METROPOLITAN EMERGENCY SERVICES BOARD
9-1-1 TECHNICAL OPERATIONS COMMITTEE AGENDA

October 15, 2020 10:00 a.m.

Webex Meeting Link

1. Call to Order

2. Approval of Agenda

3. Approval of Minutes – September 17, 2020 Meeting

4. Action Items

A. Civil Unrest Emergency Communications After Action Review Team Report
B. Regional Workload Sharing and Situational Awareness Application Implementation Recommendation

5. Discussion Items

A. Pandemic Response
   1. Metro PSAP Consolidation Planning
   2. PSAP Consolidation Plan System Evaluation Team
B. Winter Storm-Related Incident Coordination with State Patrol
C. SECB Grant Proposals
D. System Outage Notifications
   1. Outage Notification Process
E. Mental Health Call Processing Standard
F. Telecommunicator Reclassification and Licensing Legislation

6. Reports

A. PSAP Operations Round Table Work Group (Attached)
B. SECB NG9-1-1 Committee Report
C. 9-1-1 Network Report (Attached)
D. 9-1-1 Data Report (Attached)

7. Announcements

8. Adjourn

Metropolitan Emergency Services Board

9-1-1 Technical Operations Committee
September 18, 2020
Draft Meeting Minutes
Meeting Held via WebEx

Members Present

Laura Anderson, Sherburne County
Carrie Bauer, Scott County
Susan Bowler, Carver County
Bob Dowd, Isanti County
Janelle Harris, Edina PD
Wade Johnson, Hennepin EMS
Jeff Lessard, U of Minnesota
Chad Loeffler, Metro Transit PD
Tony Martin, Hennepin County
Michael Melby, North Memorial
Darlene Pankonie, Washington County
Nancie Pass, Ramsey County
Lauren Petersen, MSP Airport
Cheryl Pritzlaff, Dakota County
LaVae Robinson, Minneapolis
Jim Scanlon, Bloomington PD
Marv Solberg, St. Louis Park PD
Val Sprynczynatyk, Anoka County
Jake Thompson, Chisago County
Victoria Vadnais, Allina EMS
Lisa Vik, Eden Prairie PD

Guests: Vic Barnett, Ramsey County; Melissa Carpenter, North Memorial; Laurene Draper, Bloomington PD; Angie Fox, Allina EMS; Dawn Kenyon, Hennepin County; Mike Mihelich, Ramsey County; Todd Moen, Carver County; Greg Weigel, St. Louis Park PD

MESB Staff: Marcia Broman, Pete Eggimann, Tracey Fredrick, Jill Rohret

1. Call to Order

Val Sprynczynatyk (9-1-1 TOC Vice-Chair) called the online meeting to order at 10:06 AM.

2. Approval of Agenda

M/S/C Darlene Pankonie moved to approve the agenda for September 18, 2020. Tony Martin seconded. Motion carried.

Call for Approval of Agenda

Agency	Member	Yes	No
Allina	Vadnais	X	
Anoka	Spryncynatyk	X	
Bloomington PD	Scanlon	X	
Carver	Bowler	X	
Chisago	Thompson	X	
Dakota	Pritzlaff	X	
Eden Prairie	Vik	X	
Edina PD	Harris	X	
Hennepin	Martin	X	
Hennepin EMS	Johnson	X	
Isanti	Dowd	X	
MAC/Airport	Peterson	X	
Metro Transit	Loeffler	X	
Minneapolis	Robinson	X	

North Memorial	Melby	X	
Ramsey	Pass	X	
Scott	Bauer	X	
Sherburne	Anderson	X	
St Louis Park	Solberg	X	
U of M	Lessard	X	
Washington	Pankonie	X	

Yea: 21 Nay: 0 Motion passes

3. Approval of Minutes

Nancie Pass asked that the spelling of her name be corrected.

M/S/C Cheryl Pritzlaff moved to approve the minutes from July 16, 2020 as corrected. Susan Bowler seconded. Motion carried.

Roll Call for Approval of Minutes

Agency	Member	Yes	No
Allina	Vadnais	X	
Anoka	Spryncynatyk	X	
Bloomington PD	Scanlon	X	
Carver	Bowler	X	
Chisago	Thompson	X	
Dakota	Pritzlaff	X	
Eden Prairie	Vik	X	
Edina PD	Harris	X	
Hennepin	Martin	X	
Hennepin EMS	Johnson	X	
Isanti	Dowd	X	
MAC/Airport	Petersen	X	
Metro Transit	Loeffler	X	
Minneapolis	Robinson	X	
North Memorial	Melby	X	
Ramsey	Pass	X	
Scott	Bauer	X	
Sherburne	Anderson	X	
St Louis Park	Solberg	X	
U of M	Lessard	X	
Washington	Pankonie	X	

Yea: 21 Nay: 0 Motion passes

4. Action Items

A. SECB NG9-1-1 Committee Alternate Representative

Pete Eggimann said Chad Loeffler has volunteered to sit on the NG9-1-1 Committee as the alternate representative.

Tony Martin said he is supportive of Loeffler's nomination but is concerned that neither metro region representatives to the SECB NG9-1-1 Committee would be from a city or county primary PSAPs.

Pass said she has similar concerns but does support Loeffler as an alternate representative.

Pankonie said she does not have the same concerns with having a secondary PSAP to act as an alternate to the NG9-1-1 Committee. As the NG9-1-1 Chair, she feels the committee could benefit from having a secondary PSAP representative.

Pankonie nominated Chad Loeffler, Cheryle Pritzlaff seconded. Tony Martin nominated Nancie Pass. Jeff Lessard seconded.

Roll Call for SECB NG9-1-1 Committee Alternate Representative

Agency	Member	Loeffler	Pass
Allina	Vadnais	X	
Anoka	Spryncynatyk	X	
Bloomington PD	Scanlon	X	
Carver	Bowler	X	
Chisago	Thompson	X	
Dakota	Pritzlaff	X	
Eden Prairie	Vik		
Edina PD	Harris	X	
Hennepin	Martin		X
Hennepin EMS	Johnson		X
Isanti	Dowd	X	
MAC/Airport	Petersen	X	
Metro Transit	Loeffler	X	
Minneapolis	Robinson		X
North Memorial	Melby	X	
Ramsey	Pass	X	
Scott	Bauer	X	
Sherburne	Anderson	X	
St Louis Park	Solberg	X	
U of M	Lessard		X
Washington	Pankonie	X	

Eggimann said Chad Loeffler has most votes for nominee to the SECB NG9-1-1 Committee Alternate Representative.
Loeffler: 16 Pass: 4

B. Ramsey County Emergency Communications Center 9-1-1 Plan Change Request
Jon Rasch said Ramsey County Is requesting a change in how the VESTA system is configured and the changes in the ESInet connectivity to meet the RCECC operational needs. Rasch indicated there are 3 main things that RCECC is looking to accomplish in the plan change request.

The first goal is to create a geo-diverse configuration of the VESTA system. Currently the RCECC 9-1-1 calls are routed through two diverse ESInet connections utilizing bonded T1s. The Arden Hills backup site has a single T1 ESInet connection and currently operates as a standalone PSAP. Rasch said the plan is to move one of the St. Paul VESTA servers to Arden Hills. The RCECC will provide the fiber connections between the St. Paul VESTA server and the Arden Hills VESTA server. RCECC intends to configure the VESTA system to enable 9-1-1 calls to be routed simultaneously to work-

stations at both locations. This will require a change in the ESInet connectivity. The plan change request is for two diverse ESInet connections at each site, for a total of four ESInet connections in total. The plan also calls for moving the ESInet connections off the current copper facilities and on to fiber facilities. The current copper facilities have become increasingly unreliable in the St. Paul area and are particularly vulnerable to water or high-moisture conditions causing intermittent failures. The move to fiber facilities should eliminate the water and high-moisture issues.

Rasch, additionally, the RCECC is requesting an increase in ESInet capacity to support additional 9-1-1 sessions. RCECC would like sufficient capacity at each location to support daily operations. The plan change calls for using a primary ESInet URI for 9-1-1 calls directed at RCECC and then utilize the existing Arden Hills URI as the destination for 9-1-1 calls transferred to RCECC from another agency designated as the outside agency URI. Calls to either URI will be available at all workstations at both locations but will be identified as separate queues on the VESTA system. This would permit another PSAP which had to abandon their current location to relocate to the Arden Hills facility and have their 9-1-1 calls re-directed to the outside agency URI on RCECCs VESTA system and continue day-to-day operations at Arden Hills utilizing the RCECC VESTA workstations until they were able to return to their regular location.

Rasch said the third goal is to expand the number of admin lines and replace the existing copper lines that are becoming more and more unreliable with fiber facilities.

Eggimann said the relevant aspect of the RCECC 9-1-1 plan change for the committee to consider is the ESInet connectivity to the two sites. The proposed configuration mimics how the CHS-1 and CHS-2 systems are set up. The RCECC connectivity to the ESInet will have the benefit of fiber on at least three of the four planned ESInet paths. RCECC is still exploring options for the second path to the Arden Hills site because Lumen can only provide fiber on one path to that location at this time.

Eggimann hopes more documentation will be available for the MESB October Executive Board meeting. Assuming approval by the 9-1-1 TOC and upon approval from the MESB Board, the request will go before the SECB NG9-1-1 Committee and then the SECB Board for final approval.

Jeff Lessard asked if any bylaws of the MESB or MESB committees required PSAPs to get approval from the 9-1-1 TOC to operate? The language was important when HealthEast was requesting support from the TOC to allow them to receive 9-1-1 calls.

Eggimann said the request today is for the 9-1-1 TOC to approve changes to the ESInet. Lessard asked for clarification that the request is for the support of the 9-1-1 TOC or for the approval? Eggimann said the MESB is responsible for the ESInet connections to the PSAPs. The PSAP determines how 9-1-1 calls will be answered and what the appropriate response to the calls should be. Because all ten counties' ESInet connections are managed by the MESB to ensure system security and interoperability, the connections need the approval of the MESB. Statute 403 and the JPA outlines the authority of the MESB in managing the metro 9-1-1 system. As the system transitions to a fully compliant NG9-1-1 infrastructure, the regional coordination and oversight becomes increasingly important to prevent an event at one PSAP from having a negative effect on other PSAP operations on the system.

Jill Rohret said the roll of the 9-1-1 TOC would be to make a recommendation to the MESB Board to approve the plan change. The motion would indicate support of the plan change and recommend the MESB Board approve.

Rohret said this is a relatively new process of approvals. This process somewhat mirrors how things are approved on the ARMER side. The ESInet connections are connecting to a communal resource so the process is to ensure the connections are consistent.

Lessard said he had been asked by his leadership how the process worked. Lessard said sometimes layers are added to the process when we are trying to make positive changes to our PSAPs, and clarification was appreciated.

Rohret said what individual PSAPs do can affect other PSAPs. Since the connections are used communally. The reviews by the different entities are to assure all PSAP connections are secure and the system remains interoperable.

Motion made by Tony Martin, seconded by Cheryl Pritzlaff, to recommend approval of the Ramsey County Emergency Communications Center 9-1-1 Plan Change request. Motion carried.

