



**IJIS Institute**

**PSDI PROJECT  
FINAL REPORT**

**Public Safety Data Interoperability Project**

BJA Grant Number: 2007-DD-BX-K155

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*Acting Director, Bureau of Justice Assistance*

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<b>1</b>	<b>PURPOSE OF THIS REPORT .....</b>	<b>2</b>
<b>2</b>	<b>ACKNOWLEDGEMENTS .....</b>	<b>2</b>
<b>3</b>	<b>BACKGROUND .....</b>	<b>3</b>
<b>4</b>	<b>PROJECT SPONSORS.....</b>	<b>4</b>
<b>5</b>	<b>PROJECT OVERVIEW AND BENEFITS.....</b>	<b>5</b>
<b>6</b>	<b>PROJECT METHODOLOGY.....</b>	<b>7</b>
6.1	STEERING COMMITTEE .....	7
6.1.1	<i>Other Steering Committee Participants .....</i>	<i>9</i>
6.2	IJIS INSTITUTE AND APCO INTERNATIONAL SUPPORT AND CONTACT INFORMATION .....	9
6.2.1	<i>Co-Project Managers.....</i>	<i>9</i>
6.2.2	<i>Additional Support Staff.....</i>	<i>9</i>
6.3	SUBCONTRACTORS.....	10
6.4	SCHEDULE AND GROUP ACTIVITIES .....	10
<b>7</b>	<b>PROJECT RESULTS .....</b>	<b>12</b>
7.1	UPGRADE OF THE EXTERNAL ALARM INTERFACE IEPD .....	12
7.1.1	<i>Reference IEPD .....</i>	<i>12</i>
7.1.2	<i>IEPD Development.....</i>	<i>13</i>
7.1.3	<i>Standards and External Codes Utilized.....</i>	<i>16</i>
7.1.4	<i>Subcontractor.....</i>	<i>16</i>
7.1.5	<i>APCO ANS Standards Process.....</i>	<i>16</i>
7.1.6	<i>External Alarm Interface - Key Participants .....</i>	<i>17</i>
7.2	PRIORITY EXCHANGE LIST FOR LOCAL COMMUNICATION CENTERS .....	17
7.3	GUIDE TO INFORMATION SHARING AND DATA INTEROPERABILITY FOR LOCAL COMMUNICATION CENTERS.....	20
7.4	REVISION ASSESSMENT FOR ADDING FIRE AND EMS FUNCTIONS TO THE LAW ENFORCEMENT CAD FUNCTIONAL SPECIFICATIONS.....	21
7.4.1	<i>Revision Assessment Work Group .....</i>	<i>21</i>
7.4.2	<i>Subcontractors .....</i>	<i>22</i>
7.5	OUTREACH.....	22
7.5.1	<i>Awards and Accolades .....</i>	<i>23</i>
<b>8</b>	<b>LESSONS LEARNED/PROMISING PRACTICES.....</b>	<b>25</b>
<b>9</b>	<b>RECOMMENDATIONS FOR FUTURE EFFORTS .....</b>	<b>26</b>
<b>10</b>	<b>APPENDIX A: ADDITIONAL RESOURCES.....</b>	<b>27</b>
10.1	NIEM.....	27
10.2	NATIONAL INFORMATION SHARING STANDARDS (NISS) HELP DESK.....	27
10.3	IEPD CLEARINGHOUSE .....	27
10.4	IJIS INSTITUTE .....	27
10.5	APCO INTERNATIONAL .....	28
<b>11</b>	<b>APPENDIX B: THE APCO/IJIS INSTITUTE PARTNERSHIP .....</b>	<b>29</b>
<b>12</b>	<b>APPENDIX C: GLOSSARY .....</b>	<b>30</b>

## 1 Purpose of this Report

This report serves as the Public Safety Data Interoperability (PSDI) Project Final Report which serves to document the project overview, outcomes, challenges, and lessons learned. The Project, hereafter referred to as the PSDI Project, was funded by the Bureau of Justice Assistance (BJA) of the Office of Justice Programs (OJP) in the U.S. Department of Justice (DOJ).

## 2 Acknowledgements

This report, and the many work products generated from the PSDI Project, would not exist without the full support of the Bureau of Justice Assistance (BJA) of the Office of Justice Programs (OJP) in the U.S. Department of Justice (DOJ). The continuing leadership and guidance of BJA are key elements to the success of this project, from which public safety and public safety dispatch centers across the United States will derive benefits.

The IJIS Institute is grateful for the active participation and support of its member companies and their professional representatives, as well as the many practitioners who devote time and share their invaluable expertise for projects such as these. Specifically, the IJIS Institute acknowledges the individuals and their host private firms or public agencies listed in the 'Project Management Methodology' section for their commitment to the work and success of the PSDI Project. The Institute is also very appreciative of the incredible partnership with APCO International and is thankful for the support and assistance provided by its very talented staff. We would be remiss if we didn't specifically thank Stephen J. Wisely and Kathy McMahon for their exceptional efforts on this project. Finally, we would like to thank Bill Hobgood not only for his persistent dedication and efforts on the committee, but also for all the outreach support he provided and the behind-the-scenes efforts on the External Alarm Interface IEPD.

Scott Parker  
Senior Project Manager  
IJIS Institute

### 3 Background

Post 9/11 presidential directives and executive orders have established a national imperative for information sharing to improve our ability to prevent, protect, respond, and recover from major incidents regardless of type (terrorism, crime, nature). The missions of the National Response Plan/National Preparedness Goal have become a focal point for the Department of Justice (DOJ) and their information sharing initiatives with many of their federal, state, tribal, and local partners. The purpose of the information sharing imperative at DOJ was created to ensure that law enforcement, intelligence, and communications are aligned and capable at all levels of government.

The emergency response community (first responders) is critical to the effectiveness of these missions. With an estimated 6,500 emergency communications and dispatch operations centers around the U.S. functioning as the entry point for incident data, they provide a major asset to law enforcement and the large number of coordinating organizations responsible for real-time response to emergencies. Today, these centers include a multitude of operating models, capabilities and jurisdictional models, response magnitudes (disciplines and numbers of calls), data volumes, etc., that make real-time information sharing a daunting challenge. The timeliness and accuracy of this information can make the difference between a well-managed response and a catastrophe.

Because the public has been well educated to call 9-1-1 whenever they see a potential emergency, an actual incident, or a perceived threat that might require the response of law enforcement, fire, or EMS, the call taker receiving the initial call for help is the entry point to a system that feeds information to a diverse group of response and investigative organizations. Today, and increasingly in recent years, the word “interoperability” has been appropriately used to address voice radio communications – the first responder’s life line. However, to make much-needed progress in the information sharing arena, it is imperative that the communications center of today be able to exchange data between CAD systems, local, state, tribal, and federal agencies, regardless of operational configuration. Though there are many agencies that are not considered traditional “first responders,” these agencies can certainly benefit from receiving the basic information obtained by call takers at 9-1-1 centers.

What may start out as a seemingly local incident affecting a small number of citizens may ultimately expand to a larger, more menacing incident requiring the response of a variety of resources. The need to provide the data contained in the initial call details, and the associated incident information, cries out for data standards that will ensure that data can be exchanged correctly, efficiently, and securely. As many government agencies, particularly the Departments of Justice and Homeland Security, strive to advance the goals of information sharing, it becomes more apparent that the communications center community must play an integral role in these efforts.

Initiated in 2007, the Public Safety Data Interoperability Project was launched as a collaborative effort between multiple public safety communities including law enforcement, the fire service, EMS, and transportation. The U.S. Department of Justice’s (DOJ) Bureau of Justice Assistance (BJA) sponsored the project, with management support provided by the IJIS Institute and the Association of Public-Safety Communications Officials International (APCO). IJIS Institute and APCO are proud to have managed a project that will assist public safety professionals at all levels of government to explore, define, plan, and implement standards that will further data interoperability in this realm. These deliverables will allow services and solution providers to reduce the number of special interfaces necessary to exchange and process data between systems. This alone should provide substantial financial return by avoiding needless customization of application software.

Led by a steering committee composed of both government practitioners and private industry representatives, and supported by technical working teams and subject matter experts, the project engaged in the development of several value-add papers: *Priority Exchange List for Local Communication Centers*; *Guide to Information Sharing and Data Interoperability for Local Communication Centers*; and the *Revision Assessment for Adding Fire and EMS Functions to the Law Enforcement CAD Functional Specifications*. Additionally, the project upgraded the External Alarm Interface IEPD from GJXDM to NIEM.

## 4 Project Sponsors

### US DOJ's Bureau of Justice Assistance

The Bureau of Justice Assistance (BJA) is a component of the Office of Justice Programs of the U.S. Department of Justice. BJA supports law enforcement, courts, corrections, treatment, victim services, technology, and prevention initiatives that strengthen the nation's criminal justice system. BJA provides leadership, services, and funding to America's communities by:

- Emphasizing local control.
- Building relationships in the field.
- Provide training and technical assistance in support of efforts to prevent crime, drug abuse, and violence at the national, state, and local levels.
- Developing collaborations and partnerships.
- Promoting capacity building through planning.
- Streamlining the administration of grants.
- Increasing training and technical assistance.
- Creating accountability of projects.
- Encouraging innovation.
- Communicating the value of justice efforts to decision makers at every level.

