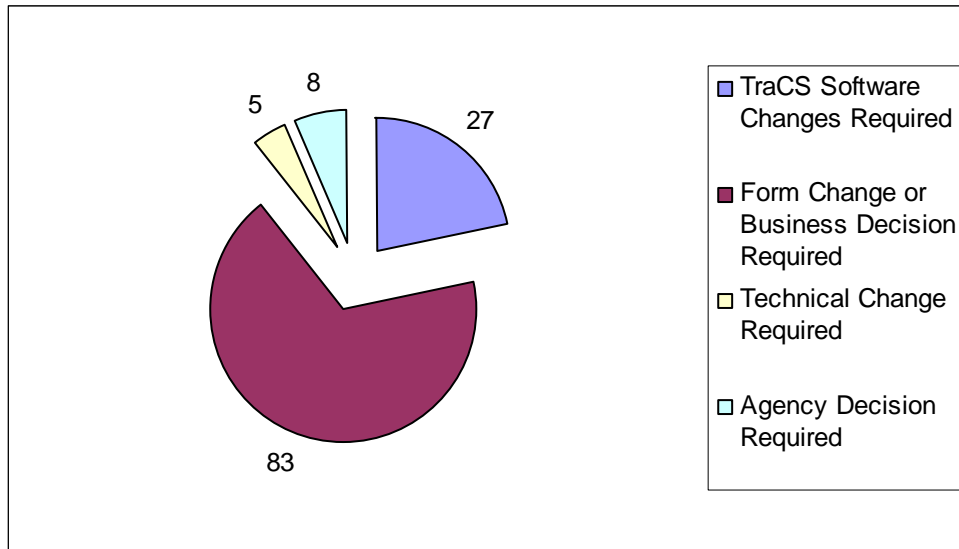
Figure 5 - Count of Requests by Type of Change Required

The requests for changes presented by the officers are reasonable; however, it should be noted that some of the suggestions are contradictory and therefore consensus would need to be reached by the users before a change could be implemented.

As noted in the figure, 76% of the changes are within the control of the pilot project team and therefore could be incorporated in a final solution. From the requests that have been suggested to date, there do not appear to be any changes that could not be accommodated.

8 CONCLUSIONS

The following sections provide a summary of the results of the project along with a conclusion describing how well the project objectives were achieved.

8.1   TraCS Usability

The intuitiveness of the TraCS system is rated as average by the officers; however, the evaluations show that it was easy to learn. Officers had few problems when using the software on a regular basis. Officers from each of the pilot phases who had more training and more exposure to the software on an ongoing basis reported significantly higher satisfaction ratings on most aspects of the software. Those who used the software regularly reported the usability as very good. Therefore, it can be concluded that the software usability is satisfactory.

The time required to capture information was rated as the second weakest area of the solution, with a median rating of 2.5 (between below average and average). The query for the driver and vehicle information showed poor response time, and printing multiple forms also affected the time spent with the driver. CVEB Officers who had access to the faster response time responded with an average rating of 3.46 (between average and very good).

The forms developed were introduced for use in the pilot only. A number of excellent suggestions were received from the officers at all pilot project sites for further optimizing the data collection process. The project team concludes that with access to an effective auto population mechanism, TraCS can be configured to minimize the time required to capture information. This is an area on which the law enforcement agencies and development team need to concentrate. Work with the business owners of each area (collision, violation ticket, CVSA) would need to be completed to optimize the data capture for the officers without compromising data quality.

The TraCS diagramming tool was developed by TEG Inc. as a low level diagramming tool to be used for basic input. Many officers within the MHPS traffic unit are experts in collision reconstruction and require a more sophisticated tool. TEG Inc. has certified three external vendors' diagramming vendor products that interface well with the TraCS system for use with provincial and state collision forms. Many of the agencies that currently use TraCS have opted to purchase licences from the diagramming vendors. The project team recommends that the vendor products be evaluated by any agency or province prior to selecting a diagramming tool for a TraCS collision form.

The CPS Traffic unit piloted the violation ticket and, in earlier phases, some general patrol vehicles were also included. A higher degree of satisfaction was reported by the general patrol officers. Traffic officers indicated that the software solution, as configured in the pilot, was more suitable to general patrol and could work well. The software as it is currently configured appears to work well for the violation ticket for general patrol vehicles; however, a handheld device is necessary for Traffic Officers who generally issue tickets at the driver's vehicle. The current configuration requires that the officer return to the patrol vehicle to input the information and print the ticket, which significantly increases the time for a vehicle stop.

TraCS has recently been enhanced to allow for an interface with a handheld device. The project team recommends investigating the application prior to rollout to a Traffic enforcement unit.

Conclusion

Overall, TraCS was found to be user friendly; however, all three pilots identified a number of opportunities to enhance the software to make it easier for an officer to work with the software in their particular environment. In particular, traffic officers indicated that the software would work well in a patrol environment but would require enhancements to work in a traffic environment.

8.2   Training

The median for the officers' own computer skills prior to the pilot was average, indicating that they are average users of technology both at home and in the work place Most officers received approximately four hours of training, with further training provided as changes were made to the software. The officers were trained using the single form that was being piloted by their agency. Training materials, including user manuals, quick reference guides and examples to practice with hands-on, assisted the officers with quickly learning the software and hardware being piloted.

Conclusion

Officers were able to quickly learn the software and hardware as piloted. In order to train officers on the use of multiple forms and the full TraCS complement of features, it is recommended that two days be allocated for training. This would include training both in a classroom and in the field so that officers become very knowledgeable and proficient with the software prior to actually issuing tickets or attending a collision without support.

8.3   Input Forms

Both the input forms and the data validation rules received above average ratings (3.71 and 3.96, respectively). Both the officers and the project team have identified areas for improvement that will further improve the input forms' usability as well as the time required for data capture. The TraCS system allows for the development of input forms that are usable by the officers in the police vehicle. Many of the changes identified by the officers during the pilot that were required in order for the pilot to proceed were fairly easy to make, providing they did not require major changes to the software.

Conclusion

Input forms for collision reporting, traffic violation tickets and commercial vehicle inspections were well received by the pilot participants. Business rules can be easily developed and incorporated into TraCS to ensure data quality and integrity. Development time required by the project team to develop the forms and incorporate business rules was realistic and acceptable.

8.4   Integration with Other Systems (Auto-population)

The pilot showed positive results in interfacing with MOVES to obtain driver and vehicle information. The interface to TraCS was effective and the auto population function worked extremely well as evidenced by the median score of 5 (excellent). Technical issues did arise in Medicine Hat and Calgary due to network issues and wireless connection speeds; however, officers were able to recognize the effectiveness of the auto-population functionality. The TraCS solution worked well. Further technical work will need to be conducted to understand how to rectify the slow

response time. The pilot team was able to prove the interface was effective using the CVSA forms and the CVEB pilot team, receiving 3 – 5 second response time.

The CPIC system used by all Alberta police services interfaces directly with MOVES and is available through the wireless network on laptops in the police vehicles at acceptable response times. It is therefore assumed that with adequate, dedicated technical involvement, the issue could be resolved. If TraCS were selected, further work on the network between the Alberta Government and police services would be required prior to implementation.

The bar code scanner auto-population was rated with a median of below average. The auto-population feature works the same as the MOVES interface without real-time access to the driver's licence status. Officer issues were related to the sensitivity of the bar code scanner that the agencies selected.   Agencies will need to research various bar code readers to determine the best fit for their agency. If an adequate scanner is found, it is presumed that the auto-population function would be acceptable; however, this would need to be confirmed.

Conclusion

TraCS was able to integrate very effectively and successfully with MOVES to auto-populate information into the pilot forms. Officers were very pleased with the ability to auto-populate the forms with information that was accurate and up to date without having to enter the information themselves. MOVES, MOTRIS and JOIN are large mainframe-based systems that are accessible at many locations throughout Alberta. Therefore, because access to MOVES from TraCS was successful, it is highly likely that similar interfaces to MOTRIS and JOIN could be easily implemented to auto-populate forms with information from other systems.

8.5   Start/End Shift

The start and end shift functionality of the software was rated as 3.5 and 4, respectively. During the start shift function, the officer signs on and can download new charges and changes to the forms, and can also access forms that have not yet been completed. The "start shift" received limited use during the pilot; however, the rating does show that the functionality is acceptable.

The end shift functionality is the function that transmits complete and incomplete forms back to the server at the office level. An "end shift" can happen during a shift, at the end of a shift or at the time a form is completed. Officer rating of the functionality was very good (4). The TraCS end shift worked well and was well liked by the officers, particularly CPS who previously needed to print three copies in the police vehicle. Once the end shift was introduced, the offender copy was printed in the vehicle and the remaining copies were printed in the office using a high speed printer. In the long term, the information would be transmitted electronically to the courts and the additional copies may not be required. The end shift functionality worked well and the project team would recommend that TraCS not be implemented without these functions since the officers experienced significant frustration with the multiple printing aspects.

Conclusion

Although not extensively used during the pilot, it was proven that forms could be successfully uploaded from a mobile computer to a central database or from a central database to a mobile computer using wireless technology. It is also anticipated that the start shift/end shift could be used to download software and forms changes to mobile computers over a wireless connection without officers having to come into a central location every time there are updates available to the software.

8.6   Equipment

Each agency was able to select the printer(s) and bar code scanners to test during the TraCS pilot. The printers and bar code scanners are not directly related to TraCS; however, the agencies are interested in understanding how the devices worked for the officers.

The thermal Pentax PocketJet 2 and PocketJet 3 were selected by all the agencies involved in the pilot. This is the most popular printer used in police vehicles at this time. The printer was selected based on input from other agencies, the convenient size and the flexibility of being able to use single sheet feed or a full paper roll, where each printed page is separated (torn off) by the officer. All agencies also chose to use the cut sheet paper for the pilot as vehicles would need to be re-configured to store rolls of paper.

The printer was rated as a 3 (average), with concerns being raised on printing speed and printer locations. As printing speed is a concern, as is officer time, the project team recommends that when the forms are developed, the amount of printing required should be minimized.

The L-Tron bar code scanner was used by the officers and was rated as poor. Officers had difficulties with the sensitive nature of the scanner, especially regarding the correct angle at which to read the bar code. This feature would be used if a connection to the main database were not available or the driver were from out of province. Another alternative would be to select a mounted bar code scanner, as most officers recommended, or research a scanner that would read both a 2D bar code and a magnetic strip. This would allow most out of province licences to be read and the information to be auto populated into the forms.

Conclusion

Both the printers and bar code scanner used during the pilot proved that they can be used with the TraCS solution. Based on the findings of the pilot, each agency would be required to look at their requirements to determine which printer, type of paper (single sheet feed or roll) and type of scanner would best meet their needs.

8.7   Data Integrity

TraCS had a significant impact on the ability to reduce errors. Supervisors for both Medicine Hat Police Service and INFTRA's Commercial Vehicle Enforcement Branch rated the software as very high in reducing errors, and officers overall provided a mean score of 4 for the software's ability to reduce errors. The Calgary Courts reported that very few (less than .05%) of the electronically produced violation tickets were quashed during the pilot. The Alberta Traffic Safety Data Collection requirements document, updated in 2002, reported a CPS violation ticket quash rate of 10%. Therefore it can be surmised that of the 625 tickets completed during the pilot, 62 of the tickets would have been quashed if they had been completed manually. The pilot proved that TraCS would improve data quality.

Conclusion

It was proven that TraCS can be used to improve data quality and integrity considerably. By incorporating business rules into the input forms and allowing officers to validate their data prior to printing, officers were able to reduce their errors significantly, resulting in quality and accurate data being provided to both the driver and to other systems that use the data.

8.8   Technology Infrastructure

TraCS is a windows based application and will run under Windows 2000, Windows NT and Windows XP. It was designed to operate in several configurations such that it would meet the various networking requirements of police services. TraCS can be deployed in a network environment where data collected is immediately stored in a police agency database, with no data residing in the mobile computer, or it can be deployed such that the data can be stored in a mobile computer until it is convenient for the officer to transfer it to the police station. TraCS provides for several methods for data transfer such as USB mass storage devices, disk, network connection or wireless communications. TraCS is database independent in that it can use either Access 2000, SQL Server 2000, or Oracle 9i.

Conclusion

In all four installations of TraCS – EPS, MHPS, CPS and CVSA – there were no technical issues that limited or constrained TraCS installation or deployment. The pilot project demonstrated that TraCS technology infrastructure is compatible with most police services.

8.9   General

The software met the system security of the officers. Officers were required to use a logon ID and password each time they were required to sign on to TraCS. This system security met the needs of the officers and security requirements of each agency involved in the pilot.

The support availability and effectiveness was rated at 3.78. A review of the individual responses showed that the respondents who received the most support during the initial phases reported the highest satisfaction with the software. Once the software was in place and the officers were comfortable using the tool, significantly less support was required. In areas where the pilot stopped and started, and immediate support was not available during the initial use, pilot participants reported less satisfaction with the software.

The response to "overall – the software meets my business needs" had an average rating of 3.33 with a median score of 4 amongst the officers. The administrative staff handling the documentation reported a satisfaction rating of 4.71.

Conclusion

The pilot project has identified that TraCS is a viable option as a data collection tool within Canadian jurisdictions. Concerns were noted by some of the pilot participants and decisions will need to be made by the jurisdictions and/or law enforcement agencies.

8.10 Cost Summary

Table 17 provides the cost information relating to the pilot project. Since the professional services components are variable, based on the cost of the resource and the degree of requirements, a full-time-equivalent is used.

