State Police Computer Aided Dispatch (CAD) Integration Workshop
Organized by the I-95 Corridor Coalition
April 23-24 2018, Maritime Institute, Baltimore, MD

Workshop Notes

Compiled by Branislav Dimitrijevic, NJIT
April 30, 2018

New Jersey Team participating at the workshop included:

- ○ Sal Cowan, Director, Traffic Operations, NJDOT
- ○ Mike Moran, TIM Program Manager, NJDOT
- ○ Dennis Caltagirone, NJDOT.
- ○ Gail Yazersky, Transportation Systems Management, NJDOT
- ○ Branislav Dimitrijevic, Sr. Research Engineer, ITS Resource Center, NJIT
- ○ Bob Glantzberg, TRANSCOM

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1. Meeting Agenda

CAD Integration Workshop Day 1		
Time	*Topic*	*Speaker*
12:00 pm - 1:00 pm	Registration and Pick up lunch tickets	
1:00 pm – 1:10 pm	Welcome, Introductions, Housekeeping Items	Denise Markow, I-95 Corridor Coalition
1:10 pm – 1:20 pm	Webinar and Survey Results and Update	Denise Markow, I-95 Corridor Coalition
Session 1: Why do we need CAD Integration? – Facilitator: Sal Cowan, NJDOT		
1:20 pm -1:50 pm	Historical Perspective of CAD	Rick Dye Maryland SHA
1:50 pm – 2:15 pm	Using Data to Improve TIM, National Direction (EDC 4 TIM – the use of data)	Paul Jodoin FHWA
2:15 pm - 2:45 pm	Why is CAD important to DOT and SP? What is the state of the practice?	Facilitated Roundtable
2:45 pm – 3:00 pm	Break	
Session 2: CAD Integration Success – Paul Krisavage, ConnDOT		
3:00 pm – 3:30 pm	VDOT – Successful ATMS to CAD Integration	Scott Cowherd VDOT
3:30 pm – 4:00 pm	Delaware State Police – Why CAD integration is important to law enforcement?	Joe Mulford, Chief of Communications, Delaware State Police
4:00 pm – 4:30 pm	Oregon DOT – Successful implementation of CAD and how the data is being used for PM.	Matt Badzinski Oregon DOT
4:30 pm – 5:00 pm	Recap of Sessions 1 & 2 Overview of Day 2 agenda	Denise Markow I-95 Corridor Coalition
CAD Integration Workshop Day 2		
8:00 am – 8:30 am	Breakfast and Networking	
Session 3: Break Outs		
8:30 am – 10:00 am	Break Out Groups: • Data and Use of Data • Institutional Challenges/Outreach • Technical Lessons Learned	Moderators: Data (Shah) Institutional/Outreach (Krisavage) Technical (Cowherd)
10:00 – 10:15	Break	
10:15 – 11:15am	Break Out Group Report out to full group	Moderators
11:00 – 11:30 am	Barriers to Overcome	Facilitator (TBD)
11:30 am - Noon	Prioritizing Next Steps	Denise Markow, I-95 Corridor Coalition
Noon	Adjourn and Lunch	

2. Session 1: Why do we need CAD Integration?

(The notes of the New Jersey team are shown in blue font)

Historical Perspective (Timeline) of CAD Integration

1. How did we get to where we are today? How have we changed? ("many are not making phone calls anymore but maybe others still are – so how do we continue to communicate effectively?")
   - Presentation given by Rick Dye, Maryland State Highway Administration (SHA).
   - Rick suggested that USDOT/FHWA will support (financially) CAD integration based on the findings of numerous studies showing benefits of CAD integration in terms of improved traffic operations.
   - Studies show that most of the initial reports of traffic accidents come through telephone to PSAP (Public Safety Answering Point), such as 911 dispatch center.
   - Levels of data sharing:
     - [1] Interoperable radios
     - [2] Collocated with the Law Enforcement (L/E)
     - [3] View Only Access to CAD
     - [4] DOT integrated into the CAD – dispatches DO forces in response to traffic-only calls, closes the calls, and also monitor CAD and get notifications of traffic events.