BJA has three primary components: policy, programs, and planning. The Policy Office provides national leadership in criminal justice policy, training, and technical assistance to further the administration of justice. It also acts as a liaison to national organizations that partner with BJA to set policy and help disseminate information on best and promising practices. The Programs Office coordinates and administers all state and local grant programs and acts as BJA's direct line of communication to states, territories, and tribal governments by providing assistance and coordinating resources. The Planning Office coordinates the planning, communications, and budget formulation and execution, provides overall BJA-wide coordination, and supports streamlining efforts. Visit the BJA website at <http://www.ojp.usdoj.gov/BJA>.

## 5 Project Overview and Benefits

The Department of Justice has been involved in numerous projects concerning the standardization of information exchanged between systems that support public safety. DOJ’s Global Justice XML Data Model (GJXDM) organized the world of justice information sharing and the National Information Exchange Model (NIEM) provides a methodology to share information across domains.

This project aimed at producing deliverables that focused on assisting first responders and local public safety communication centers. Therefore, **in consideration of the project’s overarching goal to improve information sharing and data interoperability among and between public safety first responders**, the project sponsors and team turned its efforts to the following high-value deliverables:

- Upgrade of the External Alarm Interface IEPD (from GJXDM to NIEM);
- Priority Exchange List for Local Communication Centers;
- Guide to Information Sharing and Data Interoperability for Local Communication Centers; and
- Revision Assessment for Adding Fire and EMS Functions to the Law Enforcement CAD Functional Specifications.

The Chart of Deliverables, which includes the description of the deliverable and the intended purpose and anticipated benefit, is below.

Chart of Deliverables		
Deliverable or Activity Name	Deliverable Description	Purpose / Anticipated Benefit
Upgrade of the External Alarm Interface IEPD	The purpose of the External Alarm Interface IEPD is to provide a standard data exchange for electronically transmitting information between an Alarm Monitoring Company and a Public Safety Answering Point (PSAP).	The upgrade of the exchange from the Global Justice Data XML Model (GJXDM), a reference model for the exchange of information within public safety and justice communities, to NIEM 2.0 enables the emergency communications community to more easily adopt NIEM as a national data exchange standard.
Priority Exchange List for Local Communication Centers	This document is written for directors and other managers of public safety communications centers. Its aim is to provide an overview of high-value information exchanges that are relevant to these centers.	Communications center directors and other planners may use this document to assess the current strengths, weaknesses, and growth potential of their facilities. In addition, the document provides a window into the future of data exchange in the communications center. Many of the exchanges described in the document are not yet in wide use, if at all. Directors and planners can use this information to understand emerging trends in data interoperability and to plan for future growth.
Guide to Information Sharing and Data Interoperability for Local Communication Centers	This document provides managers of public safety communications centers (to include Public Safety Answering Points or any agencies that answer emergency calls) with an overview of the issues and opportunities surrounding data interoperability. It provides practical insights and action-oriented advice for managers looking to enhance data interoperability in their facilities.	This document is targeted to people in leadership positions in public safety communications centers. Both sworn and non-sworn leaders will benefit from the information presented in this document. Managers and directors who are looking to enhance data interoperability between the communications center and its business partners will find a wealth of practical, action-oriented information in this guide.
Revision Assessment for Adding Fire and EMS Functions to the Law Enforcement CAD Functional Specifications	This document serves two purposes. First, it provides the basis for determining the level of effort required to incorporate fire and EMS functional requirements into the existing <i>Standard Functional Specifications for Law Enforcement Computer-Aided Dispatch (CAD) Systems</i> document. Secondly, until the next revision is published, it can serve as a supplement to the existing document to those	This document specifically describes fire and EMS CAD functionality that would need to be added, as well as numerous modifications to current language and restructuring suggestions. Understanding this level of effort and need will help create and guide a future effort to achieve the desired goal – a revision of the CAD Functional Specifications. As a supplement, it may be of particular use to those drafting Requests for Proposals (RFPs) for CAD systems that need to support

	needing a more complete list of base CAD functionality.	dispatching fire or EMS – either alone or in addition to law enforcement.
Outreach Activities / Presentations	Outreach activities consisted of conference presentations and panel discussions and published articles.	To provide opportunities for practitioners and industry to become familiar with the PSDI Project and the deliverables in hopes of increasing adoption and use of the project deliverables.
Steering Committee Meetings	One face-to-face meeting and numerous conference calls of the PSDI Project Steering Committee and Advisors.	Provide coordination and effective, efficient, and productive work time for participants.
Work Group Meetings	Various face-to-face meetings and conference calls of the PSDI Project Work Groups.	Provide effective, efficient, and productive work time for participants.

## 6 Project Methodology

The IJIS Institute and APCO International were awarded project co-management and oversight responsibility for the PSDI Project.

The first project task was to form a Steering Committee composed of practitioners from both the public safety first responder domains as well as technology leaders from private industry. A 16-member Steering Committee was created – three from communications, two from law enforcement, two from the fire service, two from EMS, two from emergency management, one from transportation, one from the sponsoring organization (BJA), and three from industry. During the course of the project, smaller subsets of the committee and subject matter experts (SMEs) were formed for specific tasks such as the *Revision Assessment* and outreach efforts. These Steering Committee and Work Group members afforded their time and expertise on a volunteer basis. Additionally, the members of the Steering Committee and Work Groups shared a passionate desire and deep commitment to improve communications between public safety first responders.

### 6.1 Steering Committee

The PSDI Steering Committee consisted of the following members:

**Ernie Blair**

Director and CEO

Huntsville-Madison County 9-1-1 Center (Alabama)

(International Association of Emergency Managers (IAEM) representative)

**MacNeil Cross**

Chief (Ret)

New York City Fire Department

(Fire service representative)

**David Finchum**

Law Enforcement Product Manager

BIO-key International

(IJIS Institute / industry representative)

**Wayne Gisler**

Assistant Deputy Director

Traffic Engineering, Harris County Public Infrastructure Department (Houston, Texas)

(Transportation representative)

**Alan Harker**

Product Line Manager

Spillman Technologies

(IJIS Institute / industry representative)

**Linda Hill (Committee Chair)**

Consultant

The Archer Group

(IJIS Institute / industry representative)

**Bill Hobgood**

Systems Developer Lead  
Department of Information Technology  
City of Richmond, Virginia  
(APCO representative)

**Arthur Meacham**

CAD System Manager  
Caddo Parish Communications District (Louisiana)  
(APCO representative)

**Kevin McGinnis, MPS, EMT-P**

Program Advisor, NAEMSO  
(National Association of State EMS Officials (NASEMSO) representative)

**David Mulholland**

Commander  
Information Technology & Communications  
United States Park Police  
(Law enforcement representative)

**James F. Slater III**

Deputy Executive Director  
Massachusetts Criminal History Systems Board  
Criminal Justice Information Services Division  
(Law enforcement representative)

**Steve Sawyer**

(National Fire Protection Association (NFPA) representative)

**Jonathan Spanos, PhD**

Director  
Customer Support/Interoperability  
(National Emergency Management Association (NEMA) representative)

**Barbara Thornburg**

NENA Committee Resource Manager  
(National Emergency Number Association (NENA) representative)

**Christopher Traver**

Senior Policy Advisor  
Bureau of Justice Assistance  
(Sponsor representative)

**Charles Werner**

Chief  
Charlottesville Fire Department (Virginia)  
(International Association of Fire Chiefs (IAFC) representative)

### 6.1.1 Other Steering Committee Participants

Other participants who served on the Steering Committee for a portion of the project included:

**Kay Goss**

Director of Emergency Management and Crisis Communications  
SRA International  
(IJIS Institute / industry representative)

**Bill Kellett**

Corps Member  
Teach For America  
(IJIS Institute / industry representative)

**James Smalley**

Manager  
Wildland Fire Protection  
(National Fire Protection Association (NFPA) representative)

## 6.2 IJIS Institute and APCO International Support and Contact Information

The IJIS Institute and APCO International co-managed the PSDI Project.

### 6.2.1 Co-Project Managers

**Scott Parker**

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**Stephen J. Wisely**

Director, Communication Center and 9-1-1 Services Department  
APCO International  
[WiselyS@apco911.org](mailto:WiselyS@apco911.org)  
[www.apcointl.org](http://www.apcointl.org)

### 6.2.2 Additional Support Staff

**Amanda Byrd**

APCO International

**Suzette McLeod**

IJIS Institute

**Kathy McMahon**

APCO International

**Andrea Walter**

IJIS Institute

### 6.3 Subcontractors

Where the level of work surpassed that which could be reasonably expected from Steering Committee and Work Group volunteers, subcontracted technologists were utilized. Using a formal and well-vetted competitive procurement process, one IJIS Institute member firm was selected and used for the Upgrade of the External Alarm Interface IEPD (Aaron Gorrell with Waterhole Software) and two entities were used for the Revision Assessment (Linda Hill with The Archer Group and Jim Dundas, an independent consultant).