Roll Call for Approval of RCECC 9-1-1 Plan Change request

Agency	Member	Yes	No
Allina	Vadnais	X	
Anoka	Spryncynatyk	X	
Bloomington PD	Scanlon	X	
Carver	Bowler	X	
Chisago	Thompson	X	
Dakota	Pritzlaff	X	
Eden Prairie	Vik	X	
Edina PD	Harris	X	
Hennepin	Martin	X	
Hennepin EMS	Johnson	X	
Isanti	Dowd	X	
MAC/Airport	Petersen	X	
Metro Transit	Loeffler	X	
Minneapolis	Robinson	X	
North Memorial	Melby	X	
Ramsey	Pass	X	
Scott	Bauer	X	
Sherburne	Anderson	X	
St Louis Park	Solberg	X	
U of M	Lessard		Abstain
Washington	Pankonie	X	

Yea: 20 Nay: 0 Abstain: 1 Motion passes

B. SECB Grant Project Priority List

Tracey Fredrick said this 2021 grant funding priority list must go before the MESB Board at their November meeting, She also noted that there was possibility the November Board meeting would be moved up to October 29 because of the Veterans Day holiday, so it is important that the committee finalize their project list no later than the October 15 9-1-1 TOC meeting.

Fredrick said that the current 2020 9-1-1 TOC grant priorities were the Telecommunicators Resiliency

Training, and other training opportunities. There are still some SECB grants available.

Tony Martin said there has been some discussions offline regarding CAD-to-CAD. Hennepin County is upgrading their Tellus (fka FATPOT) system. Ramsey County is also involved in that conversation. If Ramsey joined, they would have CAD-to-CAD interoperability with North. To support CAD-to-CAD interoperability with Central Square using Tellus will require an intelligent or smart HUB. Hennepin County is looking at purchasing that HUB.

Vicki Vadnais asked Martin if that CAD-to-CAD support was to Hennepin-to-Allina and also Anoka-to-Allina?

Martin said Hennepin County is using the cloud-based version of Central Square CAD and that the smart HUB would also be cloud-based. Vadnais clarified that it would be a regional hub that all could connect to.

Nancie Pass asked if the committee members thought it would be worth doing a study to see if that is the best option. Would CAD interoperability have been helpful during the civil unrest? Would it have been beneficial to push calls into another CAD for dispatch?

Rohret said a couple of years ago there was grant money for a CAD-to-CAD Interoperability study. It became part of the state's strategic plan. If there is interest, there would need to be action on the MESB's part. The MESB would be able to do the logistics, but it would also require involvement on the PSAPs' part.

Jon Rasch asked if there were restrictions on the grants. What are the restrictions the PSAPs can bring to the table? All entities are struggling with financial support. Could there be a request to ask for a major portion of the funding to help with the connectivity?

Rasch said he felt the connectivity would be a tremendously help.

Fredrick said in general grants can be used for training and equipment. Equipment cost typically has a 50% match requirement by the PSAP. Fredrick said it should go on the list.

Fredrick said if there are any general training requests to put those on the list.

Martin suggested that there should be the T-CPR training also listed.

Susan Bowler said that it would be a great benefit to keep resiliency training on the list.

Fredrick listed the CAD-to-CAD, the resiliency training, additional training, and the T-CPR training.

Eggimann said there were some training funds designated by the legislature to cover PSAP T-CPR training costs.

Motion made by Martin to list prioritization list as CAD-to-CAD interoperability, resiliency training, general training, and the T-CPR training. Pass seconded. Motion carried.

Roll Call for SECB Grant Project Priority List

Agency	Member	Yes	No

Allina	Vadnais	X	
Anoka	Spryncynatyk	X	
Bloomington PD	Scanlon	X	
Carver	Bowler	X	
Chisago	Thompson	X	
Dakota	Pritzlaff	X	
Eden Prairie	Vik	X	
Edina PD	Harris	X	
Hennepin	Martin	X	
Hennepin EMS	Johnson	X	
Isanti	Dowd	X	
MAC/Airport	Petersen	X	
Metro Transit	Loeffler	X	
Minneapolis	Robinson	X	
North Memorial	Melby	X	
Ramsey	Pass	X	
Scott	Bauer	X	
Sherburne	Anderson	X	
St Louis Park	Solberg	X	
U of M	Lessard	X	
Washington	Pankonie	X	

Yea: 21 Nay: 0 Motion passes

5. Discussion Items

A. Civil Unrest Emergency Communications After Action Review Team

Eggimann said the workgroup is finalizing the language that will be going into the report. The group is also working on prioritizing the recommendations in the report. Comments are welcome in the interim. Committee members were encouraged to contact Eggimann directly if they wanted to review the current draft.

B. Pandemic Response

1. Metro PSAP Consolidation Planning

Miichael Mihelich said fifteen of the sixteen primary and secondary PSAPs included in the study have provided their CAD data for the RapidDeploy environment. With almost all the data collected, the team is working on determining what users and units from which jurisdictions are appropriate to upload into RapidDeploy.

The West Area RapidDeploy environment experienced significant lag and system stability issues during the tabletop exercise and the team was unable to complete the intended agenda. RapidDeploy acknowledged the issue and hopes to have a fix by November 2. The team will continue to meet bi-weekly until the tabletop exercises are completed.

C. Winter Storm-Related Incident Coordination with State Patrol – No Report

D. SECB Grant Proposals

Fredrick said when the available dollar amount for the grants is released, the TOC will be notified. Virtual training will also be announced.

E. System Outage Notifications
1. Outage Notification Process
Eggimann said there was no additional information available at this time. There has been discussion about combining this topic with the winter storm-related coordination and having that same workgroup work both issues. Martin, who is leading the winter storm workgroup agreed that his group could work on both issues, and that the notification process seemed more urgent at this time.

G. Mental Health Call Processing Standard
Martin said that work has restarted within Hennepin County and he will bring recommendations back to the 9-1-1 TOC.

H. Telecommunicator Reclassification and Licensing Legislation
Darlene Pankonie said the bill was read in the House and in the Sente committees at the last special session. Pankonie is optimistic the bill will be presented for a vote at the next regular legislative session.

6. Reports
A. PSAP Operations Round Table Work Group – No Report

B. NG9-1-1 Committee Reports
Pankonie presented a tracking table showing PSAP readiness and plans for T-CPR implementation. Every PSAP is asked to fill out their statistics on the spreadsheet regarding EMD/CPR.

Eggimann said Heidi Hieserich, who was not at the meeting, has asked that this spreadsheet be posted on the PSAP Roundtable Basecamp site. PSAPs that did not already have access to the Basecamp site were asked to contact Hieserich directly.

Pankonie said some information on the spreadsheet was filled in last year by Cathy Anderson at ECN. If the information is not accurate or outdated, please fill in the current information.

Tim Boyer asked if his individual regions should be broken down or should each region be listed.? There are 4 State Patrol regions.

Pankonie said each dispatch center should be listed.

C. 9-1-1 Network Report
Eggimann said the contract between the MESB, Inteliquent and ECN has been signed. Implementation will begin to provide the ingress connectivity and protocol conversion for the telecommunication service providers for accessing the NG9-1-1 system. There is still work to be done on the draft RFP for the NG9-1-1 core services and ESInet egress connectivity between the core services and the PSAPs.

D. 9-1-1 Data Report
Marcia Broman reported that preparation activity for the regional GIS-derived MSAG continues.

Lumen (fka CenturyLink) is preparing a project plan to transition the remaining metro area PSAPs to receive wireless callback numbers in the traditional phone number fields in ALI as is done with wireline and VoIP calls (rather than in the supplemental location field of ALI). About half of the metro

PSAPs will require this change. The PSAPs affected will be contacted by Jake Jacobson of Lumen to schedule the change prior to the end of the year.

Regarding the new enhanced location class of service codes (WCVC, WDL1, WDL2, VNOM), Broman presented a tentative plan for the metro PSAPs to move forward with activation of the codes with Comtech in October. Scheduling details from Comtech will be provided by mid-October. No members expressed concern about the plan to move forward.

Washington County PSAP has been activated for the new class of service codes since June. Pankonie volunteered as a resource for any PSAP that has a problem getting their PSAP CAD/mapping system to map calls with the new classes of service. She also has the ticket number reference when dealing with Central Square. PSAPs have been previously notified to work with their CAD/mapping vendor to make any necessary updates to the system interface/setup to map calls with these new codes, in addition to mapping WPH2 calls. PSAPs that have not yet done so, should initiate any needed changes now so they are ready for the Comtech activation date.

There was discussion about Wi-Fi calling and 911. If the cellular network is not available (e.g. poor coverage, inaccessible, overloaded) at the time a wireless 911 is placed, wireless carriers may attempt to route the call over Wi-Fi using the registered location in the phone/account. Pankonie described a recent call received at her PSAP from a caller in Itasca County, yet the wireless location information placed the caller in Lake Elmo. Pankonie said the Class of Service from the Lake Elmo call came in as Phase 2. The wireless carrier is continuing to investigate, but thus far has stated the call routed based on the registered address for the account.

Martin said his PSAP had a similar situation. A call was received at the Hennepin PSAP from a caller in Michigan. The carrier reported that the cellular coverage was poor in the area where the caller called from and, as a result, the 911 call was routed over Wi-Fi using the registered address for the account which was in Minnesota.

The FCC recently affirmed their requirement for nationwide carriers to provide either dispatchable location or z-axis technology by April 3, 2021 in the top 25 cellular market areas (which includes the Twin Cities metro area.) They also ruled that by January 6, 2022 all carriers are to provide dispatchable location with wireless E911 calls if it is technically feasible for them to do so.

Broman reported that, as part of their merger, T-Mobile has now rehomed Sprint LTE 911 calls to the T-Mobile network. The wireless ALI for these calls will now identify at PSAPs as T-Mobile rather than Sprint. Sprint CDMA calls have not yet transitioned.

Broman said that any PSAP that would like to establish an additional user as backup for the PSAP's 911NET activity should feel free to contact her for assistance and training.

7. Announcement

Mike Melby said Melissa Carpenter will be the primary North Memorial 9-1-1 TOC representative.

Pankonie asked the NENA Chapter members in the State of Minnesota to attend a meeting tomorrow at 10 AM.

8. Adjournment

METROPOLITAN EMERGENCY SERVICES BOARD

Meeting Date: October 15, 2020
Agenda Item: 4.A After Action Review Report
Presenter: Eggimann

RECOMMENDATION

The 9-1-1 Technical Operations Committee (TOC) recommends acceptance by the Board of the After-Action Report / Improvement Plan prepared jointly by members of the 9-1-1 and Radio TOCs.

BACKGROUND

A joint work group was formed from members of the 9-1-1 and Radio TOCs to conduct an after-action review of how the 9-1-1 and ARMER systems performed and were utilized during the civil unrest and rioting that occurred following the in-custody death of George Floyd on May 25, 2020 in Minneapolis. The workgroup documented the system strengths and issues identified for both 9-1-1 and the ARMER systems. In addition, the workgroup identified personnel and event management issues that impacted performance on both systems. The report concludes with a list of fifteen prioritized recommendations the workgroup believes would mitigate the issues identified.

ISSUES & CONCERNS

Implementing all the recommendations contained in the report will require significant cooperation between the jurisdictions and agencies involved.

FINANCIAL IMPACT

There could be a financial impact to the MESB if all the recommendations in the report are implemented, but this will depend on the implementation plan adopted by the jurisdictions and agencies involved.

MOTION BY:
SECONDED BY:
MOTION:

PASS/FAIL

May/June 2020 Civil Unrest

After Action Report/Improvement Plan

Metropolitan Emergency Services Board
9-1-1 and Radio Technical Operations Committees

October 7, 2020

INTRODUCTION

On Monday, May 25, 2020, the Minneapolis Police Department responded to an incident which led to the arrest of George Floyd. Floyd died during the arrest with much of the incident captured by bystander video. The posting of the video on social media led to several days of mass protests in Minneapolis and St. Paul. Concurrently, smaller groups of people began rioting and looting, which resulted in the wide-spread destruction of public and private property. There were injuries and deaths reported during the civil unrest which continued for several days throughout parts of Minneapolis and St. Paul, ultimately requiring law enforcement assistance from across the state and the Minnesota National Guard being deployed to restore order in the metropolitan area. Civil unrest and rioting that began because of Floyd's death and the associated civil unrest in Minnesota continues in numerous cities across the country at the time of the writing of this report.

