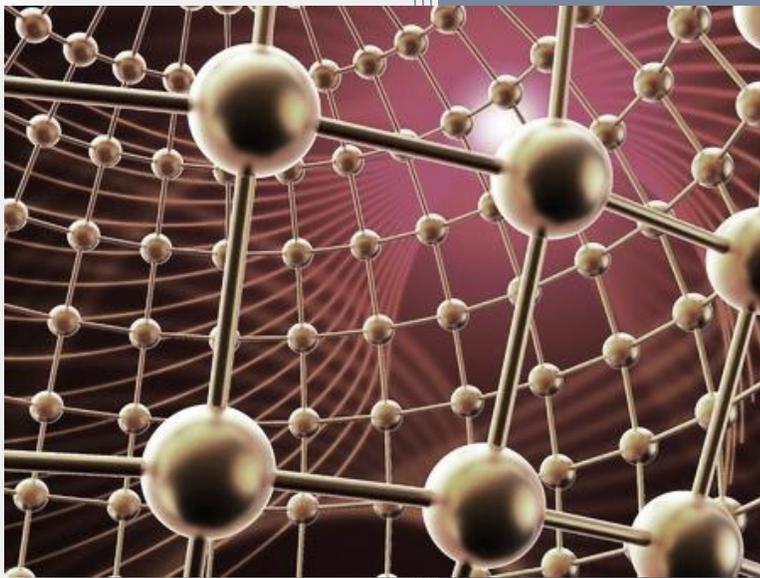




**IJIS Institute**

## **USE CASES IN PUBLIC SAFETY CAD-TO-CAD DATA SHARING**



***IJIS Institute***

**Public Safety Technical Standards  
Committee**

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## INTRODUCTION

It's a matter of WHEN – not IF – the next disaster will happen. The best disaster recovery preparation occurs with the automation of daily processes and the implementation of data sharing solutions: not only is there a much greater return on the investment, but when ordinary events become extraordinary, the data sharing organizations operate with more efficiency, effectiveness, and continuity.

Each year provides important reminders that disasters can strike anytime and anyplace. Nearly every region of the country experiences some form of extreme weather event, including devastating tornadoes, earthquakes, winter storms, scorching wildfires, and destructive flooding or mudslides. Law enforcement, fire/rescue, and emergency medical service (EMS) responders were called upon to assist in all of these events.

When a real-time data sharing solution is implemented in advance of a catastrophic event, agencies ensure their ability to take immediate and informed action when it matters most. In addition to being critical in emergency situations, data sharing has daily benefits for law enforcement, fire/rescue, and EMS such as faster response times, better coordination of resources and assets, and enhanced caller support, all of which help prepare for the *big event*.

***“If it’s predictable, it’s preventable.”***  
-Gordon Graham

### Intended Audience

Readers of previous papers asked for information about how Computer Aided Dispatch (CAD)-to-CAD is being used in real-life, data-sharing projects, and this paper is written for these practitioners and their advisors.

This paper is a follow-on to the IJIS Institute *Change Management: Best Practices in Public Safety Data Sharing Projects* white paper that provides guidance to practitioners on implementation planning for data sharing solutions. Two other earlier white papers also exist: *Critical Decision Criteria for Data Sharing*, and *Governance Agreements in Public Safety Information Sharing Projects*. All three of these white papers are recommended reading for anyone planning a data sharing project and can be found online at [https://ijis.site-ym.com/?page=Reference\\_Papers](https://ijis.site-ym.com/?page=Reference_Papers).

### Purpose

This paper provides real-life examples of how peer practitioners are exchanging data, with a focus on CAD-to-CAD. These examples enable law enforcement, fire/rescue, EMS, and other regional stakeholders to envision how CAD-to-CAD automation will better serve the public and help protect first responders in both daily use and during extraordinary events.