#### Upgrade of the External Alarm Interface IEPD

**Aaron Gorrell**  
Waterhole Software  
[www.waterholesoftware.com](http://www.waterholesoftware.com)

#### Revision Assessment

**Jim Dundas**  
[jdundas01@verizon.net](mailto:jdundas01@verizon.net)

**Linda Hill**  
The Archer Group  
[www.archergroupconsulting.com](http://www.archergroupconsulting.com)

### 6.4 Schedule and Group Activities

The project progressed via a few face-to-face meetings and numerous conference calls and web conferences.

The Upgrade of the External Alarm Interface IEPD was subcontracted via a competitive process to Waterhole Software. This work was accomplished entirely remotely, with conference calls used to coordinate, manage, and review the effort. A subset of Steering Committee members assisted with this deliverable. (See Section 7.1 for more information.)

The Steering Committee held one kickoff meeting at the beginning of the project and continued with (mostly) monthly calls. Their two-day, face-to-face meeting was at the APCO International headquarters in Daytona Beach, Florida, in April 2008. The Steering Committee worked directly on the *Priority Exchange List for Local Communication Centers* and the *Guide to Information Sharing and Data Interoperability for Local Communication Centers*. (See Sections 7.2 and 7.3 for more information.)

The effort to create the *Revision Assessment for Adding Fire and EMS Functions to the Law Enforcement CAD Functional Specifications* was led by a Work Group put together for this specific purpose and two subcontractors selected via a competitive process, Linda Hill with The Archer Group and James Dundas, an independent consultant. This effort used two face-to-face meetings and numerous conference calls and web conferences. (See Section 7.4 for more information.)

Outreach activities were handled by a subset of the Steering Committee, Project Management team, and other persons involved with the External Alarm Interface IEPD.

Date	Location	Major Activities
12/10/07	n/a	<b>Milestone</b> – Grant Start Date
03/04/08	n/a	<b>Kickoff Conf Call</b> – introductions of Steering Committee; reviewed Project Plan; reviewed Kickoff Meeting details
04/02/08 – 04/03/08	Daytona Beach, FL	<b>Kickoff Meeting</b> – reviewed project management and communication; reviewed scope; determined modifications to deliverables
09/03/08	n/a	<b>Completed Deliverable</b> – Upgrade of the External Alarm Interface IEPD
08/14/09	n/a	<b>Completed Deliverable</b> – Priority Exchange List for Local Communication Centers
08/14/09	n/a	<b>Completed Deliverable</b> – Guide to Information Sharing and Data Interoperability for Local Communication Centers
10/14/09 – 10/15/09	Ashburn, VA	<b>Meeting</b> – “Industry Meeting” for the Revision Assessment for Adding Fire and EMS Functions to the Law Enforcement CAD Functional Specifications effort
11/04/09 – 11/05/09	Ashburn, VA	<b>Meeting</b> – “Practitioner Meeting” for the Revision Assessment for Adding Fire and EMS Functions to the Law Enforcement CAD Functional Specifications effort
01/28/10	n/a	<b>Completed Deliverable</b> – Revision Assessment for Adding Fire and EMS Functions to the Law Enforcement CAD Functional Specifications
05/06/10	n/a	<b>Deliverable</b> – Final Project Report

## 7 Project Results

The deliverables are provided via individual documents located on the IJIS Institute ([www.ijis.org](http://www.ijis.org)) and APCO International ([www.apcointl.org](http://www.apcointl.org)) web sites. In addition, a vigorous outreach campaign was conducted for most deliverables (the External Alarm Interface IEPD upgrade and the physical documents) that included press releases, social media postings, online document repository posts, periodical references, and inclusion in presentations.

### 7.1 Upgrade of the External Alarm Interface IEPD

A GJXDM version of the External Alarm Interface IEPD existed when this project was undertaken; therefore, most of the processes required for IEPD development had already been completed. This effort, to upgrade the IEPD to NIEM and incorporate a few minor modifications learned during the use of the GJXDM version, was a subset of the standard IEPD development lifecycle.

The other important note regarding the IEPD upgrade was that the finalized IEPD was submitted to APCO's American National Standard (ANS) Process to become a standard (see Section 7.1.5). Creating a national standard from an IEPD is normally outside of the scope of IEPD development. However, in this case, the sponsor and steering committee decided to pursue a standard certification for this exchange once the IEPD was completed.

#### 7.1.1 Reference IEPD

A single reference IEPD was created. This IEPD had been previously modeled and developed in GJXDM which provided a substantial jump-off point to upgrade it to NIEM. Several key artifacts were already developed such as the exchange model, element mapping, and schema; so many artifacts only had to be "tweaked". The finished NIEM IEPD contains a multitude of artifacts/components designed to provide information necessary for an implementer to deploy the exchange – a technologist's "tool kit". IEPDs are typically composed of several artifacts:

- A **domain model** provides a graphical depiction of those data elements required for implementing an exchange and the cardinality of those data elements. Domain models are typically developed in Unified Modeling Language (UML).
- A **Component Mapping Template**, which is a spreadsheet (XLS file) that associates each required data element with its corresponding XML data element.
- Actual **schemas**. Since most people are not comfortable reading XML schemas, it is recommended that all IEPDs include at least one sample **Instance** to help practitioners validate the model, mapping, and schemas in a more intuitive way. The XML Instance contains sample data that is formatted according to the rules defined within the schema. Both schema and instance are provided in XML.
- **Stylesheets** may be included to transform an XML document into a plain text or HTML document for easy reading.
- Depending on the circumstances, **Transformation Stylesheets** may also be included to transform an XML document into an XML document conforming to a different XML schema. In this case, transformation stylesheets were not needed.
- Lastly, an **overview document** which includes a written description of the approach used, people involved, metadata for each exchange, and key assumptions made during IEPD development is included. The overview document is provided as a .DOC file.

The collection of IEPD artifacts gives implementers tangible products which can be leveraged for local implementation. Use of IEPDs has proven to save time and money on interface development phases from requirements to testing. Moreover, use of IEPD artifacts advances the widespread adoption of national standards as well as the realization of reuse benefits.

### 7.1.2 IEPD Development

One subcontractor was used for the upgrade development of this IEPD. The subcontractor tweaked the domain modeling, remapped to NIEM, recreated the schema and instances, and finalized the IEPD.

#### 7.1.2.1 Data Model

The Unified Modeling Language (UML) model for the External Alarm Interface Exchange was tweaked by the subcontractor. This model defines:

- the business objects (i.e., vehicles, places, and things) in the exchange;
- the properties for each object (e.g., make, model, license number); and
- the relationships between objects.

These data models provide the data requirements for each exchange independent of any particular technology. The resulting UML Data Model is below.

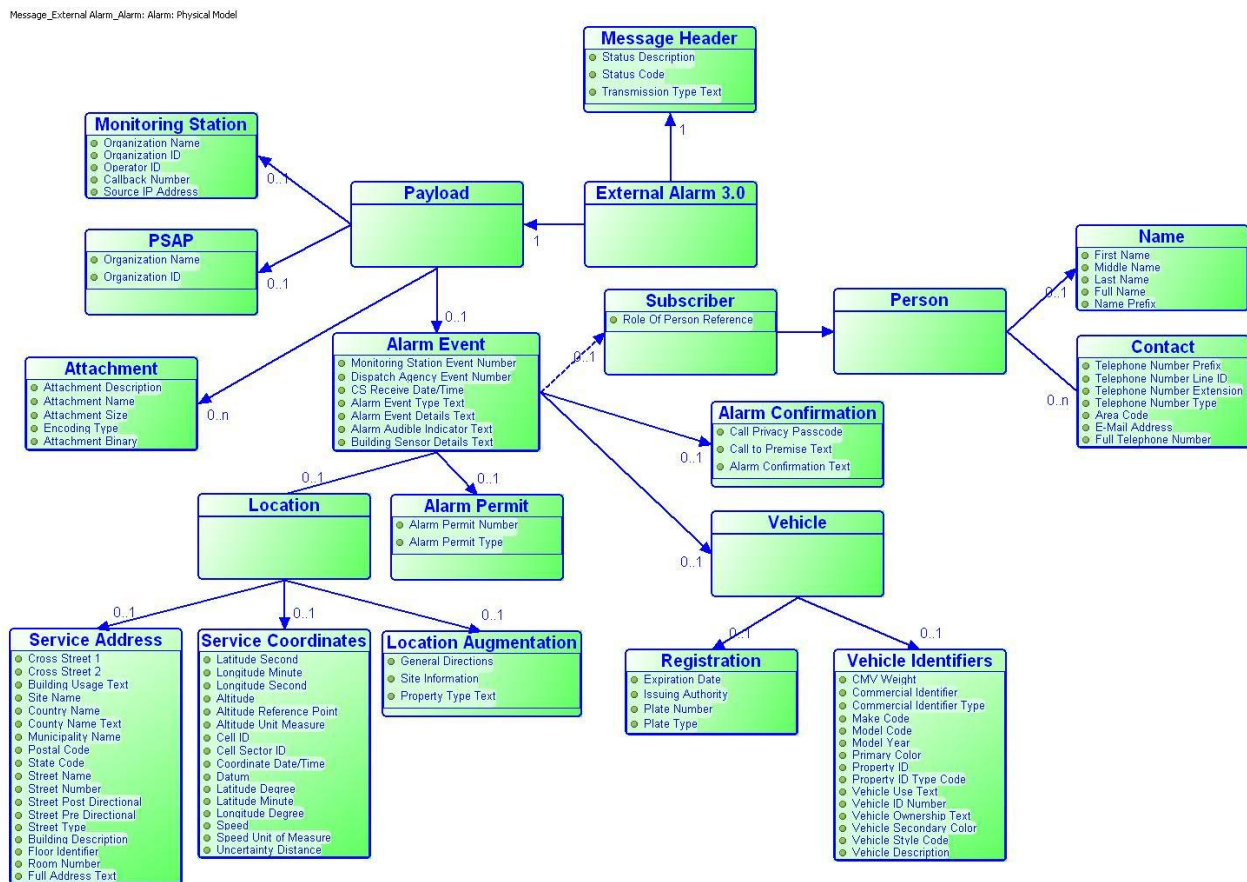


Figure 1 - UML Data Model for the External Alarm Interface Exchange

#### 7.1.2.2 Map Data Models to NIEM

The subcontractor identified the NIEM structures and elements that corresponded to the objects and properties in the data model.