2. Historical perspective of CAD integration initiative in New Jersey:
   - In 2015, NJDOT conducted a study comparing traffic incident records in the statewide traffic incident management information system (OpenReach) to crash reports filed by law enforcement (NJ has a uniform statewide crash reporting and records system). The study concluded that only about 20% of all reported crashes are also reported to (or detected by) NJDOT and TMCs and recorded in OpenReach. Incidents not entered into OpenReach do not get listed on to the 511/traveler information system. The awareness of how few incidents were being reported to Traffic Operations highlighted the need for CAD integration.
   - Since crash records are reported by law enforcement, it was concluded that the completeness of NJDOT's incident records, situational awareness, and traveler information would be much improved if the incident information was transmitted to NJDOT from the law enforcement units responding to reported crashes in real-time through CAD. It is expected that more timely (real-time or near-real-time) awareness would improve dispatch of appropriate support (Incident Management

Response Team (IMRT), maintenance, etc.) and ultimately reduce incident duration, roadway and incident clearance times.

Using Data to Improve TIM, National Direction (EDC 4 TIM)

o   General information provided in the handouts and the slide presentation.

o   The data was presented during the slide presentations showing reduction in incident clearance times as a result of better management and sharing of traffic crash data and CAD integration between L/E and Traffic Operations. It would be helpful to make the PPT slides and the references to the pertinent studies and reports available to the workshop attendees.

Response to Roundtable Questions (NJDOT Perspective)

In preparation for the Roundtable discussion, the following responses to discussion questions were prepared by the New Jersey Team:

1. What is the current state of practice in your agency?

    o   NJDOT currently does not have access to L/E CAD. However, the CAD integration is one of the action items identified in the New Jersey State TIM Strategic Plan. NJDOT established a CAD Integration Working Group in the Fall 2017 to explore the possibilities and develop an action plan for CAD integration.

    o   The working group consists of representatives from NJDOT Traffic Operations, and Central Dispatch Unit (CDU), NJ State Police, New Jersey towing association, TRANSCOM, and FHWA New Jersey Division office.

    o   The goal of the working group is to establish and implement the standard and efficient use of technology and promote the integration of TMC and law enforcement CAD systems. The traffic incident data sharing between the TMC and the law enforcement is expected to significantly decrease incident response times, properly capture the incident timeline, and improve the overall traffic incident management process.

    o   It was agreed to start with integration between NJDOT and NJSP to cover the Interstate highway system and other roadways in NJSP jurisdiction, and then move on to integration with local law enforcement CAD systems (Paramus, Palisades).

2. Are you considered a beginner, intermediate or advanced program?

    o   NJDOT is in an early stage (exploratory) of CAD integration. One could label this as a "beginner" stage.

3. What are two expectations that you have coming to this workshop?

    o   Get advice, recommended path, and perhaps sample language for an MOU outlining the purpose, scope, protocols, and terms of data sharing between law enforcement CAD system and TMC.

    o   Learn about experiences from other States regarding type of shared incident data, including the content (and any required data scrubbing), data structure, data format, data attributes, transmission protocols and timing, and compatibility of data between the law enforcement CAD and DOT/TMC incident management systems.

    o   Learn about effective (successful) integration models, and alternatives (different levels?) for accomplishing meaningful data sharing and integration.

4. Do you have a lesson learned/failure/mistake you want to share with the group based on your experience with CAD Integration?

    o   New Jersey is in an early stage of the process – looking to develop an MOU between NJDOT and NJSP first, and then work from there. Lessons learned and best practices from other States will be useful to help avoid or effectively address known pitfalls and challenges.

    o   So far we have identified three critical challenges:

        [1] **Institutional**, requiring formal agreements between DOT and law enforcement agencies that must specify the purpose, scope, and protocols of sharing the CAD data with DOT.