## Methodology

IJIS Institute's IJIS Public Safety Technical Standards Committee (IPSTSC) members polled CAD service providers, middleware hub providers, and agency practitioners to solicit examples of implementations that have been put into service. For those organizations with examples, follow-up questions included:

- ❖ What types of agencies are using the system: highway patrol, sheriff, police, fire/rescue, emergency management, EMS, public safety answering points (PSAPs)?
- ❖ Are the PSAPs using the same or different CAD systems?
- ❖ Is the interface National Information Exchange Model (NIEM) conformant?
- ❖ Is the data exchange model a point-to-point, or is there some kind of hub architecture (middleware)?
- ❖ How is it used in daily operations? Please provide examples.
- ❖ How is it used in an emergency? Please provide examples.
- ❖ Is information pushed to any third party or database, such as a Department of Transportation (DOT) for crashes, an Emergency Operations Center (EOC), a fusion center, or a hospital?
- ❖ How was the project funded (such as by grant or by budget)?
- ❖ What were the goals of creating a CAD-to-CAD interface? What did the project hope to accomplish?
- ❖ Is it meeting the goals?
- ❖ What more do you wish it could do?
- ❖ Can you list some success stories of where this interface benefited the public/agency (such as saving lives)?
- ❖ Are there any negative stories or lessons learned?
- ❖ Are there plans to expand the system and add other agencies/stakeholders?

While there was insufficient participation to make the study statistically significant and allow solid conclusions to be drawn, enough anecdotal information was collected to abstract interesting insights into current usage.

## EXECUTIVE SUMMARY

Several agencies provided information about daily usage of their CAD-to-CAD interoperability solutions. Every agency mentioned situational awareness and the value of knowing what was happening around them. For law enforcement, fleeing felons were surrounded and caught, crimes were prevented, and situations were handled more appropriately with better outcomes; all of these benefits were the result of timely knowledge delivered to the point of need. For fire/rescue agencies, the most frequently mentioned benefit was the reduced response time in mutual aid incidents. For EMS, the greatest benefit was expedited dispatch. The automation of mutual aid and automatic aid agreements, and memoranda of understanding (MOU), was cited as being of paramount importance for the fire/rescue respondents.

Depending on the level of integration, the data model followed, and the project objectives, projects could generally be divided into two general use and benefit areas:

1. First are the projects that delivered **situational awareness**. Connectivity was established between the dispatch centers that enabled data to flow between agencies and be presented graphically enabling situational awareness. This graphical presentation usually showed the location of incidents as well as the location and status of regional resources. Location was determined by automatic vehicle location (AVL) feeds consumed by CAD in most instances. If AVL was not operational, then the location of resources was shown by those units on active incidents monitored by the CAD system.
2. Second are the projects that delivered **bi-directional data exchange** between CAD systems in real time. This involved a number of permutations, from a very basic incident transfer between CAD systems to very complex systems with filters and business rules evaluating incident location, incident type, and incident severity, plus resource location and availability, to trigger notifications, sharing protocols, and/or fully automated resource requests, dispatch, and control.

Many of the older, bi-directional exchanges were point-to-point and involved two agencies using the same CAD system. Newer projects were often fully-automated, bi-directional implementations between two or more agencies that desired a scalable solution; these generally involved disparate CAD systems using a hub-and-spoke configuration. Agency partners choosing this configuration did so because consolidation into one operational center was politically untenable and perceived to be expensive, with hidden monetary and political costs.

It was further noted that many of these data sharing systems were grant funded.

## DEFINITIONS AND DATA MODELS

A previous white paper authored by the IJIS Institute's IPSTSC Committee, *Critical Decision Criteria for Data Sharing*, provided a high-level overview of the common sharing models. This paper addressed real-time, bi-directional data exchange between CAD systems. It did not delve into the more rudimentary methodology of View-Only (or one-way) information sharing where participating agency data is viewable by other participating agencies in either tabular format, geographic format, or both. Data is basically scraped and pushed out so that it is presented at other participants' operational centers, commonly on a large screen or monitor.

There is usually some filtering capability in a view-only implementation, so that certain agencies can be viewed or excluded from view, as well as some filtering for call type/call nature. While presenting a degree of CAD incident information sharing, this type of sharing is not interactive and requires action in other systems to take advantage of the information.