Table 17 - Cost Summary

Professional Services			
Role	**Level**	**Full Time Equivalent**	**Comment**
Developer	System Analyst II	2.0	Train in SDK, develop forms, interfaces, etc.
Database Administrator	DBA II	.1	Set up databases
LAN Specialist	LS II	.1	Assist in establishing interfaces
Business Analyst	SA II	.5	Gather requirements, business rules, testing, training
TraCS Specialist	SA III	.1	TEG support
Hardware and Software			
Make	**Model**	**Cost**	
Pentax Printer	Pocket Jet III with Bluetooth Printer Plus Kit	$700.00	
Pentax Printer Car Adapter	PocketJet III Car Adapter		
Garmin GPS	Garmin OEM GPS 35 PC	$350.00	
Signature Pad	SignatureGemLCD 4x3	$580.00	
Mobile Disk Storage	USB drive (256 mb)	$50.00	
Portable Hub	Berklin USB Hub (4 port)	$50.00	
Drawing Software	EasyStreet Draw 2003	$270.00	
Scanner	IMAGETEAMT (IT) 4710 Image Reader	$550.00	
Syscan Printer	Syscan ZFP-3F (friction) USB	$792.00	

From a cost perspective, TraCS is a very viable solution. Without doing an in-depth analysis, it is easy to see that TraCS is significantly less expensive to acquire and operate than either of the alternatives: purchasing equivalent software off the shelf or developing equivalent software from scratch.

TraCS does not need to be purchased. It is available to law enforcement agencies across North America at no cost. The only requirement at this time is a nominal licensing fee of $25,000 US per year. The licensed jurisdictions will be sharing the cost of maintenance and support and therefore the licensing fee will be re-evaluated annually. It should be noted that the $25,000 US fee includes support and a portion of the funds for the re-write of the TraCS system.

Although TraCS will require some customization to fix the issues identified during the pilot, the basic forms for all three functions are developed but will need to be reviewed for changes and suggestions identified to improve the forms further. Numerous other forms have been developed and are available through a sharing agreement with other TraCS users. As well, the SDK provides a very cost effective set of tools for developing and modifying TraCS forms.

The complete TraCS solution will require some IT investment from the law enforcement agencies. Printers, scanners and other peripheral equipment as listed in Table 13 will be required for each TraCS equipped police vehicle and office workstation. Cost will depend on each agency's requirements. This cost is not TraCS dependent and will be required for the other alternatives as well.

Police agencies will also need to provide appropriate network infrastructure, including mobile wireless communication capabilities, in order to benefit fully from the TraCS solution. Again, this component cost is not dependent on TraCS and would be required for alternative solutions.

Another cost area for police agencies is interfacing to dispatch and record management systems. The pilot project demonstrated that data can be extracted very easily from the TraCS database and made available to agency and government applications. The cost component in this case is in the need to modify the police applications to accept TraCS data. This cost will vary for each agency and again is something that will be required for the other alternatives as well.

8.11 Lessons Learned

As in all projects, it is important to understand the outside influences that affect a project of this nature. The pilot project stakeholders and project team worked together to ensure that the execution of the pilot met the terms of reference objectives. Although the project met the objectives, there were a number of outside influences that could potentially be avoided during future pilots.

1. Geographical distance between pilot participants and the project team

    Two police agencies volunteered to participate in the mobile phase of the project. The Medicine Hat Police Service volunteered to pilot the collision form and the Calgary Police Service volunteered to pilot the violation ticket. Medicine Hat was located 580 km from the project team and CPS was located 300 km from the team.

    Although much of the work that needed to occur was able to be done from a distance, some work required face to face meetings. Both CPS and MHPS were able to send staff to Edmonton to meet, provide requirements, test and train with the TREDS project team. The TREDS project team representatives travelled to Medicine Hat and Calgary on several occasions as well. In addition, conference calls were also used as a means of obtaining requirements and resolving issues. The distance, however, did become an issue during support and problem resolution. If the project team had been closer to the site as it was with the Leduc vehicle inspection station, it could have provided more direct help to the pilot participants rather than relying on resources that were not fully assigned to the project.

    Medicine Hat police representatives indicated that, in hindsight, their police service was too small to commit to this pilot. Technical resources were limited and due to the distance, the project team was not able to fill the gap.

2. Resource Turnover

    A significant amount of staff turnover within the stakeholder police organizations occurred throughout the term of the project. The Inspectors of the three major police services (EPS, CPS, RCMP) that provided strong leadership and support for the project either transferred or retired during the term of the pilot project. The next level of management within the police services also experienced changes in personnel. The Medicine Hat Traffic unit also saw the retirement of three of the major supporters of the pilot project. Given the staff turnover it was difficult to maintain the momentum of the project while bringing new management up to speed on the nature of the project and the commitments that were made.

3. Pilot Participants Commitment

    Although the pilot participants were committed to the pilot, the project was not formally on their IT or business plans and therefore police services at times had difficulty staffing the pilot project and responding to requests by the pilot project team for support or problem resolution. The effect was that timelines for the pilot were extended and some frustration was felt by the front line police officers as the support needed was not readily available.

4. TREDS Three Year Funding Plan

    The funding for the project was set over a three year period.   This caused some issues for the project team as project funding was unable to sustain the team full time and therefore the team was extended over several projects. Balancing several projects with a changing schedule by the police services did cause some challenges. Although these challenges were not extensive to the project, it did serve to extend the time the project took to execute.

9 RECOMMENDATIONS

9.1 Pilot Recommendations

Following are the recommendations resulting from the pilot project as determined by the project team. It should be noted that regardless of whether TraCS is chosen as the software solution, all of the recommendations provided should be taken into consideration with any software implementation.

1. **TraCS**

    TraCS is recommended as a viable alternative to costly development of new software to electronically capture collision, traffic violation and CVSA inspection information.

    Developed by the Iowa Department of Transportation, TraCS has been in existence since 1995 and is currently licensed by 17 states in the United States and 2 provinces in Canada. TraCS is a viable product that can be built upon to meet the ever increasing demands from its users.

    Software support for TraCS is provided by the Technology Enterprise Group Inc. (TEG). Located in the state of Pennsylvania, TEG specializes in the creation of mobile data collection applications. Throughout the pilot, TEG provided excellent support to the project team in Canadianizing the software for use in Canada, making software changes to meet the requirements of the pilot, and providing technical expertise to the project team. A TraCS website has also been developed where users can obtain information, share experiences, ask questions and obtain support.

    While TEG provides the specialized TraCS support, it is important to remember that forms and business rules development/support can be provided locally utilizing TraCS SDK trained personnel.

    The State of Iowa is currently rewriting TraCS into the .NET architecture. A Rewrite Working Group has been formed and has been meeting to develop the guidelines and recommendations for approval by the National Model Steering Committee. TraCS 10, the rewritten TraCS, is scheduled to be ready for testing in late fall 2008. After TraCS 10 is released for national deployment, the Steering Committee will determine how long TraCS 7.3 (current version) will continue to be supported.

2. **Handheld Computers**

    It is recommended that a handheld solution be investigated to electronically produce traffic violation tickets.

    During the pilot, traffic officers indicated that if TraCS were to be implemented within a Traffic section, handheld computers should be considered to electronically produce traffic violation tickets. Officers indicated that the majority of officers write traffic violations while standing next to the offender, both to expedite the process and for safety reasons. Officers also indicated that a mobile laptop and printer are not practical when patrolling traffic on a motorcycle and therefore they require a more practical means for issuing traffic violations.

3. **Training**

    It is recommended that an officer receive a minimum two days of hands-on training. Training should include:

    a. Classroom instruction using the same equipment available in the vehicle

        It is critical that officers receive hands on training in the classroom with the equipment they will be using in their vehicles. Officers need to get accustomed to not having a mouse to navigate through the input forms on touch screen laptops and use the navigation features within TraCS. They also must become familiar with the printer and bar code scanner so that they can become proficient with using the equipment in the vehicle.

    b. A "ride along" with someone well versed in TraCS to provide support in the vehicle once classroom training has been completed

        In order to be successful, officers need to feel comfortable and confident with the TraCS system, input forms, printer and bar code scanner once they have been trained. It was found during the pilot that officers were much more confident and proficient with TraCS when one of the project team spent time with the officer in the vehicle providing additional support to the officer by answering questions and reiterating how to use the software.

    c. "Just-in-time" training so that the officer is immediately able to use the software without any gaps occurring (e.g. on vacation or scheduled days off following training, assigned to vehicle not having TraCS, etc.)

        Many of the participants indicated they were unable to apply what they learned as soon as they received their training (e.g. on days off after just completing a shift, vehicles with TraCS not available, printer and scanner equipment in vehicle not working) and therefore forgot some of what they learned. When they were finally able to use TraCS, they often ran into problems, became frustrated and resorted back to completing manual forms.

4. **Forms Development**

    It is recommended that all forms development be completed based on:

    a. Input received from the officers during the pilot
    b. Officers directly involved in day-to-day use of the forms

    A number of changes were identified by participating officers throughout the pilot. Many of the suggested changes were made during various stages during the pilot; however, many others were not made because of budget constraints. Therefore, prior to proceeding with any further implementation of TraCS, the changes identified in *Appendix B – Log – Suggestions for Improvement* should be reviewed and implemented where appropriate in order to enhance the software, input forms and productivity of the officers.

    Changes identified in the appendix should also be reviewed with officers who would use TraCS on a daily basis in order to gain their input and consensus on the changes required. Some of the changes identified and made during the pilot were suggested by officers who did not use TraCS on a day-to-day basis and were questioned by those officers who used TraCS during the pilot (i.e. layout of input form, sequence of fields).

5. **Printing**

It is recommended that printing of forms be minimized in the vehicle by:

   a. Printing only copies required by drivers;
   b. Developing electronic interfaces to all other systems requiring information
   c. Limiting the amount of information that needs to be printed on the driver's copy of the form

During the pilot, officers expressed their concern regarding the length of time required to print multiple copies of the various forms in the vehicle. It is strongly recommended that only driver copies be printed in the vehicle. If additional printed copies are required, those copies should be printed in an office environment on a high speed printer.

It is also strongly recommended that all interfaces to other systems requiring information gathered using TraCS be developed prior to any further implementation. Interfaces would provide manpower efficiencies by:

   a. reducing and/or eliminating data entry, error investigation and correction
   b. improving the timeliness of data captured in other systems (i.e. one day compared to many)
   c. improving data accuracy, consistency and integrity
   d. improving and/or eliminating manual business processes and workflows currently in existence for manually processing paper documents

6. **TraCS Support**

It is recommended that both software and hardware/technical support for users be provided during start up to address any questions and problems officers encounter. Support during the start up should be provided by:

   a. A one day "ride along" with each officer in a mobile environment
   b. On-site assistance for officers and administrative support in an office environment
   c. A help desk for both business and technical support

To ensure a successful implementation, it is critical that knowledgeable resources be available during the initial implementation period to support all individuals using the TraCS software and equipment. Resources should be available on site or easily reachable by those having any questions or concerns. Where an individual is struggling or requires additional support, additional time should be spent to get the individual both comfortable and confident with the solution.

7. **Champion**

It is recommended that a "champion" be identified to support and drive any future implementation.

Critical to the success of any implementation is identifying an individual to champion the overall solution. This individual must be willing to take on the challenge and the commitment, and be the driving force behind the implementation. A strong advocate of the solution, this individual

must be able to lead, mentor and direct others through to successful implementation by building energy and engagement around the solution.

8. **Change Management Program**

   It is recommended that change management principles be used to set and manage expectations.

   Management must assess what employee reactions will be and develop a change program that will provide support as individuals go through the process of accepting change. A program must be implemented, disseminated throughout the organization, monitored for effectiveness, and adjusted where necessary. In general terms, the change program should:

   a. Define goals and expectations.
   b. Communicate the change to all people affected and explain the reasons why the changes are occurring. The information should be complete, unbiased, reliable, transparent, and timely.
   c. Provide support to individuals as they deal with the change, and wherever possible involve the employees directly in the change process itself.
   d. Be consistently monitored and reviewed for effectiveness. A successful change management project is typically also a flexible project.

9. **High-Level Review of the Software Technology Available**

   A high-level review should be conducted of the software currently available in the marketplace to determine whether any other products are available or have matured since the last review. Because considerable time has elapsed since other software products have been investigated, there may be new software or new versions of software previously reviewed that may better meet the requirements for electronic capture of collision, traffic violation and commercial vehicle inspection information.

10. **Wireless Technology**

    It is recommended that the most up-to-date wireless technology be used to support transmission of data.

    During the pilot, wireless technology was proven to be an excellent means of interfacing to the MOVES database to retrieve and auto-populate forms with current information within seconds. Wireless technology continues to mature and, along with it, so do increased benefits to the user. In particular, mobile users are able to remotely download and upload information from central servers within seconds to obtain as current information as possible. Wireless technology continues to bridge the gap between business and technology by providing a reliable and convenient means of communication in a secure environment.

9.2   Next Steps

The TREDS pilot project has been completed and Manitoba Public Insurance, Transport Canada and Alberta Infrastructure and Transportation will need to analyze the information provided as a result of this pilot project and determine the next course of action.

Following are the recommendations for proceeding:

1. Findings should be presented at the 2007 Annual Meeting of the Canadian Council of Motor Transport Administrators as identified by the CCMTA Board of Directors.

2. Manitoba Public Insurance and Alberta Infrastructure and Transportation to meet with stakeholders to present the results of the pilot project.

3. Jurisdictions will need to determine whether there is an interest in proceeding with an electronic data collection tool at this time and whether the approach will be at the provincial level or at the agency level.

4. Jurisdictions will need to work with stakeholders to determine whether TraCS is of interest to explore further or whether other software packages should be considered.

5. A TraCS pilot project should be conducted with the RCMP for a period of three months.

APPENDIX A – SAMPLE PILOT EVALUATION QUESTIONNAIRES

Several evaluation questionnaires were used to gather feedback on the pilot project performance. These included:
- Collision Mobile
- Collision Technical
- Violation Ticket
- CVSA Office
- CVSA Mobile

Samples of the evaluation forms provided to participants for the Collision Mobile and Collision Data Users are provided.

TraCS Pilot Evaluation - Collision Form Mobile User

This evaluation is for law enforcement personnel who have used the mobile version of TraCS software with Alberta forms. It is intended to gather feedback on their experiences with the automated solution in its pilot stages.

Pilot Location: Medicine Hat Police Service	**Name:**
Date Started to use TraCS:	**Date of Evaluation:**

How many collision forms have you completed to date using TraCS?	**1 - 10** **11 - 25** **Over 25**

INSTRUCTIONS:

Your input is important. Please respond to each statement below by circling the number that most accurately reflects your experience. Provide additional comments in the space provided.

