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SOLICITATION AMENDMENT
MODIFICATION DE L'INVITATION

The referenced document is hereby revised; unless otherwise indicated, all other terms and conditions of the Solicitation remain the same.

Ce document est par la présente révisé; sauf indication contraire, les modalités de l'invitation demeurent les mêmes.

Title - Sujet	
CIIDS SUPPORT AND DEVELOPMENT	
Solicitation No. - N° de l'invitation	**Amendment No. - N° modif.**
M7594-170644/A	003
Client Reference No. - N° de référence du client	**Date**
M7594-170644	2018-01-11

GETS Reference No. - N° de référence de SEAG
PW-$IPS-007-32040

File No. - N° de dossier	**CCC No./N° CCC - FMS No./N° VME**
007ips.M7594-170644	

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at - à **02:00 PM**		Eastern Standard Time EST
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This solicitation 003 is raised to answer question 015 and to amend the RFP.

QUESTION 15
We would recommend the following changes to ensure clarity:

Remove the following references to "PPM"

- Definitions: Acronym, and Definition in Table 1-1 (2 references to PPM)
- Removal of text ("The Contractor will provide continuous effort to repair a reported problem beyond the Principal Period of Maintenance (PPM)", which otherwise conveys no value
- Removal of text under section 3.2 (paragraph and 4 bullets), as requirements discussed in this section are already discussed elsewhere

If the above is not possible, then would Canada consider the removal of the word "unlimited" from Section 3.2 on RFP page 44?"

ANSWER 15

See solicitation amendment included

1. At RFP, Annex A Statement of Work, Clause 1.2 Definitions, Table 1-1, item Principle Period of Maintenance (PPM)

DELETE: in its entirety

2. At RFP, Annex A Statement of Work, Clause 2.3 Contractor Responsibility
DELETE: eighth bullet in its entirety

INSERT replacement eighth bullet as follows: The Contractor will provide continuous effort to repair a reported problem;

3. At RFP, Annex A Statement of Work, Clause 3.2 24X7 Software Maintenance and Support Services, 1st paragraph.

DELETE: first paragraph in its entirety

INSERT replacement first paragraph as follows: The following maintenance and support services will be provided by the Contractor (twenty-four hours a day, seven [7] days a week, including statutory Holidays):

4. At RFP, Annex A Statement of Work, Clause 3.2 24X7 Software Maintenance and Support Services, First bullet

REMOVE: first bullet in its entirety

INSERT replacement first bullet as follows: Unlimited Telephone Software and Maintenance and Support Services;

5. The following sections of the RFP will be DELETED in their entirety and REPLACED with the documents attached below:

- APPENDIX 1 TO ANNEX A - SOW ACRONYMS;

- APPENDIX 2 TO ANNEX A – CIIDS SUPPLEMENTARY INFORMATION;

- APPENDIX 3 TO ANNEX A – COMPUTERIZED INTEGRATED INFORMATION DISPATCH SYSTEM DEVELOPMENT ENVIRONMENT DOCUMENT DESCRIPTION;

- APPENDIX A: SOFTWARE SPECIFICATIONS;

- APPENDIX B: CONTRACTOR SUPPORT FACILITY RADINESS CHECKLIST.

APPENDIX 1 TO ANNEX A - SOW ACRONYMS

Acronym	Definition
ACS	Advanced Communications Server
ADB	Application Development Branch
ASP	Active Server Page
AV	Anti-Virus
AVL	Automated Vehicle Locator
BES	BlackBerry Enterprise Server ®
CAD	Computer Aided Dispatch (for the purpose of this document the following definition of CAD applies to the RCMP. Computer Aided Dispatch (CAD) is a method of dispatching emergency services and field service technicians assisted by computer. CAD typically consists of a suite of software packages used to initiate calls for service, dispatch and to maintain the status of responding resources in the field. For public safety, it is generally used by emergency communications dispatchers, call-takers, and 911 operators in centralized, public-safety call centres, as well as by field personnel utilizing wireless mobile devices.
CAT	CIIDS Administration Tool OR CAD Administrative Tool
CCB	Change Control Board
CCD	Change Control Document
CD	Compact Disc
CDMA / EvDO	Code Division Multiple Access / Evolution Data Optimized / Evolution Data Only
CDN	Canadian
CEM	CIIDS Encryption Module
CHD	Central Help Desk (RCMP)
CIIDS	Computerized Integrated Information and Dispatch System
CMM	Capability Maturity Model (a process improvement approach that is based on a process model, and specifically to the first such model, developed by the Software Engineering Institute [SEI])
CPIC	Canadian Police Information Centre
CR	Change Request

Acronym	Definition
CSD	Contractor Service Desk
CSINFO	Communication Server Information
CSP	Content Security Policy (Entrust)
DB	Database
DEV	Development (environment)
DLL	Dynamic-Link Library
DTE	Dedicated Test Environment
E911	Enhanced 911 (a set of Federal Communications Commission (FCC) rules)
EDACS	Enhanced Digital Access Communication System (® Ericson)
ESP	Entelligence Security Provider
ESRI	Environmental Systems Research Institute
EST	Eastern Standard Time
GIS	Geographical Information Systems
GPRS	General Packet Radio Service
GPS	Global Positioning System
GSM	Global System for Mobile Communication
HQ	Headquarters
HTML	Hypertext Mark-up Language
IDE	Integrated Development Environment
IIS	Internet Information Services (A Windows Web server for hosting anything on the Web.)
IM	Information Management
IP	Internet Protocol
ISO	International Organization for Standardization
IT	Information Technology
ITIL	Information Technology Infrastructure Library (A set of practices for IT Service Management (ITSM) that focuses on aligning IT services with the needs of business.)
JDBC	Java Database Connectivity
LAN	Local Area Network

Acronym	Definition
MF	Message Function
MQ	Message Queuing
MSMQ	Microsoft Message Queuing
MSXML	Microsoft XML Core Services (A set of services that allow applications written in JScript, VBScript, and Microsoft development tools to build Windows-native XML-based applications.)
MWI	Mobile Wireless Infrastructure
MWSI	Messaging and Wireless Infrastructure
MW	Mobile Workstation
NM	Not Met
NPSN	National Police Services Network
OCC	Operations Communication Centre
OCCNSS	Operational Communication Centre National Support Section
ODBC	Open Database Connectivity (interface)
OPS	Computer Operations
PARIS	Provincial Automobile Registry Information System
PDF	Portable Document Format
PIP	Police Information Portal
PKI	Public Key Infrastructure (technology or directory server)
PL	Procedural Language
PROS	Police Reporting and Occurrence System
PVU	Processor Value Units
R&D	Research and development
RAD	Rapid Application Development
RCMP	Royal Canadian Mounted Police
RIM	Research In Motion – now BlackBerry™
RMS	Records Management System (e.g., RDIMS)
RUM	Release Update Mechanism
SAMM	Status and Messaging Module
SCM	Software Configuration Management