A true bi-directional data exchange of CAD incident data is real-time, generally involves using a common interface from a third party or a CAD provider, and requires an application programming interface (API) so that the machines can talk to each other. True bi-directional exchanges enable a higher degree of automation and result in data that is actionable within the recipient system. Data filtering and assessment either takes place at each agency end point or, if

there is a third party hub, within the hub itself. Highly intelligent hubs constantly assess all incoming incidents and trigger business rules on what data should be shared and with whom.

For the purposes of this paper, we have associated view-only with **situational awareness** and bi-directional with a high degree of **automated incident handling**. Note that it is possible to have both: a large screen in the dispatch center showing regional incidents as well as machine to machine automation operating in the background. The following pages separate use cases into these two broad categories.

## USE CASES: SITUATIONAL AWARENESS

A number of CAD data sharing implementations were identified and all agencies reported great value in knowing where incidents were happening, what those incidents were, and what resources were responding to or nearby the incident. Both fire/rescue and law enforcement employed and benefitted from this level of sharing.

### Law Enforcement

Since, for the most part, local law enforcement is restricted to a geographical area in which they have legal authority, they are less likely to operate outside of their jurisdiction with a couple of exceptions: state police (highway patrol) and other agencies that have statewide enforcement powers, and extraordinary incidents in which any and all help is welcome. Law enforcement users reported the following benefits:

#### Awareness of Incidents Intruding Into Jurisdiction

Examples provided include incidents involving fleeing persons (usually in felonious situations like robbery or kidnapping, but sometimes just fleeing for unknown reasons) where a pursuit crosses jurisdictional boundaries. Law enforcement officers took great pride in positioning themselves to intercept these criminals.

#### Awareness of Incidents Where Assistance is Helpful

Examples include setting up interdiction points and setting up searches to try to apprehend or locate shooters/bombers, jail/prison escapees, abductees or missing persons, suspicious persons or vehicles, or generally responding to a *be on the lookout* (BOLO) or all-point bulletins. Because they could visualize the location of an incident, surrounding jurisdictions were able to more effectively position officers to cordon off areas and monitor ingress and egress. One respondent reported that a burglary ring was broken up in this manner, while another reported that they set up roadblocks on all bank robbery calls. Another agency reported that in a severe weather event with high winds, rain, and hail, the entire area's resources were mobilized to respond to incidents and calls for help throughout the region. A third agency mentioned being poised and positioned for escorts of medical response units. A highway patrol user stated that situational awareness (in this case pushed out to a laptop in the patrol vehicle) was crucial in knowing all incidents shared between participating CAD systems. Troopers were able to see nearby incidents and either respond or set up a perimeter to help catch the criminals.

## **Awareness of Incidents Where Officer Closest Unit Able to Respond**

One respondent reported that in a shots fired/officer down situation, the closest units were from a small, nearby town. Dispatch operations ascertained the location of the closest units based on location data pushed to the sharing application. Dispatch was able to share call comments and relay critical information to the responding officers who, upon arrival, pulled two severely-wounded officers to safety while under continuous fire and saved their lives.

## **Awareness of Incidents Where Pre-positioning Officers Assisted in Escalating Events**

The best example of this occurred during a large regional event that became the scene of a terror attack. A police command post in the jurisdiction adjoining the primary hosting site had situational awareness software in place and being monitored. The Incident Commander noticed that the CAD systems pushing incident data into the awareness application suddenly began creating a very large number of incidents in a specific downtown area, but there was no radio traffic indicating what was happening. The Incident Commander began to pre-position his units based on the specific location of the clustered incidents and, based on the amount of traffic, to alert hospitals and other responders. The application created awareness of an event almost five minutes before radio traffic relayed the nature and scale of the incident.

## **Awareness for Increased Officer Safety**

Law enforcement mentioned repeatedly that applications that enable them to have more information (better, richer, faster) going into a call help them to handle situations more appropriately and achieve better outcomes. Often the better outcome involved their own safety, as well as victim and suspect safety, and resulted from not only having relevant data relayed to them but also knowing that dispatch had awareness of possible back-up resources.