	Excellent	Very Good	Average	Below Average	Poor	Not Applicable
1. TraCS Software:						
• Easy and intuitive to use.	5	4	3	2	1	0
• Easy to learn - required minimum training.	5	4	3	2	1	0
• Time needed to capture information in the form as compared to doing it manually.	5	4	3	2	1	0
• Reduces errors in completing the form.	5	4	3	2	1	0
Comments or Suggestions for Improvement:						
2. Training:						
• Rate your computer use experience and knowledge.	5	4	3	2	1	0
• Rate the training provided.	5	4	3	2	1	0
How did you receive your training?						
How much time did you require for training?						
Comments or Suggestions for Improvement:						

	Excellent	Very Good	Average	Below Average	Poor	Not Applicable
3. Forms:						
• Collision form (input screens)	5	4	3	2	1	0
• Edit validation rules – for each field.	5	4	3	2	1	0
• Flow from field to field.	5	4	3	2	1	0
• Auto-populate from MOVES Query.	5	4	3	2	1	0
• Auto-populate from bar code scan.	5	4	3	2	1	0
• Start shift functionality	5	4	3	2	1	0
• End shift functionality	5	4	3	2	1	0
• Printed version of Collision Report	5	4	3	2	1	0
• Printed version of Collision Stub	5	4	3	2	1	0
Comments or Suggestions for Improvement:						
4. Equipment:						
• Bar code scanner	5	4	3	2	1	0
• Printer	5	4	3	2	1	0
Comments or Suggestions for Improvement:						
5. General:						
• System response time - did not negatively impact the contact duration.	5	4	3	2	1	0
• System security - meets requirements.	5	4	3	2	1	0
• Availability - available when I need it.	5	4	3	2	1	0
• Documentation and Help features.	5	4	3	2	1	0
• Support was available and effective.	5	4	3	2	1	0
• Reaction from public (driver).	5	4	3	2	1	0
• Overall - software meets my business needs.	5	4	3	2	1	0
Comments or Suggestions for Improvement:						

	Excellent	Very Good	Average	Below Average	Poor	Not Applicable
What was the most disappointing thing about TraCS or the overall solution?						
What was the best thing about TraCS or the overall solution?						

Please list any other comments or suggestions for improvement. Your input is our best means for improving the software effectiveness. Also please provide any comments to help us improve this evaluation form.

Please send this evaluation form to your local TraCS representative, XXXXXXXX or send to Alberta Infrastructure and Transportation to the attention of Teresa Churchill (teresa.churchill@gov.ab.ca) 1st Floor Twin Atria, 4999 – 98 Avenue, Edmonton, Alberta T6B 2X3

TraCS Pilot Evaluation - Collision Form Data User

This evaluation is for personnel who have used the collision data that is electronically prepared from the TraCS software. It is intended to gather feedback on their experiences with the automated solution in its pilot stages.

Pilot Location: Medicine Hat	**Name:**
Date Started to receive TraCS collision forms:	**Date of Evaluation:**

How many TraCS prepared collision forms have you handled to date?	

INSTRUCTIONS:

Your input is important. Please respond to each statement below by circling the number that most accurately reflects your experience. Provide additional comments in the space provided.

	Excellent	Very Good	Average	Below Average	Poor	Not Applicable
1. TraCS Collision Form:						
• Easy and intuitive to read.	5	4	3	2	1	0
• Easy to learn - required minimum training.	5	4	3	2	1	0
• Easy to use and handle	5	4	3	2	1	0
• Reduced errors on form.	5	4	3	2	1	0
Comments or Suggestions for Improvement:						
2. General:						
• Form handling time - did not negatively impact the handling of the form.	5	4	3	2	1	0
• Reaction from drivers/insurance companies	5	4	3	2	1	0
• Overall - software meets my business needs.	5	4	3	2	1	0
Comments or Suggestions for Improvement:						
What was the most disappointing thing about the TraCS prepared collision form or the overall solution?						

	Excellent	Very Good	Average	Below Average	Poor	Not Applicable
What was the best thing about the TraCS collision form or the overall solution?						

Please list any other comments or suggestions for improvement. Your input is our best means for improving the software effectiveness. Also please provide any comments to help us improve this evaluation form.

Please return the completed evaluation form to Alberta Infrastructure and Transportation to the attention of Teresa Churchill (teresa.churchill@gov.ab.ca) 1st Floor Twin Atria, 4999 – 98 Avenue, Edmonton, Alberta T6B 2X

APPENDIX B – LOG – SUGGESTIONS FOR IMPROVEMENT

The following are issues, concerns or suggestions for improvement that were identified during the pilot project. The TraCS version used during the pilot was Version 7.3 Sub Release F. It should be noted that some of the problems/changes identified in the following tables may have been addressed in the most current sub release or potentially in the rewrite of TraCS (TraCS 10) currently underway.

<u>Collision Form</u>

Problem/Change	Comments	TraCS Software Change Required	Form Change or Business Decision Required	Technical	Agency Decision Required	Business Value: <u>High</u> <u>Medium</u> <u>Low</u>	Complexity: <u>Complex</u> <u>Medium</u> <u>Simple</u>
1. Can mandatory fields be highlighted in color (i.e. Red)	Response from TEG - Available for forms in newer TraCS 7.3 sub-release which would need to be installed. Reports are always black and white	√				M	C
2. Use "Location" instead of "Police File Number" in the Search criteria	Currently, only one field can be added to the search criteria (TraCS restriction) - change to "Location". Response from TEG - Will be available in TraCS 10.	√				H	M
3. Alt+D in any date field populates the databar with the date in the wrong format.	Response from TEG - Available in TraCS 7.3 Sub Release H which would need to be installed	√				L	S
4. Add additional fields to search criteria in "Contact Manager" to easily find collision forms (i.e. police file number, incomplete collision forms, time location, plate number, color of vehicle etc.).	Need to be able to search "Contact Manager" by various means to determine if one party has previously come into the counter to provide information regarding a collision (or the form	√				H	M

Problem/Change	Comments	TraCS Software Change Required	Form Change or Business Decision Required	Technical	Agency Decision Required	Business Value: High Medium Low	Complexity: Complex Medium Simple
	was started at the scene of a collision but could not be completed) and the other party comes in at a later date (i.e. because of an injury or later in the day etc) to complete the form. Police always give the police file number to any person involved in the collision for any future reference to the collision with the police. Response from TEG - Will be available in TraCS 10.						
5. When trying to rotate an object in the diagramming tool, it turns off every time you finish rotating. Would like corners to stay green until the object is in the right position	Response from TEG - The New TraCS Diagram Tool allows this.	√				H	C
6. Can the F2 key be used to display a list of values in a field?	Response from TEG - TraCS 7.3 allows you to do this using HTML pages launched through F2 help.	√				L	C
7. Plate number - NOTE: should be able to search by a partial plate number (i.e. bring up all collision forms with a plate number starting with "P"	Response from TEG - Will be available in TraCS 10.	√				H	M
8. Is there a wildcard (i.e. *) available in TraCS that could be used in the search function in Contact	For example, if a witness came in and all they could remember was a couple of numbers in the	√				M	S

Problem/Change	Comments	TraCS Software Change Required	Form Change or Business Decision Required	Technical	Agency Decision Required	Business Value: High Medium Low	Complexity: Complex Medium Simple
Manager.	plate number, could you search by entering only a couple of the numbers and the wild card (i.e. CP*) and it would search for any occurrence of the numbers appearing anywhere in the plate)? Response from TEG - Would need to be added to TraCS 10 (small level of effort)						
9. When the system is doing a search, show the hourglass as at times wasn't sure if there was a problem or just taking a long time to do the search	Response from TEG - Will be available in TraCS 10.	√				M	M
10. Blocks of information must stand out from other blocks of information. Distinguish information automatically populated from information manually entered (i.e. use italics for information automatically populated).	Highlight blocks of information more clearly so that it stands out more on the entry screen (i.e. labels, shading, color, different font, bold letters etc). As well, distinguish information that is automatically populated from information manually entered (i.e. use italics for information automatically populated). Response from TEG - Can currently use different colors and fonts in TraCS 7.3. Small level of effort to change colors and fonts though validation rules in TraCS 10.	√				H	S
11. Automatically populate information based on operator's	Officers gather the operator's licence from those in the	√				H	C

Problem/Change	Comments	TraCS Software Change Required	Form Change or Business Decision Required	Technical	Agency Decision Required	Business Value: High Medium Low	Complexity: Complex Medium Simple
licence number and plate number into the appropriate "Unit" without having to go to "Common" area to select the information.	collision and line them up in piles based on the vehicle (unit) and then, based on the vehicle, will either scan or enter operator licences and plates into TraCS. Response from TEG - Will be available in TraCS 10.						
12. Searches are too slow in MOVES and as a result, TraCS sometimes freezes up	Need to work with Medicine Hat IT to try to speed up response time			√		H	M
13. Integrate collision forms with Versaterm.	Interface collision forms to Versaterm either as a text file or pdf file.			√		H	S
14. Witness should have birthdate					√	H	S
15. Printing too slow	Print back in the office using End Shift				√	H	S
16. Load conditions should be greyed out on the collision form for some vehicles (i.e. car)			√			M	M
17. "Driver Pedestrian" should be "Driver / Pedestrian" or "Driver or Pedestrian"			√			L	S
18. Can the details from the collision form be copied to the ticket when you add a ticket	Currently, there isn't enough space on the ticket if there is a lot of detail to copy from the collision form		√			M	M

Problem/Change	Comments	TraCS Software Change Required	Form Change or Business Decision Required	Technical	Agency Decision Required	Business Value: High Medium Low	Complexity: Complex Medium Simple
19. The "Original/Amended Report" field should also display the code for the description (NOTE: This was identified Oct 25/2006 as a result of inputting all the 2006 collision forms into ACIS	Keying staff require the code and not the description to enter into ACIS		√			H	S
20. Add the following wording in the entry form in the Narrative section to remind officers to include all information as it does on the form now. "Include direction of travel, travelling lane, vehicle movement, obstructions, fixed object, road surface, traffic signs, and describe injuries"	Currently the manual form has wording in the "Police Statement" section to remind the officer what details they are to enter. Provide the same comments so that the Officer is reminded.		√			H	S
21. Ensure adequate space is available for long operator licence numbers	Army personnel (federal government) have 18 digits in their operator licence numbers and are in Medicine Hat quite often because of army bases close by.		√			M	S
22. When a new year starts, do not want to have to enter leading 0's in the police file number (i.e. type "1" not "000001")			√			H	S
23. Provide 2 officer names on bottom of counter and full forms	There may be more than one officer that might be completing the form.		√			M	S

Problem/Change	Comments	TraCS Software Change Required	Form Change or Business Decision Required	Technical	Agency Decision Required	Business Value: **High** **Medium** **Low**	Complexity: **Complex** **Medium** **Simple**
24. Add a field for "Form Incomplete"	When a form is not completed (i.e. waiting for 2nd party to report, injuries etc.) provides a means of identification to officers the status of the form. Officers could also search based on this field if someone comes to the counter.		√			H	M
25. Provide the type of criminal code or TSA suspension codes for individuals when available	Additional information requested by Sgt. James Balmer for police officers to give them some history about an individual if in a collision or being issued a traffic violation.		√			M	S
26. If one object is a train, then there should be only one "all involved" if they were injured and the position is always 98			√			M	S
27. The RCMP needs to use the ACIS Table for the K Code			√			H	M
28. Provide option to use the "Enter" key as well as clicking "Search" to access MOVES.	Hitting the "Enter" key as provided in the ticket, saves time.		√			M	M
29. If several vehicles are involved in a collision, an easy means of identifying the vehicle and driver of each unit is required in the common area (i.e. add the unit number to each person, vehicle and	For example, as you scan in an operator's licence or, do an external search on the operator's licence or plate number, assign an appropriate unit number to it so that when you look in the		√			H	M

Problem/Change	Comments	TraCS Software Change Required	Form Change or Business Decision Required	Technical	Agency Decision Required	Business Value: **High** **Medium** **Low**	Complexity: **C**omplex **M**edium **S**imple
carrier as it relates to a particular vehicle).	common area, you can easily identify the driver and the vehicle for each unit: (NOTE: Carrier as well?) For example: Unit 1 – Smith, Mary {DL-125344-266}, Unit 1 – 1990 Chevrolet GMT-400 {Vehicle STM497}, Unit 2 – Davis, Joe {DL-123455-777], Unit 2 – 2005 Nissan Pathfinder {Vehicle TSR555}						

Traffic Violation Ticket Form

Problem/Change	Comments	TraCS Software Change Required	Form Change or Business Decision Required	Technical	Agency Decision Required	Business Value: High Medium Low	Complexity: Complex Medium Simple
1. Can we select all and then hit print	In Contact Manager, templates for all forms (i.e. Part 1, 2 and 3) are displayed when you try and print all - why? Response from TEG - TraCS 7.3 allows all Forms in the Contact Manager to be selected and the Print button to be pressed. The Print Manager then displays and the user has to select the appropriate Reports to print for the selected Forms. TraCS 7.3 has settings that allow certain Reports for each Form to be automatically selected so that the user does not have to do it manually.	√				H	M
2. Remove the "Current" date button on the date of birth field	This would require a change to the databar by TEG. Response from TEG - TraCS 7.3 has a Birth Date Databar that does not have this button on it	√				L	S
3. Equipment violation made the databar go away	The databar disappears when you indicate "yes" for an equipment violation. You have to click in the field again	√				M	S