The Metropolitan Emergency Services Board, which coordinates both the 9-1-1 and Allied Radio Matrix for Emergency Response (ARMER) radio systems on a regional basis for the ten-county Minneapolis/St. Paul metropolitan region, has standing committees which provide input and make recommendations regarding the systems' operations. The committees formed a joint 9-1-1/radio work group to conduct an after-action review (AAR) of how the systems performed during the civil unrest following the death of George Floyd. This report contains the AAR work group's observations, conclusions, and recommendations.

STRENGTHS

1) The 9-1-1 and ARMER radio systems both functioned as designed throughout the multi-day event even while experiencing call volume peaks six to seven times greater than normal.

2) Text-to-9-1-1 message rates also spiked during the same time but provided an alternative means of reaching 9-1-1 when the 9-1-1 voice system became overloaded with voice calls. For example, the Ramsey County Emergency Communications Center (RCECC) reported receiving 399 text-to-9-1-1 messages within a four-hour period during the event. The normal monthly average for text messaging to 9-1-1 at RCECC is approximately 100 messages per month.

3) There were no 9-1-1 or ARMER system equipment or network failures during this time.

4) Management of interoperable talkgroups was effectively handled by use of the established reservation system.

5) Communications Unit Leaders (COML) from Hennepin County Medical Center (HCMC), Minneapolis Emergency Communications Center (MECC) and the Minnesota National Guard on their own initiative began coordination early on specific to the communication needs of Minneapolis.

ISSUES IDENTIFIED

9-1-1 System Issues:

1) Extreme Spikes in 9-1-1 Call Volume – While the 9-1-1 system continued to deliver extremely high volumes of calls to the emergency communications centers (ECC) across the region, there were times when the number of calls coming in exceeded the number of calls the ECC telecommunicators on-duty could answer. This resulted in some callers not getting through to ECC telecommunicators while experiencing long ring - no answer times, as well as busy signals or alternate routing to non-9-1-1 lines. The peak hour during the event saw an extraordinary 953 calls presented to MECC and RCECC during a 60-minute period between 10:30 p.m. and 11:30 p.m. on Sunday, May 31, with the on-duty staff being able to answer 80% of those calls. It should be noted that it is not politically or economically feasible to staff ECCs at the level that would be required to handle all incoming calls during extreme spikes in 9-1-1 traffic associated with high visibility events.
    a. When the 9-1-1 call volume during this event reached the designated capacity for each of the ECCs, callers to MECC received fast busy signals (to alert them their 9-1-1 calls could not be delivered). RCECC overflows 9-1-1 calls to administrative lines. This is the overflow call handling treatment currently configured for the system and it worked as designed.

2) Wireless 9-1-1 calls competed with regular wireless calls for access to wireless carrier cell sector capacity on systems which were saturated during the event, causing some wireless 9-1-1 calls to be handled by neighboring cell towers not physically close to where the caller was located. This resulted in some wireless 9-1-1 calls being routed to the wrong ECCs, e.g. some wireless callers physically located in Minneapolis had their calls routed to Anoka County. This routing occurred without any of the ECCs receiving notification of the abnormal routing, adding to the length of time needed to process calls. The abnormal routing

happened due to the way the wireless carriers currently have their systems designed; their systems functioned as designed but caused a negative impact on the ability of the metropolitan region ECCs to process 9-1-1 calls.

3) The MECC backup 9-1-1 center was located within the Minneapolis Police Department Third Precinct building and was destroyed when the decision was made by city leaders to abandon that building. This eliminated the option for MECC to staff additional workstations utilizing both their primary and backup locations.

4) There was no ability to transfer 9-1-1 callers or the incident information being reported between ECCs because of radio and telephone system congestion, as well as the lack of an implemented regional workload-sharing system, such as a regional or statewide computer-aided dispatch (CAD)-to-CAD interoperability system.

Radio System Issues:

1) The lack of encrypted talkgroups and responder radios capable of using the encrypted talkgroups that were available created operational impacts by forcing the use of clear talkgroups. This inability for responders to all use encrypted resources gave the civil unrest leaders an opportunity to use radio scanners and scanner apps on smart phones to intercept and react to responder radio transmissions in real time.

2) Radio users experienced a busy tone, or “bonk,” on some statewide talkgroups. This was noticed when MECC and Minneapolis Police Department command staff could not transmit over the radio. The Minneapolis Radio System Administrator was contacted about this problem and identified the talkgroups on which this was occurring. The System Administrator then contacted the ARMER system vendor, Motorola, and began testing and documenting examples. Motorola identified the problem as a radio console outside the metropolitan area having an improper configuration setting. The busy tone issue users experienced was resolved quickly after the configuration issue was corrected.

3) Per the ARMER standards, only law enforcement has ability to use LTAC, LTACE, and METAC 11E and 12E talkgroups and have their radios programmed accordingly. This prevented fire and EMS responders from being able to monitor law enforcement radio traffic. STACs were used as alternative talkgroups to enable fire and EMS situational awareness, however these resources operate in clear mode, which added to the issue identified in item 1 above.

4) Emergency responder resources brought in from greater Minnesota did not have the metropolitan regional interoperability talkgroups programmed in their radios. This caused overuse of the statewide STAC and LTAC resources, which were needed for use in other areas of the state. Many of these responders also did not have encryption-enabled devices, including the Minnesota State Patrol.

5) Radios from the Minneapolis Police Department’s Third Precinct were stolen by rioters when the decision was made to abandon that building. The stolen radios were then used by rioters to monitor and interfere with legitimate emergency response operations and possibly evade arrest.

Personnel and Event Management Issues:

1) Contingency plans which were in place within the ECCs were not designed for events that were longer than 72 hours in duration. The telecommunicators were physically exhausted, as well as mentally and emotionally drained by this event.

2) The temporary location chosen for the Multi-Agency Coordination Center (MACC) did not take advantage of existing emergency management technology available at the Minneapolis Emergency Operations Training Facility (EOTF), including access to the Minneapolis Camera System. The Minneapolis EOTF was identified to MECC as the Minneapolis Command Center on Wednesday, May 27th, the day before the MACC was set up. This resulted in Minneapolis having to staff both locations and complicated coordination between the locations, as well as confusion over where incident command was located.

3) The Minnesota Department of Public Safety (DPS) and local law enforcement initiated the MACC on May 28. Communications and response coordination between the MACC and the metro area ECCs was never adequately established during this event.

4) Emergency responder location was not available at a regional level to the ECCs or the MACC.
    a. The St. Paul Police Department utilized an online application that enabled the police department to track its officers' locations in real time at the SPPD EOC, but this responder location information was not available at the MACC or the ECCs.

5) Talkgroups were patched for long periods of time. Some agencies patched their main channels with tactical talkgroups, which tied up multiple zones.

6) Lack of Incident Command Structure (ICS) implementation at MACC.
    a. There was confusion after the incident control was transferred from the Minneapolis Command Center at the EOTF to the MACC.
    b. Lack of a clearly identified Incident Commander led to vague, conflicting decisions or orders coming out of the MACC regarding the coordination of emergency responders and what information was given to the public.
    c. Several ICS 205 documents were sent out in a short amount of time by the MACC and the ECCs, without coordination.
        i. Both MECC and RCECC did not receive clear coordination with the MACC. Conflicting communications plans (ICS 205s) were issued, including the use of different email distribution groups to disseminate the ICS 205s.
    d. There was no clear delineation on what emergency response resources were going to be dispatched directly by personnel at the MACC and which resources would be coordinated by the emergency communications centers. Resources responding within Minneapolis were not all under control of MECC (e.g. State Patrol). This led to confusion on which talkgroups responders were assigned to and who was responding to a given event.

7) There appears to be a fundamental misunderstanding about what the emergency communications center role is in the emergency response continuum, as well as within the ICS structure. The agency heads and elected officials repeatedly advised the public to call 9-1-1 for inappropriate reasons (e.g. tip line calls on unlicensed vehicles) which contributed significantly to the spike in 9-1-1 call volume and interfered in the ECC personnel's ability to

receive, classify, prioritize, assess available emergency response resources, and coordinate the emergency response to the incidents as they were reported.

a. Ten-digit administrative telephone numbers that terminate and ring in the ECCs were included in press briefings as alternative numbers to use to report emergency events or crime tips. Calls to these numbers may have gone unanswered because of the priority given to 9-1-1 calls and the volume of 9-1-1 calls. Callers also used these numbers, as well as 9-1-1, to verbally abuse the telecommunicators, make vulgar disparaging statements about the police officers, and complain about the lack of emergency response. These calls were filled with profanity, yelling, and personal attacks on the telecommunicators, further negatively impacting the telecommunicator's ability to do their job.

RECOMMENDATIONS

1) Establish the governance structure, on-going funding model, training, and procedures to deploy and utilize 9-1-1 call workload sharing between cooperating ECCs.

2) Identify and implement workload sharing applications that will:
   a. Permit 9-1-1 calls to overflow to neighboring ECCs which have agreed to work together cooperatively.
   b. Identify on-going funding and provide CAD-to-CAD interoperability to support allowing overflow calls to neighboring ECCs which have agreed to work together to be answered, triaged, classified (type or nature code assignment), and sent electronically into the original destination ECC's CAD dispatch queue, permitting the original destination ECC to coordinate the emergency response to incidents within its jurisdiction.
   c. Establish a regional CAD incident display map showing the location of emergency responders (both personnel and units) and incidents in progress, permitting the appropriate personnel to have a big picture understanding of what is happening at the regional level in real time.

3) Identify telecommunicator resources to support any ECC personnel that have been involved in prolonged or horrific emergency events and may not recognize the extent they have been impacted mentally and emotionally, and those that recognize they need help.

4) Establish procedures to support the use and staffing of community tip lines that do not terminate in or interfere with ECC operations or negatively impact the 9-1-1 system whenever law enforcement or fire establish a joint command facility (e.g. MACC).

5) Establish or update an existing metro region 9-1-1 standard to block "anonymous" calls to admin lines that terminate in the ECC to reduce harassing, abusive, or denial of service attack calls that can negatively impact ECC operations.

6) Provide training to agency heads and elected officials regarding the role of the emergency communications centers and COMLs in the emergency response continuum. Work together with other emergency responder agencies to include an emergency communications and

response coordination training module to be incorporated into new hire training, as well as in-service training, provided by the law enforcement, fire, and EMS agencies to their staff.

a. Response agency command staff need to be trained on the existence and need/use of the Metro Region Communications Response Task Force (CRTF).
    i. Command staff turnover is a problem; special training directed specifically for command staff be should be developed.
    ii. Include State Duty Officer training to assist in understanding the communications resources and processes to be utilized as part of the ICS structure.
b. Build relationships between the CRTF and agency command staff.
c. Ensure that ECC management personnel are included in all EOC/MACC operations at the same level, and at the same time, as law enforcement, fire, and EMS management personnel are included
d. Include COMU representatives at the MACC at the beginning of MACC operations

7) Create or update an existing standard to require ARMER talkgroups to be labeled using the same talkgroup names system wide. Currently, different agencies label the same talkgroup by different names.

8) Conduct on-going ARMER training for law enforcement, fire, and EMS responders, both for new-hires and as part of regular in-service training, as required in SECB Standards LMR-29, LMR-30, and LMR-31.