        [2] **Data confidentiality**, requiring that some attributes of the sensitive/confidential CAD data be removed before transmission to DOT (such as SS#, DL#, LP#, other personal data, information about criminal investigation in progress, etc.), or that DOT personnel having access to CAD data must be trained and given proper security clearance (e.g. Criminal Justice Information System (CJIS) clearance); and

        [3] **Data extraction and management** – recording of the data from legacy CAD systems into the TMC incident management database (e.g., OpenReach) is not straight-forward, given the differences in data structure and format. The data in the NJ State Police CAD that would be useful to NJDOT is not currently structured (i.e., it is entered in a free-text field), while the data in OpenReach is structured (follows a specified database structure and format). Thus to bring the data from CAD into OpenReach would require manual input based on information coming through the CAD screen or data-feed, or developing a software code that would extract meaningful information from the CAD free-text field and translate it into OpenReach data fields.

5. What are some examples of misunderstanding and miscommunication? ("We need to be right on the big days and no just right on the day to day?")

    o   There is a potential misunderstanding of the alternative approaches to CAD "integration", i.e., perhaps it is not necessary to integrate from a get-go, but share the data.

    o   DOT does not necessarily need to receive all the data coming in/through CAD. It would suffice, at least in an early phase, to just receive the data that helps identify the location, time, characteristics, and status of reported traffic accidents and other roadway events or problems.

    o   Previously mentioned challenges, such as incompatibility of the data structure between CAD and OpenReach incident management system, may also cause misunderstanding of what is possible (or feasible), limitation of CAD integration, and action plan for achieving at least minimum level of integration and/or data sharing.

Roundtable Discussion

*   Connecticut

    o   Intermediate level. Their CAD is shared between SP and DOT, but can improve the quality of data recorded by the phone operators.

    o   Very hard to add more data points into the Crash Report, but this can come from CAD, just needs to be figured out how to improve the data coming from CAD to DOT.

*   Delaware

    o   Integrated CAD between L/E, DOT, but also Counties and Municipalities, as well as other first responders, such as fire and EMT.

    o   One can pull data from the web.

    o   TMC uses separate servers and sets up filter for what gets transferred

*   Maryland SHA

    o   Operators can view CAD screen in a TOC in one District (County system). The County PD (Sherriff) also added DOT TOC as one of the users of their CAD and assigns to them certain traffic events that they can accept, respond to, and close. Mostly these are disabled vehicles, i.e. events that PD does not need or want to respond to. For other events they have "view only" capability and need to manually enter the events into the ATMS once they come up on CAD screen.

    o   There is currently no data sharing or integration with the SP, but it is underway.

    o   The SP procured a new CAD system. They provided to SHA how the XML feed out of the CAD would look like. SHA built a model and the interface to ingest the

data from the CAD XML feed into ATMS. They also developed business rules describing data integration.

- o Currently in the process of developing and singing MOU between SHA and SP. Once this is signed the SHA can start taking in the data from the CAD.

- Minnesota

  - o (Information provided as part of earlier presentation of the FHWA consultant in the segment on *Using Data to Improve TIM, National Direction*)
  - o Gets 70% of data from CAD
  - o Within 20 seconds of data on incident detection begins 'triage'
  - o Uses XML encrypted data feed with real-time traffic – all timestamped.

- New York State

  - o In NY the SP gave full access to SP CAD screens to NYSDOT. The NYSDOT users have limited user-action privileges, which can be revoked if any misuse is detected by the SP.

  - o SP is dispatched from county TMCs where they are collocated with NYSDOT operations personnel.

  - o Currently in the process of procuring new CAD system, which will integrate SP, NYSDOT, and NY Thruway Authority. Vendor selected, but still developing system requirements.

  - o They are also building statewide record management system (RMS)

  - o Lesson: carefully and comprehensively review and evaluate prospective vendors and their products before making final decision.