A	B	C	D	E
Class Name	Property Name	Property Definition	NIEM Mapping Path	NIEM Definition
<b>Alarm Confirmation</b>				
Alarm Confirmation	Alarm Confirmation Text	General mechanism used to confirm the validity of the alarm, e.g., observed video, live audio, guard verified, call to premises etc. If the alarm is confirmed through a call to the premise, then the details of this call are indicated in the Call to Premise text field.	apco-alarm:ExternalAlarm/apco-alarm:AlarmPayload/apco-alarm:AlarmEvent/apco-alarm:AlarmEventAugmentation/apco-alarm:AlarmConfirmationText	General mechanism used to confirm the validity of the alarm, e.g., observed video, live audio, guard verified, call to premises etc. If the alarm is confirmed through a call to the premise, then the details of this call are indicated in the Call to Premise text field
Alarm Confirmation	Call Privacy Passcode	The code allows the PSAP or monitoring station to bypass any call screening and directly reach the alarm subscriber.	apco-alarm:ExternalAlarm/apco-alarm:AlarmPayload/apco-alarm:AlarmEvent/apco-alarm:AlarmEventCallPrivacyBypassCode	A code necessary to access the sites phone system.
Alarm Confirmation	Call to Premise Text	This field represents the results of the actions taken by the alarm company to attempt to reach someone at the premise before notifying the PSAP.	apco-alarm:ExternalAlarm/apco-alarm:AlarmPayload/apco-alarm:AlarmEvent/apco-alarm:AlarmEventAugmentation/apco-alarm:CallToPremiseText	This field represents the results of the actions taken by the alarm company to attempt to reach someone at the premise before notifying the PSAP.
<b>Alarm Event</b>				
Alarm Event	Alarm Audible Indicator Text	Description of whether the alarm is audible or silent.	apco-alarm:ExternalAlarm/apco-alarm:AlarmPayload/apco-alarm:AlarmEvent/apco-alarm:AlarmEventAugmentation/apco-alarm:AlarmAudibleDescriptionText	This is a text (string) field, possible values "AUDIBLE", "SILENT", or left blank.
Alarm Event	Building Sensor Details Text	Provides additional details from a building sensor CAP message in a free-text format.	apco-alarm:ExternalAlarm/apco-alarm:AlarmPayload/apco-alarm:AlarmEvent/apco-alarm:AlarmEventAugmentation/apco-alarm:BuildingSensorDetailsText	Text description of alert information from a building sensor.
Alarm Event	Alarm Event Details Text	Additional details about the event, e.g., indicating the specific	apco-alarm:ExternalAlarm/apco-alarm:AlarmPayload/apco-alarm:AlarmEvent/apco-alarm:AlarmEventDetailsText	Additional details about the alarm event.

Figure 2 - Portion of the External Alarm Interface Exchange Mapping Spreadsheet

### 7.1.2.3 Develop Schemas and Stylesheets

Based on the NIEM mappings, the subcontractor generated Schema Definition (XSD) files that covered the scope of exchanges. The files included:

- a set of NIEM subset schemas;
- a local extension schema;
- a document schema for each exchange;
- instance schemas; and
- XSL stylesheets.

As an example, a portion of instance schema is provided below. The actual schemas can be found in the IEPD at the aforementioned web sites and on the BJA IEPD Clearinghouse.

```

xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <apco-alarm:AlarmPayload>
    <j:ActivityLocationAssociation>
      <nc:ActivityReference s:ref="act1"/>
      <nc:LocationReference s:ref="loc1"/>
    </j:ActivityLocationAssociation>
    <apco-alarm:AlarmEvent s:id="act1">
      <nc:ActivityIdentification>
        <!-- Monitoring Station Event Number -->
        <nc:IdentificationID>4601156</nc:IdentificationID>
      </nc:ActivityIdentification>
      <nc:ActivityCategoryText>Alarm</nc:ActivityCategoryText>
      <nc:ActivityDate>
        <!-- CS Receive Date/Time -->
        <nc:DateTime>2004-06-22T06:00:00.0Z</nc:DateTime>
      </nc:ActivityDate>
      <!-- Activity Status is NOT populated for the initial alert -->
      <nc:ActivityStatus>
      </nc:ActivityStatus>
      <!-- Transmission Type Text -->
      <em:AlarmEventCategoryText>Burglary</em:AlarmEventCategoryText>
      <!-- Property Type Text -->
      <em:AlarmEventLocationCategoryText>Commercial</em:AlarmEventLocationCategoryText>
      <em:AlarmEventDetailsText>Front door and motion, reception area</em:AlarmEventDetailsText>
      <em:AlarmEventCallPrivacyBypassCode>1234</em:AlarmEventCallPrivacyBypassCode>
      <em:AlarmEventPermit>
        <em:PermitIdentification>
          <nc:IdentificationID>Permit-1234</nc:IdentificationID>
        </em:PermitIdentification>
      </em:AlarmEventPermit>
    </apco-alarm:AlarmEvent>
  </apco-alarm:AlarmPayload>

```

Figure 3 - Portion of the NIEM Instance Schema for the External Alarm Interface Exchange

### 7.1.2.4 Support Documentation

Finally, the supporting documentation was assembled and finalized to include sample use-cases and metadata. Other supporting artifacts included a process model and a logical model diagrams:

Use Case\_External Alert\_Process Model

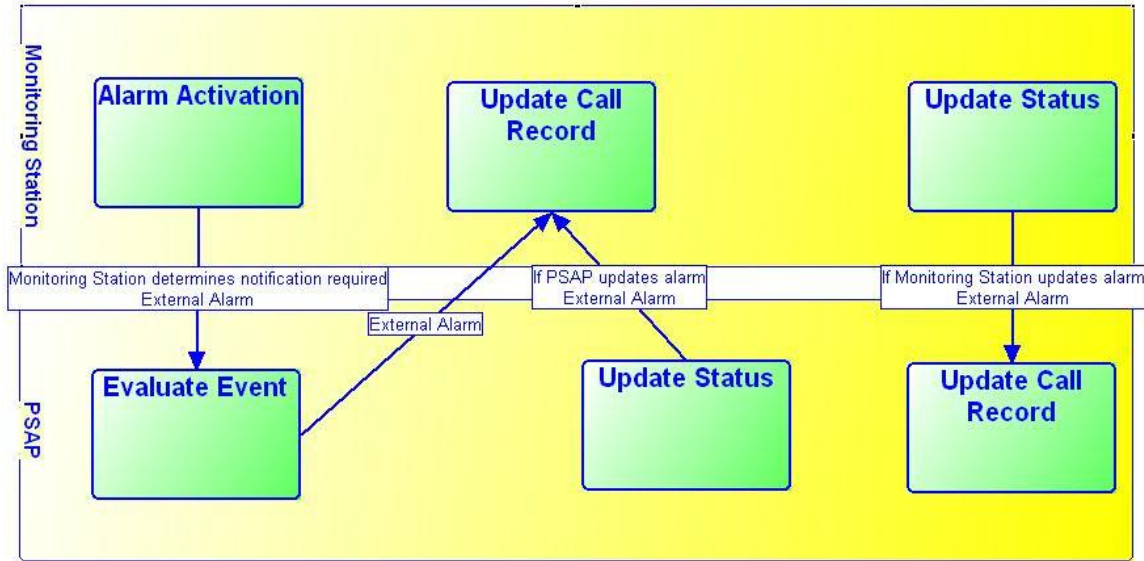


Figure 4 – Process Model for the External Alarm Interface Exchange

Message\_External Alarm\_Alarm: Logical Model

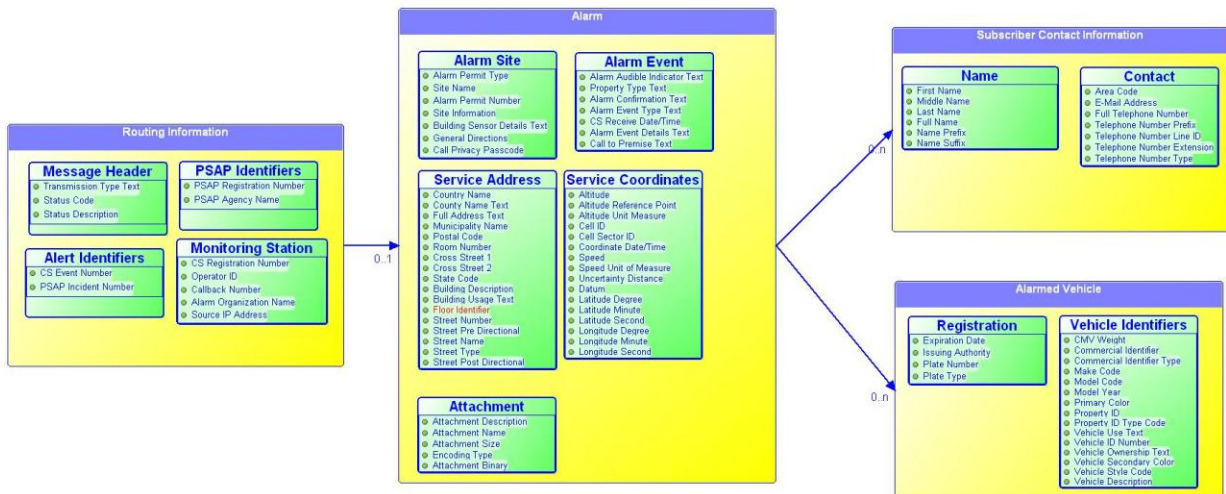


Figure 5 –Logical Model for the External Alarm Interface Exchange

The IEPD containing was completed on September 3, 2008, and contains the following artifacts:

	Artifact
1	UML Model Domain Diagram
2	Component Mapping Spreadsheet
3	NIEM Schema
4	NIEM Instance
5	NIEM Sample Stylesheet
6	Overview Document w/ Metadata
7	Other Supplemental Info for Developers

### 7.1.3 Standards and External Codes Utilized

The XML standard this IEPD was NIEM 2.0 ([www.niem.gov](http://www.niem.gov)).

### 7.1.4 Subcontractor

Waterhole Software was selected via a competitive RFP process to complete this development work.

### 7.1.5 APCO ANS Standards Process

APCO International continues to focus on meeting the needs of its members and the public safety community by promoting and enhancing standards development activities. APCO Standards have been and continue to be essential and influential. APCO International became an ANSI-accredited standards developer (ASD) in September 2006. In order to become an ANSI ASD, APCO International complied with the ANSI Essential Requirements for standard development. These requirements provide standards developers with a neutral venue for benchmarking their standards development process. Being an ANSI ASD enables APCO to further promote their standards process, increase the exposure of their standards, and, officially be recognized as an accredited standards developer.

ANSI's procedures for the development and coordination of ANS provide a mechanism for determining the need for standards, ensuring that qualified organizations develop them and that the approval of standards is coordinated. ANSI ensures that access to the standards process – including an appeals mechanism – has been made available to anyone directly or materially affected by the activity under development. It also requires periodic reviews to ensure the standard is a “living” document. ANSI's approval of these standards further verifies that consensus has been achieved. Consensus is a key component of the ANSI Essential Requirements. Consensus signifies the concurrence of more than a simple majority, but not necessarily unanimity. ANSI promotes three additional “cardinal principles” that further support the consensus process:

- Due Process - Any person may participate by expressing a position and its basis, having that position considered, and appealing if adversely affected. Due process allows for equity and fair play.
- Openness - Any materially affected and interested party has the opportunity to participate in the consensus process.
- Balance - The standards development activity should have a balance of interests and shall not be dominated by any single interest category.

ANSI does not itself develop standards. When ANSI accredits a standards developer, that developer certifies that it will adhere to the cardinal principles identified above. APCO International will continue to use its current approach to developing standards, which is driven through committees of subject matter experts. If APCO International desires, the standard can also be submitted for the APCO ANS process. APCO International maintains a Standards Development Committee (SDC) comprised of a balanced and open membership, along with APCO International staff, to facilitate the APCO ANS process. The SDC will serve as the consensus body required by ANSI.

The External Alarm Interface IEPD was submitted to the APCO ANS process and became an American National Standard (**APCO/CSAA ANS 2.101.1-2008**) on January 15, 2009.

### 7.1.6 External Alarm Interface - Key Participants

Several key participants were involved in the development and pilot implementation of the External Alarm Interface IEPD that were not directly involved in the specific upgrade effort. It is important to recognize these participants (in alphabetical order):

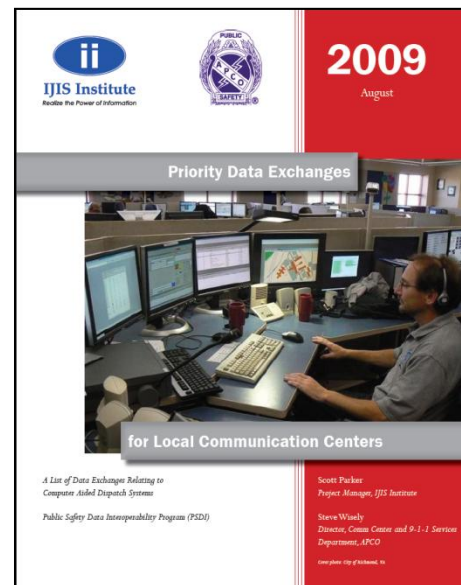
- Association of Public Safety Communications Officials (APCO)
- Central Station Alarm Association (CSAA)
- City of Richmond, VA (Dept. of Information Technology & Dept. of Emergency Communications)
- GE Security
- IJIS Institute
- Intergraph Corporation
- The International Justice & Public Safety Network (NIJts)
- Vector Security
- Virginia State Police
- York County, VA (911 Dept.)

## 7.2 Priority Exchange List for Local Communication Centers

During the Kickoff Meeting, the Steering Committee decided to draft a paper entitled, *Priority Exchange List for Local Communication Centers*.

This document is written for directors and other managers of public safety communications centers. Its aim is to provide an overview of high-value information exchanges that are relevant to these centers. Communications center directors and other planners may use this document to assess the current strengths, weaknesses and growth potential of their facilities. In addition, the document provides a window into the future of data exchange in the Communications Center. Many of the exchanges described in the document are not yet in wide use, if at all. Directors and planners can use this information to understand emerging trends in data interoperability and to plan for future growth.

The document includes exchanges that involve the following communities: emergency medical services, emergency management, fire services, law enforcement, and transportation as well as a small number of high-value exchanges that involve other communities, including hospitals, other communications centers, alarm centers, and the general public. In order to be manageable, an additional constraint used for this exchange list was that exchanges must be current or potential data exchanges into, or out of, a CAD system.



The effort began defined relevant data exchanges, using the following methodology:

- **Define inputs** - inputs to the exchange may be automated or manual, structured or unstructured, formal or informal. They represent any source of information available to the communications center. Inputs included: Automatic Number Identification – Automatic Location Information (ANI-ALI); Alarm; Calls; Radio Transmission; Telematics; Geographic Information Systems (GIS); Mobile; Intelligent Transportation Systems (ITS); and Other.
- **Define outputs** - outputs of the exchange represent any type of information that the communications center is capable of presenting to other communities. Outputs included: Queries to external databases; RMS (multiple types); Mobile; Fire Station (toning, etc); Hospital; Other CAD; Public; GIS; ITS; and Other.
- **Delineate communities of interest** - once the inputs and outputs were defined, the various communities that may have interest in this type of information were determined. This clarifies the various groups that may be senders or receivers of information for a given exchange. Communities of interest included: Emergency Medical Service; Emergency Management; Fire Services; Law Enforcement; Transportation; and Other.
- **Exchange identification** – the inputs, outputs, and communities of interest were put into a matrix. A representation of this matrix is provided in Appendix B. This matrix assisted in focusing the creative process to specific domains and inputs/outputs. Exchanges were then listed in the matrix for each combination of community/input-output.
- **Exchange Consolidation/Expansion** – the raw list of exchanges was consolidated or expanded as appropriate.
- **Define exchange details** – once the list was finalized, the detailed data was written. These details include the following for each exchange: Exchange Number, Primary Communities of Interest, IEPD Status, Directional Style, Typical Path, Connection To, and Data Examples.
- **Priority Voting** – Once the exchanges were finalized, each PSDI Steering Committee member was able to “cast a vote” on the exchange priority (High, Medium, Low) and “Top 12”.

Fifty-nine potential exchanges were identified. An example of the metadata for each exchange follows.