9) Create better advertisement of available resources, such as equipment caches, CRTF, etc. at a state level

10) Identify regional, or statewide, EOC or MACC locations that can be properly equipped in advance.

11) Establish regional communications plans that can be practiced and implemented by the appropriate COMLs as soon as an incident escalates into a multi-agency, multi-jurisdictional event. This should be incorporated into the ICS implementation plans but could be activated before the ICS structure is established beyond the initial response. This response should also include the distribution of a consolidated ICS 205 form and can include additional forms in the future, such as an ICS 205a or ICS 217 form.

12) Create or update an existing metro region ARMER standard that recommends requesting the deployment of CRTF resources when an incident escalates to include multi-jurisdiction coordination or multi-agency responses from more than one ECC service area. This should not be dependent on whether law enforcement or fire establish a joint command facility (e.g. MACC).
    a. Define how CRTF is activated.
    b. Notify the State Duty Officer as soon as a request to deploy the CRTF is received.
    c. Ensure the State Duty Officer documentation related to CRTF deployment is current.
    d. Define how the regional ECCs will be notified.

13) Provide training to agency heads and elected officials regarding the role of the emergency communications centers and COMLs in the emergency response continuum. Work together with other emergency responder agencies to include an emergency communications and response coordination training module to be incorporated into new hire training, as well as in-service training, provided by the law enforcement, fire, and EMS agencies to their staff.

a. Response agency command staff need to be educated on the existence and need/use of the CRTF.
    i. Command staff turnover is a problem; special training directed specifically for command staff be should be developed.
    ii. Include State Duty Officer training to assist in understanding the communications resources and processes to be utilized as part of the ICS structure.
b. Build relationships between the CRTF and agency command staff.
c. During the event, some agency heads expressed concern that their responders would not be able to find the talkgroups specified in the ICS 205s on their radio.
d. Add the MESB's ARMER training video on changing zones on subscriber units uploaded to the MESB website. (As of the final draft of this document, this video is available on the MESB's website and the link has been distributed to metro region ARMER system administrators.)

14) For jurisdictions where there are separate management structures for 9-1-1 and ARMER, regular coordination meetings need to be established so that the two teams identify issues proactively and work together to address the issues. This coordination should include contingency planning for system failures and multi-agency events.

15) Establish a timeline for requiring encryption-capable radios for response agencies within the metro area.

APPENDIX A – AFTER ACTION REPORT PARTICIPATING DEPARTMENTS

Anoka County Emergency Communications Center

Hennepin Co. Sheriff's Office

Metropolitan Airports Commission Emergency Communications Center

Metropolitan Emergency Services Board Staff

Minneapolis Radio Communications Electronics

Minneapolis Emergency Communications Center

Ramsey Co. Emergency Communications Center

Washington Co. Sheriff's Office

METROPOLITAN EMERGENCY SERVICES BOARD

Meeting Date: October 15, 2020
Agenda Item: 4.B Workload Sharing/Situational Awareness Recommendation
Presenter: Eggimann

RECOMMENDATION

The 9-1-1 Technical Operations Committee (TOC) recommends the Board take the steps necessary to issue a request for proposal (RFP) to implement a regional CAD-to-CAD interoperability and situational awareness solution as recommended in the After-Action Report / Improvement Plan prepared jointly by members of the 9-1-1 and Radio TOCs.

BACKGROUND

A joint work group was formed from members of the 9-1-1 and Radio TOCs to conduct an after-action review of how the 9-1-1 and ARMER systems performed and were utilized during the civil unrest and rioting that occurred following the in-custody death of George Floyd on May 25, 2020 in Minneapolis. The highest priority technical recommendation in the report was to enable 9-1-1 call workload sharing between the metro emergency communications centers (ECCs), which we have traditionally called PSAPs. The recommendation includes the implementation of a regional situational awareness solution that supports tactical dispatch of response units assigned to multi-agency, multi-jurisdictional events under the management of a multi-agency coordination center (MACC) as was established during the civil unrest and rioting. The overall goal of the recommendation is to give the ECCs, the emergency response agency heads, and the elected officials the tools needed to handle the 9-1-1 calls, confirm the incident locations, properly classify the incidents and the response resources needed, assess the incidents currently in progress, and prioritize the available response resources in real time across the region to facilitate management of ongoing events.

ISSUES & CONCERNS

A governance and management structure for this regional workload sharing resource will need to be established as well as an ongoing funding plan. The ECCs will need to choose whether to participate in workload sharing with other ECCs and cooperative agreements will need to be put in place between the participating ECCs. A public safety wide area network (WAN) which can support 9-1-1 as well as other public safety applications including this CAD-to-CAD interoperability and regional awareness solution will need to be put in place connecting the regional ECCs together. This WAN is already part of the MESB's NG9-1-1 transition plan and that funding is currently in the MESB capital budget.

MOTION BY:
SECONDED BY:
MOTION:

PASS/FAIL

METROPOLITAN EMERGENCY SERVICES BOARD

Meeting Date: October 15, 2020
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FINANCIAL IMPACT

There is expected to be the financial impact to the MESB for the WAN infrastructure noted above that is already in the capital budget to connect the ECCs together. In addition, the MESB may assume the cost of the regional system components necessary to support the interoperability between the regional ECCs. There will be costs to the individual ECCs related to the interface needed to connect their existing CAD to the regional components. The costs for both the ECCs and the MESB should be identified in the RFP responses.

MOTION BY:
SECONDED BY:
MOTION:

PASS/FAIL

Recommendation for Regional Workload Sharing and Situational Awareness Application Implementation

Recommendation:

The Metropolitan Emergency Services Board (MESB) 9-1-1 Technical Operations Committee (TOCs) recommends that regional CAD-to-CAD interoperability and situational awareness systems be procured and implemented as soon as practicable. The systems should enable cooperating emergency communications centers (ECC) to answer and dispatch each other's 9-1-1 calls in the event an ECC is temporarily overwhelmed with a surge of calls associated with a high-visibility or large-scale event. In addition, the system should support regional situational awareness tools that will allow metro region ECCs to see and understand 9-1-1 call flow and emergency events in progress at any given time, both in their own ECC service areas as well as within the entire region. The system should also support multi-agency, multi-jurisdictional tactical dispatch capabilities that enables dispatch to tactical teams assigned to an event, responder location display, and situational awareness for Incident Command personnel who have assumed responsibility for a multi-agency, multi-jurisdiction large-scale event.

Background:

During late May and early June, the metro region experienced several days of civil unrest and rioting that lead to death and injury. In addition, hundreds of businesses, buildings, and government property, including the Third Precinct of the Minneapolis Police Department, were destroyed. The mayors of Minneapolis and St. Paul each declared a state of emergency followed by the Governor's emergency declaration and a call-up of the Minnesota National Guard to assist in restoring order. During this time a multi-agency coordination center (MACC) was established to manage the response to the civil unrest occurring in multiple jurisdictions.

In July 2020, the MESB 9-1-1 and Radio TOCs formed a joint workgroup to prepare an after-action review report regarding how the 9-1-1 and the ARMER radio communications systems functioned and were utilized during the civil unrest. That report (Attachment A) identified numerous issues that, if addressed, would improve the overall response to a similar multi-agency, multi-jurisdiction emergent event in the future. From a systems standpoint, the lack of CAD-to-CAD interoperability, tactical dispatch capabilities, and regional situational awareness were identified as the highest priority technical issues to be addressed in that report.

CAD-to-CAD Interoperability:

In 2018, the MESB received a grant from the Statewide Emergency Communication Board (SECB) to conduct a CAD-to-CAD interoperability feasibility study for the metro region. The study (Attachment B) concluded with a recommendation for the implementation of a smart-hub CAD-to-CAD interoperability system to support two-way communications between CAD systems at each of the metro region ECCs. CAD-to-CAD interoperability was included in the 2019-2021 SECB Strategic Plan. Implementation of CAD-to-CAD interoperability in the metro region would be consistent with the SECB vision of statewide CAD data sharing.

If implemented, CAD-to-CAD interoperability using a smart-hub allows a telecommunicator at a neighboring ECC to perform call-taking functions (e.g. caller location verification, incident-type classification, etc.) for an ECC being overwhelmed with 9-1-1 calls. For example, if HCECC was overwhelmed with 9-1-1 calls, calls could be answered by Anoka County. In this example, an Anoka County telecommunicator performs call-taking functions using Anoka County's CAD system according to Anoka County procedures and then transmits the call data through the CAD-to-CAD interoperability smart-hub to HCECC's CAD dispatch queue. The smart-hub translates the data into HCECC's CAD system coding, allowing an HCECC telecommunicator to assess the incident response requirements and the available response resources in the HCECC CAD environment and coordinate the emergency response in accordance with HCECC policies and procedures.

Participation in a regional CAD-to-CAD interoperability smart-hub system would be determined by each ECC and/or governing body. Participation would be governed by cooperative agreements which define rules and roles of workload sharing. However, the capability to overflow 9-1-1 calls to participating ECCs enables a higher percentage of 9-1-1 calls to be answered than is currently possible, even during high visibility, large-scale events similar to the civil unrest that occurred in May and June 2020.

Regional Situational Awareness/Tactical Dispatch Capabilities:

Today, each metro ECC tracks its own calls, events, and responders in their respective CAD systems. Though telecommunicators have good situational awareness within their own ECC's service area, in most cases they do not have visibility into what is occurring in neighboring service areas. This prevents ECCs that would like to work cooperatively with one another to implement strategies that could improve response times, particularly for fire and EMS events such as "closest available unit dispatch," where the closest unit regardless of jurisdiction is assigned to an event. A regional situational awareness application that can display all calls, events in progress, responder status, and responder location across jurisdictions supports a higher level of response coordination, as well as response unit backfilling and move-up assignments, to cover areas where the primary response unit is already assigned to another event.

In a similar fashion, when a large-scale event occurs covering multiple ECC service areas and response units from multiple jurisdictions, a regional situational awareness application can display what is happening in the entire event area as well as the response unit availability and current assignment status. During the civil unrest in May and June in the metropolitan region, the After-Action Report clearly identified the lack of communication and coordination between the ECCs and the MACC. A regional situational awareness application could have provided the Incident Command team at the MACC and the ECCs tools to see where incidents were occurring and where responders were in real time. A regional situational awareness application could provide tactical dispatch capabilities and support the use of multi-agency response units, specifically formed and assigned to the event, to be dispatched directly by the emergency communications dispatch team assigned to the MACC. Response units not assigned to the event would operate as normal with their respective ECC. The call and incident data would flow from the ECCs to the regional situational awareness application through the CAD-to-CAD smart-hub system described earlier.

Underlying Wide Area Network Connectivity:

The CAD-to-CAD interoperability and regional situational awareness systems in this recommendation requires connectivity to each of the ECCs in the region. The wide area network (WAN) to provide this connectivity has not been implemented but is included in the MESB's transition-to-NG9-1-1 strategic plan. The plan calls for a regional public safety WAN that supports 9-1-1 call delivery, as well as other mission critical public safety applications, including cloud-based or shared applications used by the ECCs such as the recommended systems. The funding for the WAN is included in the MESB's capital budget.

Related Issues Identified:

The scale of this recommendation should not be underestimated. The technical aspects of implementing these recommended systems is straightforward. However, a vendor contract will be needed to monitor and maintain these systems on a 24x7 basis going forward. Since these proposed capabilities would be new, a governance structure representing the governing bodies operating the regional ECCs and a representative group of ECC managers will be needed to provide operational input for the systems. A funding plan must be developed that includes both the initial implementation costs and the ongoing operating expenses associated with the systems and the underlying wide area network connectivity. Training material for the ECCs on utilization of these systems must be developed. ECCs must maintain adequate staffing.