## **Fire/Rescue and EMS**

Fire/ and rescue agencies advised that seeing the big picture graphically was quite helpful. Where tabular data just presented information, visually seeing the incident location and assigned resources often added a new level of understanding.

## **Improved Resource Utilization**

It was reported that situational awareness also helped with staging arriving units. With AVL, arriving apparatus were positioned at staging areas and these resources were all able to be viewed on a map by the on-scene Incident Commander. Both law enforcement, who assisted with perimeter control, and the fire department Incident Commander were able to visualize the location of all resources, and this produced a better outcome.

## **Awareness of Target Hazards**

In one use case, an agency working a large fire incident at a construction site and positioning responding resources was alerted by the visualization that there was an assisted living facility and a gas station (target hazards) nearby...in another jurisdiction!

## Enhanced First Responder Safety

With active shooter incidents, there is great value in knowing the *hot zone* and where the perimeter is, and not exposing responding fire/rescue resources to further danger in highly volatile incidents. The same is true for hazardous materials incidents where situational awareness helped lessen the danger to law enforcement responders.

## Predictive Analytics

One agency reported that members of the regional consortium pushed CAD incident data to the local fusion center in real time for analysis. There was general interest in analytics from many of the respondents.

## USE CASES: AUTOMATION IN INCIDENT HANDLING

The usage examples below involve agencies that have implemented full, bi-directional CAD data exchanges (CAD-to-CAD). At the least, there is a one-way delivery of incident data captured in the call-taking agency's CAD and pushed/delivered to another agency's CAD system. The expressed goals of these exchanges are to reduce call processing and response time – to save the time normally taken when trying to connect and transfer the information by phone, and/or locating and dispatching the closest appropriate resources.

For first responders, response time is a critical performance measure given that fires double in size every minute and the time characterizations of clinical and biological death. By reducing the time between discovery and on-scene arrival, firefighters encounter fires and other emergencies more quickly, when they are of less intensity and scope and thereby reducing the inherent risk and danger in larger operations. Likewise, minimizing time to resuscitation and/or defibrillation improves patient outcomes.

The more sophisticated systems delivered this information into the recipient CAD system as if it occurred natively through that CAD system's call-taking process. Call comments are also exchanged, which saves time otherwise spent re-entering information provided by the caller; this also increased accuracy of the captured information. This level of automation was highly praised by agency users as training requirements are minimal and the technology was largely transparent to all users. Agencies also reported a better customer experience as telecommunicators could probe for new and relevant information rather than require emotional callers to repeat themselves.

## Uses in Basic Incident Handling/Incident Transfer

### Misdirected Wireless Calls

These types of calls occur when cellular phone calls ping the nearest tower and the call is routed to the nearest PSAP, but the actual incident location is in another jurisdiction and the incident data needs to be transferred. Incident details already entered in one CAD can be forwarded to the correct dispatching agency either through an automated process (i.e., if the location is determined to be outside of the call-taking agency jurisdiction, then as soon as the location is known the

system initiates call transfer) or a manual process (the call-taker advises the caller that the call will be passed to another jurisdiction and then causes the system to transfer the incident data captured in the CAD). Examples provided often included callers reporting highway accidents.

### **Incidents at Other Locations**

Similar to the above, CAD incident data is pushed to the correct dispatching agency once the true location of the incident is known. Several examples given involved medical incidents, such as callers reporting “My daughter in the next town over is having a baby!” or “My husband fell at home and I am at work and now he doesn’t answer”. Users stated that it was a huge benefit to stay connected (especially on a medical emergency), provide Emergency Medical Dispatch (EMD) instruction and guidance, and dispatch the call without ever interrupting the caller.