Problem/Change		Comments	TraCS Software Change Required	Form Change or Business Decision Required	Technical	Agency Decision Required	Business Value: **High** **Medium** **Low**	Complexity: **Complex** **Medium** **Simple**
		to see it						
4.	Ability to have 2 users on one laptop	Response from TEG - TraCS 7.3 allows two instances or the program to run at the same time.	√				M	C
5.	CAD font is too small because of TraCS	Response from TEG - The Large Fonts issue with TraCS 7.3 should be resolved in TraCS 10.	√				H	M
6.	When scanning a driver's licence, all information should automatically be populated in the ticket without having to go to the common area and use the "Apply" or "Copy" to enter the information.	Response from TEG - Will be available in TraCS 10.	√				H	M
7.	When you add a ticket, can the newest one appear at the top in the navigation tree rather than at the bottom?	Response from TEG - Would need to be added to TraCS 10. Small level of effort.	√				L	S
8.	Would like to be able to click in the field – maybe an option could be provided to give either the databar or to bypass the databar	Response from TEG - This cannot be done in TraCS 7.3 or in TraCS 10.	√				L	C
9.	Have the forms as buttons on top	Response from TEG - Would need to be added to TraCS 10. Small level of effort.	√				H	S
10.	Have tabs on the left side instead of the navigation tree – too small to use	Response from TEG - Would need to be added to TraCS 10.	√				L	M

Problem/Change		Comments	TraCS Software Change Required	Form Change or Business Decision Required	Technical	Agency Decision Required	Business Value: High Medium Low	Complexity: Complex Medium Simple
	with touch screen	Medium level of effort.						
11.	Would like drivers licence stats pop-up and colored for suspended drivers	Response from TEG - Would need to be added to TraCS 10. Small level of effort.	√				H	S
12.	Templates required for comments in officer's notes	i.e. wording (Ward's templates), CPS "stamps" (see examples obtained from training session) templates for Part 1, Part II, Part III. Response from TEG - Would need to be added to TraCS 10. Medium level of effort.	√	√			H	M
13.	Have symbols for things like right hand turn, u-turn stop sign so that officer can select in notes		√				M	C
14.	Want Symbols to be available for Officer Notes	Need to identify standard symbols that officer would use	√				M	C
15.	Would be great to be able to pull up a template and use it depending on the violation – i.e. seatbelt, speeding (10 – 15 templates)		√				H	M
16.	Searches are too slow in MOVES and as a result, TraCS sometimes freezes up	Need to work with Calgary IT to try to speed up response time			√		H	C
17.	Printing too slow using the mobile printer	The overall printing time of a ticket is too slow.				√	H	C

Problem/Change		Comments	TraCS Software Change Required	Form Change or Business Decision Required	Technical	Agency Decision Required	Business Value: **High** **Medium** **Low**	Complexity: **Complex** **Medium** **Simple**
18.	Investigate use of roll paper instead of sheet					√	L	S
19.	Is the court date calculated based on "30" or "21" days?	Leave as "30" days for the pilot but may need to change to "21" at a later date.				√	M	S
20.	Would like to see the form in one view					√	L	C
21.	Would like to see a report of officer statistics developed					√	M	M
22.	Location of printer in the police vehicle needs to be reviewed. Officers are concerned about health and safety issues related to having to stretch over the console into the glove compartments to pull out the printer, no room for second officer when printer is pulled out etc.					√	H	C
23.	Have ability to search on Name and Birthdate in MOVES			√			M	S
24.	Will TraCS support having a photo displayed on the screen in the future?	Would like the driver licence picture displayed when a query is completed to assist in identifying the individual being dealt with		√			H	M

Problem/Change	Comments	TraCS Software Change Required	Form Change or Business Decision Required	Technical	Agency Decision Required	Business Value: High Medium Low	Complexity: Complex Medium Simple
25. Put the "Officer Notes" in only 1 place if using the replicate feature			√			M	S
26. Display Registered Owner on form (greyed out)	Display the name of the Registered Owner in a grey field in the Vehicle area on the form.		√			H	S
27. Recording Mode - allow more than one (i.e. laser and estimate for purposes of going to court)	Change to allow for 2 record modes to be entered for police purposes. NOTE: If 2 record modes are indicated, only the first one is entered in JOIN		√			M	S
28. Recording Mode should be mandatory for speeding			√			L	S
29. Recording Mode - default to laser			√			L	S
30. Default speed to 50 km	If they decide to issue a seatbelt - can the officer also indicate the speed?		√			L	S
31. Officer comments/remarks need a more room			√			L	S
32. Equipment violation box difficult to use			√			L	S
33. Can Offender Location be a user default			√			L	S

Problem/Change	Comments	TraCS Software Change Required	Form Change or Business Decision Required	Technical	Agency Decision Required	Business Value: High Medium Low	Complexity: Complex Medium Simple
34. Display Class of Licence, Condition codes in grey	Determine other information that may be available from MOVES that would benefit the officers		√			H	S
35. Registered Owner - can we tell if the person charged on the offence is also the RO - that the RO section is set to "Yes" or "No"			√			L	S
36. Insurance tickets can show VIN on Offenders copy	Need to check the legality of showing the VIN on the Offence Notice		√			L	S
37. If it's a speeding ticket, make sure it doesn't print without a speeding mode	This should be resolved if we make record mode a mandatory field for speeding charges		√			H	S
38. Particulars/Place of Offence not mandatory - take out validation rule. "Calgary" also is pre-printed on the ticket	A review of sample tickets provided by Sharon Boisvert indicate that street addresses are sometimes entered		√			L	S
39. Can't get this past registration year P-AR, UGH 178	Get error message of "Licence Year cannot be in the future". Licence year displays as P-AR (archived) and if you delete it, still get error message. This should work similar to other special plates. The word "Archived" should print on the ticket.		√			H	S

Problem/Change	Comments	TraCS Software Change Required	Form Change or Business Decision Required	Technical	Agency Decision Required	Business Value: **High** **Medium** **Low**	Complexity: **Complex** **Medium** **Simple**
40. Allow NFA (no fixed address) for city	get errors if you don't provide an address or province		√			L	S
41. "Other" - what if we have this on the ticket in the province code - will this get quashed?	ask Richard Parken		√			L	S
42. Identify if a vehicle is a stolen vehicle	be able to display that a vehicle is stolen (i.e. "Stolen Vehicle"		√			H	S
43. Defaults RO Yes (change it to blank)			√			L	S
44. Error message "Section details must be entered" - does it take you to the right field?	Monitor this as it seems to be working OK		√			L	S
45. Mandatory court - when they changed it back and forth, it did not change to a complaint	Monitor this as it seems to be working OK (i.e. 115(2)(p)		√			L	S
46. Offence Time - default to current time			√			L	S
47. Offence Location - default to Calgary			√			L	S
48. Section - since we can't write more than one offence, only have one "Section" field (get rid of the gap)			√			L	S
49. OL Re 71(1) should be a certificate not an offence notice	Check with Radhesh how we determine offence vs		√			L	S

Problem/Change	Comments	TraCS Software Change Required	Form Change or Business Decision Required	Technical	Agency Decision Required	Business Value: High Medium Low	Complexity: Complex Medium Simple
	summons						
50. No charges for registration violation	Not all charges were made available in the top 200		√			H	S
51. Court dates different for 3 tickets issued to one licence	Can this be changed so the court date is the same?		√			H	S
52. Place of offence should default to "Calgary"	Some officers enter in the exact location while others just go with "Calgary". Need to confirm what the business rules are.		√			L	S
53. Traffic does not use the rules for court dates	Need to confirm what the business rules are between Traffic and General Patrol		√			L	S
54. Why is Pedestrian under "Record Mode"	This should be split out as a separate field along with Bicycle - not able to do this quickly for the pilot		√			L	S
55. Officers use stamps to record information on back of ticket	Need to review "stamps" and how they can be incorporated		√			M	C
56. When scanning a licence, automatically retrieve other information from MOVES as well without having to enter it.			√			H	S
57. Search feature - would prefer to be in the field and then hit the "Enter" key rather than having to click the	Investigate putting search capability right into the field of the data browser and		√			M	M

Problem/Change	Comments	TraCS Software Change Required	Form Change or Business Decision Required	Technical	Agency Decision Required	Business Value: **High** **Medium** **Low**	Complexity: **Complex** **Medium** **Simple**
"Search" button or clicking Alt + S to bring up a list	highlight the field (i.e. yellow) to indicate it is a search field						
58. Currently, the table for provinces does not have many of the other countries that may be needed if a ticket is issued to tourist from another country (i.e. France, Germany etc).			√			L	S
59. Put the officer notes in only 1 place if using the replicate feature.			√			L	M
60. Move details above other information			√			L	S
61. Police File # should be on the form			√			L	S
62. Bypass the court information but be able to change it if required			√			L	S
63. When the information auto-populates from MOVES, the cursor should go to the name field so you can make changes rather than skipping all of the name information and going to the next field requiring entry			√			L	S
64. Would like big black lines separating the information on the form (i.e. offender)			√			L	S
65. Have the signature box "X" with a			√			L	S

Problem/Change	Comments	TraCS Software Change Required	Form Change or Business Decision Required	Technical	Agency Decision Required	Business Value: **High** **Medium** **Low**	Complexity: **C**omplex **M**edium **S**imple
grey background							
66. Would like electronic signature			√			L	S

CVSA, TVR and Certificate of Weight Forms

Problem/Change	Comments	TraCS Software Change Required	Form Change or Business Decision Required	Technical	Agency Decision Required	Business Value: High Medium Low	Complexity: Complex Medium Simple
1. Remove the extension number from the telephone number wherever it is used in the CVSA data collection.	Response from TEG - Would require a new Databar in TraCS 10 or the Output Mask can be used in TraCS 7.3 so that the extension doesn't show up on the Form or the Report even though it is entered into the Databar.	√				L	S
2. Would like to have the ability to print only certain pages sometimes (i.e. only print page 1 and not page 2)	Response from TEG - Would need to be added to TraCS 10. Small level of effort.	√				L	S
3. Check how brake measurements are entered in MOTRIS.	In non-expert mode, can the databar be changed for the brake, push rod travel entry fields to ensure a blank space appears between the numbers (currently displays as 11/2 if no blank space is entered and would be better to display a 1 1/2. NOTE: If this is a databar change then it must be done by TEG.	√	√			M	M
4. If the Operators Licence is in the "Suspended" or "Expired" status, highlight the field in red.	May be impacted by PC O/S and video display card		√	√		M	C

Problem/Change	Comments	TraCS Software Change Required	Form Change or Business Decision Required	Technical	Agency Decision Required	Business Value: **High** **Medium** **Low**	Complexity: **Complex** **Medium** **Simple**
5. Populate the CVIP information from MOTRIS (i.e. Decal #, NSC/DOT #, NSC Jurisdiction)	Data will be more accurate. Requires a MOTRIS Interface		√	√		H	M
6. Remove the "type" field in "Brake Push Rod Travel"			√			L	S
7. Add a separator "," for Vehicle # in CVSA for defects in a combination			√			M	S
8. Remove the Defect # from the Vehicle #/Defect # combination			√			L	S
9. Should registered weight be added to CVSA?			√			L	S
10. Signature capture CVSA. How should this be done, if at all?			√			L	S
11. Can licence plate appear next to the description in the common area (i.e. more than one of the same trailer - use licence plate to select the right one without having to look at them all			√			L	S
12. Change the district field to be a drop down list to allow the selection of a district. This is helpful when temporarily assigned to a different district for a period of time.			√			M	S
13. If you have a remark you now have to go to the remarks section and then			√			M	M

Problem/Change	Comments	TraCS Software Change Required	Form Change or Business Decision Required	Technical	Agency Decision Required	Business Value: High Medium Low	Complexity: Complex Medium Simple
when you print, you get 2 pages. Is it possible to have the comments print only if the field is not blank.							
14. Remove TVR from the TVR number on the Traffic Violation Report.	This will remove confusion for the outsourced data entry resources.		√			L	S
15. For Inspection Level "2" or "3" do not allow the entry of values in the "Brake Push Rod Travel" section (i.e. leave grayed out) even though a value is entered in "no. of Axles".	Level 2 is a Walk-around Driver/ Vehicle inspection and Level 3 is a Driver Only Inspection.		√			L	S
16. Currently when you enter a value in the "No of Axle Groups" you must enter the associated scale and allowable weights (TVR form). There may be cases where this is not entered (i.e. roadside)			√			L	S
17. TVR sometimes goes to 2 pages. This doesn't work			√			L	S
18. Easier way to enter brake measurements			√			M	M
19. Change the weigh scale certificate. It has a statement that says, " I, _____ " when it prints out it shows the last name and then the first. It should be first name then last name			√			L	S

General Changes

Problem/Change	Comments	TraCS Software Change Required	Form Change or Business Decision Required	Technical	Agency Decision Required	Business Value: High Medium Low	Complexity: Complex Medium Simple
1. Customize HELP with key strokes			√			L	C
2. How do we differentiate between the original document and copies? (i.e. watermark for original, revision 1, revision 2 etc. for changes)			√			M	M
3. Lock down of the form - no changes after printing. How are revisions/changes to be handled?			√			M	M
4. How will out of province plates be entered? Is this an IRE issue?			√			M	M
5. Investigate putting the search capability right into the field of the data browser and highlight the field (i.e. yellow) to indicate it is a search field.			√			L	M
6. Would like to use electronic signature			√			M	S

APPENDIX C – CVSA MOBILE PILOT EMAIL

From: Mark Sproule
Sent: Thursday, April 20, 2006 1:50 PM
To: Glenn M Thomas; Michael Harrish; Dan deMelo; Jacquie Daumont; Navi Singh
Subject: TraCS Success

Wow, First day on the road with TraCS and the program is running flawless. I have completed 4 level 1 CVSA inspection forms thus far with no difficulty. The program's internal links to MOVES worked seamlessly and entering data into the various fields took some getting used to, but worked very efficiently. I am set up on the side of Highway 21 by Delburne right now and am emailing through the wireless aircard. The wireless aircard has a signal booster installed which allows for a virtually undropable signal, which for us in low service areas is a huge bonus. If this is where we are going, I can truly say "we are the leaders in our field of expertise and this is one more tool we can use that will help us monitor and help keep Alberta's roads safe". To everyone involved on the project keep up the excellent work!

Mark Sproule
Transport Officer
Commercial Vehicle Enforcement
Red Deer District

APPENDIX D – NEWS RELEASE MEDICINE HAT POLICE SERVICE

**MEDICINE HAT
POLICE SERVICE**

MEDIA RELEASE

06-016800
Media Interest
2006-07-11 17:35 -
ASSIST - PUBLIC
850-900 2 ST SE

Text Release Date and Time: 2006-07-11 17

PILOT TEST OF ELECTRONICALLY PRODUCED VIOLATION TICKETS

MEDICINE HAT POLICE SERVICE NEWS RELEASE

The Medicine Hat Police Service is announcing the launch of a test program to issue electronically produced violation tickets and collision report forms.