Summary:

As we have seen recently large-scale events often cover multiple jurisdictions and require emergency responders from across the region, and sometimes from outside the region. Managing the emergency response to these events is a challenge under the best of circumstances. With the proliferation of wireless devices throughout the population, high visibility events can generate surges of 9-1-1 calls that may temporarily overwhelm the resources of a single ECC as part of day-to-day operations.

The CAD-to-CAD smart-hub and the regional situational awareness applications described in this recommendation, if implemented, will provide the foundation for greater coordination of emergency communications and response resources during day-to-day operations as well as large-scale events. This will permit greater efficiency in the use of these limited resources. No single agency or jurisdiction can be staffed or equipped to handle every emergency event within their service area and will experience times when their response resources are overwhelmed and exhausted. In the same respect, the proposed systems will not lower day-to-day ECC staffing needs and cannot compensate for chronic understaffing at any of the regional ECCs. By working together in an informed and coordinated manner supported by the tools in this recommendation, the regional emergency call and response resources are sufficient to handle major events as well as continued day-to-day operations.

Attachment A:

After-Action Review Report

May/June 2020 Civil Unrest

After Action Report/Improvement Plan

Metropolitan Emergency Services Board
9-1-1 and Radio Technical Operations Committees

October 7, 2020

INTRODUCTION

On Monday, May 25, 2020, the Minneapolis Police Department responded to an incident which led to the arrest of George Floyd. Floyd died during the arrest with much of the incident captured by bystander video. The posting of the video on social media led to several days of mass protests in Minneapolis and St. Paul. Concurrently, smaller groups of people began rioting and looting, which resulted in the wide-spread destruction of public and private property. There were injuries and deaths reported during the civil unrest which continued for several days throughout parts of Minneapolis and St. Paul, ultimately requiring law enforcement assistance from across the state and the Minnesota National Guard being deployed to restore order in the metropolitan area. Civil unrest and rioting that began because of Floyd's death and the associated civil unrest in Minnesota continues in numerous cities across the country at the time of the writing of this report.

The Metropolitan Emergency Services Board, which coordinates both the 9-1-1 and Allied Radio Matrix for Emergency Response (ARMER) radio systems on a regional basis for the ten-county Minneapolis/St. Paul metropolitan region, has standing committees which provide input and make recommendations regarding the systems' operations. The committees formed a joint 9-1-1/radio work group to conduct an after-action review (AAR) of how the systems performed during the civil unrest following the death of George Floyd. This report contains the AAR work group's observations, conclusions, and recommendations.

STRENGTHS

1) The 9-1-1 and ARMER radio systems both functioned as designed throughout the multi-day event even while experiencing call volume peaks six to seven times greater than normal.

2) Text-to-9-1-1 message rates also spiked during the same time but provided an alternative means of reaching 9-1-1 when the 9-1-1 voice system became overloaded with voice calls. For example, the Ramsey County Emergency Communications Center (RCECC) reported receiving 399 text-to-9-1-1 messages within a four-hour period during the event. The normal monthly average for text messaging to 9-1-1 at RCECC is approximately 100 messages per month.

3) There were no 9-1-1 or ARMER system equipment or network failures during this time.

4) Management of interoperable talkgroups was effectively handled by use of the established reservation system.

5) Communications Unit Leaders (COML) from Hennepin County Medical Center (HCMC), Minneapolis Emergency Communications Center (MECC) and the Minnesota National Guard on their own initiative began coordination early on specific to the communication needs of Minneapolis.

ISSUES IDENTIFIED

9-1-1 System Issues:

1) Extreme Spikes in 9-1-1 Call Volume – While the 9-1-1 system continued to deliver extremely high volumes of calls to the emergency communications centers (ECC) across the region, there were times when the number of calls coming in exceeded the number of calls the ECC telecommunicators on-duty could answer. This resulted in some callers not getting through to ECC telecommunicators while experiencing long ring - no answer times, as well as busy signals or alternate routing to non-9-1-1 lines. The peak hour during the event saw an extraordinary 953 calls presented to MECC and RCECC during a 60-minute period between 10:30 p.m. and 11:30 p.m. on Sunday, May 31, with the on-duty staff being able to answer 80% of those calls. It should be noted that it is not politically or economically feasible to staff ECCs at the level that would be required to handle all incoming calls during extreme spikes in 9-1-1 traffic associated with high visibility events.
    a. When the 9-1-1 call volume during this event reached the designated capacity for each of the ECCs, callers to MECC received fast busy signals (to alert them their 9-1-1 calls could not be delivered). RCECC overflows 9-1-1 calls to administrative lines. This is the overflow call handling treatment currently configured for the system and it worked as designed.

2) Wireless 9-1-1 calls competed with regular wireless calls for access to wireless carrier cell sector capacity on systems which were saturated during the event, causing some wireless 9-1-1 calls to be handled by neighboring cell towers not physically close to where the caller was located. This resulted in some wireless 9-1-1 calls being routed to the wrong ECCs, e.g. some wireless callers physically located in Minneapolis had their calls routed to Anoka County. This routing occurred without any of the ECCs receiving notification of the abnormal routing, adding to the length of time needed to process calls. The abnormal routing

happened due to the way the wireless carriers currently have their systems designed; their systems functioned as designed but caused a negative impact on the ability of the metropolitan region ECCs to process 9-1-1 calls.

3) The MECC backup 9-1-1 center was located within the Minneapolis Police Department Third Precinct building and was destroyed when the decision was made by city leaders to abandon that building. This eliminated the option for MECC to staff additional workstations utilizing both their primary and backup locations.

4) There was no ability to transfer 9-1-1 callers or the incident information being reported between ECCs because of radio and telephone system congestion, as well as the lack of an implemented regional workload-sharing system, such as a regional or statewide computer-aided dispatch (CAD)-to-CAD interoperability system.

Radio System Issues:

1) The lack of encrypted talkgroups and responder radios capable of using the encrypted talkgroups that were available created operational impacts by forcing the use of clear talkgroups. This inability for responders to all use encrypted resources gave the civil unrest leaders an opportunity to use radio scanners and scanner apps on smart phones to intercept and react to responder radio transmissions in real time.

2) Radio users experienced a busy tone, or “bonk,” on some statewide talkgroups. This was noticed when MECC and Minneapolis Police Department command staff could not transmit over the radio. The Minneapolis Radio System Administrator was contacted about this problem and identified the talkgroups on which this was occurring. The System Administrator then contacted the ARMER system vendor, Motorola, and began testing and documenting examples. Motorola identified the problem as a radio console outside the metropolitan area having an improper configuration setting. The busy tone issue users experienced was resolved quickly after the configuration issue was corrected.

3) Per the ARMER standards, only law enforcement has ability to use LTAC, LTACE, and METAC 11E and 12E talkgroups and have their radios programmed accordingly. This prevented fire and EMS responders from being able to monitor law enforcement radio traffic. STACs were used as alternative talkgroups to enable fire and EMS situational awareness, however these resources operate in clear mode, which added to the issue identified in item 1 above.

4) Emergency responder resources brought in from greater Minnesota did not have the metropolitan regional interoperability talkgroups programmed in their radios. This caused overuse of the statewide STAC and LTAC resources, which were needed for use in other areas of the state. Many of these responders also did not have encryption-enabled devices, including the Minnesota State Patrol.

5) Radios from the Minneapolis Police Department’s Third Precinct were stolen by rioters when the decision was made to abandon that building. The stolen radios were then used by rioters to monitor and interfere with legitimate emergency response operations and possibly evade arrest.

Personnel and Event Management Issues:

1) Contingency plans which were in place within the ECCs were not designed for events that were longer than 72 hours in duration. The telecommunicators were physically exhausted, as well as mentally and emotionally drained by this event.

2) The temporary location chosen for the Multi-Agency Coordination Center (MACC) did not take advantage of existing emergency management technology available at the Minneapolis Emergency Operations Training Facility (EOTF), including access to the Minneapolis Camera System. The Minneapolis EOTF was identified to MECC as the Minneapolis Command Center on Wednesday, May 27th, the day before the MACC was set up. This resulted in Minneapolis having to staff both locations and complicated coordination between the locations, as well as confusion over where incident command was located.

3) The Minnesota Department of Public Safety (DPS) and local law enforcement initiated the MACC on May 28. Communications and response coordination between the MACC and the metro area ECCs was never adequately established during this event.

4) Emergency responder location was not available at a regional level to the ECCs or the MACC.
    a. The St. Paul Police Department utilized an online application that enabled the police department to track its officers' locations in real time at the SPPD EOC, but this responder location information was not available at the MACC or the ECCs.

5) Talkgroups were patched for long periods of time. Some agencies patched their main channels with tactical talkgroups, which tied up multiple zones.

6) Lack of Incident Command Structure (ICS) implementation at MACC.
    a. There was confusion after the incident control was transferred from the Minneapolis Command Center at the EOTF to the MACC.
    b. Lack of a clearly identified Incident Commander led to vague, conflicting decisions or orders coming out of the MACC regarding the coordination of emergency responders and what information was given to the public.
    c. Several ICS 205 documents were sent out in a short amount of time by the MACC and the ECCs, without coordination.
        i. Both MECC and RCECC did not receive clear coordination with the MACC. Conflicting communications plans (ICS 205s) were issued, including the use of different email distribution groups to disseminate the ICS 205s.
    d. There was no clear delineation on what emergency response resources were going to be dispatched directly by personnel at the MACC and which resources would be coordinated by the emergency communications centers. Resources responding within Minneapolis were not all under control of MECC (e.g. State Patrol). This led to confusion on which talkgroups responders were assigned to and who was responding to a given event.

7) There appears to be a fundamental misunderstanding about what the emergency communications center role is in the emergency response continuum, as well as within the ICS structure. The agency heads and elected officials repeatedly advised the public to call 9-1-1 for inappropriate reasons (e.g. tip line calls on unlicensed vehicles) which contributed significantly to the spike in 9-1-1 call volume and interfered in the ECC personnel's ability to

receive, classify, prioritize, assess available emergency response resources, and coordinate the emergency response to the incidents as they were reported.

a. Ten-digit administrative telephone numbers that terminate and ring in the ECCs were included in press briefings as alternative numbers to use to report emergency events or crime tips. Calls to these numbers may have gone unanswered because of the priority given to 9-1-1 calls and the volume of 9-1-1 calls. Callers also used these numbers, as well as 9-1-1, to verbally abuse the telecommunicators, make vulgar disparaging statements about the police officers, and complain about the lack of emergency response. These calls were filled with profanity, yelling, and personal attacks on the telecommunicators, further negatively impacting the telecommunicator's ability to do their job.

RECOMMENDATIONS

1) Establish the governance structure, on-going funding model, training, and procedures to deploy and utilize 9-1-1 call workload sharing between cooperating ECCs.

2) Identify and implement workload sharing applications that will:
   a. Permit 9-1-1 calls to overflow to neighboring ECCs which have agreed to work together cooperatively.
   b. Identify on-going funding and provide CAD-to-CAD interoperability to support allowing overflow calls to neighboring ECCs which have agreed to work together to be answered, triaged, classified (type or nature code assignment), and sent electronically into the original destination ECC's CAD dispatch queue, permitting the original destination ECC to coordinate the emergency response to incidents within its jurisdiction.
   c. Establish a regional CAD incident display map showing the location of emergency responders (both personnel and units) and incidents in progress, permitting the appropriate personnel to have a big picture understanding of what is happening at the regional level in real time.

3) Identify telecommunicator resources to support any ECC personnel that have been involved in prolonged or horrific emergency events and may not recognize the extent they have been impacted mentally and emotionally, and those that recognize they need help.