Acronym	Definition
SDLC	Software Development Life Cycle
SDM	RCMP Service Desk Manager – ticket tracking system
SEI	Software Engineering Institute
SLA	Service Level Agreement
SMC	Senior Management Committee
SOA	Service-Oriented Architecture
SOAP	Simple Object Access Protocol (The first attempt to standardize a web service interface.)
SOW	Statement of Work
SQL	Structured Query Language (Microsoft server)
TC	Transition Committee
TCP	Transmission Control Protocol
TFS	Team Foundation Server (Microsoft)
TM	Registered Trade Mark
TOR	Test Observation Report
TR	Trouble Report
VM	Virtual Machine
VPN	Virtual Private Network
WAN	Wide Area Network
WBS	Work Breakdown Structure
WINSOCK	Windows Sockets (a programming interface and the supporting program that handles input/output requests for Internet applications in a Windows operating system.)
WMS	Wireless Mobile Workstation
XML	EXtensible Mark-up Language
XSL	EXtensible Stylesheet Language (a styling language for XML)

APPENDIX 2 TO ANNEX A

CIIDS SUPPLEMENTARY INFORMATION

1. INTRODUCTION

The purpose of the "Appendix 2 to Annex A SOW – CIIDS Supplementary Information" is to provide the bidder with a general overview of the Computerized Integrated Information and Dispatch System (CIIDS) environment. Due to the constant evolutionary nature of information technology and changing business needs, some of the information provided in this appendix might not be an exact representation of the existing production environment.

The Computer Integrated Information Dispatch System (CIIDS) is a Royal Canadian Mounted Police (RCMP) owned custom-built system serving the Computer Aided Dispatch (CAD) and information access needs of the RCMP Operations Communication Centre (OCC) and front-line officers in their police vehicles.

This document describes the current work environment of the CIIDS system operated by RCMP employees.

2. FUNCTIONAL OVERVIEW

When a call for service is received from the public, CIIDS allows a Call Taker to generate an incident and send it electronically to a Dispatcher, who then assigns the incident to a patrol unit. Patrol units are dispatched and receive the dispatch information on the Wireless Mobile Workstation (WM) mounted in their vehicles. When the patrol unit clears the scene, the incident is closed electronically by the patrol officer, and the information is downloaded to the Police Reporting and Occurrence System (PROS) Records Management System (RMS).

CIIDS assists users with:

1. Incident Handling;

2. Call Taking;

3. Dispatching;

4. Supervision;

5. Unit Status Keeping;

6. Messaging and Queries; and

7. Information Retrieval.

2.1 Incident Handling

1. The incident handling function provides users with the ability to record and work with calls for service from the public.

2. Users enter incident data into pre-formatted full screen displays. The fields can be populated manually or automatically from E911 data feeds.

3. For each incident, an unlimited number of associated attachments (subject, vehicle, business, or property) may be stored. Throughout the incident handling process, CIIDS performs data validation and automatically provides users with pertinent information, such as alerts, premise history, and standard operating procedures associated with the incident type, and/or location.

4. Automatic transfers of active incident data take place among Call Takers, Dispatchers and Supervisors.

5. All incident transactions are automatically date and time stamped and recorded in the CAD database, which forms the basis for comprehensive statistical reporting.

2.2   Call Taking

1. Any CIIDS workstation can begin the call taking process by filling an incident form. CIIDS supports both dedicated Call Takers and users who combine call taking and dispatching duties.

2. The system provides a number of important features to make the call taking process more efficient:

    a. Automatic validation of information as it is entered;

    b. Automatic validation of address information and identification of corresponding patrol zones;

    c. Auto-fill of key fields to ensure that a dispatch can be initiated quickly and successfully; and

    d. Intelligent keyboard navigation standards and shortcut features to reduce call processing time.

3. The data feed, associated with E911 calls, automatically pre-fills incident fields with the incoming caller's name and location data, thereby improving accuracy and reducing call processing time. The Call Taker can confirm details and also make changes or additions.

4. The Call Taker enters additional incident details and assigns an incident type and priority.

5. Once the incident data is recorded, the Call Taker can automatically route the incident to the appropriate Dispatcher(s) based on geographic and jurisdictional responsibility.

6. In an emergency, the Call Taker can continue to enter information while the Dispatcher is assigning patrol vehicles to the call. The Dispatcher is notified as changes occur.

7. The system maintains a record of all recent incidents. As Call Takers enter incident data, previous incidents at or near the location are brought to the Call Taker's attention automatically, to reduce the risk of duplication.

8. Each CIIDS installation is installed with a Street Network file, which is a representation of geo-coded street segments, which provide automatic address validation as data is entered into an incident form.

9. User friendly lookup features allow the Call Taker to enter the first character(s) of a street or common place name and select from a pick list, and provide assistance if the entered location does not validate. The Call Taker can also refer to an integrated electronic map, derived from the street files, as a visual aid to understanding the geographic environment.

2.3   Dispatching

1. Dispatchers assign themselves to an area(s) of responsibility, which corresponds to a portion of the geographic region covered by the dispatch system. The System Administrator can group these areas of responsibility for easy access and work division. For example, in a large regional communications centre, each dispatch position might be responsible for a geographic sector, or a specific RCMP detachment. CIIDS provides the Dispatcher with continuously updated status for all incidents and units within their selected assigned area(s) of responsibility. Areas of responsibility can be re-allocated quickly and easily. The system ensures that all areas are covered at all times.

2. CIIDS contains a large amount of information which is presented in a series of views and displayed on multiple large-screen monitors. Incidents are separated into those awaiting dispatch and those that have been already assigned. Incidents are displayed in order of urgency, ensuring that higher priority ones are always dealt with first.

3. Assignment of patrol units to incidents is completely flexible. Units can be assigned individually or in groups. CIIDS can be configured to recommend units for assignment to an incident, reducing response time and taking the guesswork out of dispatching.

4. Users also have the ability for dispatchers to conduct queries against the Canadian Police Information Centre (CPIC) and the Police Information Portal (PIP) law enforcement databases and to attach the query results to an incident.