### **Transfer Incident Data to the Correct Dispatching Center**

Use cases usually detailed incident transfers to EMS dispatch but also incident sharing with an agency having a needed resource. An example repeatedly offered was that of a city PSAP that handled law enforcement and fire, but the adjoining/surrounding county handled EMS operations. If the city is the primary PSAP for all inbound calls within the city, all incidents involving requests for ambulances had to be transferred to the county EMS. The city would capture the basic details in their CAD and then initiate the CAD data transfer to the correct dispatching agency. One city agency reported that automated call transfer was mandated by the county medical director to enable swifter and more accurate call transfer to county dispatch. This method is also used to transfer incident data to third-party ambulance services that have stringent response time requirements, and the benefits from the seconds saved in call processing can help them avoid performance penalties.

### **Citizen Pursuit across Multiple Jurisdictions**

One officer gave an example of what happened when he was driving to work, noticed a vehicle driving erratically for several minutes, and concluded that the driver was likely intoxicated. He used his cell to call 9-1-1 to get an on-duty officer to respond while continuing to follow the vehicle. By the time he was able to describe the situation and his location, he had driven out of the 9-1-1 agency’s jurisdiction. The call was subsequently transferred to the adjoining jurisdiction, where he had to repeat the details once again. By the time he finished and a response was initiated, he was again outside of the jurisdiction. This happened another three times! He eventually discontinued his pursuit but related that if a real data sharing application had been in place, all the incident details from his first conversation that were captured in CAD could have been shared with all appropriate agencies, or transferred to the appropriate agency as his location changed.

### **Uses in Depleted Fire/Rescue Resources**

This use seemed to be one of the most frequent and has several variations. Most jurisdictions appeared to prefer handling incidents in-house, and mutual aid was most commonly used to assist on structure fires that reached a certain level of severity, and/or were in locations near jurisdictional borders. However, respondents reported that an agency’s resources can be quickly

depleted if additional incidents occur when resources are already busy with an ongoing incident. In these cases, dispatch operations can make a CAD-to-CAD request to another agency for resources. The request can be approved or denied, or a dispatcher can actually view the availability of another agency's units and dispatch that agency's units to their incident as if the units were the dispatching agency's own resource. Obviously, this involves a high level of trust, and the agency that provided this scenario commented that they embarked on this level of automation after two years of manual approvals.

### Uses in Closest Unit Dispatch

Many respondents simply desired to automate their manual mutual and automatic aid agreements. For example, if an incident occurs in a specified area (location), is of a certain nature (call type), and is of a certain severity (occupied dwelling, fully involved), then dispatch the closest appropriate unit regardless of which agency owns the resource. Fire/rescue agencies reported that automating standard procedures and processes provided repeatable, successful actions and reduced subjectivity. This automation also served to lessen dispatcher stress and workload.

In addition, fire dispatch mutual aid agreements can be quite complex. For example, one city agency's units are designated as first due with the county's units as second due. In the case where county units are unavailable, additional city units are dispatched unless they are beyond a reasonable distance or will experience prolonged response time. Only the most robust data sharing platforms can replicate and automate these complex sharing rules.

### Uses in Routine but Complex Shared Incidents

One respondent provided this frequent use case in his region: a report of an accident comes into the local police dispatch by cell phone, but it is determined to be on the interstate, which necessitates the incident be transferred to the State Highway Patrol. Highway Patrol arrives and determines that not only is a medical unit required but that the hydraulic extrication tool (sometimes known as the Jaws of Life) and a hazardous materials unit are also needed. Each of these resources belong to different local agencies. The sharing application not only shared the incident to the Highway Patrol, but then also requested an ambulance, a unit with hydraulic rescue tools, and the hazardous materials unit from their respective controlling agencies. All participants reported close coordination through shared call comments that kept all participating agencies apprised of the situation as well as the status and location of all resources.

### Uses in Atypical, Large-scale Incidents

Other reported complex incidents involved large-area catastrophic natural events such as wildfires, mudslides, floods, and multi-vehicle freeway crashes. One agency interviewed, who handled a very large geographic area, reported that the procedure agreed to by the participating partner agencies was to hand off (transfer) the incident to the large agency, who would push information to the other partner agencies as needed until sufficient resources had been dispatched. Tactically, one agency directing the response is optimal, and this process enabled the desired large-agency control.