<b>3.4.1 New Call for Service from another CAD System (CAD-to-CAD)</b>	
Exchange #	12
Primary Communities of Interest	<input checked="" type="checkbox"/> Emergency Medical Service <input checked="" type="checkbox"/> Emergency Management <input checked="" type="checkbox"/> Fire Services <input checked="" type="checkbox"/> Law Enforcement <input type="checkbox"/> Transportation <input type="checkbox"/> Other
IEPD Status	NIEM Exchange – LEITSC IEPD “CAD-to-CAD” is available. See LEITSC website for more information.
Directional Style(s)	<input checked="" type="checkbox"/> CAD → Ext (CAD pushes information to External system) <input type="checkbox"/> Ext → CAD (External system pushes information to CAD) <input type="checkbox"/> CAD ⇆ Ext (CAD sends query to External system; External system sends information to CAD) <input type="checkbox"/> Ext ⇆ CAD (External system sends query to CAD; CAD sends information to External system)
Typical Path	CAD → External System
Connection to	Other CAD system
Data Examples	incident type, location, narrative
Typical Trigger Type(s)	<input type="checkbox"/> Automated/Automatic <input checked="" type="checkbox"/> Manual
Examples of Triggering Events	<ul style="list-style-type: none"> <li>• Law enforcement events (all types).</li> <li>• Fire events (all types).</li> <li>• EMS events (all types).</li> </ul>
Sample Scenario(s)	<ul style="list-style-type: none"> <li>• A primary PSAP receives a 9-1-1 call reporting an accident with injury and a vehicle on fire. The primary PSAP is a non-consolidated center and handles law enforcement dispatch only – fire has its own CAD as does EMS. The call taker enters the call location and pertinent details into the CAD system. A call-for-service is created and placed into the pending call queue for the appropriate law enforcement radio operator. A call-for-service is sent electronically to the fire department’s CAD system requesting a fire response. A call-for-service is sent electronically to the EMS agency’s CAD system requesting an EMS response.</li> <li>• A primary PSAP receives a 9-1-1 call reporting a house fire. The jurisdiction affected has a mutual-aid or inter-jurisdictional dispatch agreement in place with another jurisdiction where the other jurisdiction will also dispatch resources to certain event types, which include a house fire event. A call-for-service is created and placed into the pending call queues for the appropriate law enforcement and fire radio operator. A call-for-service request is sent to the other jurisdiction requesting additional fire resources as prescribed by the agreement in place.</li> <li>• A medical complaint call is received directly by a PSAP. The PSAP enters the call into its CAD system. The PSAP determines that the event is not in their jurisdiction, so the call is electronically routed to the correct PSAP and the caller is forwarded as well.</li> </ul>
Sample Business Rule(s)	<ul style="list-style-type: none"> <li>• Based on SOP and areas of control/jurisdiction, the CAD event shall be routed or transferred to the appropriate communications center(s) responsible for the appropriate response.</li> </ul>

Figure 6 – Example Metadata for an Identified Exchange

The “Top 12” is reproduced below for informational purposes.

Paragraph	Section	Exchange	Rank
3.1.1	9-1-1 Related	E9-1-1 Information to CAD	1
3.3.1	Mobile Related	Calls For Service (initial)	
3.4.1	External - Incoming	New Call for Service from Another CAD System (CAD-to-CAD)	
3.4.3	External - Incoming	External Alarm Information	
3.1.2	9-1-1 Related	NG9-1-1 Information to CAD	2
3.5.6	External - Outgoing	Transfer of Call for Service	3
3.2.1	Telematics Related	Incident Notifications via Telematics (crash, disabled vehicle, etc.)	4
3.3.2	Mobile Related	Updates to Call for Service	
3.3.4	Mobile Related	New Call for Service from a Field Unit	
3.3.5	Mobile Related	Call for Service Updates via MDC	
3.3.6	Mobile Related	GIS System / AVL Providing Closest Unit Recommendation	
3.10.3	Public Alerts	Broadcast Media Warnings and Alerts	

Figure 7 – The “Top 12” Priority Exchanges

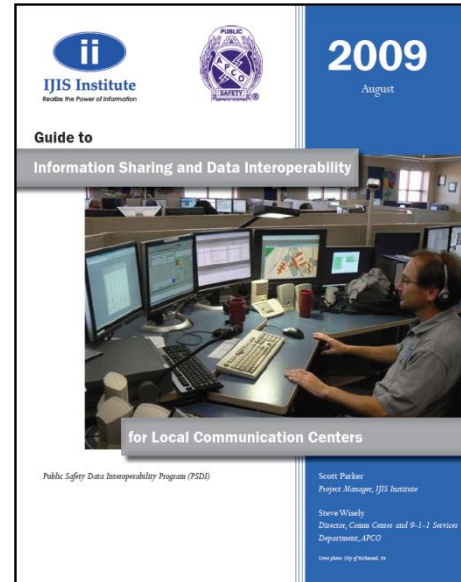
See the published document for the full description of each of the 59 exchanges, the High, Medium, and Low Priority rankings, and other relevant information.

### 7.3 Guide to Information Sharing and Data Interoperability for Local Communication Centers

During the Kickoff Meeting, the Steering Committee also decided to draft a paper entitled, *Guide to Information Sharing and Data Interoperability for Local Communication Centers*.

This document is intended to provide managers of public safety communications centers (to include Public Safety Answering Points or any agencies that answer emergency calls) with an overview of the issues and opportunities surrounding data interoperability. It provides practical insights and action-oriented advice for managers looking to enhance data interoperability in their facilities. Topics discussed include:

- The Need for Data Interoperability in the Communications Center;
- Common Scenarios;
- Common Information Flows: Originators and Recipients;
- How is Data Interoperability Achieved?;
- Important Technical Concepts;
- Getting Started: a Real-World Approach to Data Interoperability; and
- Make it Happen! (including funding and selection of solution providers)

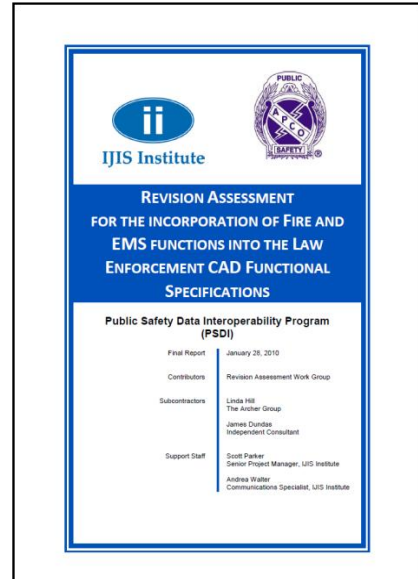


See the published document for the full discussion on information sharing and data interoperability for local communication centers, and other relevant information.

## 7.4 Revision Assessment for Adding Fire and EMS Functions to the Law Enforcement CAD Functional Specifications

The Revision Assessment serves two purposes. First, it provides the basis for determining the level of effort required to incorporate fire and EMS functional requirements into the existing Standard Functional Specifications for Law Enforcement Computer-Aided Dispatch (CAD) Systems document. It specifically describes fire and EMS CAD functionality that would need to be added, as well as numerous modifications to current language and restructuring suggestions. Identifying the level of effort required to meet the needs of stakeholders will help guide future efforts to achieve the desired goal – a revision of the CAD Functional Specifications.

Second, until the next revision is published, the document will serve as a supplement to the existing Standard Functional Specifications for Law Enforcement Computer-Aided Dispatch (CAD) Systems and will provide a more complete list of base CAD functionality. It will be an asset to those drafting Requests for Proposals (RFPs) for CAD systems that need to support dispatching fire or EMS – either alone or in addition to law enforcement.



It is worthy of note that the team identified **59** additional functions – some of which apply to law enforcement as well as fire and EMS. Some of these functions stem from recent technologies and initiatives, such as Next Generation 9-1-1 and Suspicious Activity Reporting, which have been developed since the original document was drafted. A section on future trends was included as well.

### 7.4.1 Revision Assessment Work Group

As previously mentioned, a specific Work Group was formed for this effort. The Work Group members were:

**Tim Auen**

Zoll Data Systems  
(Industry Representative)

**Donald Bowers**

Fairfax Co Fire & Rescue Dept (VA)  
(Practitioner Representative)

**Chuck Brady**

EmergiTech  
(Industry Representative)

**Ron Burch**

Phoenix Fire Department  
(Practitioner Representative)

**Tom Dewey**

Advanced Justice Systems  
(Industry Representative)

**Brian Dunkle**

Hitech Systems  
(Industry Representative)

**Ivan Goldberg**

Winbourne & Costas Mgmt Consultants  
(Industry Representative)

**Robert Greeves**

BJA  
(Sponsor Representative)

**Bill Hobgood**

City of Richmond, VA  
(Practitioner Representative)

**Chris Kummer**

Hennepin EMS (MN)  
(Practitioner Representative)

**Chris Maloney**

TriTech Software Systems  
(Industry Representative)

**Suzette McLeod**

IJIS Institute  
(Support Staff)

**Kathy McMahon**

APCO International  
(Practitioner Representative)

**John Moran**

Cumberland County (ME)  
(Practitioner Representative)

**Joe Moreland**

Kansas Board of EMS  
(Practitioner Representative)

**Dave Mulholland**

United States Park Police  
(Practitioner Representative)

**Scott Parker**

IJIS Institute  
(Support Staff)

**Jim Slater**

MA Executive Office of Public Safety  
(Practitioner Representative)

**Daniel Stilwell**

Seattle Fire Department (WA)  
(Practitioner Representative)

**Sean Thakkar**

CJIS CT  
(Practitioner Representative)

**Chris Traver**

BJA  
(Sponsor Representative)

**Henry Unger**

Hitech Systems  
(Industry Representative)

**Dan Vanorny**

Image Trend  
(Industry Representative)

**Andrea Walter**

IJIS Institute  
(Support Staff)

**Stephen Wisely**

APCO International  
(Practitioner Representative)

#### 7.4.2 Subcontractors

Two subcontractors were selected via a competitive process to facilitate this effort:

**Linda Hill**

The Archer Group

**James Dundas**

Independent Consultant

#### 7.5 Outreach

Another deliverable of the Project consisted of outreach to practitioners via presentations at selected conferences. Although the project presentation proposal was not selected by all the events solicited, PSDI presentations were conducted at numerous events during the period 2007-2009 as listed below.