5. CIIDS is completely integrated with in-vehicle mobile computers. The wireless mobile software application, Status and Messaging Module (SAMM), is installed on ruggedized notebook computers in patrol vehicles. When a mobile unit is assigned to an incident, SAMM receives a copy of the incident along with all relevant information and alerts. The user can indicate acceptance of the dispatch, update status codes (for example, to indicate "en route" and "on scene") by pressing status buttons that automatically update the dispatch workstation. These Mobile Workstations (MWs) facilitate silent dispatch and messaging, reducing routine radio traffic and avoiding early detection by analog radio scanners. Response times are reduced and officer safety is enhanced.

6. Dispatchers can centre the map on incidents as they work, and can also switch on aerial photos to enhance their view of the area and to provide directions to responding units. Additional map features include the ability to position units at containment or staging positions, to dispatch and handle units directly from the map, to save frequently used map views, and to print a map containing information for a specific incident.

2.4   Supervision

The supervisory role in CIIDS has administrative capability in addition to all call taking and dispatch functionality. Supervisors can shift perspective from coverage of an entire region, to coverage of specific regions or incidents. Supervisors also have access to the integrated map, and are automatically updated on all incident and unit activity, incoming notifications, and problem situations. The system can be configured to allow the Supervisor complete access to all functions of the system, or a monitor-only role. If required, Supervisors can maintain a dedicated view for review and quality control of incoming incidents.

2.5   Unit Status Keeping

1. CIIDS gives a high priority to police officer safety. It provides Dispatchers with several methods to update unit status quickly and efficiently, and records all patrol unit activity for future reference. Units equipped with MWs or integrated radio devices can activate an emergency signal that is automatically broadcast to all Dispatchers and Supervisors. CIIDS users can add, update and remove units. Unit updates, including Global Positioning System (GPS) locations, are broadcast automatically to all authorized users.

2. Status changes for a unit can be initiated by any Dispatcher. For units equipped with data transmitting radio equipment or MWs, status changes can also be issued by the units themselves. As an aid to maintain situational awareness, timers can be associated to specific status codes, or can be set manually by the Dispatcher in any situation. When a timer expires, the responsible Dispatchers and Supervisors are alerted with an audio and visual signal.

3. Patrol units equipped with MWs are typically GPS-enabled. The unit's current location, direction of travel and speed are regularly relayed to CIIDS, and the map is dynamically updated without the user having to refresh or perform additional queries.

2.6   Messaging

CIIDS supports messaging between the CAD and MWs and allows the configuration of message groups. Messages can be custom-created or built from existing templates, and can be attached to incidents for information purposes. CIIDS also supports narrative messaging to external police agencies.

2.7   Information Retrieval

1. CIIDS users have access to a wide range of queries on the CAD database, which will provide detailed information on incidents, units and premise history.

2. Additionally, CIIDS maintains a considerable volume of information relating to local conditions, operations and procedures. These local information tables can be updated at any time and contain such information as:

   a. Basic validation values displayed to the user in customized pick lists;

   b. Alerts, including standard operating procedures, addresses of interest; and

   c. Ancillary information, local to the jurisdiction, containing essential contacts, and categories of information.

2.8   External Systems Interfaces

Additionally, the system provides many external interfaces to relevant data sources:

1. The CAD interfaces to both the Motorola MCC 7500 and HARRIS's Enhanced Digital Access Communication System (EDACS®) digital radio systems for integration of select radio information with the CIIDS dispatcher workstations.

2. The CPIC interface provides both query and maintenance access to the national database on crimes and criminals. The Provincial Automobile Registry Information System (PARIS) interface within CPIC, provides query access to select provincial motor vehicle databases to obtain vehicle and owner information.

3. The E911 component provides interfaces to various telephone providers for obtaining subscriber name and location information associated to emergency calls.

4. The PIP interface provides query access to the national portal for information sharing of select RMS data from participating police agencies.

5. The PROS interface transfers incident and unit information from the CAD to the RMS.

3. FEATURES

The RCMP OCCs are emergency dispatch centres and, as such, are considered a stressful work environment. CIIDS enhances the efficiency and capacity of these emergency dispatch centres to accept calls for service from the public and to effectively dispatch resources in response.

3.1 Ease of Use

CIIDS workstation applications have been developed for the Windows environment, using standard Windows conventions and processes. The common "look and feel" simplifies the use of applications and reduces the learning requirement.

3.2 One-time Data Entry

One of the key principles in the design of CIIDS is to ensure that information is entered only once, and that this information is automatically made available to all authorized users including the mobile wireless users.

3.3 High Performance

CIIDS is a near-real time dispatch system. Some CIIDS sites support a large number of users concurrently accessing the CAD Server, using both the CAD Workstation application and reporting applications, while simultaneously supporting an additional large number of mobile wireless users. The system is designed to accommodate large numbers of users while maintaining the high performance levels required in a dispatch centre.

3.4 Reliability

CIIDS operates continuously, with no single point of failure and with the capacity to perform on-line diagnostics, software maintenance, and reconfiguration without interruption to the end user. The CIIDS architecture is client/server. The application layer functionality, resident on the CAD Server, is divided among many specialized processes that intercommunicate, either through the database or through a messaging technique. System activity is monitored through a software process that ensures the health of the CAD server. If any process becomes unstable, only a small part of the functionality of the server is temporarily affected while the process is stopped and restarted, transparently to the end user. This system design, coupled with the chosen hardware configuration, results in a high availability system.

3.5 Bilingualism

CIIDS, including the mobile application, SAMM, has the capability to be operated, on a workstation-by-workstation, and session-by-session basis, in either English or French.

3.6   Role-Based Security

System security is designed around system defined roles. For each role, permissions can be defined which control access to all of the CIIDS functionality (e.g., ability to dispatch, ability to access certain information, etc.). Users are assigned to roles; a user can be assigned to multiple roles but can only use one role at a time.