4) Establish procedures to support the use and staffing of community tip lines that do not terminate in or interfere with ECC operations or negatively impact the 9-1-1 system whenever law enforcement or fire establish a joint command facility (e.g. MACC).

5) Establish or update an existing metro region 9-1-1 standard to block "anonymous" calls to admin lines that terminate in the ECC to reduce harassing, abusive, or denial of service attack calls that can negatively impact ECC operations.

6) Provide training to agency heads and elected officials regarding the role of the emergency communications centers and COMLs in the emergency response continuum. Work together with other emergency responder agencies to include an emergency communications and

response coordination training module to be incorporated into new hire training, as well as in-service training, provided by the law enforcement, fire, and EMS agencies to their staff.

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    ii. Include State Duty Officer training to assist in understanding the communications resources and processes to be utilized as part of the ICS structure.
b. Build relationships between the CRTF and agency command staff.
c. Ensure that ECC management personnel are included in all EOC/MACC operations at the same level, and at the same time, as law enforcement, fire, and EMS management personnel are included
d. Include COMU representatives at the MACC at the beginning of MACC operations

7) Create or update an existing standard to require ARMER talkgroups to be labeled using the same talkgroup names system wide. Currently, different agencies label the same talkgroup by different names.

8) Conduct on-going ARMER training for law enforcement, fire, and EMS responders, both for new-hires and as part of regular in-service training, as required in SECB Standards LMR-29, LMR-30, and LMR-31.

9) Create better advertisement of available resources, such as equipment caches, CRTF, etc. at a state level

10) Identify regional, or statewide, EOC or MACC locations that can be properly equipped in advance.

11) Establish regional communications plans that can be practiced and implemented by the appropriate COMLs as soon as an incident escalates into a multi-agency, multi-jurisdictional event. This should be incorporated into the ICS implementation plans but could be activated before the ICS structure is established beyond the initial response. This response should also include the distribution of a consolidated ICS 205 form and can include additional forms in the future, such as an ICS 205a or ICS 217 form.

12) Create or update an existing metro region ARMER standard that recommends requesting the deployment of CRTF resources when an incident escalates to include multi-jurisdiction coordination or multi-agency responses from more than one ECC service area. This should not be dependent on whether law enforcement or fire establish a joint command facility (e.g. MACC).
    a. Define how CRTF is activated.
    b. Notify the State Duty Officer as soon as a request to deploy the CRTF is received.
    c. Ensure the State Duty Officer documentation related to CRTF deployment is current.
    d. Define how the regional ECCs will be notified.

13) Provide training to agency heads and elected officials regarding the role of the emergency communications centers and COMLs in the emergency response continuum. Work together with other emergency responder agencies to include an emergency communications and response coordination training module to be incorporated into new hire training, as well as in-service training, provided by the law enforcement, fire, and EMS agencies to their staff.

a. Response agency command staff need to be educated on the existence and need/use of the CRTF.
    i. Command staff turnover is a problem; special training directed specifically for command staff be should be developed.
    ii. Include State Duty Officer training to assist in understanding the communications resources and processes to be utilized as part of the ICS structure.
b. Build relationships between the CRTF and agency command staff.
c. During the event, some agency heads expressed concern that their responders would not be able to find the talkgroups specified in the ICS 205s on their radio.
d. Add the MESB's ARMER training video on changing zones on subscriber units uploaded to the MESB website. (As of the final draft of this document, this video is available on the MESB's website and the link has been distributed to metro region ARMER system administrators.)

14) For jurisdictions where there are separate management structures for 9-1-1 and ARMER, regular coordination meetings need to be established so that the two teams identify issues proactively and work together to address the issues. This coordination should include contingency planning for system failures and multi-agency events.

15) Establish a timeline for requiring encryption-capable radios for response agencies within the metro area.

APPENDIX A – AFTER ACTION REPORT PARTICIPATING DEPARTMENTS

Anoka County Emergency Communications Center

Hennepin Co. Sheriff's Office

Metropolitan Airports Commission Emergency Communications Center

Metropolitan Emergency Services Board Staff

Minneapolis Radio Communications Electronics

Minneapolis Emergency Communications Center

Ramsey Co. Emergency Communications Center

Washington Co. Sheriff's Office

Attachment B:

CAD-to-CAD Feasibility Study

Metropolitan Emergency Services Board

CAD-to-CAD Interoperability Feasibility Report and Recommendations – DRAFT v9

February 21, 2018

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Table of Contents

1.0 Executive Summary

Winbourne is pleased to provide this feasibility report on Computer Aided Dispatch (CAD) interoperability and recommendations to Metropolitan Emergency Services Board (MESB). Our team worked closely with all Twin Cities metropolitan region PSAPs, CAD-to-CAD vendors and CAD vendors to gather the information that is used in our findings. Our recommendations are based on the information gathered, industry knowledge, and our experience with similar projects.

1.1 Overview of Project Scope

Winbourne Consulting LLC was engaged by the MESB to provide expert consulting services to perform a CAD-to-CAD interoperability and feasibility study and to provide a report and recommendations.

As part of the engagement, we provided MESB a CAD-to-CAD white paper that was distributed to all metro region PSAPs prior to a kick-off meeting. During the kick-off meeting, our team went through highlights of the CAD-to-CAD white paper including situational awareness, resource sharing, incident transfer capability, NG9-1-1 compatibility and interoperability.

We interviewed the metro region PSAPs to answer questions regarding CAD-to-CAD interoperability, gather information regarding each PSAP's technology and CAD software, and determine each PSAP's willingness to participate in a regional interoperability initiative utilizing a Commercial off the Shelf (COTS) CAD-to-CAD solution.

Our team contacted the three major CAD-to-CAD software vendors in order to determine their ability to provide a solution that would meet MESB's needs for a regional CAD-to-CAD interoperability solution.

We worked closely with MESB to ensure that all of the PSAPs in the metro region had their needs and desires for a regional CAD-to-CAD interoperability solution represented in the report.

This report documents our findings and recommendations. Each recommendation also includes a projected timetable for implementation and a preliminary, budgetary-level cost estimate.

1.2 Our Methodology

Our methodology for conducting the analysis was based on several factors:

- Clarifying study objectives with MESB

- Conducting data gathering and verification
- Obtaining best practice examples from other regional CAD-to-CAD installations
- Determining relevant findings associated with the project objectives and developing related recommendations
- Obtaining feedback from stakeholders such as MESB and metro region PSAPs
- Maintaining regular communications with MESB and other stakeholders throughout the project
- Documenting our findings and recommendations in project briefings and in this final report

1.3 Summary of Findings and Recommendations

The Statement of Work (SOW) posed three primary study requirements, the findings and recommendations for which are summarized below:

Inventory/Interest

Our analysis shows that most of the PSAPs have CAD systems capable of supporting a COTS CAD-to-CAD solution with Automatic Vehicle Location (AVL) closest resource dispatch capability.

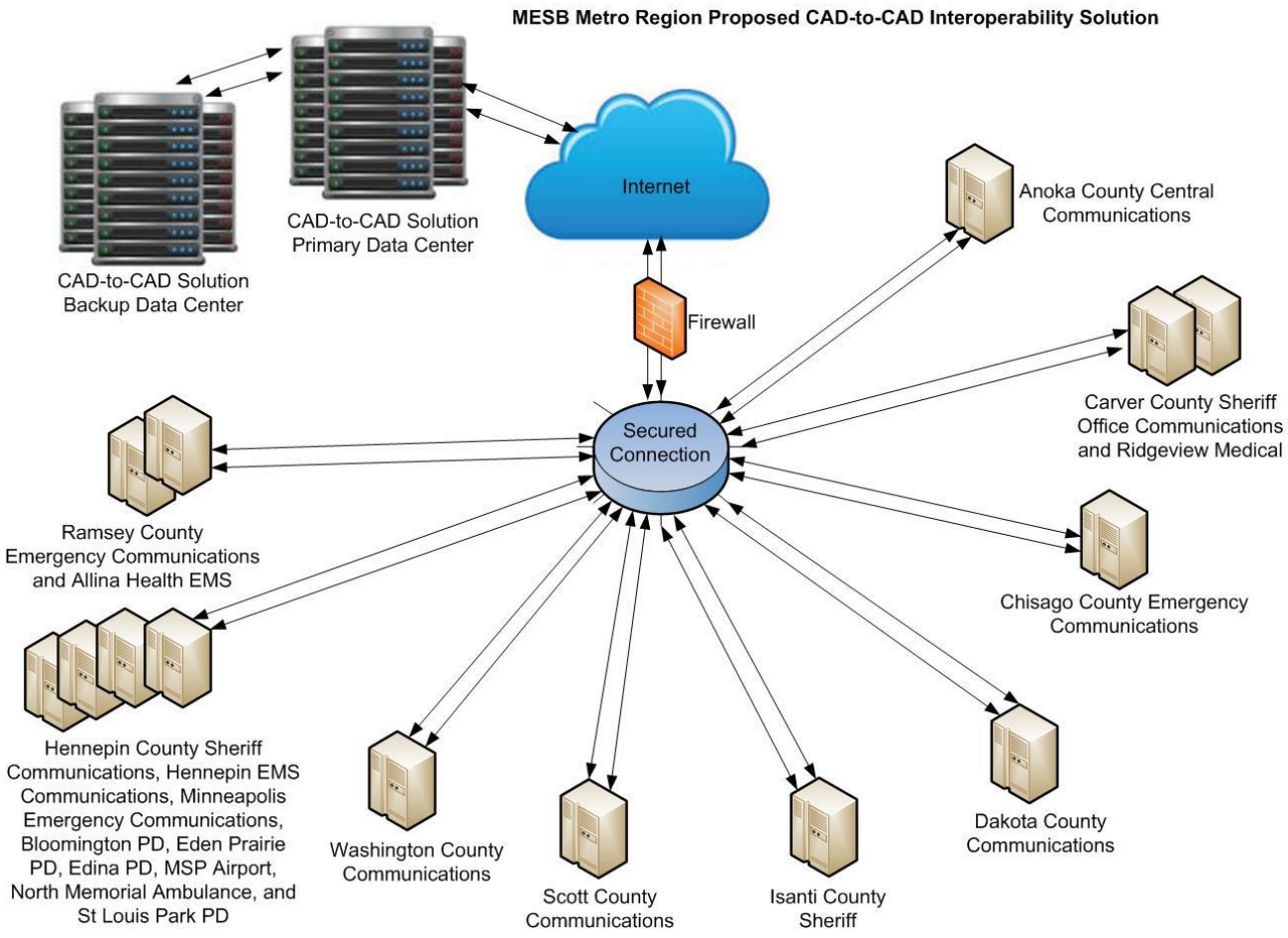
Based on our contact and interview process with the metro region PSAPs, we determined that there is a high level of interest for a COTS CAD-to-CAD regional interoperability solution. We also found that many of the PSAPs expressed a desire to expand the data sharing capability of a CAD-to-CAD solution to neighboring counties outside of the metro region, primarily because these counties already have mutual aid agreements with many of the metro region PSAPs.

Preliminary Recommendations

Utilizing the data collected through our PSAP interview process, our knowledge of the industry and other similar regional data interoperability projects, we recommend that MESB procure a bi-directional COTS CAD-to-CAD solution that will interconnect all metro region PSAPs. We also recommend that the COTS CAD-to-CAD solution be robust enough to allow neighboring counties and PSAPs to join. We further recommend the use of a request for proposal (RFP) process with detailed CAD-to-CAD operational and technical requirements to procure the COTS CAD-to-CAD solution.