- New Jersey

  - o The operations personnel from NJDOT, NJ Turnpike Authority and State Police Troop D (responsible for NJ Turnpike Authority roadways) are co-located at the Statewide Traffic Management Center (STMC) in central NJ and operate together 24/7/365. State Police assigned to NJDOT roads are not co-located at STMC.
  - o The operations personnel from NJDOT, NJ Turnpike Authority, NJ Transit, and the L/E also co-locate at STMC for specific events having significant impact on traffic (such as large storms, special events, etc.)
  - o The operations personnel from NJDOT, NJ Department of Environmental Protection (NJDEP), and State Police (Troop C with jurisdiction in Central New Jersey) are also co-located at the Central Dispatch Unit (CDU) in Hamilton, NJ and operate together 24/7/365. The CDU houses the PSAP for NJDOT, NJDEP, and the State Police Troop C.
  - o Second toll-road authority (South Jersey Transportation Authority) has dedicated State Police troop and uses their CAD.

- o NJDOT Traffic Operations Director/leadership and the commanding officer (Lieutenant) of the State Police Statewide Incident Management Unit (IMU) are co-located at the NJDOT Headquarters.

- Oklahoma
  - o DOT has implemented Virtual TMCs. It uses ESRI/GIS platform.
  - o The application is map-based, and provides map layers for road conditions and weather; eventual plan to connect ESRI (GIS) with CAD (can add SLD).

- Oregon DOT
  - o The SP CAD is integrated with the DOT ATMS.
  - o Data broadcasts are based upon geographic relevancy not statewide
  - o Interoperability – uses Data Warehouse approach
  - o There was no MOU – interagency cooperation.
  - o Conducted a study that shows reduction in incident response time, incident clearance time (duration) after CAD integration. NJDOT should request the report for reference.

- Rhode Island
  - o The agency has an RFP for CAD integration out "on the street".
  - o Challenges: data security, data filtering.

- South Carolina
  - o DOT had a view-only access to CAD system since 2006.
  - o This worked well until 2016. Then FBI came in and determined that this practice is not compliant with security regulation and took out all CAD interfaces (network circuits, terminals, etc.). The SC DOT is back to calls and public view of CAD data via Department of Public Safety.
  - o The issue of transportation officials being allowed to see the sensitive information on the CAD screens or Police screens is not as clear as presented by the FBI in the case of South Carolina. This "view only" capability is not against the regulations, just requires training and clearance for official DOT personnel. The real issue is that non-L/E personnel is not allowed to disseminate the sensitive information if they see it on CAD screens.
  - o It is also important to note that DOT does not need info from major crime investigations, background checks, etc. Only the data related to traffic incidents reported to 911.

- VDOT
  - o All but one TMC have integrated SP CAD with ATMS.
  - o VDOT has also integrated CAD with other localities, totaling over 13 PSAPs. This enables additional 88% accident discovery. Clearance time reduced by 34%

- o The system utilizes QFree platform to manage the information gateway and filter the data to the TOCs.
- o Data feeds differ by region.
- o The PPT slide presentation provided a lot of interesting before/after statistics and success factors.
- o A CAD Integration MOU was signed between the VDOT and Virginia SP.

3. Session 2: Spotlight Presentations

(The notes of the New Jersey team are shown in blue font)

The following questions were supposed to be answered as part of spotlight presentations of successful CAD integration projects:

1. Can you provide examples of successful relationships as well as failures?
   - o As noted earlier, NJDOT has an established working relationship and communication with State Police (NJSP). NJSP IMU, Accident Investigation and Construction Units regularly work with the Department. The IMU lead Lt. has an office inside the Transportation Systems Management section at NJDOT headquarters and routinely participates in traffic operations activities. The Department also stores traffic camera videos for 7 days and shares it free to all law enforcement upon request through a formal online request process. State Police IMU also supports NJDOT's TIM Training program and instruction.
   - o In South Carolina, DOT covers the cost of displaying safety messages on DMS 10am-10pm (which can get costly) in support of law enforcement safety efforts.
2. Can you highlight TMC software UI strategies – that can limit information overload and operator fatigue?
3. Is the CAD information timely and relevant that you receive?