4. SYSTEM ARCHITECTURE AND SYSTEM COMPONENTS

4.1 System Architecture

The CIIDS components are implemented in a tiered architecture. The following diagram shows the relationship among the various components.
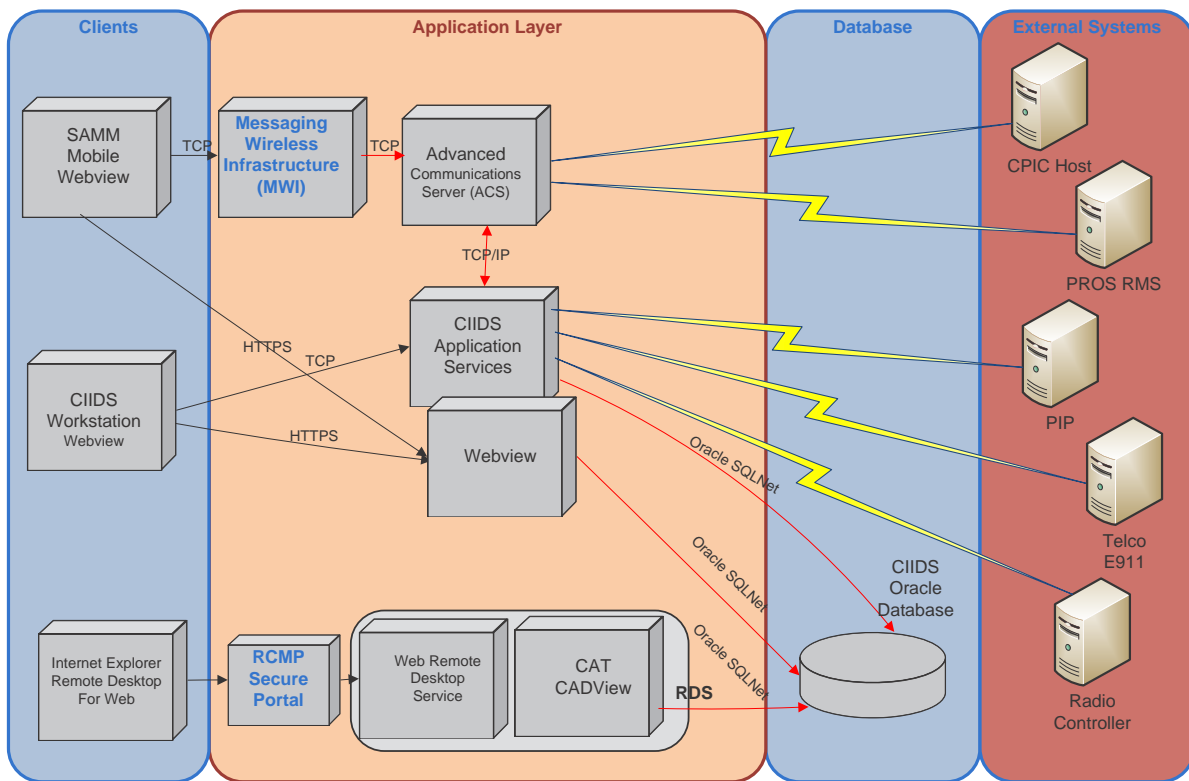

Figure 1-1: System Architecture

4.2 System Components

CIIDS is comprised of a set of client/server applications and databases, described below:

1. **Advanced Communication Server (ACS) –** is a separate server component that implements the message switching function and interfaces to most external systems, including CPIC, PROS, and all wireless networks. It handles all transactions to and from the SAMM mobile wireless application.

2. **CAD Database –** is the database server (DB) on Oracle Release 11g used to store all the site's user and system data (unit, incident, external system transactions, messages, etc.).

3. **CADView –** is the data mining and reporting application. It provides a set of structured reports to interrogate for incident and unit status information as well as reporting on the overall performance of the OCC. It also includes an Automatic Vehicle Locator (AVL)

report for replaying the activity of GPS equipped vehicles. In addition, CADView provides a capability for more complex queries and reports to be customized by users.

4. **CAD Workstation –** this client application is the CAD Server companion component that operates on multi-screen desktop computers and is used for call taking, dispatching, unit status management, messaging, external systems access, and all communications with the CAD Server.

5. **CAD Administration Tool (CAT) –** is the application used to configure CIIDS for all data, specific to the emergency dispatch centre and operations, such as status codes, incident types, users, tactical plans, and addresses of interest to police. In addition, this tool is used to create and maintain a site-specific rolodex-type directory.

6. **CADMap** – is a high performance, multi-layered map display and address validation application that integrates a digital mapping capability into the various CIIDS application components; most importantly the CAD workstations and SAMM. All relevant actions and events are immediately reflected visually on the map, including the near real-time tracking of GPS equipped vehicles. Similarly, any commands or actions initiated from the map result in the appropriate action being taken within the CAD, such as creating an incident at a particular location.

   In addition to displaying the map, its function is to also provide address parsing and address validation. CADMap handles many different civic address formats such as geographic coordinates (latitude, longitude), cross streets, common names, highway markers, landmarks, some rural addressing formats, and community based addressing.

   CADMap is a custom built map display application, compatible with industry standard Environmental Systems Research Institute (ESRI) and MapInfo Geographic Information Systems (GIS) data formats. Using a GIS system, map data is constructed from various data sources and checked and corrected for accuracy against data provided by the RCMP site. Additional RCMP-specific layers, such as detachment and zone boundaries and aerial photographic data, are added for each geographic region. The resulting file is called a "street file" and is stored in the CAD Server.

7. **Computer Aided Dispatch (CAD) Server –** is the application server component that implements the business rules, communicates with the CAD workstations and manages the storing of all transactions and access to the database. It is used to determine dispatch recommendations and to ensure all information relevant to each active user is sent to that user's workstation. Interfaces are also provided from this server to the voice radio systems and to PIP.

8. **Messaging and Wireless Infrastructure (MWI) –** wireless network connectivity is accomplished by a centralized (RCMP Ottawa Headquarters) component, called the MWI. This set of servers is managed by the RCMP as part of their overall infrastructure and provides dedicated connectivity to the various public wireless data networks used throughout the country. The MWI acts as a network router for all wireless traffic. Wireless data transactions are received at the MWI and then routed through the RCMP Intranet to the sites ACS. The ACS then provides the message processing, protocol handling and connectivity to the appropriate systems (CAD Server, CPIC, PIP, etc.).

9. **Status and Messaging Module (SAMM) –** this mobile wireless application is installed on a notebook computer operating in the police vehicles and provides wireless access

to the CAD and to other external police systems. These notebook computers are generally referred to as MWs. SAMM allows the user to receive complete dispatch information, location related information, and any other information associated with the dispatch. SAMM integrates to the CAD AVL capability by periodically reporting the unit's GPS location. The SAMM application also includes a query interface to the CPIC and PIP systems and allows for text messaging and patrol unit status updates, thus significantly reducing voice radio traffic. SAMM employs a two-factor authentication technique, using security tokens, to ensure its users are validated on the system and that all data is suitably encrypted and protected from intercept in the wireless environment.