The pilot project involves Medicine Hat Police Service vehicles that have been equipped with in-car printers, bar code scanners and specialized software loaded into the vehicle's existing onboard laptop computers.

The new system allows officers to scan a motorist's driver's licence to obtain driver information from the licence's bar code. The system auto-populates offence and court dates. The officer then accesses a series of drop down lists of the various Traffic Safety Act sections in order to produce an electronic violation ticket that is printed on an 8 1/2" x 11" piece of paper, unlike the smaller handwritten tickets now in use.

The electronically produced violation tickets are legally enforceable as a result of legislative amendments made prior to the launch of the pilot project. Payment options for motorists remain the same. The pilot project is

expected to run for approximately three months, after which time it will be reviewed and a decision made on implementing the system province-wide.

Sergeant Jim Balmer of the Service's Traffic Response Unit says there are several benefits to the new in-vehicle technology. "The electronically produced violation tickets will be more accurate and the information will be easily transferred from the Police Service to the court system," he said. "Information collected as part of a collision report can be easily shared with the violation ticket, reducing the time an officer spends completing paper work."

The Medicine Hat pilot project is part of a larger project with 12 police agencies and government departments province-wide in support of a single software solution.

The pilot is being jointly funded by Transport Canada and Alberta Infrastructure and Transportation.

RELEASED BY THE PUBLIC AFFAIRS/MEDIA RELATIONS UNIT FOR MEDICINE HAT POLICE SERVICE

Media contact: For more information contact Traffic Response Unit Sergeant Jim Balmer at (403) 529-8471 or Constable Rick Hunn at (403) 529-8472

APPENDIX E – *CALGARY SUN* ARTICLE

Tue, October 25, 2005

Calgary cops try e-tickets

Traffic reports go high-tech

By BILL LAYE, Calgary Sun

Moving to high-tech tickets may save the city as much as $3 million a year in unpaid fines, says the head of the police's traffic section.

As part of a three-month $950,000 Alberta Transportation-Transport Canada pilot project, Calgary cops and 11 other forces across the province are looking at ways to move from paper to digital police traffic reports.

Under the new system for handing out fines, all the officer will have to do is take the offending driver's licence and registration back to the cruiser and scan the documents' bar codes.

So, it will greatly improve accuracy and speed up the process at traffic stops, said Insp. Bill Sherlock.

Calgary Police Service Sgt. Ward Stene shows that scan-do attitude. This bar code scanner will be used to read information from drivers' licences. (JIM WELLS, Sun)

"We believe the electronically produced violation tickets will provide enhanced accuracy and legibility," Sherlock said, adding about 10% of tickets currently issued are tossed out on technicalities.

The project involves five Calgary police cars being equipped with the bar code scanners, special software for the vehicle's existing laptop computer and a small printer -- which will generate a ticket for the motorist on a standard 81/2-by-11-in. sheet of paper.

Information on the violation can then be uploaded to police headquarters and traffic court authorities, eliminating the need for any more paper, Sherlock noted.

But car-mounted Interac machines for payment on-site are not in the works.

"We're not in the business of handling the fees," Sherlock said.

APPENDIX F – SAMPLE COLLISION REPORT AND STUB

Alberta	**COLLISION REPORT FORM**	Collision Case Number. 1390558	Continuation No.		Police Service. MHPS	Police File No. 2007-12345	RCMP Zone.

LOCATION

☒ In Town/Near	City, Town, Village or Hamlet of	MEDICINE HAT		Occurrence Date		Occurrence Time
On	Primary/Secondary Hwy. No. / Street / Avenue	1234 ANY STREET		Reported Date 2007-01-08		Reported Time 09:46
At Intersection with	Primary/Secondary Hwy. No. / Street / Avenue	1234 ANY AVENUE		File Status 2 - CONCLUDED	Forward To	
If Not at Intersection	Distance		Direction	Severity of Collision PROPERTY DAMAGE		Dairy Date

Total Vehicles 0 | Total Injured 0 | Total Fatalities 0

Special Reference — If location can be described more precisely, enter here

Original / Amended Report — Hit and Run ☐ Yes ☒ No — Scene Visited ☐ Yes ☐ No

Do Not Write in This Space

Special Studies

EVENT INFORMATION

Primary Event | Primary Event Other

OBJECT INFORMATION

DRIVER VEHICLE OWNER

001

Object Type | Initial Point of Impact

OBJECT 001 — DRIVER / PEDESTRIAN

Surname | First Name | Initial | Operator's Licence Number | Prov. / State

Address

Date of Birth | Sex | Valid Licence ☐ Yes ☐ No | Proper Class ☐ Yes ☐ No

City | Prov. / State | Postal Code | Home Phone | Work Phone

OBJECT 001 — VEHICLE

Year | Make | Model | Color | Dangerous Goods Class | Dangerous Goods PIN

Licence Plate | Prov./State | VIN | Estimated $ Damage

OBJECT 001 — OWNER

Company Name / Leased By | Home Phone | Work Phone

Surname | First Name | Initial

Address | Insurance Co. and Agent

Policy Number | Policy Expiry Date

City | Prov./State | Postal Code

This information is collected under the authority of the Traffic Safety Act (TSA) for the purpose of reporting and investigating a motor vehicle accident and compiling statistics. The information is disclosed in accordance with the TSA. Contact Transportation Safety at 4668-58 Avenue, Edmonton, AB T6B2X3 (780) 427-9301 or toll free 310-0000 if you have any questions regarding this information.

Form Number. 1390558

Pages 1 of 3

Page F-1

D R I V E R V E H I C L E	002	OBJECT INFORMATION

OBJECT INFORMATION

Object Type	Initial Point of Impact

OBJECT 002 — *DRIVER / PEDESTRIAN*

Surname	First Name	Initial	Operator's Licence Number	Prov./State

Address		Date of Birth	Sex	Valid Licence ☐ Yes ☐ No	Proper Class ☐ Yes ☐ No

City	Prov./State	Postal Code	Home Phone	Work Phone

OBJECT 002 — *VEHICLE*

Year	Make	Model	Color	Dangerous Goods Class	Dangerous Goods PIN

Licence Plate	Prov./State	VIN	Estimated $ Damage

OBJECT 002 — *OWNER*

O W N E R	Company Name / Leased By	Home Phone	Work Phone

Surname	First Name	Initial

Address	Insurance Co. and Agent

	Policy Number	Policy Expiry Date

City	Prov./State	Postal Code

C H E C K B O X I N F O	OBJECT 001	CHECKBOX INFORMATION

Object Identification	Object Identification Other	Driver Action	Driver Action Description
Light Conditions X	Light Conditions &	Traffic Control Device	Other Traffic Control Device
Traffic Control Condition	Other Traffic Control Condition	Pedestrian Action	Pedestrian Action Description
Driver Pedestrian Condition	Driver Pedestrian Condition Description	Contributing Road Conditions	Other Contributing Road Conditions
Environmental Conditions	Other Environmental Conditions	Surface Conditions	Other Surface Conditions
Load Details	Load Spilled	Attachments	Attachment Description
Trailer Type	Trailer Description	Vehicle Condition	Vehicle Condition Description
Unsafe Speed	Vehicle Repairable		

C H E C K B O X I N F O	OBJECT 002	CHECKBOX INFORMATION

Object Identification	Object Identification Other	Driver Action	Driver Action Description
Light Conditions X	Light Conditions &	Traffic Control Device	Other Traffic Control Device
Traffic Control Condition	Other Traffic Control Condition	Pedestrian Action	Pedestrian Action Description
Driver Pedestrian Condition	Driver Pedestrian Condition Description	Contributing Road Conditions	Other Contributing Road Conditions
Environmental Conditions	Other Environmental Conditions	Surface Conditions	Other Surface Conditions
Load Details	Load Spilled	Attachments	Attachment Description
Trailer Type	Trailer Description	Vehicle Condition	Vehicle Condition Description
Unsafe Speed	Vehicle Repairable		

This information is collected under the authority of the Traffic Safety Act (TSA) for the purpose of reporting and investigating a motor vehicle accident and compiling statistics. The information is disclosed in accordance with the TSA. Contact Transportation Safety at 666-98 Avenue, Edmonton, AB T6B 2X3 (780) 427-8901 or toll free 310-0000 if you have any questions regarding this information.

Form Number. 1390558	Page 2 of 3

D I A G R A M	
N A R R A T I V E	Proposed Police Action
	Description : Include: Direction of Travel, Travelling Lane, Vehicle Movement, Obstructions, Fixed Object Traffic Signs.
	The legal makes no representation as to Driver Fault

Officer Name	S. ADMIN	Badge #	SYSADMIN	Unit Number	Approved By		Badge #
Officer Signature		Approved Signature			Approval Date		

This information is collected under the authority of the Traffic Safety Act (TSA) for the purpose of reporting and investigating a motor vehicle accident and compiling statistics. The information is disclosed in accordance with the TSA. Contact Transportation Safety at 4999-98 Avenue, Edmonton, AB T6B2X3 (780) 427-8901 or toll free 310-0000 if you have any questions regarding this information.

This information is collected under the authority of the Traffic Safety Act (TSA) for the purpose of reporting and investigating a motor vehicle accident and compiling statistics. The information is disclosed in accordance with the TSA. Contact Transportation Safety at 4999-98 Avenue, Edmonton, AB T6B2X3 (780) 427-8901 or toll free 310-0000 if you have any questions regarding this information.

Form Number.   1390558

Pages   3 of 3

COLLISION REPORT STUB

Collision Case Number:		Occurence Date	Occurence Time	Police Service:		Police File No:
Severity		Total No. Of Witnesses	Hit And Run Yes ☒ No ☐			

OBJECT DRIVER   DRIVER/PEDESTRIAN

Surname	First Name	Initial	Operator's Licence Number	Prov. / State	Home Phone
Address	City		Prov. / State	Postal Code	Work Phone

OWNER

Company Name / Leased By					
Surname	First Name	Initial	Home Phone	Work Phone	
Address	City		Prov./State	Postal Code	

VEHICLE

Licence Plate	Prov./State	Insurance Co. and Agent	Policy Number	Policy Expiry Date

OBJECT PEDESTRIAN   DRIVER/PEDESTRIAN

Surname	First Name	Initial	Operator's Licence Number	Prov. / State	Home Phone
Address	City		Prov. / State	Postal Code	Work Phone

OWNER

Company Name / Leased By					
Surname	First Name	Initial	Home Phone	Work Phone	
Address	City		Prov./State	Postal Code	

VEHICLE

Licence Plate	Prov./State	Insurance Co. and Agent	Policy Number	Policy Expiry Date

Contact the Medicine Hat Police Information Coordinator at (403) 502-8916 to obtain a copy of the complete collision report.

This information is collected under the authority of the Traffic Safety Act (TSA) for the purpose of reporting and investigating a motor vehicle accident and compiling statistics. The information is disclosed in accordance with the TSA. Contact Transportation Safety at 4999-98 Avenue, Edmonton, AB T6B2X3 (780) 427-8901 or toll free 310-0000 if you have any questions regarding this information.

Form Number: 9001001

Pages 1 of 1

APPENDIX G – SAMPLE VIOLATION TICKET

VIOLATION TICKET
CANADA
Province of Alberta

A XXXXXXXXX

OFFENCE NOTICE

On or about _____ , at or near _____

NAME   ADDRESS

DID UNLAWFULLY CONTRAVENE SECTION _____
OF THE

CERTIFICATE OF OFFENCE AND SERVICE
I believe on reasonable and probable grounds and certify that the person named above committed the offence as indicated and certify that I served an Offence Notice personally upon the person charged on the offence date.

COMPLAINANT _____
                                    Signature

IN THE NAME OF HER MAJESTY THE QUEEN YOU ARE THEREFORE COMMANDED TO APPEAR BEFORE A JUSTICE AT

AND TO ATTEND THEREAFTER AS REQUIRED BY LAW.

THE FOLLOWING DOES NOT FORM PART OF THE CHARGE

SPEED LIMIT ____ km/h   RECORDED SPEED ___ km/h

PLACE OF OFFENCE   OFFENCE TIME

VOLUNTARY PAYMENT OPTION	

OPTIONS: CHOOSE ONE OPTION ONLY.
YOU MAY PLEAD GUILTY TO THE OFFENCE CHARGED BY MAILING OR DELIVERING THIS OFFENCE NOTICE TOGETHER WITH THE VOLUNTARY PAYMENT IN THE AMOUNT INDICATED.

OPTION 1: PAY THE VOLUNTARY PAYMENT amount on or before the appearance date as indicated above. This ticket may be paid in person at any Registry Office or Provincial Court. You must bring this ticket with you when making a payment. If you wish to mail your payment, see below for mailing instructions. You may also pay this ticket using the Internet by following the instructions on the website at **www.finepayment.gov.ab.ca**. Service fees will apply at a Registry Office or if you use the website. If you wish to mail your payment send it to:

Mailing Address

Include your ticket with your payment and write the ticket number on the back of your cheque or money order. Do not send cash through the mail. Cheques or money orders, in Canadian Funds, must be made payable to: **Minister of Finance**. If you wish to pay by credit card, please complete the following:

☐ VISA   ☐ MASTERCARD   No.: _____

Expiry Date: _____ / _____   Cardholder's Signature: _____

If applicable, the late payment charge will be added to your payment.

OPTION 2. PLEAD NOT GUILTY by mailing this notice to the address indicated above and by signing the following statement:

I wish to **Plead Not Guilty** to the offence I have been charged with and **Will Appear at the Trial Date** set for me. I understand that I will be advised of this trial date by ordinary mail which will be sent to the address on the face of this offence notice unless I indicate a different address on the reverse of this Offence Notice. I understand that should I fail to appear for my trial I may be convicted in my absence and without a hearing and I will be responsible for payment of any penalty plus late payment charges that may become applicable.