Our recommendation is that MESB procure and maintain the CAD-to-CAD solution for all metro region PSAPs, and that MESB draft the agreement language for the participating metro region PSAPs to sign, as part of the CAD-to-CAD implementation and go-live process.

The following, Figure 1, illustrates the proposed CAD-to-CAD solution with connectivity between all metro region PSAPs.



(Figure 1)

PSAP Interviews & Recommendations

Our team conducted a thorough analysis of the metro region PSAPs, including CAD and AVL capabilities and willingness to participate in a regional CAD-to-CAD interoperability initiative. Through our extensive interview process, we can report that all of the metro region PSAPs are in favor of a CAD-to-CAD interoperability solution. Furthermore, all of the metro region PSAPs

interviewed expressed full support for MESB to procure and manage the regional CAD-to-CAD interoperability solution.

Winbourne is basing our recommendation on the analysis and interview process with the metro region PSAPs, contact with the CAD-to-CAD vendors, and contact with the CAD vendors that are currently providing solutions to the metro region PSAPs, industry knowledge and other experiences with similar projects. Our recommendation is based on all of these factors, and we are pleased to recommend that MESB strongly consider the procurement and implementation of a regional COTS CAD-to-CAD interoperability solution.

1.4 Summary of Cost Estimates

We prepared cost estimates for a regional CAD-to-CAD solution including the CAD-to-CAD product and interface costs to each metro region PSAP's CAD system. We used multiple data sources for these cost estimates to include CAD-to-CAD vendors, CAD vendors, open source data (Internet), and our personal experience with the costs for these types of systems.

The detail capital and recurring costs are presented in the CAD-to-CAD cost estimate section 2g.1 of this report.

We broke down the cost estimates into three primary categories of CAD-to-CAD procurement, CAD-to-CAD solution/product, and each PSAPs CAD Interface to the CAD-to-CAD solution. We then looked at low and high estimates for each category to come up with a total budgetary cost estimate for the entire project, ranging from $2,100,000 on the low end to $5,690,000 on the high end, with a median of $3,895,000.

The ongoing cost for the CAD-to-CAD solution ranges from $200,000/year on the low end to $600,000/year on the high end, with a median of $400,000/year. The ongoing cost for each PSAPs CAD interface to the CAD-to-CAD solution ranges from $12,000/year on the low end to $18,000/year on the high end, with a median of $15,000/year.

To add the Minnesota State Patrol to the CAD-to-CAD interoperability project we estimate a cost range from $120,000 on the low end to $160,000 on the high end, with a median cost of $140,000.

The five year total cost for the entire CAD-to-CAD project ranges from $4,040,000 on the low end to $9,800,000 on the high end, with a median of $6,920,000.

1.5 Summary of Implementation Timeline

Our team broke down the implementation timeline into two primary sections of CAD-to-CAD procurement, and CAD-to-CAD implementation which includes interfacing each PSAP to the CAD-to-CAD solution. The timeline was developed based on discussions with the CAD-to-CAD vendors, the CAD vendors, open source data (Internet), industry knowledge and our personal experience with implementing these types of systems. The detail CAD-to-CAD estimated implementation timeline can be found in section 2g.2 of this report.

To summarize, we believe that the CAD-to-CAD procurement process will take about 6 to 7 months to complete. The CAD-to-CAD implementation, CAD interfaces to each PSAP and PSAP certification process will take 12 to 18 months to complete. This means that the entire project from start to finish will take between 18 and 24 months to complete.

2.0 Project Study Requirements

The Project Scope as stated in the MESB's RFP has the following requirements:

a. *Inventory by PSAP of the CAD product currently in use, including options, and software release levels.*
b. *Inventory by PSAP on Automatic Vehicle Location (AVL) capabilities for tracking responder vehicles and status, including vendor, options, and software release levels.*
c. *Identify PSAPs who are interested in entering into a cooperative agreement to share CAD and responder data in real time.*
d. *Data interoperability options – minimum of two options*
    - *Examples from interoperability projects currently operating in other parts of the country.*
    - *Cost estimates for each option.*
e. *Recommendation for implementation of a regional CAD-to-CAD data interoperability project.*
    - *Implementation timeline and identifiable milestones for the completed regional CAD data interoperability project.*
    - *Identification of the next step*
        - *Cost estimates for the next step*
f. *Identify any legal issues that sharing CAD data may create for the* metro region *PSAPs.*

- *Recommendations on how to deal with legal issues.*

g. *Identify your expectations for the MESB and the metro PSAPs in the preparation and completion of the RFP report and recommendations.*

2.01 Data Interoperability Overview

Data interoperability is emerging as a key public safety requirement. It is taking on the imperative that voice interoperability did after the attacks on September 11, 2001. The challenge of public safety data interoperability between CAD systems is being addressed by a growing number of communities and technology vendors across the country. Data interoperability is developing as a requirement for multi-jurisdictional regions that share multiple borders. During the past 5-10 years, the number of regions across the country that are using a form of CAD interoperability or CAD-to-CAD interface has continued to grow.

2.02 CAD-to-CAD Overview

A key challenge for many PSAPs is the lack of timely access to personnel and resource information in neighboring jurisdictions, particularly when units in the neighboring jurisdiction are the closest available to the incident. When an incident occurs near the border between jurisdictional boundaries, dispatchers lose time by having to make phone calls to locate and dispatch the closest resources.

CAD-to-CAD interoperability can speed the incident response by using pre-determined dispatch agreements to send the closest available unit automatically. Using this solution, dispatchers can view all resources available to them, including those located in neighboring jurisdictions. The PSAP CAD systems can use this information to automatically dispatch resources based on closest distance to the incident and required type of unit.

The major benefits of CAD interoperability include:

- Reduction in response time
- Increased personnel efficiency
- Increased vehicle efficiency
- Situational awareness

The reduction in response time can potentially equate to lives saved, while the increase in personnel and vehicle efficiency can prove valuable to agencies with constrained funding.

The table in Figure 2 represents examples of CAD-to-CAD regional initiatives in large jurisdictions and regions in the U.S. Each of these jurisdictions has reported on incidents aided by the CAD-to-CAD solution they use.

While CAD-to-CAD integration is most valuable to fire and EMS, it also provides situational awareness and resources for law enforcement. Utilizing a CAD-to-CAD solution throughout the metro region can reduce response time and create a cooperative environment for law enforcement, fire and EMS by providing a view of resources near jurisdictional borders, as well as incidents on the adjoining borders that could impact each jurisdiction.

Region	Population
Virginia: Fairfax County, Arlington County and the City of Alexandria	Over 1.6 million residents
California: Silicon Valley Regional Interoperability Project (SVRIP): 19 PSAPs in Santa Clara County	Over 1.8 million residents
California: San Diego Regional Interoperability Project: 14 public safety agencies and PSAPs	Over 1.4 million residents
Oregon: Lake Oswego City, the City of Portland, and the counties of Multnomah, Clackamas, Clark, Columbia, and Washington	Over 2.3 million residents
Arizona: Cities of Phoenix and Mesa	Over 2 million residents
Massachusetts: Boston, Cambridge, Brookline, Chelsea, Everett, Somerville, Quincy, Winthrop, Revere, Northeastern University, Harvard University	Over 4 million residents
California: Los Angeles Fire Department, Verdugo Fire Communications Center (dispatches for 12 fire departments), Los Angeles City Fire Department, Long Beach Fire Department	Over 11 million residents
Tennessee: Nashville Regional Information System includes 24 PSAPs	Over 1.7 million residents

(Figure 2)

In an integrated environment, all jurisdictions actively cooperate to provide the fastest and most comprehensive response to all types of incidents. Not only does this solution

enhance the fire and EMS mutual aid capability, it also provides law enforcement with a visual of all police and sheriff units in the vicinity of a major incident. In situations such as a high-speed car chase through multiple jurisdictions, the CAD-to-CAD solution prevents the use of too many units trying to follow the suspect; instead, each agency has situational awareness of all units near the suspect vehicle and they can respond more effectively.

Having a CAD-to-CAD solution typically improves technological cooperation and coordination between all public safety agencies. For example, in anticipation of changes in 9-1-1 communications related to Next Generation 9-1-1 (NG9-1-1), metro region PSAPs utilizing a CAD-to-CAD solution would benefit from all of the NG9-1-1 data utilization functionality and integration, including electronic fire and burglar alarms, panic buttons, car-telematics, shot-spotter, smartphone apps, texting, photos, video, and social media that will be implemented over the next few years.

Using a CAD-to-CAD solution, the metro region PSAPs can receive dispatch information related to everything going on in the neighboring communities, counties and metro region, enhancing situational awareness. Each PSAP maintains complete control over its data and the resources it shares with others, and each plays a role in determining which data and resources it wants to receive.

Specific benefits that can be obtained through this integrated approach include the following:

- Provide a regional public safety solution for sharing incident information, delivering each entity with incident information in a timely manner.
- Opportunity to evolve to closest available dispatch for ambulance and fire calls for service.
- Add to the capabilities provided by the ARMER system by adding additional capability for regional response.
- Enhance the regional disaster response by making regional incident data available during a major incident.
- The ability to setup geographic areas around a municipality or a county is called “Geo-Fencing.” This capability allows PSAPs to monitor incident/call activity in a predetermined Geo-Fence area and provide valuable information to public safety officials and the public.

2a PSAP CAD System Inventory

Our team worked with MESB to gather the CAD system information including vendor name, CAD version and number of positions.

The table in Figure 3 depicts the CAD system inventory information collected:

County	Agency	Positions	CAD Vendor	CAD Version
Anoka	Anoka County Central Communications	15	TriTech	Inform 5.7
Carver	Carver County Sheriff Office Communications	9	CIS (Computer Info Systems)	13.05.01 Build 096
Carver	Ridgeview Medical	4	Zoll	RescueNet Dispatch 4.6.1.774 SP1
Chisago	Chisago County Emergency Communications Center	10	ProPhoenix	2016 R2, 10/24/17
Dakota	Dakota County Communications	25	TriTech	Inform 5.7
Hennepin	Bloomington PD	12	TriTech	Inform 5.7
Hennepin	Eden Prairie PD	4	Tyler Technologies	New World 10.2
Hennepin	Edina PD	5	Superion (OSSI)	17.1
Hennepin	Hennepin County Sheriff Communications	45	TriTech	Tiburon IQCAD 3.7 TriTech Inform 5.7 or 5.8 Q2 2018
Hennepin	Hennepin EMS Communications	6	TriTech	Inform 5.6 now Q1 2018 Inform 5.7
Hennepin	Minneapolis Emergency Communications Center	41	TriTech	Inform 5.6 now Q1 2018 Inform 5.7
Hennepin	MSP Airport	10	Tritech	Inform 5.8.2
Hennepin	North Memorial Ambulance	8	Hexagon/Intergraph	Version 9.4 go-live Feb 2018
Hennepin	St. Louis Park PD	3	TriTech	Zuercher 13.0
Hennepin	University of Minnesota	5	TriTech	Inform 5.6 now Q1 2018 Inform 5.7 (share with MECC)
Isanti	Isanti County Sheriff	3	TriTech	LETG (Zuercher) 1.17.12.10
Ramsey	Allina Health EMS	17	TriTech	Inform 5.7
Ramsey	Ramsey County Emergency Communications Center	65	TriTech	Inform 5.8.2
Scott	Scott County Communications	8	TriTech	LETG (Zuercher) 2.1.5.8
Washington	Washington County Communications	18	TriTech	Inform 5.7 (2018 go-live)

(Figure 3)

2b PSAP AVL Capability

The table in Figure 4 depicts the Mobile AVL inventory information collected: Note: AVL enabled means that the Mobile System supports AVL, but not all units may have AVL.