The questions that were not asked but may be relevant for advancing CAD integration in New Jersey are the following:

- o How long did it take to accomplish CAD integration, synchronization, or data sharing?
- o What kind of training was required, both on the L/E and the TMC side?
- o Were changes in SOP required/needed on the L/E side (e.g., changes in data-entry protocols, changes in how the information about the accidents was coded during the 911 calls, etc.) to make the information more useful to the TMC?
- o What changes might be expected regarding TMC/CDU dispatcher call volumes, incident data input and monitoring functions?

- o What additional efforts, software, data feeds and strategies are needed for 2-way software communication/integration?
- o Can software be used/developed for sending automatic email alerts, or alerts and updates to social networks such as Twitter – can this data be shared? (DelDOT and some other DOT have indicated in their presentations at the workshop that they are doing this already.
- o Data feeds can differ by region – several examples – why is this useful/necessary?
- o Identifying top 10 data points list helps focus what's needed before setting up data feeds.
- o What is the added cost of 2-way integration? Should integration be designed with this in mind?

4. Session 3: Break-out Groups

(The notes of the New Jersey team are shown in blue font)

Data and the Use of Data

1. What type of ATMS data do we need if we are an L/E agency?
   - o Locations of other (ongoing) traffic incidents, with description and current status.
   - o Traffic conditions (e.g. TRANSCOM DFE data).
   - o Location and status of DOT safety service patrol (and maintenance) units.
   - o Indication if any of DOT units are dispatched to a particular incident.
   - o Construction/work zone/road closure – location and timeline.
   - o Roadway condition – e.g., icing, high winds, etc.
   - o Diversion route data – available electronically thru CAD for use by L/E, PSAPs, TMCs

2. What type of CAD data do we need if we are a DOT?
   - o **Identifying a list of top 10 (most desired) data points from CAD can help focus on what's needed first and how to get it done when it comes to CAD integration (or data sharing).**
   - o Accident report time (time of the call recorded in CAD).
   - o Accident location (preferably by SRI and MP, or route number and cross road or interchange).
   - o Accident type (e.g., motor-vehicle accident, truck accident, utility pole down, disabled vehicle, HAZMAT, etc.).

- o Accident severity (property damage only, possible/reported injury, possible/reported fatality, reported fire).
- o Time the law enforcement unit was dispatched, and how many.
- o Time the law enforcement arrived on scene.
- o Time the law enforcement left the scene (accident closed).
- o Time and location of traffic stops (traffic violations/tickets, stopped or abandoned vehicle, debris or animal carcass, etc.)
- o Any change/update of the traffic stop.

3. What is the value of GIS location pinpointing?

- o Common base map for first responders would make it easier to show data from individual agencies as layers that can be turned on and off, considering data sensitivity and confidentiality.
- o What GIS map layer to use as a base: select a statewide GIS base map layer all agencies can agree upon.
- o Both L/E and DOT would benefit from having a more complete and timely situational awareness of ongoing events, both spatial and temporal, as well as current status, who is responding, roadway and traffic conditions en route, etc.
- o This would greatly improve efficiency of response, as well as safety of the first responders.
- o Maps and directions for prescribed diversion (detour) routes – could be added as a GIS layer. Both NJDOT and L/E would benefit from this feature.

4. What can be done with structured vs. unstructured data

5. What do we do with the data once we have it?

- o Differentiate what's CAD system data vs. what data records management systems collects
- a) Do we store the data for immediate and longer-term use?
- b) What metadata should we maintain?
- c) Who should have access to data?

6. How can we turn the data into information?

- a) What tools are available for data analytics?
- b) What expertise is available to support data analytics?
- c) How can data be used to show value from data integration?