10. **Tools –** there are various tools provided with the system to perform specific tasks associated with both the ACS and the SAMM mobile workstation application.

   a. The CSINFO tool provides information about mobile wireless users and their connectivity status.

   b. The Release Update Mechanism (RUM) is a utility that defines the field default values and pick lists (list of values) available on the various forms/screens within the SAMM application.

11. **WebView** – is the application level component that provides web browser access to most of the CAD information. Its companion web server resides on the CAD Server.

5. OPERATING ENVIRONMENTS

5.1   CIIDS Virtual Machines

The CIIDS server components run on three (3) centralized virtual servers (VM): the Application server (APPS), the Advanced Communication Server (ACS) and the Database Server (DB). In addition one (1) Remote Desktop Server (RDS) is shared by all CIIDS sites.

5.1.1   APPS SERVERS

The APPS server runs on a 64-bit Microsoft Windows Server 2008 R2 Virtual Machine. The CAD, CADMap and Webview components reside on the APPS server.

5.1.2   ACS SERVER

The ACS server runs on a 64-bit Microsoft Windows Server 2008 R2 Virtual Machine. The Advanced Communications Server component is hosted on the ACS Server.

5.1.3   DB SERVER

The DB server runs on a Microsoft Server 2012 R2 Virtual Machine. The CIIDS database is hosted on the DB server operating on Oracle 11G, Release 2, Standard Edition.

5.1.4   RDS SERVER

The RDS Server runs on a Microsoft Server 2012 R2 Virtual Machine. The CAT and CADView applications are hosted by the RDS Server.

5.2   CAD Workstation and SAMM

The CAD and SAMM workstations operate on Microsoft Windows 7.

5.3   Networks

5.3.1   CENTRALIZED SERVERS

Where network capacity is available OCC site's CAD Server and ACS are centralized at RCMP Head Quarters. All CAD workstations are connected via the RCMP's intranet, the National Police Services Network (NPSN). Internet Protocols (IP) are used throughout.

5.3.2   LOCAL SERVER

Where network access to RCMP Head Quarters is limited, CIIDS has been deployed on local Virtual Machines interconnecting the CAD Server, ACS and CAD Workstations on the Detachment's Local Area Network (LAN). The National Police Services Network (NPSN) is then used to gain access to External Systems such as CPIC, PIP and PROS.

5.4 Wireless Networks

Most wireless data access is provided to the RCMP by the various telephone carriers via their public cellular networks. SAMM Workstations gain access to CIIDS provided by these wireless networks. The Messaging and Wireless Infrastructure (MWI) provides a Wireless Virtual Private Network for these connections.

5.5 High Availability

All CIIDS VM's run on a VM Cluster comprised of hosts at RCMP HQ and an offsite data center. Each data center has enough hardware power to comfortably run VM's for all sites, although under normal operations the VM's are divided between the two sites in order to distribute the load.

6. THIRD-PARTY PRODUCTS

Current Third-party products used in the CIIDS system are:

1. Oracle;
2. Various versions of the Microsoft Windows operating system;
3. IBM MQ;
4. Bell AQSPlusP;
5. NetMotion Mobility VPN.
6. Tomcat
7. J2SE Runtime Environment (Java)

7. DEPLOYED SITES

1. CIIDS presently serves 15 major operational dispatch centres, supporting thousands of police responders over large geographic areas. CIIDS supports multiple police agencies (RCMP Detachments) sharing the same server and in some cases supports multiple dispatch centres from a single instance of CIIDS.

2. Complete non-operational systems are located at RCMP Headquarters in Ottawa for development, testing and training purposes.

3. The following table provides information about the CIIDS sites currently in operation.

OCC Location	RCMP Division	Territory Served
ST. JOHN'S	B	NEWFOUNDLAND
TRURO	H	NOVA SCOTIA
CHARLOTTETOWN	L	PRINCE EDWARD ISLAND
MONCTON	J	CODIAC REGION
FREDERICTON	J	NEW BRUNSWICK
MONTREAL	C	QUEBEC FEDERAL
OTTAWA	A	NCR FEDERAL
LONDON	O	ONTARIO FEDERAL
WINNIPEG	D	MANITOBA
REGINA	F	SASKATCHEWAN
RED DEER	K	SOUTHERN ALBERTA (RED DEER)
EDMONTON	K	NORTHERN ALBERTA (EDMONTON)
WHITEHORSE	M	YUKON TERRITORY
YELLOWKNIFE	G	NORTHWEST TERRITORIES
IQALUIT	V	NUNAVUT

Table 1: CIIDS Current Operational Sites

4. A site configuration typically consists of a CAD Server, Database Server, a number of call taking and dispatch workstations (both local to the OCC and housed in remote detachment locations), ACS and a number of MWs, using SAMM.

APPENDIX 3 TO ANNEX A

COMPUTERIZED INTEGRATED INFORMATION DISPATCH SYSTEM

DEVELOPMENT ENVIRONMENT DOCUMENT DESCRIPTION

1. INTRODUCTION

1.1 Purpose

This document details the software and hardware that comprises the Computerized Integrated Information Dispatch System (CIIDS) development environment. This environment is capable of building all the CIIDS executables, installers and supporting libraries.

1.2 Scope

Build procedures are not discussed. So while this document may describe what the development environment is, it does not detail how to use it.

1.3 Background

The CIIDS is a large, distributed system that provides resources to support Computer Aided Dispatch (CAD) for the Royal Canadian Mounted Police (RCMP).

1.4 Definitions, Acronyms, Abbreviations

The following is a list of commonly used definitions used throughout this document.

1.4.1 DEFINITIONS

Table 1-1: Definitions	
Term	**Definition**
CSAdmin	Name of the Advanced Communications Server (ACS) administration utilities.
CADView	Name of the CIIDS Computer Aided Dispatch (CAD) reporting utility.
WebView	Name of the CIIDS CAD web query tool.
CADMap	Name of the CIIDS CAD mapping and address processing common component (Dynamic-Link Library [DLL]).
RadioLink	Name of the CIIDS web service that handles radio communication.

1.5 Document Overview

The document is divided into 6 sections that address the following:

Table 1-2: Document Overview	
Section	**Description**
1	Section one describes introduction to CIIDS definitions.
2	Section two describes the software required to build the CIIDS components.
3	Section three details methods used to facilitate change and source management.
4	Section four lists any hardware and software that is required for CIIDS development.
5	Appendix A – Software Specifications.
6	Appendix B – Contractor Support Facility Readiness Checklist.