Print Name: _____   Date: _____   Signature: _____

OPTION 3. APPEAR BEFORE A JUSTICE at the appearance address and date indicated above. You may plead guilty or not guilty to the offence charged. If you plead guilty, you may make submissions as to penalty and the Justice may grant time to pay. If you plead not guilty, a trial date will be set.

NOTE: Where authorized, the voluntary payment option includes a victim surcharge. The victims surcharge is used to assist victims of crime in the Province of Alberta.

WARNING: The onus is on you to ensure that payment or any other action reaches the Court Office prior to your appearance date. If you choose the Voluntary Payment Option, your payment must be received on or before the appearance date to avoid late payment charges. Should you be convicted of the offence in your absence and fail to pay the fine imposed within the time allowed if any, you will be subject to late payment charges. The amount of the late payment charge will be $20 or 20% of the above Voluntary Payment amount whichever is greater.

You have the right to retain and instruct counsel regarding this matter.

If you fail to respond to the Offence Notice as required by law by the appearance date indicated above, or if you plead not guilty and fail to appear in court in person or by agent on your trial date, you will be deemed not to dispute the charge, and a Justice may convict you of the offence in your absence without a hearing. Until the Voluntary Payment amount plus any late payment charges are paid in full, you will not be allowed to obtain or renew your Driver's Licence and/or Motor Vehicle Licence(s). In some cases your Driver's Licence will be suspended. Conviction of certain motor vehicle driving offences will result in demerit points being assessed against your driving record.

Change of Address
Please complete if your address is different than shown, on the face of the ticket.

Street _____ CityTown _____ Province _____ Postal Code _____

PART 3

VIOLATION TICKET
CANADA
Province of Alberta

A XXXXXXXXX

On or about _____, at or near _____

NAME   ADDRESS

DID UNLAWFULLY CONTRAVENE SECTION _____
_____ OF THE

CERTIFICATE OF OFFENCE AND SERVICE

I believe on reasonable and probable grounds and certify that the person named above committed the offence as indicated and certify that I served an Offence Notice personally upon the person charged on the offence date.

COMPLAINANT _____
                          Signature

IN THE NAME OF HER MAJESTY THE QUEEN YOU ARE THEREFORE COMMANDED TO APPEAR BEFORE A JUSTICE AT
AND TO ATTEND THEREAFTER AS REQUIRED BY LAW.

THE FOLLOWING DOES NOT FORM PART OF THE CHARGE

SPEED LIMIT ____ km/h   RECORDED SPEED ____ km/h   LASER

PLACE OF OFFENCE   OFFENCE TIME

VOLUNTARY PAYMENT OPTION [   ]

OPERATORS LICENCE NUMBER	PROVINCE	BIRTH DATE	SEX
VEHICLE LICENCE NUMBER	PROVINCE		
VEHICLE MAKE	YEAR	COLOUR	LICENCE YEAR
M.V.I.D. No.	NATIONAL SAFETY CODE NO.		

ADJUDICATION

Charge Read & Plea Entered   Finding of Court

☐ Guilty ☐ Not Guilty ☐ Guilty to Lesser or Amended Charge

☐ Guilty   ☐ Quashed   ☐ Withdrawn   ☐ Dismissed
☐ Convicted in Absence and Fined Specified Penalty

Fine and Surcharge $ _____   Time to Pay to _____

Date _____   _____
                                                    Adjudicating Provincial Judge or Justice

PART 1

VIOLATION TICKET
CANADA
Province of Alberta

A XXXXXXXXX

SUMMONS

On or about _____ , at or near _____

NAME   ADDRESS

DID UNLAWFULLY CONTRAVENE SECTION _____
                              OF THE

SUMMONS
I believe on reasonable and probable grounds and swear that the person named above committed the offence as indicated and that I served a **Summons** personally upon the person charged on the offence date.

COMPLAINANT _____
                                    Signature

IN THE NAME OF HER MAJESTY THE QUEEN YOU ARE THEREFORE COMMANDED TO APPEAR BEFORE A JUSTICE AT

AND TO ATTEND THEREAFTER AS REQUIRED BY LAW.

THE FOLLOWING DOES NOT FORM PART OF THE CHARGE

SPEED LIMIT ____ km/h   RECORDED SPEED ___ km/h   Record Mode

| **COURT APPEARANCE REQUIRED** | | **VOLUNTARY PAYMENT OPTION** | |

PLEASE READ CAREFULLY

THIS IS A SUMMONS AND YOU ARE REQUIRED TO APPEAR IN COURT, PERSONALLY OR BY AGENT. THE COURT MAY ISSUE A WARRANT FOR THE ARREST OF ANY PERSON WHO FAILS TO ANSWER A SUMMONS.

YOU MAY PLEAD GUILTY TO THE OFFENCE CHARGED BY MAILING OR DELIVERING THIS SUMMONS TOGETHER WITH THE VOLUNTARY PAYMENT IN THE AMOUNT INDICATED. FAILURE TO APPEAR IN COURT OR PAY THE VOLUNTARY PAYMENT BY THE REQUIRED DATE MAY RESULT IN A WARRANT BEING ISSUED FOR YOUR ARREST OR A TRIAL BEING CONDUCTED IN YOUR ABSENCE.

Mail or Deliver this summons together with the voluntary payment in the amount indicated to:

Mailing
Address

WARNING:
A WARRANT MAY BE ISSUED FOR THE ARREST OF ANY PERSON WHO
FAILS TO APPEAR IN COURT OR PAY THE VOLUNTARY PAYMENT BY THE DATE REQUIRED.

You have the right to retain and instruct counsel regarding this matter. This is the only document you will receive regarding the above stated charge. It is your responsibility to act within the specified time period.

NO REMINDER NOTICE WILL BE SENT TO YOU

NOTE
If mailed, your payment must be either by cheque or money order. Your payment MUST reach the court prior to the appearance date. Include your ticket with your payment. Write the ticket number on the back of your cheque or money order. Do not send cash through the mail.

Cheques or money orders, in Canadian funds, must be made payable to: **Minister of Finance**. If you wish to pay by credit card, please complete the following:

☐ VISA   No. _____   Expiry Date: _____

☐ MASTERCARD   Cardholder's signature: _____

NOTICE
Conviction of certain motor vehicle driving offences will result in demerit points being assessed against your driving record. Where authorized, the voluntary payment option includes a victim surcharge. The victim surcharge is used to assist victims of crime in the Province of Alberta.

Part 2

APPENDIX H – SAMPLE CVSA INSPECTION REPORT, TVR AND CERTIFICATE OF WEIGHT

Alberta

CVSA
Commercial Vehicle Inspection Report

AB 1000080E

Inspection Level	**1**

Date	Time In (24 hr)	Location		Location Type	District Worked	Special Operation
2006-01-08	**16:01**	**LEDUC VIS**		**VIS**	**EDMONTON**	

Owner Name	Contact Telephone Number	MVID	NSC/DOT#	NSC Jur
LASTNAME FIRSTNAME				

Owner Address		City	Jur	Postal Code
123 ANY ST		**EDMONTON**	**AB**	**S1S 1S1**

Driver Last Name	First Name	Middle Name	Licence #	Jur	DOB
LASTNAME	**FIRSTNAME**		**123-456**	**AB**	**1960-01-01**

Types: P-Power Unit,ST-Semi-Trailer,TR-Truck,T-Trailer,DC-Converter,SB-School Bus,MC-Motor Coach,ME-Mobile Equipment,LE-Lic. Exempt,OB-Other Bus

Unit #	Type	Plate #	Jur	Year	Make	Serial #	CVIP/PMI Decal#	Jur	CVSA Decal#
001	**P**	**12345**	**AB**	**2000**	**Peterbilt - PET**	**123456789**			**99999**

Odometer Reading	**10000**	⦿ Km ○ Miles	Unit Use	**Commercial**	Dangerous Goods	☐ Yes	☒ No

BRAKE PUSH ROD TRAVEL	Axle	1	2	3	4	5	6	7	8	9	10	11	12
	Type												
	Right												
	Left												

X--Defect Noted O-Out of Service   **ANY DEFECTS NOTED ON THIS DOCUMENT MAY RESULT IN PROSECUTION**

Defect	Veh # / Defect #	Status	Remarks
Brake System	**1 / 4**	**X**	**REAR BRAKES NOT WORKING**

☐ Towed	☐ Mechanic Attended	**CVSA RESULT**	**Requires Attention**

Officer Name and Badge #		Other Officer Name and Badge #
S. ADMIN	**SYSADMIN**	

Agency		Office	Time Out (24 hr)
Test Department		**Edmonton**	**16:05**

Driver Signature	Failure to Report Indicated Repairs By: **2006-01-18** May Result in Prosecution
	If no date is shown, the driver/owner is not required to report back.

See reverse for details regarding compliance

AB 1000080E

Form Number: **AB 1000080E**	Commercial Vehicle Enforcement Branch	Pages **1** of **1**

CVSA
COMMERCIAL VEHICLE INSPECTION REPORT
VEHICLE INSPECTION COMPLIANCE INFORMATION

AB 1000080E

ON THE DATE AND TIME NOTED ON THE REVERSE OF THIS FORM, A VEHICLE(S) REGISTERED TO YOU OR BEING OPERATED BY YOU WAS INSPECTED. ALL DEFECTS NOTED MUST BE CORRECTED. IF THERE IS A REPORT BACK DATE SHOWN ON THE BOTTOM OF THE FORM, PROOF OF THOSE REPAIRS MUST BE REPORTED BY THE DATE INDICATED IN THE FOLLOWING MANNER.

☐ FAX _____   _____

☐ ANY VEHICLE INSPECTION STATION OR DISTRICT OFFICE OF INSPECTION SERVICES

☒ ISSUING OFFICER _____**S.Admin**_____ TEL _____**(780) 422-3202 Ext.**_____

IF YOU HAVE ANY QUESTIONS PLEASE CONTACT   **(780) 430-8193 Ext.**
_____

Proof of Repair.   (Please check and complete one of the following)

☐ I declare that the defects noted have been repaired   _____
(copies of work order or invoices should be attached)   Name of Qualified Mechanic or Carrier Representative

_____   _____
Date   Signature

Note : It is an offence to make a false declaration which may be subject to prosecution

☐ The vehicle re-inspected at _____ on Form # _____

or _____
Signature of Inspecting Officer

WARNING

FAILURE TO MAKE THE NECESSARY REPAIRS TO DEFECTS NOTED CAN RESULT IN ANY OF THE FOLLOWING ACTIONS:

1.   THE CARRIER OR DRIVER MAY BE SUBJECT TO PROSECUTION.
2.   THE LICENSE PLATES ON THE DEFECTIVE VEHICLE MAY BE REVOKED.

A COPY OF THE FORM WILL BE FORWARDED TO THE HOME JURISDICTION OF THE CARRIER FOR FURTHER ACTION.

NO MOTOR CARRIER SHALL REQUIRE NOR SHALL ANY PERSON OPERATE ANY MOTOR VEHICLE DECLARED OR MARKED AS OUT-OF-SERVICE UNTIL ALL REPAIRS NOTED THAT PLACE THE VEHICLE OUT-OF-SERVICE HAVE BEEN SATISFACTORILY COMPLETED.

NO PERSON SHALL REMOVE AN OUT-OF-SERVICE VEHICLE NOTICE FROM ANY MOTOR VEHICLE PRIOR TO COMPLETION OF ALL REPAIRS REQUIRED BY THE NOTICE.

NO PERSON SHALL DRIVE, NOR SHALL A PERSON PERMIT OR REQUIRE ANY DRIVER DECLARED OUT-OF-SERVICE (BEING MARKED AS OUT-OF-SERVICE AND IDENTIFIED AND NAMED ON THIS FORM) TO OPERATE THE MOTOR VEHICLE UNTIL THE OUT-OF-SERVICE CONDITION IS REMEDIED OR THE DRIVER IS DECLARED BY A PEACE OFFICER TO BE CAPABLE OF SAFELY OPERATING A MOTOR VEHICLE.

NOTICE: THE ISSUANCE OF THIS INSPECTION FORM DOES NOT AUTHORIZE THE OPERATION OF THE VEHICLE WITH ANY DEFECTS.

TVR
Traffic Violation Report

Alberta

| 1000014E |

Part 1

Date	Time In (24 hr)	Location Type	Location		District Worked
2006-01-08	16:01	VIS		Leduc VIS	EDMONTON

Owner Name			Contact Telephone Number	MVID	NSC/DOT#	NSC Jur
LASTNAME FIRSTNAME						

Owner Address		City		Jur	Postal Code	
123 ANY ST		EDMONTON		AB	S1S 1S1	

Driver Last Name	First Name	Middle Name	Licence #	Jur	DOB
LASTNAME	FIRSTNAME		123-456	AB	1960-01-01

Unit #	Plate #	Jur	Year	Make	Serial #
001	12345	AB	2000	Peterbilt - PET	123456789

Part 2

Vehicle #	Violation Description	Section / Act

Part 3

Certificate Weight (kg)	Permit Weight (kg)	Steering Tire Size	Max. Allow Wt (Kg)	Cert. Wt (Kg)
10000				
Scale Wt (Kg)				
Allowable Weight (Kg)				
Overweight (Kg)				

Part 4

NOTES / COMMENTS FOR THE INFORMATION OF THE CARRIER / DRIVER:

Officer Name	Badge #	Office	
S. ADMIN	SYSADMIN	EDMONTON	

Agency		Time Out (24 hr)
TEST DEPARTMENT		16:05

Driver Signature	Failure to Report Indicated Repairs By:	2007-01-18	May Result in Prosecution
		If no date is shown, the driver/owner is not required to report back.	

See reverse for details regarding compliance

| 1000014E |

Form Number: **1000014E**   Commercial Vehicle Enforcement Branch   Pages **1** of **1**

TVR
TRAFFIC VIOLATION REPORT
REPAIR COMPLIANCE INFORMATION

1000014E

ON THE DATE AND TIME NOTED ON THE REVERSE OF THIS FORM, A VEHICLE(S) REGISTERED TO YOU OR BEING OPERATED BY YOU WAS INSPECTED. ALL DEFECTS NOTED MUST BE CORRECTED. IF THERE IS A REPORT BACK DATE SHOWN ON THE BOTTOM OF THE FORM, PROOF OF THOSE REPAIRS MUST BE REPORTED BY THE DATE INDICATED IN THE FOLLOWING MANNER.