- **NIEM Policy Academy** (Scottsdale, AZ) 05/22-23/2008 (Scott Parker)
- **Motorola Mobile Data Users Group** (Las Vegas, NV) 06/10/08 (Bill Hobgood, *funded by Motorola*)
- **VA APCO/NENA Conference** (Roanoke, VA) 10/29-31/08 (Bill Hobgood)
- **IACP LEIM Training Conference and Exposition** (Dallas, TX) 05/18-21/09 (James Slater; Commander William Smith; Bill Hobgood)
- **SIAC Industry Coalition Meeting** (Dallas, TX) 2009 (Bill Hobgood; Kathy McMahon)
- **NFPA 2009 Conference and Expo** (Chicago, IL) 06/8-11/09 (Paul Wormeli, *IJIS Institute*)

- **NFPA's Americas' Fire & Security Expo** (Miami Beach, FL) 07/28-30/09 (Steve Wisely)
- **IJIS Institute Summer Briefing** (Bellevue, WA) 08/06-09/09 (Bill Hobgood)
- **APCO International Conference** (Las Vegas, NV) 08/17-21/09 (Steve Wisely; Bill Hobgood; Scott Parker)
- **National NIEM Training Event** (Baltimore, MD) 09/29-10/02/09 (Bill Hobgood, Scott Parker; Steve Wisely; Pam Petrow, CSAA; Larry Helms, *Intergraph*)
- **National League of Cities 2009 City Showcase** (Austin, TX) 11/10-14/09 (Bill Hobgood)
- **Microsoft Worldwide Public Safety Symposium**, (Redmond, WA) 01/27/10 (Bill Hobgood; Kevin Aide, *Intergraph*)
- **JEMS/EMS Today National Conference** (Baltimore, MD) 03/5/10 (Kathy McMahon)

Articles related to the PSDI project:

- Parker, Scott. "**PSDI: Data Interoperability**", Public Safety Communications, May 2008
- "**Computer-aided dispatch standard ready for vetting**", Security Systems News (online), November 2008
- "**Interoperability Program Reaches Milestone in Alarm Transmission**", Security Sales and Integration (online), November 2008
- "**Milestone Reached in Alarm Data Transmission**", CSAA Signals, November 2008
- "**Richmond 911 Leads the Way**", Richmond Times Dispatch, June 2, 2009
- "**External Alarm Interface Exchange IEPD Success in Virginia Communication Centers**", NIEM Adoption and Use Case Study (online and print), NIEM Program Management Office, July 2009
- "**Pass it On**", Fire Chief, August 2009
- Press Release, "**City of Richmond, Va. and Intergraph Honored with IJIS Institute Innovation Award for Advancement of Public Safety**", LawOfficer.com, August 2009
- Paul, Lauren Gibbons. "**IT to the Rescue**", StateTech Magazine, December 2009/January 2010

Press releases related to the PSDI project (which also coincided with multiple social media posts):

- **Milestone Reached in Alarm Data Transmission**, October 28, 2008
- **Alarm Exchange Wins IJIS Institute Innovation Award**, August 24, 2009
- **New Tools for Communications Centers Available**, August 27, 2009
- **Revision Assessment of CAD Functional Specifications Complete**, February 9, 2010

#### 7.5.1 Awards and Accolades

Subsequent to completion, the External Alarm Interface Exchange IEPD was, and continues to be, publicized heavily to increase adoption. As such, it and the pilot implementation project in Richmond (VA) and York County (VA), have been nominated for numerous awards and have won several. It is important to recognize the significance of this IEPD/standard and implementation project by listing these awards here:

- **2009 Governor's Technology Award for Innovation in Local Government**, awarded jointly to the City of Richmond (VA) and York County (VA) on September 21, 2009
- **IJIS Institute's Innovation Award**, awarded jointly to the City of Richmond (VA) and Intergraph Corporation on August 11, 2009
- **Center for Digital Government's 2009 Digital Government Achievement Award** in the Government-to-Business category on August 21, 2009
- **National League of Cities' 2009 City Showcase**, on November, 2009 in San Antonio, TX
- **American City & County Magazine's 2009 Crown Community Award for Excellence in Local Government**, awarded jointly to the City of Richmond (VA) and York County (VA) in December, 2009

- **Alliance for Innovation's Outstanding Achievement in Local Government Innovation Award**, awarded to the External Alarm Interface Exchange Project in June, 2010

## 8 Lessons Learned/Promising Practices

This project was one of the first federally-funded attempts to bring the larger public safety first responder community together to address information sharing and data interoperability issues. As expected, the project produced a number of lessons learned and/or promising practices regarding what worked and what did not work.

- The combination of practitioners (emergency communications, law enforcement, fire service, EMS, emergency management, and transportation) and public safety-focused industry representatives resulted in:
  - a positive, collaborative work environment where all participants shared a common goal of improving information sharing among the larger first responder community;
  - the opportunity to focus the spotlight on perceived barriers and eliminate preconceived ideas about the various domains, practices, and standards in use;
  - the opportunity to learn about, understand, and appreciate the operational differences, similarities, and challenges of each discipline;
  - an effective, cross-discipline opportunity to address common information sharing issues; and
  - an acknowledgment of a willingness to explore and adopt standards across disciplines to achieve effective information sharing.
- The project further reinforced, defined, and enhanced the principles established within the [DHS Interoperability Continuum](#), particularly with regard to the data segment of the technology lane.
- The project validated the importance of cross-discipline pollination of data governance to achieve effective information/intelligence sharing and collection.
- The majority of the work of this project was accomplished remotely via regular conference calls and email. As the project progressed, web conferencing (such as LiveMeeting and/or GoToMeetings) was used to review documents rather than having members follow along on their own copy during a conference call. This seemed to result in less miscommunication, increased efficiency, productivity, and greater enthusiasm for the effort.
- Although expectations regarding the level of effort had been set for steering committee members, a number of members had other commitments that prevented their full participation. Therefore, it is recommended that in future efforts committee members pledge to “pass the baton” to a qualified alternate representative if the commitment level cannot be achieved by the primary representative.

## 9 Recommendations for Future Efforts

In addition to the lessons learned in this project, the following considerations are recommended for future efforts in information sharing and data interoperability for the first responder / public safety domains:

- **Enhance CAD Functional Specifications:** Develop the next version of the CAD Functional Specifications to include fire and EMS functions as well as the additional functionality identified for law enforcement. The majority of local emergency communication centers dispatch for multiple first responder services – a combination of law enforcement, fire, and EMS. Practitioners writing RFPs for CAD systems to support these centers need the multiple service CAD functionality of the proposed revision. As municipalities and jurisdictions seek to consolidate their communications centers, facilities, and technologies, more and more centers are using unified CAD systems that serve law enforcement, fire, and EMS for single and multiple jurisdictions. The transition of the original document from an exclusively law enforcement CAD standard is reflective of this change in the public safety operational environment. The inclusion of fire and EMS CAD specifications, as well as the update of generic standards, is in keeping with current best practices in the broader public safety discipline. Secondly, the impact on CAD system software should not be underestimated. In order to be as competitive as possible, software providers work diligently to provide cutting edge technology and functionality. A law enforcement, fire, and EMS CAD Functional Specification would serve as a guideline to industry for the development and implementation of integrated CAD systems that are responsive to fire and EMS needs in addition to those of law enforcement.
- **Continue NIEM Adoption Efforts:** NIEM should be used for all cross-discipline public safety exchanges. Using NIEM as the standard exchange model would greatly simplify the complexity of technical development, reduce costs, and increase adoption and reuse.
- **Standards Process:** The use of APCO as an authorized ANSI Standards Development Organization was demonstrated during the course of the PSDI project with the successful outcome of a new American National Standard for the delivery of alarm exchanges between alarm monitoring companies and 911 PSAPs. The continued use of the APCO ANS process, or other standards development organization, for future public safety information sharing endeavors should be used when appropriate.
- **Form Large-Scale Coordination Program:** The combination of multi-discipline practitioners (law enforcement, fire services, EMS, emergency management, and transportation) and public safety-focused industry representatives was an effective and productive approach to addressing cross-discipline public safety information sharing issues. It is therefore recommended that a Federal Advisory Committee (FAC) be created to coordinate multi-disciplinary public safety activities and information sharing technology as appropriate.