## Uses Entailing Virtual Units

There seemed to be a couple of variations about how to best handle and track units from sharing agencies. One way was to enter the resource number and type of resource of the sharing agencies into each CAD system. For example, the agency partners add a prefix number (digit) to the unit ID. One county adds a 4 to unit ID, so Engine Company 22 becomes Engine 422. Another county adds a 6 so that Ladder Company 16 becomes Ladder 616.

Another popular way was to create a virtual unit (such as AMB 1 and AMB 2, etc.) and enter those placeholder units into the CAD. Then when an ambulance was requested from a partner agency, the requestor would enter AMB1, letting the partner agency know that an ambulance was needed. The partner agency would approve the request and assign the actual unit to the call (e.g., AMB81). There were several examples provided entailing the use of placeholder or virtual units.

## Uses in Law Enforcement

Many law enforcement agencies found it difficult to envision the capabilities of true bi-directional data sharing of CAD incidents. They had legitimate concerns about unauthorized personnel seeing what could be confidential data. (Coincidentally, fire/rescue and EMS had concerns about exposing protected personal information that may violate privacy regulations.) Because some platforms have cutting-edge capabilities with advanced filters and business rules, those concerns about others seeing restricted data can be alleviated. Most of the law enforcement agencies who are using or plan to use bi-directional data sharing are narrowly defining incident types that trigger sharing or notification rules. For the most part, these involve high-profile and high-risk incidents such as bomb threats and active shooters. Law enforcement also sees the advantages of using bi-directional data exchange to request specialized resources or capabilities such as K9s or dedicated rescue, water, or aerial units.

Conversely, one agency interviewed automated over 100 incident types, but many of these incidents simply triggered notifications (e.g., automated messaging into partner agencies CAD systems).

There have been gruesome examples of school shootings and live TV murders where the potential may exist to coordinate responding units more efficiently and effectively with bi-directional information sharing.

## IMPACT ON POLICY

Some users of automated bi-directional call sharing reported they have changed the way they handle emergency calls that need to be transferred. Specifically in instances where the incident is critical and the caller emotional, several agencies reported they have the original call taker remain on the line with the caller and keep logging additional information into the call taker's CAD comments. These comments are automatically shared with the dispatching agency's CAD, and the dispatching agency's first responder's status automatically updates the call-taker's CAD system. These updates can be provided to the caller to help them remain calm and responsive to instruction. This change provides a better experience for the caller, who is not transferred and not

required to repeat details on the emergency. The transparent handling of the incident not only provides a more positive perception of emergency responders but also enables more efficient call handling, saves seconds, and can save lives.

Another interesting impact involved risk and the cost of budgeting for risk. One agency reported that 10% of their operating budget was set aside for risk and potential lawsuits. They stated that if they could improve outcomes by providing better and faster information to their first responders, as well as get the closest responders to an incident faster, they could put some of the risk money back into the organization for other purposes. This savings may be enough to partially or fully fund the data sharing project.

Fortunately, there was strong awareness of the importance of common procedures, terminology, communications and resources uncovered during interviews. Also, beyond the technology, there are a lot of governance issues than impact utilization and sustainability. From lessons learned by early adopters, the criticality of governance seems to be recognized as something to address early in a project rather than as an afterthought. (Readers are again urged to read the IJIS Institute white paper entitled *Governance Agreements in Public Safety Information Sharing Projects*. It can be found online at [https://ijis.site-ym.com/?page=Reference\\_Papers](https://ijis.site-ym.com/?page=Reference_Papers).)

## IMPACT OF ADVANCED TECHNOLOGY

In addition, in a CAD-to-CAD, the communications environment becomes bigger/larger and potentially more complex, because now dispatchers in one agency can communicate virtually transparently with units/mobiles in another agency through the connected CAD systems. This capability is an important use case, as is the ability to engage special units or responders with specialized skillsets.