☐ FAX _____ _____

☐ ANY VEHICLE INSPECTION STATION OR DISTRICT OFFICE OF INSPECTION SERVICES

☒ ISSUING OFFICER _____S.Admin_____ TEL _____(780) 422-3202 Ext._____

IF YOU HAVE ANY QUESTIONS PLEASE CONTACT | (780) 430-8193 Ext. |

Proof of Repair. (Please check and complete one of the following)

☐ I declare that the defects noted have been repaired
(copies of work order or invoices should be attached)
_____
Name of Qualified Mechanic or Carrier Representative

_____   _____
Date   Signature

Note : It is an offence to make a false declaration which may be subject to prosecution

☐ The vehicle re-inspected at _____ on Form # _____

or _____
Signature of Inspecting Officer

WARNING

FAILURE TO MAKE THE NECESSARY REPAIRS TO DEFECTS NOTED CAN RESULT IN ANY OF THE FOLLOWING ACTIONS:

1. THE CARRIER OR DRIVER MAY BE SUBJECT TO PROSECUTION.
2. THE LICENSE PLATES ON THE DEFECTIVE VEHICLE MAY BE REVOKED.

A COPY OF THE FORM WILL BE FORWARDED TO THE HOME JURISDICTION OF THE CARRIER FOR FURTHER ACTION.

NO MOTOR CARRIER SHALL REQUIRE NOR SHALL ANY PERSON OPERATE ANY MOTOR VEHICLE DECLARED OR MARKED AS OUT-OF-SERVICE UNTIL ALL REPAIRS NOTED THAT PLACE THE VEHICLE OUT-OF-SERVICE HAVE BEEN SATISFACTORILY COMPLETED.

NO PERSON SHALL REMOVE AN OUT-OF-SERVICE VEHICLE NOTICE FROM ANY MOTOR VEHICLE PRIOR TO COMPLETION OF ALL REPAIRS REQUIRED BY THE NOTICE.

NO PERSON SHALL DRIVE, NOR SHALL A PERSON PERMIT OR REQUIRE ANY DRIVER DECLARED OUT-OF-SERVICE (BEING MARKED AS OUT-OF-SERVICE AND IDENTIFIED AND NAMED ON THIS FORM) TO OPERATE THE MOTOR VEHICLE UNTIL THE OUT-OF-SERVICE CONDITION IS REMEDIED OR THE DRIVER IS DECLARED BY A PEACE OFFICER TO BE CAPABLE OF SAFELY OPERATING A MOTOR VEHICLE.

NOTICE: THE ISSUANCE OF THIS INSPECTION FORM DOES NOT AUTHORIZE THE OPERATION OF THE VEHICLE WITH ANY DEFECTS.

Alberta

WEIGHT SCALE CERTIFICATE
Inspection Services

OFFICER'S CERTIFICATE

Pursuant to Section 150, subsection 3, of the Traffic Safety Act of Alberta,

I, _____SYSTEM ADMIN_____ , certify that I am a Peace Officer, within the meaning of the Traffic

Safety Act of Alberta and that on _____2006-01-08_____ , on a highway at or near

_____Leduc VIS_____ in the Province of Alberta, I checked a vehicle bearing license

number(s) 12345 _____

and used a portable or other scale to measure the weights of the said vehicle/combination of vehicles.

The axle weights were :

Steering axle / axle group _____ Kilograms

Drive axle / axle group _____ Kilograms

Trailer axle / axle group _____ Kilograms

Trailer axle / axle group _____ Kilograms

Trailer axle / axle group _____ Kilograms

Trailer axle / axle group _____ Kilograms

Total gross vehicle weight _____ Kilograms

And these weights were transferred to the road through the points of contact of the vehicle / combination of vehicles with the road.

_____
Officer's Signature

OPERATOR'S CONFIRMATION

Pursuant to Section 150, subsection 3, of the Traffic Safety Act of Alberta,

I, _____LASTNAME FIRSTNAME_____ , the operator of the said vehicle, confirm that I was advised, that I

have the right to take the said vehicle and load forewith to a vehicle inspection station or weigh scales capable of measuring the weights in question on a stationary scale certified under the Weights and Measures Act of Canada. I have read the above certificate and understand it and agree to accept the weights indicated above as being accurate.

_____
Operator's Signature

Dated _____2006-01-08_____ , on a highway at or near

_____ in the Province of Alberta.

APPENDIX I – PILOT PARTICIPANTS

Key Participants			
Location	**Management**	**Project Contacts**	**Pilot Participants/Support**
Commercial Vehicle Enforcement Branch	Steve Callahan Executive Director – Inspection Services Jacquie Daumont – Enforcement Programs Manager		Michael Harrish - Transport Officer Neil Ewart - Transport Officer Cynthia Skrenek - Transport Officer Dave Tippe - Regional Transport Manager Mark Sproule - Transport Officer Dave Brunet - Transport Officer Eric Larson - District Supervisor Jerrod Nasewich - District Supervisor Andrew Hiller - Transport Officer Glenn Munden - Transport Officer Rob Livingston - Transport Officer Tim Moeller - Transport Officer Larry Mayer - Transport Officer Reggie Mortenson - District Supervisor George Smereka - Transport Officer Dan McCormack - District Supervisor James Stroeder - District Supervisor Dan deMelo - District Supervisor
Edmonton Police Service	Staff Sgt. Bill Newton Sgt. Reagan James		
Calgary Police Service	Insp. Bill Sherlock Insp. Gord Pelly	Cst. Ward Stene Sgt. Rick Gardner	Cst. Brad Norman Cst. Dan Jordens

	Staff Brett Marklund	Sgt. Doug McIlwraith	Cst. Dave DenTandt
			Cst. Jeff Klinger
			Cst. Paul Sieracki
			Cst. Mark Enright
			Cst. Kelly Todd
			Cst. Evel Kiez
			Cst. Robin Peoples
			Cst. Troy Redden
			Cst. Terry Bodnar
			Cst. Greg Mercer
			Cst. Jeff Leimer
			Dan Wandler – Calgary Police Service, Information Services
Medicine Hat Police Service	Staff Sgt. Rick Wigle Inspector. Andy McGrogen	Hank Claussen Sharon Bodin	Sgt. Jim Balmer
			Cst. Richard Hunn
			Cst. Barry Steier
			Cst. Richard Spencer
			Cst. Stacey Fishley
			Cst. Brian Bohrn
			Cst. Chris Wyrostok
			Cst. Ian Scrivner
			Cst. Larry Dirk
			Cst. Chris Wagner
			Cst. David Alan
			Cst. Erin Riste
			Cst. Dwayne Wist
			Chris Maxwell – City of Medicine Hat, Technical Services

			Harold Otterdyks – City of Medicine Hat, Technical Services
RCMP	Inspector Tim French - OIC NWR "K" Division Informatics Superintendent Chuck Walker Superintendent Randy Beck Inspector Dave Mitchell Staff Sgt. Al Knibbs		Inspector Bruce Kirkpatrick – OIC Systems Life Cycle Planning Unit, Operations Systems Services Centre Sgt. Bruce Allen
Iowa Department of Transportation	Mary Jensen – TraCS National Program Manager		
Technology Enterprise Group, Inc.	Tadd Geis – President		
Justice and Attorney General	Rob Anderson – Legal Manager Court Systems		Sharon Boisvert – Administrator, Court Services Richard Parken – Provincial Prosecutor Gail Thomsen, JOIN Operations Miles Weatherall – Manager, Court Operations Basem Hage – Manager, Court Services
INFTRA	Liz Owens – Acting Director, Driver Fitness and Monitoring		Marlene Anderson – Senior Research Officer, Driver Safety & Research Charlotte Bliemel – Collision Research Elaine Laraque – Collision Research
Vehicle Safety and Carrier Services	Kim Durdle – Director Carrier Services Lana Kennedy – National Safety Code Specialist		
Service Alberta	Martin Mesman – Chief Technology Officer Rose Bullock – Director		

APPENDIX J – GLOSSARY

This glossary defines terms that are used within this document. It includes terms that have specific meaning to the project stakeholders. It also defines many industry terms and lists synonyms/acronyms for those terms.

Term	Synonyms	Definition
1X	1XRTT	1X Radio Transmission Technology Enhancements to the CDMA wireless cell phone technology that allows data to be transmitted as well as voice. A 3G or third generation of wireless standards.
2D bar code	PDF417	The printed code used for recognition by a bar code scanner (reader). Two-dimensional bar codes, such as PDF417, MaxiCode and DataMatrix, are scanned horizontally and vertically and hold considerably more data than 1D. (**2D**imensional) Refers to objects that are constructed on two planes (X and Y, height and width, row and column, etc.).
AAMVA	American Association of Motor Vehicle Administrators	A tax-exempt, nonprofit organization striving to develop model programs in motor vehicle administration, law enforcement traffic services and highway safety. The association serves as an information clearinghouse for these same disciplines, and acts as the international spokesman for these interests. Founded in 1933, AAMVA is a voluntary, nonprofit, tax exempt, educational organization. AAMVA represents the state and provincial officials in the United States and Canada who administer and enforce motor vehicle laws. The association's programs encourage uniformity and reciprocity among the states and provinces, and liaisons with other levels of government and the private sector.
ACIS	Collision System	Alberta Collision Information System is managed by Alberta Infrastructure and Transportation.
Application	Application software Application program	A specific use of the computer, such as for payroll, inventory and billing. Applications are systems that support process functionality and bring information to the process.
Application Integration		Translating data and commands from the format of one application into the format of another. It is essentially data and command conversion on an on-going basis between two or more incompatible systems.
Auto populate		The function of entering data into fields of an input screen without having to key them in. For example, scanning a bar code and then having the application fill in the relevant fields using the data stored in the bar code.
Bar Code	2D Bar Code Linear Bar Code or 1D Bar Code	The printed code used for recognition by a bar code scanner (reader). Two-dimensional bar codes are scanned horizontally and vertically and hold considerably more data than 1D.

Term	Synonyms	Definition
		Traditional one-dimensional (linear) bar codes use the bar's width to encode just a product or account number.
CAD	Computer Aided Dispatch	In the context of the TREDS project CAD refers to software used by public safety organizations to automate the dispatch process.
Carrier		A person (or company) who owns, leases or is responsible for the operation of a commercial vehicle.
CDPD	Cellular Digital Packet Data	A digital wireless transmission system that is deployed as an enhancement to the existing analog cellular network.
Charge	Charge Code Offence Section	An offence committed against a provincial act or regulation identified by the section.
CHM	Compressed HTML	Microsoft Compressed HTML Help is a proprietary format for online help files, developed by Microsoft and first released in 1997 as a successor to the Microsoft WinHelp format. It was first introduced with the release of Windows 98, and is still supported and distributed through Windows XP platforms.
Collision Counter Report	Counter Report	A GOA form (TSS284A) completed at the counter of a law enforcement agency by a person involved in a traffic collision (but not investigated by a law enforcement officer) to capture all reportable traffic collision information. Once completed, the form is submitted by Alberta law enforcement agencies to Alberta Infrastructure and Transportation for data collection and analysis in the Alberta Collision Information System (ACIS).
Collision Full Report	Collision Report	A GOA form (TSS284) completed by a law enforcement officer investigating the scene of a traffic collision to capture all reportable traffic collision information. Once completed, the form is submitted by Alberta law enforcement agencies to Alberta Infrastructure and Transportation for data collection and analysis in the Alberta Collision Information System (ACIS).
Collision Stub	Stub	A summary report provided by a law enforcement officer investigating the scene of a collision to a driver involved in a collision for insurance purposes. The collision stub provides a summary of the collision including driver/pedestrian, owner and vehicle information.
Court Calendar		Managed and issued by Alberta Justice, the court calendar provides a monthly calendar of the dates that Alberta courts will be in session.
CPIC	Canadian Police Information Centre	It was created in 1966 to provide tools to assist the law enforcement community in combating crime. It is a computerized information system that provides all Canadian law enforcement agencies with information on crimes and criminals. CPIC is operated by the RCMP under the stewardship of National Police Services, on behalf of the Canadian law enforcement community.

Term	Synonyms	Definition
CPS	Calgary Police Service	Municipal police service for the City of Calgary, Alberta, Canada.
CVEB	Commercial Vehicle Enforcement Branch	An organizational unit (Branch) of Transportation Safety Services Division within Alberta Infrastructure and Transportation.
CVSA	Commercial Vehicle Safety Alliance	A not-for-profit organization, established to promote an environment free of commercial vehicle accidents and incidents. Mission is to promote commercial motor vehicle safety and security by providing leadership to enforcement, industry and policy makers. This is accomplished by establishing effective transportation safety standards for motor carriers, drivers, vehicles, and inspectors through compliance, education, training, and enforcement programs.
Data Entry		Entering data into a computer, this generally means keyboard entry but could also include scanning and voice recognition.
Database		A set of related files that is created and managed by a database management system (DBMS). Today, DBMSs can manage any form of data including text, images, sound and video.
DBMS	Data Base Management System	Software that controls the organization, storage, retrieval, security and integrity of data in a database. It accepts requests from the application and instructs the operating system to transfer the appropriate data.
End Shift		Refers to a function in TraCS used to transmit records from the mobile (field) unit to the shared TraCS office database. An officer would do this at the end of shift or periodically during the shift if so desired.
EPS	Edmonton Police Service	Municipal police service for the City of Edmonton, Alberta, Canada.
E-Ticket	Electronic Ticket	A paperless, electronic document submitted to the courts of a traffic violation ticket issued to a driver by a law enforcement officer. The electronic ticket eliminates the need to submit a paper copy of the issued ticket to the courts.
EVDO	Evolution Data Optimized or Evolution Data Only	A telecommunications standard for the wireless transmission of data through radio signals, typically for broadband Internet access.
GIS	Geographic Information System	An information system that deals with spatial information. Often called "mapping software," it links attributes and characteristics of an area to its geographic location. It is used in a variety of applications, including exploration, demographics, dispatching, tracking and map making.
GOA		Government of Alberta.
GPS	Global Positioning System	A system of 24 satellites for identifying earth locations, launched by the U.S. Department of Defense. By triangulation of signals from three of the satellites, a receiving unit can pinpoint its current location anywhere on earth to within a few meters.