## 10 Appendix A: Additional Resources

### 10.1 NIEM

National Information Exchange Model - <http://www.niem.gov>

### 10.2 National Information Sharing Standards (NISS) Help Desk

The National Information Sharing Standards (NISS) Help Desk and Knowledge Base are hosted by the U.S. Department of Justice, in partnership with the IJIS Institute. The NISS Help Desk assists users in finding answers to technical questions regarding the content, principles, and best practices for using the Global Justice XML Data Model (GJXDM) and the National Information Exchange Model (NIEM)<sup>1</sup>. More than a conventional help desk, the NISS Help Desk contains a significant Knowledge Base that users can access online, and then submit unanswered questions via the web or telephone. (<http://www.it.ojp.gov/NISS/helpdesk/>)

### 10.3 IEPD Clearinghouse

The IEPD Clearinghouse is a Bureau of Justice Assistance (BJA)-sponsored initiative developed and supported by the DOJ's Global Justice XML Data Model (GJXDM) Training and Technical Assistance Committee (JTAC) and the IJIS Institute. The IEPD Clearinghouse is an interactive repository web site that empowers government and industry IT professionals with information about planned, in-progress, and completed IEPD initiatives. Public and private developers can maximize resources and time by using the IEPD Clearinghouse to gain access to GJXDM- and NIEM-compliant reusable artifacts. Funding agencies, policy makers, and managers can avoid duplicative efforts by researching in-progress IEPD development initiatives. Most importantly, the IEPD Clearinghouse enables directly relevant collaboration between organizations and people working to solve similar problems within the justice and public safety communities. (<http://it.ojp.gov/iepd/>)

### 10.4 IJIS Institute

The IJIS Institute has been awarded a grant from the U.S. Department of Justice (DOJ), Office of Justice Programs (OJP), Bureau of Justice Assistance (BJA) to provide Technology Assistance (TA) to state and local jurisdictions to assist with the planning and implementation of information-sharing projects in the justice and public safety domains. The goal of the grant is to leverage the expertise and experience of private sector information technology firms and provide objective and cost-effective technology recommendations and assistance to decision-makers and project stakeholders. The TA provided by the IJIS Institute is built on a foundation of reviewing and participating in technical and strategic planning endeavors. A review of the technical artifacts such as system architecture, data modeling, and data messaging documents follows. Finally, the IJIS Institute provides assistance with specific technology questions or problems. Additionally, the IJIS Institute provides in-depth education on key information sharing technologies such as:

- eXtensible Markup Language (XML)
- U.S. Department of Justice Global Justice XML Data Model (GJXDM)
- National Information Exchange Model (NIEM)
- Service Oriented Architecture (SOA)

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<sup>1</sup> NIEM is an interagency initiative to provide for national-level interoperable information sharing and data exchange. NIEM was initiated as a joint venture between the U.S. Department of Homeland Security (DHS) and the U.S. Department of Justice (DOJ) with outreach to other departments and agencies. See <http://niem.gov/> for more information.

The course offerings fall into three categories—executive, standard, and custom. Executive courses provide a brief overview of the information sharing technologies that help executives make strategic decisions. Standard courses, oriented toward developers and technical managers, are fully developed for general use and are ready to deliver at any time. Custom courses are developed from scratch or existing course content is tailored to meet the unique objectives of each requesting agency. (<http://www.ijis.org>)

## **10.5 APCO International**

APCO International provides a numerous services benefiting public safety agencies and the public. APCO has been deeply involved, during its seventy-five year history with radio spectrum and has been a champion of interoperability since the introduction of Project 25. In recent years APCO has assumed a leadership role in the D Block Public Safety Wireless Broadband Spectrum negotiations. The APCO Institute provides training and certifications for public safety individuals involved in all aspects of public safety communications operations, supervision and management. The Comm Center & 9-1-1 Services department provides operational and technical advice, guidance and support to communications center staff and associated support organizations. As an American National Standards Institute (ANSI)-accredited Standards Developer (ASD), APCO International is dedicated to ensuring public safety communications has a role in the development of standards that affect our industry. The standards development activities have a broad scope, ranging from the actual development of standards to representation of public safety communications in other standards development areas.

<http://www.apco911.org>

## 11 Appendix B: The APCO/IJIS Institute Partnership

IJIS Institute and APCO established an Alliance Partnership for the purpose of jointly addressing the public safety data interoperability issue, and to seek resources and funding to advance this mission. The IJIS Institute is a nonprofit corporation funded mostly through grants from DOJ's Office of Justice Programs, Bureau of Justice Assistance (BJA). The Institute uses these funds to assist "national scope" efforts related to information sharing in public safety. The Institute comprises a membership of approximately 280 companies active in supplying information technology products and services to justice and public safety agencies. IJIS Institute achieves its mission of advancing information sharing through the development and endorsement of standards, and by providing assistance to local, tribal, and state agencies. The IJIS Institute was founded on the premise that information sharing is a significant national imperative and that a public/private partnership is the most effective way to achieve this goal. The Institute has developed and implemented a service delivery model that combines the best of government and industry. The model engages stakeholder organizations and practitioners, via committees, to ensure that business requirements are represented. The IJIS model also provides the best expertise to ensure solutions are viable. The IJIS Institute staff is comprised of professionals with over 100 years of collective experience in training, consultancy management, project management, and technical support. The IJIS Institute team is augmented by the expert resources of industry. ([www.ijis.org](http://www.ijis.org))

The Association of Public Safety Officials (APCO) International, with a membership of 14,000 public safety professionals, has a strong cadre of senior management executives, technical staff, and enthusiastic committee structure that is perfectly positioned to support the IJIS Institute and affiliated organizations to successfully complete the objectives of this project. APCO has a long history of providing leadership in a myriad of public safety projects and initiatives. Through the 70-plus-year history of APCO, it has been at the forefront of projects dedicated to the safeguarding of our citizens and improving public safety communications. APCO's qualified staff champions projects with goals to standardize processes, procedures, and services. After receiving its first federal grant award for the research and development of a public safety communications standard operating procedure manual, APCO has undertaken a variety of projects to enhance communications standards, notable examples of which are "Project 36" and "Project 38." Project 36 was initiated to research and develop universal standards for Computer Aided Dispatch (CAD) and CAD-to-CAD exchanges. The goal was to design effective processes for the exchange of data between third party call centers, such as alarm companies, and Public Safety Answering Points (PSAPs). The Project 36 activity was turned over to the APCO Data Transfer Committee and the work is on-going today. APCO and the Central Station Alarm Association (CSAA), in conjunction with outside vendors and two working PSAPs, have successfully demonstrated the initial objectives of the ALERTS Alarm Project. IJIS Institute, working with aforementioned organizations, is assisting in the exploration of the additional beta sites. The work done in this arena illustrates the need to expand upon this initial demonstration activity. APCO, through its staff and committee partnerships, has within the last four years undertaken high profile nationwide projects, most notably, APCO "Project 38" (also known as Project LOCATE). APCO is an ANSI Standards Development Organization and in this capacity will be actively working with its Standards Development Organization (SDO) committee to move forward in the critical area of standards. ([www.apcointl.org](http://www.apcointl.org))

## 12 Appendix C: Glossary

ANI-ALI .....	Automatic Location Information
ANS.....	American National Standard
ANSI.....	American National Standards Institute
APCO .....	Association of Public Safety Communications Officials International
ASD.....	Accredited Standards Developer
BJA.....	Bureau of Justice Assistance
CAD.....	Computer-Aided Dispatch
CJIS .....	Criminal Justice Information System (or Services)
CSAA.....	Central Station Alarm Association
DOC .....	a word processing document format
DOJ.....	Department of Justice
EMS .....	Emergency Medical Service(s)
EOC.....	Emergency Operations Center
GIS .....	Geographic Information System
GIS .....	Geographic Information Systems
GJXDM.....	Global Justice XML Data Model
Global.....	Global Justice Information Sharing Initiative
HTML.....	HyperText Markup Language
IACP .....	International Association of police Chiefs
IAEM.....	International Association of Emergency Managers
IAFC .....	International Association of Fire Chiefs
IEP .....	Information Exchange Package
IEPD.....	Information Exchange Package Documentation
IM .....	Incident Mangement
ITS.....	Intelligent Transportation Systems
JIEM.....	Justice Information Exchange Model
JTTAC.....	Justice Training and Technical Assistance Committee
JXDD .....	Global Justice XML Data Dictionary
LEIM .....	Law Enforcement Information Management Conference
LEITSC.....	Law Enforcement Information Technology Standards Council
NASEMSO .....	National Association of State EMS Officials
NDR .....	Naming and Design Rules
NEMA .....	National Emergency Management Association
NENA .....	National Emergency Number Association
NFPA.....	National Fire Protection Association
NIEM .....	National Information Exchange Model
NISS .....	National Information Sharing Standards
OJP .....	Office of Justice Programs
PS.....	Public Safety
PSAP .....	Public Safety Answering Point
PSDI .....	Public Safety Data Interoperability
RFP .....	Request for Proposal
RMS .....	Records Management System
SDC.....	Standards Development Committee
SDO.....	Standards Development Organization

SME .....Subject Matter Expert  
SOA.....Service Oriented Architecture  
TA .....Technology Assistance  
UML.....Unified Modeling Language  
XLS.....a spreadsheet file format  
XML .....eXtensible Markup Language  
XSD .....XML Schema Definition File  
XSL.....eXtensible Stylesheet Language  
XSLT .....eXtensible Stylesheet Language Transformations