2. BUILD SOFTWARE – VERSION 9

2.1 Visual Studio

Visual Studio is an IDE used for C++ and .NET projects.

2.1.1 RELEVANCE

Visual Studio is used for many of the CIIDS projects.

- CIIDS Workstation (and Silent Installer)

- SAMM mobile

- ACS

- CSAdmin

- PIP Gateway (and Installer)

- E911 Service (and Installer)

- E911 Simulator (and Installer)

- CEM (DLL)

- CADMap (DLL)

- CAD Server

- RadioLink Service

- Silent Installer for all components that have WIX installer projects (Maps, CAD Workstation, E911Phase2Service, among others)

  When building the CAD Server an Oracle install and running instance is also necessary. All of the solutions built with Visual Studio also require .NET.

2.1.2 VERSION AND UPDATES

- Microsoft Visual Studio 2012 Professional Edition

- Microsoft Visual Studio 2008 Professional Edition (SAMM, SAMM CADMap and SAMM CEM only)

2.2 Oracle

Oracle is a relational database used to store large amounts of non-volatile data.

2.2.1 RELEVANCE

Oracle is needed for:

- ACS

- CAD Server

- CAT

- CADView

- PIP Gateway

- WebView

A running instance of a CAD database must be available to the development machine when compiling.

2.2.2 VERSION

- Oracle Database 11g Standard Edition, Version 11.2.0.4

- Oracle Database 11g Companion, Version 11.2.0.4

- Oracle Client 11g

- Oracle DataAccess (ODP.Net) version 2.111.6.20

2.3 NetBeans

NetBeans is an IDE that is used for Java development.

2.3.1 RELEVANCE

NetBeans is used in the development of the WebView component. An accompanying JDK is also required.

2.3.2 VERSION

- NetBeans 6.8

2.3.3 ADDITIONAL REQUIREMENTS

- Java(TM) Standard Edition, build 1.7.0_71-b14

2.4 PowerBuilder

PowerBuilder is a RAD tool used for making user-friendly database forms.

2.4.1 RELEVANCE

The CIIDS Administration Tools (CAT) and CADView are developed using PowerBuilder.

2.4.2 VERSION

- PowerBuilder 10.5 Build 7757

2.5 .NET Framework

The .NET Framework is a large library that is integrated with Visual Studio.

2.5.1 RELEVANCE

All the applications that are built in Visual Studio require the .NET Framework. Additionally both PIP and E911 solutions require the Microsoft Practices Enterprise Library. This library is a collection of reusable components for enterprise applications. It is used in the PIP and E911 projects to provide standardized logging and exception handling. E911 projects also require the Castle Project Dependency Injection Library to facilitate the various calculations required for E911 message processing.

2.5.2 VERSION

- Microsoft .NET Framework 4.5

2.5.3 ADDITIONAL REQUIREMENTS

- Microsoft Practices Enterprise Library 4.1 (October 2008)

- Castle Project Dependency Injection Library (1.0 RC3)

2.6 MapInfo

2.6.1 RELEVANCE

MapInfo is used by the **Contractor's** GIS technicians to collect and edit map data. After prepared with MapInfo the data is converted to a proprietary format using a CADMap tool.

2.6.2 VERSION

MapInfo 10 build 5.

3. CHANGE AND SOURCE MANAGEMENT

While change and source management software are not necessary to build or modify code, it is integral to productivity and organization.

3.1 DevTrack

DevTrack is a development implementation and issue tracking tool from TechExcel that is used to manage many aspects of the CIIDS Software Development Life Cycle (SDLC). It is used to organize development work, facilitate change control and track bugs. Items in DevTrack are categorized as Call Tracking issues, Test Observation Reports (TORs), Trouble Reports (TRs), or Change Control Documents (CCDs). These work items can be assigned to user accounts to solicit input or action.

Login accounts are assigned roles and permissions to perform appropriate actions. A developer can change the status on a TOR to indicate that is it ready to be tested.

For example: CCD related documents such as requirements and test plans are managed though DevTrack. Version 5.6.6 is currently used.

3.2 Team Foundation Server

Microsoft Team Foundation Server 2017 (TFS) is currently used as the source management solution for the CIIDS project. It is not necessary for building any of the applications, but is required to extract the source-code from the version control system. TFS is integrated into the Visual Studio.

3.3 Microsoft SharePoint

A SharePoint web app hosted internally is used to manage any documentation not directly part of the CCD process. It provides workflow, collaboration and change tracking features while integrating with other office applications like Microsoft Word.

4. HARDWARE REQUIREMENTS

The CIIDS development hardware consists of conventional machines, but also contains some uncommon devices.

4.1 Minimum Development Machine Requirements

Each CIIDS developer is assigned his or her own desktop machine on which to develop, unit test, and build the CIIDS suite of applications. Each developer machine is installed with the necessary software tools such as Microsoft Visual Studio and TFS to enhance and maintain the CIIDS code base.

In particular, Visual Studio requires at least a 1.6 GHz or faster processor, 1 GB of RAM (1.5 GB if running on a virtual machine), 10 GB (NTFS) of available hard disk space, 5400 RPM hard drive and a DirectX 9-capable video card running at 1024 x 768 or higher display resolution This may technically be enough for CIIDS development but an Intel i7 CPU and 4GB or more of RAM is recommended. Windows 7 Professional is currently used on all CIIDS development machines.

The development machines are the **Contractor's** assets. They are used to perform virtually every aspect of CIIDS development including the software builds of the client and server component applications. Verification testing is performed on hardware described in the Lab section.

4.2 Minimum Development Server Requirements

The following are hardware guidelines for the development servers required by CIIDS. Multiple sets of these servers may be required on occasion. For example, if multiple branches of development are proceeding in parallel, each branch may require a clone of the CIIDS Dev VM set to perform integration testing.

4.2.1 ACS

A development ACS should have at least a single-core 1.6 GHz processor, 4 GB of RAM, and 40 GB of hard drive space. The operating system should be Windows Server 2008 R2.

4.2.2 APPS

A development APPS server should have a dual-core 1.6 GHz processor, 8 GB of RAM, and 60 GB of hard drive space. The operating system should be Windows Server 2008 R2.