Term	Synonyms	Definition
Half Collision		A collision report which only contains information reported from one or more of the two or more parties involved in a collision. Half collision reporting usually occurs when one or more parties involved in a collision, complete a collision report in a different jurisdiction than where the collision occurred resulting in one or more collision reports for the same collision.
HTML	Hyper Text Markup Language	HTML is the predominant markup language for the creation of web pages.
INFTRA	Alberta Infrastructure and Transportation	A Ministry within the Government of Alberta, Canada responsible for provincial highways and other government-owned/supported infrastructure; infrastructure for health care, learning, community, seniors' lodges, municipal transportation, and municipal water/wastewater treatment and distribution; central services to all government departments including accommodation requirements, property acquisition and sale, air transportation, and vehicle fleet operations; driver education, licensing standards, and safety programs; and management of driver records and problem drivers; handling and transport of dangerous goods and overseeing the operation of provincial railways.
Interface		The connection and interaction between hardware, software and the user. Users "talk to" the software. The software "talks to" the hardware and other software. Hardware "talks to" other hardware. All this is interfacing. It has to be designed, developed, tested and redesigned; and with each incarnation, a new specification is born that may become yet one more de-facto or regulated standard. **Hardware Interfaces** Hardware interfaces are the plugs, sockets, cables and electrical signals traveling through them. Examples are USB, FireWire, Ethernet, ATA/IDE, SCSI and PCI. **Software/Programming Interfaces** Software interfaces (programming interfaces) are the languages, codes and messages that programs use to communicate with each other and to the hardware. Examples are the Windows, Mac and Linux operating systems, SMTP e-mail, IP network protocols and the software drivers that activate the peripheral devices. **User Interfaces** User interfaces are the keyboards, mice, commands and menus used for communication between you and the computer. Examples are the command lines in DOS and Unix, and the graphical interfaces in Windows, Mac and Linux.
JOIN	Justice On-line Information Network	A province-wide system that provides automated support to Alberta Justice staff for criminal case tracking, traffic ticket processing, financial court administration, inquiries, witness management, police scheduling and information management for the department. It became operational in February 2001.

Term	Synonyms	Definition
Justice	Alberta Justice and Attorney General	A Ministry within the Government of Alberta, Canada responsible for prosecutions, courts, justice services to Albertans and legal and strategic services to government.
LAN	Local Area Network	A communications network that serves users within a confined geographical area. It is made up of servers, workstations, a network operating system and a communications link.
Mag Stripe	Magnetic Stripe	A small length of magnetic tape adhered to credit cards, badges, permits, passes and tokens. The tape is read by magnetic stripe readers incorporated into ATMs, identification readers and payment terminals. Due to the daily heavy wear these cards receive, the digital recording on the stripe is in a very low-density format and often duplicated several times in case part of the stripe becomes damaged.
MHPS	Medicine Hat Police Service	Municipal police service for the City of Medicine Hat, Alberta, Canada.
Mobile Unit	Field Unit	For this project, this term refers to an in-vehicle computer or hand-held computer.
MOTRIS	Motor Transport Information Systems	A set of traffic safety applications managed by INFTRA.
MOVES	Alberta Motor Vehicle System	An application managed by Alberta Government Services used to register vehicles, drivers and vehicle owners.
MPI	Manitoba Public Insurance	A non-profit Crown Corporation that has provided basic automobile coverage to Manitoba since 1971. Responsible for providing automobile insurance and driver services; providing safer roadways by enforcing standards for drivers and vehicles, and by raising awareness of the inherent risk of driving; developing educational programs and controls that help and encourage Manitobans to acquire the skills to avoid collisions.
Network		A system that transmits any combination of voice, video and/or data between users. The network includes the network operating system in the client and server machines, the cables connecting them and all supporting hardware in between, such as bridges, routers and switches. In wireless systems, antennas and towers are also part of the network.
Patrol Officer		A member of an official force responsible for actively participating in crime prevention, community policing, traffic enforcement, and criminal investigations.
PDA	Personal Digital Assistant	A handheld computer that serves as an organizer for personal information. It generally includes at least a name and address database, to-do list and note taker. PDAs are pen based and users need a stylus to tap selections on menus and to enter printed characters. The unit may also include a small on-screen keyboard that is tapped with the pen. Data is synchronized between the PDA and desktop computer via cable or wireless transmission.

Term	Synonyms	Definition
Police File Number	File Number	A unique number that is assigned by an Alberta law enforcement agency to identify each police file opened. The police file number is used for tracking and reporting purposes.
Police Officer Notes	Officer Notes	Detail information documented by a law enforcement officer related to a particular violation ticket issued by the officer to a person charged in contravention of the *Provincial Offences Procedure Act* (POPA). Officer Notes accompany the court copy of a violation ticket submitted by a law enforcement officer to the courts.
POPA	Provincial Offences Procedure Act	This act is the responsibility of Justice and Attorney General and outlines the specified penalties for various charges under the Traffic Safety Act.
PROS	Police Reporting and Occurrence System	This is a new record management and occurrence system being designed at this time by the RCMP. PROS-Mobile is the version of PROS that runs in a law enforcement vehicle.
QA	Quality Assurance	A planned and systematic pattern of all actions necessary to provide adequate confidence that the product optimally fulfils customers' expectations, i.e. that it is problem-free and well able to perform the task it was designed for.
Quashed Ticket		A violation ticket that has been reviewed by Alberta Justice staff and deemed inadmissible to the courts because it does not meet the standards set out by Alberta Justice.
RCMP	Royal Canadian Mounted Police	The Royal Canadian Mounted Police is the Canadian national police service and an agency of the Ministry of Public Safety and Emergency Preparedness Canada. The RCMP is unique in the world since it is a national, federal, provincial and municipal policing body. The RCMP provide a total federal policing service to all Canadians and policing services under contract to the three territories, eight provinces (except Ontario and Quebec), approximately 198 municipalities and, under 172 individual agreements, to 192 First Nations communities.
RMS	Record Management System	A file management system used by law enforcement to record occurrences (incidents).
SDK	System Development Kit	A component of TraCS that enables the development of forms (input screens) and associated field level business rules. A set of software routines and utilities used to help programmers write an application. For graphical interfaces, it provides the tools and libraries for creating menus, dialog boxes, fonts and icons. It provides the means to link the application to libraries of software routines and to link it with the operating environment (OS, DBMS, protocol, etc.).

Term	Synonyms	Definition
Server		A computer system in a network that is shared by multiple users. The term "server" may refer to both the hardware and software (the entire computer system) or just the software that performs the service. For example, Web server may refer to the Web server software in a computer that also runs other applications, or, it may refer to a computer system dedicated only to the Web server application. For example, a large Web site could have several dedicated Web servers or one very large Web server.
SOAP		Simple Object Access Protocol is a protocol for exchanging XML-based messages over computer networks, normally using HTTP. SOAP forms the foundation layer of the Web services stack, providing a basic messaging framework that more abstract layers can build on.
Software Distribution		The process required to efficiently and effectively deploy software including new releases, updates, new forms, and customized files to geographically dispersed locations. Methods can include using software such as Microsoft's SMS server to push the software via the network, software on CDs that are couriered or mailed to the destination, or installation by IT technical resources.
Solicitor General	Alberta Solicitor General and Public Security	A Ministry within the Government of Alberta, Canada responsible for ensuring safe communities through policing and promotion of crime-prevention activities; supporting victims of crime during police investigations and criminal court proceedings; and maintaining correctional and rehabilitation programs.
Specified Penalty		An amount determined by regulations, bylaws or ministerial orders under section 44. It is paid by a defendant who was issued a violation ticket and is authorized to make a payment without requiring a Court appearance.
SPL	Specified Penalty Listing	A complete and summarized listing prepared by the Queen's Printer of those sections identified in the *Provincial Offences Procedure Act* (POPA) under which a law enforcement agency may charge a person in contravention of POPA. The specified penalty listing includes the section of the act and or regulation, detailed description of each section a person may be charged under, and the specified penalty amount.
Stakeholder		A person or group that has an investment, share or interest in something, as a business or industry.
Start shift		Refers to a function within TraCS executed when an officer first signs-on to TraCS. It is used to load any incomplete records from the previous shift from the TraCS database. It is also used to provide table updates and TraCS updates (new forms or software upgrades).
Summons		A written order to a specific person to appear in court to answer a complaint.

Term	Synonyms	Definition
System	Business System Application System Information System Operating System Computer System	Platforms, communication networks and applications that either automate business processes or provide information that supports and enhances the performance of business processes. 1) A group of related components that interact to perform a task. 2) A computer system is made up of the Central Processing Unit (CPU), the operating system and peripheral devices. 3) An information system is made up of the database, all the data entry, update, query and report programs and manual and machine procedures. 4) "The system" often refers to the operating system.
Table		A collection of adjacent fields of data. Also called an "array", tables may permanently reside in a program or be stored on disk and read at runtime. They may remain static (unchanged) or be dynamically updated. For example, tables in a disk's file system are continuously updated as data are written into the sectors.
Technical Infrastructure	IT Infrastructure Infrastructure	The platforms (clients, servers, and Input/Output devices) networks and common systems services upon which the business applications operate.
TEG	Technology Enterprise Group	The primary vendor developing and supporting the TraCS software for the Department of Iowa Transportation Department.
TraCS	Traffic and Criminal Software	A sophisticated data collection and reporting tool for the public safety community. A state-of-the-art information management tool used by law enforcement to streamline and automate the capture and transfer of incident data in the field. Developed by the Iowa Department of Transportation.
TraCS Administrator		A system administrator (person or role) who manages the TraCS computer system for an organization. A system administrator is involved with operating system, TraCS application software and hardware installations, configurations and upgrades.
TraCS Licence		The nonexclusive, nontransferable, royalty free right to copy and use TraCS in accordance with the terms and conditions of the TraCS Licence Agreement with the Iowa Department of Transportation.
TraCS Transmission Builder	Transmission Builder	A function within TraCS used to build interfaces from the TraCS database to other applications.
Traffic Officer		A member of an official police force responsible for enforcing traffic regulations and controlling the flow of traffic.
Transport Officer	Commercial Vehicle Inspector	A member of the Alberta Infrastructure and Transportation staff responsible for on-road enforcement of legislation related to commercial vehicles and their drivers. These officers work at vehicle inspection stations and on provincial highways.

Term	Synonyms	Definition
TREDS	Traffic Related Electronic Data Strategy	A joint venture between Alberta Infrastructure and Transportation, Transport Canada and Manitoba Public Insurance. The objective is to recommend a product for implementation in Canadian jurisdictions that can collect violation and collision data in an electronic format.
TSDC	Traffic Safety Data Collection	A multi-stakeholder program that is aimed at automating the collection of traffic safety data at the scene of an event.
TVR	Traffic Violation Report	A form used by enforcement staff to record violations not associated with CVSA inspections, such as overweight vehicles, which do not involve a fine or court appearance.
USB	Universal Serial Bus	A widely used hardware interface for attaching peripheral devices. USB is popular for connecting nearly every external peripheral device. Replacing the serial and parallel ports on a PC, at least four USB ports are standard on every computer.
USB Hub		A device that increases the number of USB ports on a PC, typically providing at least four Type A sockets for expansion. However, since the hub plugs into one of the USB ports on the computer, the total number of additional ports is minus one. USB hubs are often used to extend ports to the top of the desk to make it more convenient to connect and remove external peripherals.
USB Port		A USB socket on a computer or peripheral device into which a USB cable is plugged.
User Authentication	Authentication	Verifying the identity of a user logging onto a network or application. Passwords, digital certificates, smart cards and biometrics can be used to prove the identity of the client. Passwords and digital certificates can also be used to identify the network to the client. The latter is important in wireless networks to ensure that the desired network is being accessed.
User Interface		The combinations of menus, screen design, keyboard commands, command language and online help, which creates the way a user interacts with a computer. If input devices other than a keyboard and mouse are required, this is also included. In the future, natural language recognition and voice recognition will become standard components of the user interface.
VIN	Vehicle Identification Number	A unique number assigned to a vehicle for, identification and law enforcement purposes. The manufacturer of the vehicle is usually the one who assigns a VIN to a vehicle.
Violation Ticket	Violation Ticket Summons Violation Notice	A paper document issued by an Alberta law enforcement officer to a person charged in contravention of the *Provincial Offences Procedure Act* (POPA). A copy of the ticket is forwarded to the courts as notification of the offence.
VIS	Vehicle Inspection Station	A location where commercial trucks are inspected and weighed.

Term	Synonyms	Definition
VPN	Virtual Private Network	A private network that is configured within a public network. VPNs enjoy the security of a private network via access control and encryption, while taking advantage of the economies of scale and built-in management facilities of large public networks. Today, there is tremendous interest in VPNs over the Internet, especially due to the constant threat of hacker attacks. The VPN adds that extra layer of security, and a huge growth in VPN use is expected.
WAN	Wide Area Network	A communications network that covers a wide geographic area, such as state or country. A LAN (local area network) is contained within a building or complex, and a MAN (metropolitan area network) generally covers a city or suburb.
Web Services		The Service Oriented Architecture (SOA) that facilitates Web-based applications allowing them to dynamically interact with other Web applications using open standards that include XML, UDDI and SOAP. Such applications typically run behind the scenes, one program "talking to" another (server to server). Microsoft's .NET and Sun's Sun ONE (J2EE) are the major development platforms that support these standards.
XML	EXtensible Markup Language	An open standard for describing data from the World Wide Web Consortium. It is used to define data elements on a Web page and business-to-business documents. XML uses a similar tag structure as HTML; however, HTML defines how elements are displayed, XML defines what the elements contain. HTML uses predefined tags. XML allows tags to be defined by the developer of the page. Any data items, such as "product," "sales rep" and "amount due," can be identified, allowing Web pages to function like database records. By providing a common method for identifying data, XML supports business-to-business transactions and has become "the" format for electronic data interchange and Web services.