7. Are there multiple integration points? Is that needed?

Institutional/Challenges/Outreach

1. How can we make the case for CAD?

    a) Who has the data and how do we share?

    b) Who are the key stakeholders to be engaged?

    c) Who makes the decision to integrate?

    o More comprehensive incident records would help improve traffic management practices, including evaluation and provision of adequate incident detection and verification capabilities, as well as provision of adequate resources to provide sufficient coverage (spatial and temporal) of roadways in NJDOT jurisdiction for incident management purposes.

    o The reporting of the accident timeline, from the moment the accident is reported to the dispatch center, to moment roadway is cleared and first-responders left the scene, would help document the accident timeline with greater precision and granularity. This, in turn, would improve NJDOT's capabilities for TIM performance analysis and management (as outlined in the Model Minimum Uniform Crash Criteria (MMUCC), Fifth Edition).

    o Timely reporting of crashes (real-time or near-real-time reporting) would provide situational awareness to TOC operators, which in turn would improve their ability to take adequate measures for managing traffic in the area affected by traffic incidents.

    o Joint MOUs go far to pave way to support CAD integration

        • Analytical tool for multiple agencies: L/E, DOT, DEP, EMS/Fire, Utilities, DHS

        • Supports co-location

    o Altogether, this would enable DOT forces to detect incidents as they get reported, assess anticipated traffic impacts of incidents, assess the need for incident response, dispatch appropriate resources to incident scene, and provide traffic advisory to affected traveling public. This will help achieve the following goals:

        • faster response to incidents;

        • faster clearance of accidents;

        • faster restoration of traffic to 'normal' condition;

        • reduced congestion and associated motorist costs (i.e. reduced travel delays, wasted fuel, excess vehicle emissions);

        • reduced secondary accidents;

        • save lives and property.

- It was concluded that integrating, or at least sharing the data from the law enforcement CAD system with NJDOT in real-time would accomplish much of these goals.
- Improved cooperation, integration of data amongst multiple agencies: law enforcement, DOT, DEP, EMS and fire, utilities, homeland security
- Supports economy of sharing resources and systems.
- Better data can help prevent tragedies.

2. Needs: Is it a Law Enforcement versus DOT issue?
   a) How do we get buy-in from both DOT and State Police?
   b) Data sharing issues. Institutional? Statutory?
   c) Cyber security issues? Responsibilities?
   - The L/E may have reservations to CAD sharing or integration for several reasons, including: potential burden on the L/E personnel related to monitoring and maintenance, data security issues, and they may not want to share all the data with non-L/E personnel.
   - Proactively identify which data from CAD supports incident clearance – this could help alleviate some L/E reservations.
   - Identify ways to pull only the data needed for traffic incident management.
   - CJIS (Criminal Justice Information Services) – some of the CAD data is sensitive and confidential, so users may need to have security clearance to see this data and use it for official purposes.
   - Compatibility of data structure. Unstructured data can be significantly harder to process than structured data entered into CAD.

3. How can agencies best work together?
   a) How do we overcome the obstacles?
   b) What do you think about MOU's between agencies?
   c) How do we get support/approval from the Executive Office?
   - Consider bottom-up as well as top-down approach.
   - Involve responsible IT offices early – have them take ownership and become champions from the IT perspective (if possible). Identify champions early
   - MOU: keep it high-level, but identify the key provisions that agencies must agree on in order to succeed in CAD sharing or integration.
   - Business case: developing a business case document (or presentation) can help get buy-in from decision makers.
   - Improve communications and interoperability capabilities between agencies' communication systems.

4. Should we be partnering with the private sector?

5. What funding strategies & pathways to support CAD integration?

6. What are the types of stove pipes that we need to break down in order to get the data that we need?

7. What do we hope to achieve?

Technical Lessons Learned and Best Practices

1. What CAD systems are currently being applied by L/E and by TMCs, what is around the corner?

   o CAD: NexGen (CT), Integraph, Motorola/Spillman, Positron, SmartCop, Tritech, etc.

   o ATMS: Siemens, TransCore (DC), Kapsch, SWRI, Telegra, QFree, Kimley Horn KITS.

   o Software that has integrated CAD and ATMS – would like to get information, if available.

2. How do they differ in capability, cost, learning curve, and flexibility to evolve?

   o What kind of training is needed, on both DOT and the L/E sides?