4.2.3 ACS+APPS

Optionally, the ACS and APPS services can be installed within the same OS/VM. The development version of such a server should have at least a dual-core 1.6 GHz processor, 10 GB of RAM, and 80 GB of hard drive space. The operating system should be Windows Server 2008 R2.

4.2.4 DATABASE

A development database should have a dual-core 1.6 GHz processor, 8 GB of RAM, and 100 GB of hard drive space. The operating system should be Windows Server 2012.

4.2.5 ACS+APPS+DATABASE

The Application services (ACS+APPS) can be put onto the same system as the database to create a single, more flexible, VM image. However, this setup is less representative of the production environment.

This combined server should have a quad-core 1.6 GHz processor, 12 GB of RAM, and 140 GB of hard drive space. The operating system should be Windows Server 2008 R2.

4.3 Other hardware or devices

4.3.1 PKI

While not strictly necessary for the build process itself, Entrust tokens/smart cards are essential to CIIDS development. They are required for nearly all testing, since to even start the workstation or mobile client a valid token must authenticate and be configured in the CAD database. These tokens are supplied by the RCMP.

To accommodate Entrust token authentication a PKI infrastructure must generally be available. Logging in offline is possible, but a CIIDS development environment must also be capable of testing Entrust functionality online. A PKI environment owned by the **Contractor** allows quick changes but is not strictly necessary. A development PKI solution is also made available by the RCMP.

4.3.2 MOBILES

RCMP cellular modems are not required but can be helpful as part of the development environment for testing and troubleshooting mobile issues. Having access to the RCMP Mobile Wireless Infrastructure (MWI) with the modems is essential.

Having RCMP laptops representative of the equipment present in patrol cars is required for a complete testing effort. Having an appropriate RCMP image running on the machines is conducive to proper testing as well. This is important due to subtleties that may be present in the image, as well as testing integration with mechanisms such as the NetMotion middleware.

A USB driver's license card reader is optional for testing the roadside component in SAMM. Due to the nature of the driver's license reading implementation on RCMP mobiles, SAMM only reads a pre-processed XML file – and thus sample files can be used to simulate.

4.3.3 LAB

The **Contractor** maintains a secure lab to gain access to the RCMP development test environment. Between the **Contractor** and the RCMP a development lab on site is used for the purposes of testing and verification. Hardware within the lab is includes

- Desktop Workstations

- Mobile Workstations

- Monitors

- Peripherals, including mice and keyboards

- Servers

  o Integration Servers: One ACS+APPS, and one database

  o Verification Servers: One ACS+APPS, and one database

Note that while the RCMP development and production environments have an RDS server to run PowerBuilder applications, the CIIDS lab environment does not. The PowerBuilder applications are run directly from workstations in the lab.

Computers within the lab are not on the **Contractor's corporate** or **development** network. They are on an isolated network with limited access to RCMP development resources.

The following RCMP development resources are accessible by the lab servers:

- Dedicated Test Environment (DTE) Canadian Police Information Centre (CPIC), including Message Function (MF).

- Development (DEV) Police Reporting and Occurrence System (PROS).

- DEV Police Information Portal (PIP).

- DEV Public Key Infrastructure (PKI).

4.3.4   CONTRACTOR SUPPORT FACILITY

The Contractor will maintain a support facility, which contains all current version RCMP CIIDS and related source codes, operating systems and third-party products to ensure:

- That any software changes required by the RCMP can be made to the current code; and

- That any problems reported by the RCMP can be replicated at the Contractor's facility for resolution.

Table 1-3: 3rd Party Licences Required for CIIDS Development Environment		
Item	**Description**	**Quantity**
1	Microsoft Visual Studio 2012 Professional Edition	12
2	Oracle Database 11g Standard Edition, Version 11.2.0.4	2

Table 1-3: 3rd Party Licences Required for CIIDS Development Environment		
Item	**Description**	**Quantity**
3	PowerBuilder 10.5 Build 7757	2
4	MapInfo 10 build 5	2
5	DevTrack Version 5.6.6 or equivalent scalable defect tracking software product	12
7	Microsoft Team Foundation Server 2017 (TFS) or equivalent	1
8	Sophos Endpoint Security and Control 10.7 or equivalent product	12
9	Microsoft MSDN Professional License (no version number – this is a subscription)	12
10	VEEAM Backup and Replication Standard version 9.5 or equivalent product	2
11	JetBrains Resharper 2017.1.2	5
12	Wintertree SpellChecker SDK 5.17.1.0	1
13	Windows Server 2008 R2	12
14	Windows Server 2012 64 Bit – used for database server	1
15	Windows 7 Professional 64 Bit SP1	19
16	VM Software – VMware ESXI 5.5 U3	2

Table 1-4: Hardware Required CIIDS Development Environment		
Item	**Description**	**Quantity**
1	One physical server to run the VMware ESXI platform	1
2	Windows 7 development workstations – Quad Core, 16GB RAM	17
3	Windows 7 development notebook computers – Dual Core, 4GB RAM (equivalent to Toughbook specs)	2
4	Monitors **–** 22" widescreen	35
5	Network switch – 1000Mbps	1
6	USB printer – Traditional office laser jet type	1
7	Internet connection – High speed	1

APPENDIX A: SOFTWARE SPECIFICATIONS

Table A-1: Software Specifications		
Name	**Version**	**Required for**
Microsoft Visual Studio Professional 2012	11.0.61030.0 Update 4 Microsoft .NET Framework Version 4.5.50709 Visual C# 2012 04938-004-0033001-02232 Microsoft Visual C# 2012 Visual C++ 2012 04938-004-0033001-02232 Microsoft Visual C++ 2012	ACS CAD Server CADMap CEM CIIDS workstation CSAdmin E911 PIP Silent installer for all CIIDS client applications and site map data.
Microsoft Visual Studio Professional 2008	9.0.307291 Microsoft .NET Framework Version 2.0.50727	CADMap (for SAMM) CEM (for SAMM) SAMM
Oracle Database	11g Standard Edition, Version 11.2.0.4 11g Companion CD, Version 11.2.0.4 11g Client DataAccess (ODP.Net) Version 2.111.6.20	ACS CAD Server CADView CAT PIP WebView
NetBeans	NetBeans IDE 6.8 (Build 200912041610) Java(TM) SE Runtime Environment (build 1.7.0_71-b14)	WebView
PowerBuilder	PowerBuilder 10.5 Build 7757	CADView CAT