As the capabilities of advanced sharing systems become more broadly known, agencies are finding more ways to automate data exchanges. Several agencies interviewed are pushing crash data to a local DOT or a Traffic Operations Center (TOC) for reporting as well as diversionary highway signage interfaces. Of interest is that local DOT's seem willing to contribute funding to projects that deliver crash data to them; three sites reported obtaining funding this way. Several are pushing CAD incident data from one service provider to the law Records Management System (RMS) or fire RMS from another service provider. Several sites are in the process of implementing integration with local colleges/universities and transit authorities. At least one user consortium is feeding data to a regional intelligence center for analysis of CAD incident data in real-time. Several agencies have expressed plans to tie in local trauma centers to provide better information and emergency care of arriving patients. One ambitious agency is in the process of implementing a system that includes a mix of bi-directional and view-only interfaces to three disparate CAD systems (police, fire, and EMS) plus disparate AVL systems on all fire, utility, and public works apparatus. It is clear that highly intelligent technologies are facilitating integration and sharing as never before.

## CONCLUSION

In almost every instance, the interviews corroborate the stated goal of saving lives. Although phrased in numerous ways, when distilled this was the ultimate objective of data sharing initiatives. Respondents believe that saving of seconds and minutes helps to save lives.

In daily routine operations, law enforcement seemed to benefit most from a situational awareness platform. Fire/rescue agencies benefitted most from a full bi-directional platform so they could automate mutual and automatic aid agreements. Law enforcement implemented bi-directional systems primarily for more efficient incident handling between regional partners. In extraordinary or extreme events, full bi-directional data sharing was used by all parties and agencies to better coordinate resources, improve first responder safety, and assist Incident Command. As one commander stated, “The need for data sharing in law enforcement becomes most evident when the criticality of the incident overrides the jurisdictional boundaries.”

In summary, key drivers included:

- ❖ **SPEED** – Increased operational efficiency within the PSAP and throughout the region by:
  - Closest unit/station dispatch in fire/rescue incidents and
  - Expedited and accurate call processing and incident transfer to the appropriate PSAP/agency.
- ❖ **SAFETY** – Increased first responder and citizen safety by:
  - Providing better, richer, faster information, thereby delivering better outcomes through situational awareness and
  - Coordinating first responder activities for more effective and efficient operations.
- ❖ **SERVICE** – Enhanced citizen satisfaction and provision of services via:
  - Assisting call taking and dispatch operations to automate policy and
  - Automating policy to provide repeatable processes, reduce dispatch workload and stress, and provide a better experience to the public as well as other agency partners.

The ability to look beyond one’s own jurisdiction to study trends such as epidemiology and risk areas enhances the ability to predict with some higher degree of accuracy where and perhaps when incidents will occur. Prevention and response strategies may then be developed and deployed strengthening community safety.

IJIS Institute IPSTSC members will continue to monitor implementations and report on usage to further the evolution of data sharing within the practitioner and consultant community.

## ABOUT THE IJIS INSTITUTE

The IJIS Institute unites the private and public sectors to improve mission-critical information sharing and safeguarding for those who protect and serve our communities. The IJIS Institute provides training, technical assistance, national scope issue management, and program management services to help government fully realize the power of information sharing.

Founded in 2001 as a 501(c)(3) nonprofit corporation with national headquarters on The George Washington University Virginia Science and Technology Campus in Ashburn, Virginia, the IJIS Institute has grown to nearly 400 member companies and individual associates from government, nonprofit, and educational institutions from across the United States.



The IJIS Institute thanks the IJIS Public Safety Technology Standards Committee for their work on this document. The IJIS Institute also thanks the many companies who have joined as Members that contribute to the work of the Institute and share in the commitment to improving justice, public safety, and homeland security information sharing.

For more information on the IJIS Institute:

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### About the IJIS Public Safety Technology Standards Committee

The purpose of the IJIS Public Safety Technology Standards Committee is to promote and contribute to the development of technical and functional standards for public safety IT components, to provide industry input and policy review on technical matters faced by the public safety community, and to oversee IJIS Institute projects assigned to the committee.