3. What agencies have successfully synced their CAD systems?

4. Why sync? What were the drivers?

5. How was it achieved from an organizational perspective - partnership effort avoiding PII and other issues?

6. How was it achieved from a technical perspective? What happens when one system evolves?

7. How have agencies benefitted from the Sync? (Better TIM coordination, cooperation, leveraging of resources…)

   o Improves situational awareness.

   o Documenting success: important to have PMs such as # of calls, response times, clearance times, etc.

8. Who is the correct technical lead?

9. Is it a working group or run by a department?

   o Consider a User Groups of NJDOT and NJSP personnel to ID what is needed, (data) and ways to pull/get the info out of the CAD system.

10. Is your state IT department involved? Are the IT leads between that agencies at the table? If not, how do you get them there?

11. Who should be the stakeholders in the technical design? And what about the M&O of the equipment that lives behind that design?

12. Are embedded IT resources needed in operations centers?

13. Is 24/7 support needed?

14. Is there a new CAD acquisition in your future? Likewise, acquisition or deployment of a new ATMS? What are the considerations of "change"?

15. What features/core changes might be collectively made by the "Big 6" vendors to simplify integration?

16. What are some basic considerations when doing your system design for a CAD system?

Some of the additional issues identified during this discussion relevant to New Jersey include:

o   User rights – define levels for various user roles (TMC, SSP, etc.).

o   How to take free text input and create business rules to translate into fields- are there examples of how this was done?

o   How to handle CJIS issues (if they come up)? – sensitivity of data (raised by multiple agencies)

o   Storm coordination and budgets.

o   Human errors, corrections and overrides – how not to overwrite corrections when inputs are incorrect and updated.

o   Relationship of CAD system data to data records management system needs.

o   Develop an integration strategy.

o   CAD data can be very useful in post-incident review/exercises.

o   Funding issues – CAD integration could be funded with transportation funds (including federal funds) as it leads to improved safety, reduction of accidents, and saved lives.

o   When making the case, identify how data can help prevent tragedies; buy-in helps sell integration

o   Develop a business case for CAD integration – benefits, costs, funding alternatives.

o   Create materials to pitch to stakeholders (videos, marketing materials, data sharing case, improvement in KPI based on the experience from other states.

Appendix A: List of Workshop Attendees

Agency	Participant	Email Address
Concept Jeneration, LLC	Jen Mayer, Principal	jen@conceptjeneration.com
Connecticut DOT	Paul Krisavage (IBI)	Paul.k@snet.net
Delaware DOT	Gene Donaldson	Gene.donaldson@state.de.us
Delaware State Police	Joe Mulford	Joseph.mulford@state.de.us
District of Columbia	Charles Tenbrook	Charles.tenbrook@dc.gov
FHWA	Paul Jodoin	Paul.jodoin@dot.gov
Georgia DOT	Chad Hendon	chendon@dot.ga.gov
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North Carolina State Highway Patrol	Siva Vilapakkam	siva.vilapakkam@ncdps.gov
Oklahoma DOT	Reina Wilson	rwilson@odot.org
Oklahoma State Police	Maj. Shawn Lockwood	Shawn.lockwood@dps.ok.gov
Oregon DOT	Matt Badzinski	Matthew.r.badzinski@odot.state.or.us
Pennsylvania DOT	Ryan McNary	rymcnary@pa.gov
Pennsylvania Turnpike Commission	Jeff Beard	jbeard@paturnpike.com
	Christopher Parker	cparker@paturnpike.com
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South Carolina DOT	Mike Bowman	bowmanmc@scdot.org
Tennessee DOT	Kevin Speakman	Kevin.speakman@tn.gov
Texas DOT	David McDonald	David.mcdonald@txdot.gov
Transcom	Bob Glantzberg	glantzberg@xcm.org
Vermont AOT	Jayna Guilford	jayna.guilford@vermont.gov
Virginia DOT	Scott Cowherd	scott.cowherd@vdot.virginia.gov