Table A-1: Software Specifications		
Name	**Version**	**Required for**
Microsoft .NET	.NET 4.5 Framework Microsoft Practices Enterprise Library 4.1 (October 2008) Castle Project Dependency Injection Library (1.0 RC3)	ACS CAD Server CADMap CEM CIIDS workstation CSAdmin E911 PIP SAMM

APPENDIX B: CONTRACTOR SUPPORT FACILITY READINESS CHECKLIST

Table B-1: Contractor Support Facility Readiness Checklist				
ID	**Element**	**Requirements**	**Pass/Fail**	**Initials**
	Lab Security			
1.1		All lab desktop and mobile workstations have the latest antivirus signature.		
	Lab Environment			
1.2		Desktop Workstations – **Windows 7** is installed.		
1.3		Mobile Workstations – **Windows** 7 is installed.		
1.4		Developer workstations have at least Intel i7 CPU and 4GB or more of RAM.		
	Application Servers			
1.5		**Advanced Communication Server (ACS)** Have at least a single-core 1.6 GHz processor, 4 GB of RAM and 40 GB of hard drive space. The operating system is Windows Server 2008 R2.		
1.6		Servers – **MS Windows Server 2008 R2** installed and configured.		
1.7		Server applications – **IBM MQ** and **Oracle** are installed and configured.		
1.8		**Applications Server (APPS)** have at least a dual-core 1.6 GHz processor, 8 GB of RAM and 60 GB of hard drive space. The operating system is Windows Server 2008 R2: • Integration Servers: One **ACS+APPS** and one database. • Verification Servers: One **ACS+APPS** and one database. **Optionally**: the ACS and APPS services can be installed within the same Operating System Virtual Machine (OS/VM). The development version of such a server should have at least a dual-core 1.6 GHz processor, 10 GB of RAM and 80 GB of hard drive space. The operating system is Windows Server 2008 R2.		
1.9		Development databases have at least a dual-core 1.6 GHz processor, 8 GB of RAM and 100		

Table B-1: Contractor Support Facility Readiness Checklist				
ID	**Element**	**Requirements**	**Pass/Fail**	**Initials**
		GB of hard drive space. The operating system is **Windows Server 2012 R2**.		
	Connectivity			
1.10		Provide a high speed Internet connection (min 100 mbps) to allow connectivity to the RCMP network via the approved remote access solution method.		
1.11		**Entrust tokens / smart cards** authentication PKI infrastructure is in place to test Entrust functionality online with CIIDS.		
1.12		Demonstrate connectivity to the following RCMP environments: • Dedicated Test Environment (DTE) CPIC, including CPIC Messaging. • DEV PROS. • DEV PIP. • DEV PKI. • E911.		
	Mobiles			
1.13		Access to the RCMP **Mobile Wireless Infrastructure (MWI)** and modems are configured.		
1.14		2 RCMP notebooks representative of the equipment present in patrol cars are configured and available for testing.		
1.15		A USB driver's license card reader (optional) is available to test the roadside component in SAMM.		
	Application Software			
1.16		**CIIDS 9** is installed and configured on all developer workstation and/or mobiles.		
1.17		Perform **CIIDS** 'Smoke Test'* to demonstrate application is online and working in Contractor's development environment. The following test cases (ID **1.18 to 1.23**) will be used to confirm whether Smoke Test is successful: 1.18 – Perform a CPIC query. 1.19 – Create a PROS Occurrence.		

Table B-1: Contractor Support Facility Readiness Checklist				
ID	**Element**	**Requirements**	**Pass/Fail**	**Initials**
		1.20 – Perform a PIP query.		
		1.21 – Dispatch a SAMM mobile unit.		
		1.22 – Perform an Audit query in WebView.		
		1.23 – Add an operator in CAT.		
		* **Smoke Test**: Build verification Test to verify that the most important functions of a build work without conducting exhaustive suite of tests.		
1.18		Perform a CPIC query.		
1.19		Create a PROS Occurrence.		
1.20		Perform a PIP query.		
1.21		Dispatch a SAMM mobile unit.		
1.22		Perform an Audit query in WebView.		
1.23		Add an operator in CAT.		
	CIIDS System Component Software			
1.24		**Advanced Communication Server (ACS)** is installed and configured.		
1.25		**Computer Aided Dispatch (CAD)** server is installed and configured.		
1.26		**CAD** database server is installed and configured to work with Oracle.		
1.27		**CADView** is installed and configured.		
1.28		**CAD Workstation** is installed and configured.		
1.29		**CAD Administration Tool (CAT)** is installed and configured.		
1.30		**CADMap** is installed and configured.		
1.31		**Status and Messaging Module (SAMM)** is installed and configured on workstation/mobiles.		
1.32		**Tools** The following tools are installed and configured: • CSINFO (Communication Server Information). • Release Update Mechanism (RUM).		

Table B-1: Contractor Support Facility Readiness Checklist				
ID	**Element**	**Requirements**	**Pass/Fail**	**Initials**
1.33		**WebView** is installed and configured.		
	Build Software	Please refer to **APPENDIX A: Software Specifications** (above this readiness checklist) to ensure that all software and sub components required for CIIDS development and support are installed and configured.		
1.34		**Microsoft Visual Studio Professional 2012** is installed.		
1.35		**Microsoft Visual Studio Professional 2008** is installed.		
1.36		**Oracle Database 11g** is installed and configured.		
1.37		**NetBeans 6.8** is installed and configured.		
1.38		**Java™ Standard Edition, build 1.7.0_71b14** is installed.		
1.39		**PowerBuilder 10.5 Build 7757** is installed.		
1.40		**Microsoft .NET Framework 4.5** is installed.		
1.41		**Microsoft Practices Enterprise Library 4.1** (October 2008) is installed.		
1.42		**Castle Project Dependency Injection Library** (1.0 RC3) is installed.		
1.43		**MapInfo 10** build 5 is installed.		
	Change and Source Management			
1.44		**TechExcel DevTrack Version 5.6.6** is installed **or** a comparable standard industry SDLC defect tracking tool is installed.		
1.45		**Microsoft Team Foundation Server (TFS) 2017** is installed **or** a comparable standard industry SDLC source-code management tool is installed and has the capability of extracting Visual Studio build code. **Note:** TSF is not necessary for building any of the applications, but is required to extract the source-code from the version control system. TFS is integrated into the Visual Studio. Method		

Table B-1: Contractor Support Facility Readiness Checklist				
ID	Element	Requirements	Pass/Fail	Initials
		of code extraction should be considered if product other than TFS is used.		

All other terms and conditions remain the same