Appendix B: Annotated Workshop Agenda

CAD Integration Workshop Day 1			
Time	*Topic*	*Speaker*	*Description*
12:00 pm - 1:00 pm	Registration and Pick up lunch tickets		Lunch provided at the Maritime Institute in its Dining Room.
1:00 pm – 1:10 pm	Welcome, Introductions, Housekeeping Items	Denise Markow, I-95 Corridor Coalition	Denise will provide a welcome on behalf of the Coalition, go over the Housekeeping and ask for Introductions in the room.
1:10 pm – 1:20 pm	Webinar and Survey Results and Update	Denise Markow, I-95 Corridor Coalition	Denise to provide a quick overview of the data results that were captured from both the CAD webinar held in October and the survey requests shortly thereafter.
Session 1: Why do we need CAD Integration? – Facilitator: Sal Cowan, NJDOT			
1:20 pm -1:50 pm	Historical Perspective of CAD	Rick Dye Maryland SHA	Rick to present a few slides on how we got to where we are going
1:50 pm – 2:15 pm	Using Data to Improve TIM, National Direction (EDC 4 TIM – the use of data)	Paul Jodoin FHWA	Paul to provide a national overview of TIM and CAD today emphasizing collecting of data.
2:15 pm - 2:45 pm	Why is CAD important to DOT and SP? What is the state of the practice?	Facilitated Roundtable	Discuss the current state of practice and what are their expectations from this workshop? Where are you today in your respective states? Ask states to report out from the info request sent to them before the workshop.
2:45 pm – 3:00 pm	Break		Afternoon Food served outside of meeting room by Maritime
Session 2: CAD Integration Success – Paul Krisavage, ConnDOT			
3:00 pm – 3:30 pm	VDOT – Successful ATMS to CAD Integration	Scott Cowherd VDOT	Scott to present on how VDOT has completed over 40 CAD integrations in Virginia. What are the successes and best practices to a successful integration?

3:30 pm – 4:00 pm	Delaware State Police – Why CAD integration is important to law enforcement?	Joe Mulford, Chief of Communications, Delaware State Police	Joe to discuss why CAD Integration is important from the law enforcement perspective
4:00 pm – 4:30 pm	Oregon DOT – Successful implementation of CAD and how the data is being used for PM.	Matt Badzinski Oregon DOT	
4:30 pm – 5:00 pm	Recap of Sessions 1 & 2 Overview of Day 2 agenda	Denise Markow I-95 Corridor Coalition	- What are the important takeaways as we go to the morning session? Summarize the big points. - Provide the overview of the morning's agenda so that we can start right in with the breakout sessions.
CAD Integration Workshop Day 2			
8:00 am – 8:30 am	Breakfast and Networking		Guests at Maritime have breakfast starting at 6:30. Day attendees have access to continental food, coffee etc.
Session 3: Break Outs			
8:30 am – 10:00 am	Break Out Groups: - Data and Use of Data - Institutional Challenges/Outreach - Technical Lessons Learned	Moderators: - Data (Shah) - Institutional/Outreach (Krisavage) - Technical (Cowherd)	- Participants break into smaller working groups and work through questions submitted for each subject. See next pages. - Moderators use easels to document talking points. - There are note takers for each session plus a moderator.
10:00 – 10:15	Break		Coffee and snacks available outside of the conference room
10:15 – 11:15am	Break Out Group Report out to full group	Moderators	Moderators report back ideas to full group 20 minute report out per group

Meeting Notes
I-95 Corridor Coalition Workshop: State Police CAD Integration, April 23-24 2018, Baltimore, MD

11:00 – 11:30 am	Barriers to Overcome	<u>Facilitator (TBD)</u>	• Based on the group report out, what are the core barriers we need to overcome? • List Barriers • Open brainstorming of the barriers to progress breakout group topics
11:30 am - Noon	Prioritizing Next Steps	Denise Markow, I-95 Corridor Coalition	Identify the top five items for advancement of CAD Implementation
Noon	Adjourn and Lunch		