County	Agency	Units per Shift	Total Units in CAD	Mobile System	AVL Enabled
Anoka	Anoka County Central Communications	100	2,500	TriTech	YES
Carver	Carver County Sheriff Office Communications	30	800	CIS (Computer Info Systems)	NO
Carver	Ridgeview Medical	10	19	Zoll	YES
Chisago	Chisago County Emergency Communications Center	46	133	ProPhoenix	YES
Dakota	Dakota County Communications	255	2,027	TriTech	YES
Hennepin	Bloomington PD	100	275	TriTech	YES
Hennepin	Eden Prairie PD	10	264	Tyler Technologies	YES
Hennepin	Edina PD	20	202	Superion (OSSI)	YES
Hennepin	Hennepin County Sheriff Communications	181	3,141	TriTech	YES
Hennepin	Hennepin EMS Communications	26	47	TriTech	YES
Hennepin	Minneapolis Emergency Communications Center	300	5,000	TriTech	YES
Hennepin	MSP Airport	40	687	Tritech	YES
Hennepin	North Memorial Ambulance	50	126	Hexagon/Intergraph	YES
Hennepin	St. Louis Park PD	12	163	TriTech	YES
Hennepin	University of Minnesota	10	200	TriTech	YES
Isanti	Isanti County Sheriff	24	135	TriTech	YES
Ramsey	Allina Health EMS	50	105	TriTech	YES
Ramsey	Ramsey County Emergency Communications Center	250	2,743	TriTech	YES
Scott	Scott County Communications	65	621	TriTech	YES
Washington	Washington County Communications	150	300	TriTech	YES

(Figure 4)

2c PSAP Level of Interest

All metro region PSAPs were provided a "CAD-to-CAD White Paper" in preparation for the CAD-to-CAD interoperability feasibility kickoff meeting held on October 15th, 2017. The purpose of the white paper was to provide each PSAP with an understanding of the benefits of a CAD-to-CAD integrated solution and what such a solution could bring to the region. During the kickoff meeting Winbourne presented an overview of the investigative and recommendation processes used to develop the CAD-to-CAD interoperability feasibility report and recommendations, and a high-level CAD-to-CAD presentation on capabilities and integration options.

The following are the investigative processes used in the study:

- Determine the level of interest among city, county, and municipal PSAPs.
- Inventory by PSAP of current CAD, mobile and mapping product versions and vendors.
- Evaluate AVL utilization and usefulness.
- Evaluate existing cooperative agreements and data sharing initiatives
- Identify legal issues and determine an organizational structure that would support a successful regional CAD-to-CAD solution.

The Winbourne team and MESB staff arranged and conducted onsite interviews with PSAP staff in the cities of Bloomington, Edina, St. Louis Park and the counties of Anoka, Carver, Dakota, Hennepin, Ramsey, and Scott during the week of October 16th, 2017 and with Allina Health EMS, the city of Minneapolis, the State 911 Program Manager, and Washington County during the week of December 11th, 2017. Our team also conducted phone interviews with Chisago County, Eden Prairie, Minneapolis, North Memorial, and State Patrol during that time.

The interview process was designed to assess each PSAPs understanding of the benefits of a CAD-to-CAD solution for the metro region and assess the level of interest each PSAP had in participating in a regional CAD-to-CAD initiative.

During the interview process, our team also assessed the current level of cooperation and integration between PSAPs. For example, Hennepin, Edina, Bloomington, Ramsey and Minneapolis utilize a read-only CAD-to-CAD solution from FATPOT and Bloomington, Allina Health EMS and the MSP Airport utilize the TriTech bi-directional CAD-to-CAD solution. Our research showed that all of the metro region agencies have some type of mutual aid agreements with neighboring agencies, with the majority geared toward fire or EMS, and a smaller percentage geared toward law enforcement.

The agencies that have law enforcement mutual aid agreements deal primarily with SWAT, K9 and State Patrol resources, while fire and EMS have broader mutual aid agreements that involve most fire and EMS resources. Only a very small percentage of fire and EMS agencies have automatic mutual aid agreements.

Our study shows that only a handful of the agencies utilize closest unit calculations to dispatch fire and EMS first responders, and none utilize closest unit calculations to dispatch law enforcement first responders.

During the interview process our team asked the question as to how a CAD-to-CAD initiative would benefit each PSAP. Following is a sampling of the information collected:

- Each PSAP interviewed felt that they would benefit from a regional CAD-to-CAD initiative.
- Many of the PSAPs have bordering counties that are not currently part of the MESB metro region; because these PSAPs do mutual aid with these surrounding counties/agencies on a daily basis, they felt that the CAD-to-CAD initiative should be expanded to include these additional counties.
- Washington County expressed interest in the program because they currently have a lot of mutual aid calls with surrounding agencies, and currently the only way to request units from those agencies is using the radio or telephone, which is very time consuming. All of the agencies they dispatch would be very supportive of a CAD-to-CAD initiative because they would realize huge response time savings.
- MSP Airport felt the system would be very useful especially in situations like the recent protests they had. They also send their K9 officers all over the area, which would be easier accomplished with a CAD-to-CAD solution.
- Bloomington expressed similar sentiments about how it would have been very useful to have a CAD-to-CAD solution in place during the protests, because of situational awareness and coordination of resources with everyone.
- Allina EMS felt it would be a safety factor for their paramedics if they had the ability to be able to view the map to see how far out law or fire was to their scene.
- Edina and Richfield PD and FD were ready to do a CAD-to-CAD years ago, but then an issue came up with the LOGIS's CAD project resulting in the CAD-to-CAD project being put on the back burner.
- Richfield FD stated that all structure fires in Hennepin County except for Minneapolis have auto aid and mutual aid and with a CAD-to-CAD solution this

would be streamlined and tremendously improve the process and response time.

- Edina PD expressed interest in extending the CAD-to-CAD initiative to include sharing RMS data amongst the law enforcement agencies.
- Minneapolis stated that they currently hail over the radio for mutual aid, this adds a lot of time to the call and opens itself up for operator error with addresses. They see CAD-to-CAD as solving this problem.
- Ramsey County recognizes that CAD-to-CAD will cut down on the call taker/dispatcher work load; and with their staff shortage, they see this as a benefit.
- Dakota County has bi-directional CAD-to-CAD with Rice/Steele County via TriTech, and they are experiencing benefits in sharing information and resources by reducing the need for radio or telephone communication between dispatchers and first responders. They believe a regional CAD-to-CAD solution will improve this process across the region and cut down on workload for their dispatchers.
- Scott County has frequent fire and EMS responses outside their own county and they feel that a CAD-to-CAD solution would save them time, cut down the response time, and ultimately save money.
- Carver County has several of their fire departments do mutual aid nearly every day with surrounding agencies, and they feel that a CAD-to-CAD solution would save time and reduce the chance for human error when communicating an incident location verbally; which, if incorrectly understood by the receiving dispatcher, can result in sending a fire or EMS unit to the wrong address.

Our team also compiled the following findings and observations:

- Many of the agencies hail over the radio when requesting mutual aid. They found this to be faster than calling on a non-emergency telephone line, which often goes unanswered if the other agency is busy. Some of the agencies must use both the radio and telephone to request mutual aid. These methods are time consuming and may result in a mistake on the address which could further add to a delay in response. This also puts a great workload on the call takers and/or dispatchers.
- Most agencies don't have the ability to see a map display that shows their units and surrounding area units. When an agency has requested mutual aid, they do not have the ability to see how far out the mutual aid agency responders are. In the example of an EMS unit on scene awaiting law enforcement response for

safety reasons, this information is critical to the safety of the paramedics on scene.

- All fire agencies within Hennepin County have an automatic mutual aid agreement for working structure fires. When an agency is requesting mutual aid for a working structure fire, the dispatcher does not have to get permission from fire command; the appropriate available units are automatically dispatched.
- Many of the metro region PSAPs interviewed expressed an interest in expanding the CAD-to-CAD solution to include their non-metro surrounding counties. These PSAPs, at minimum, dispatch fire and EMS mutual aid on a regular basis. Some of them also dispatch law enforcement mutual aid on a regular basis. Everyone understands the value of saving time and less chance for mistakes in passing along the information between agencies.
- Agencies throughout the nine-county metro region often respond on mutual aid events, such as protests which shut down major roadways. The only way they have to communicate regionally is via the radio system. This can be problematic, as transmissions can be missed and/or units can walk over each other in an active situation.
- Several law enforcement agency representatives expressed interest in using CAD-to-CAD as a gateway for sharing RMS or more specifically Master Name Index information throughout the nine-county metro region.
- Some of the agencies use encrypted radio talkgroups. If an agency providing mutual aid does not have access to those encrypted radio talkgroups, they can't communicate with responders from the primary jurisdiction. A CAD-to-CAD solution provides a secondary way that critical information can be shared with responding units.
- The majority of the agencies interviewed recognized the importance of having the MESB as a leader and conduit for this project, and that utilizing a hosted CAD-to-CAD solution could remove some of the potential political problems that could arise if one user agency were to act as the host.

Throughout the interview process our team found full support of the CAD-to-CAD initiative. The metro region agencies are committed to communication, system interoperability, data and resource sharing, but with the understanding that each PSAP/agency has full control over what data and resources are shared.

The PSAPs/agencies interviewed expressed a desire for MESB to draft regional interoperability agreements that not only address mutual aid agreements but also address the CAD-to-CAD initiatives of data and resource sharing.

In conclusion, all metro region PSAPs/agencies are in favor of procuring and implementing a regional CAD-to-CAD solution that not only serves PSAPs in the metro region, but could be expanded to support any surrounding PSAPs that want to join, if the MESB chooses to do so. The MN State Patrol has expressed an interest in participating in a regional CAD-to-CAD solution if one is implemented.

2d Data Interoperability Options

There have been many attempts to provide data interoperability to PSAPs over the years, but most of them have fallen short of expectation, or were not scalable enough to handle regional PSAP environments with multiple CAD vendors.

Winbourne examined the different data interoperability models that are available to PSAPs in the Public Safety market:

- **Consolidation Model** – Multiple PSAPs join together to form one large center and utilize a single CAD system. The Consolidation Model provides a fully integrated solution for the participating agencies, but it does nothing for neighboring agencies.
- **Point-to-Point Interface Model** – Two PSAPs with different CAD vendors contract each CAD vendor to create an interface between the two CAD systems. The Point-to-Point Interface Model can provide a fully integrated solution between the participating PSAPs. It is typically very expensive and difficult to maintain, however, because each time a CAD vendor upgrades its CAD system, there is a high likelihood that the CAD-to-CAD interface breaks. Furthermore, the Point-to-Point Interface Model, like the Consolidation Model, does not address connectivity with neighboring agencies.
- **Message Broker Model** – Two or more PSAPs with different CAD vendors contract with a third-party vendor to create a rudimentary hub that acts as a transfer agent to deliver basic CAD information to each participating CAD system. The Message Broker Model provides a more flexible solution by interconnecting two or more PSAPs CAD systems, but it generally is not robust enough to provide the flexibility and functionality required by most PSAPs.
- **Intelligent Hub Model** - Two or more PSAPs with different CAD vendors, or the same CAD vendor, contract with a third-party vendor to create an intelligent hub that acts as a transfer agent to deliver complex and configurable CAD

information between all participating CAD systems. The Intelligent Hub Model is similar to the Message Broker Model, and in some cases can coexist with the Message Broker Model to deliver the most flexible, user-definable and cost-effective solution.

All four of these models can share data between PSAPs, but only the Intelligent Hub Model and Message Broker Model can support regional PSAPs with different CAD vendors.

Three primary vendors have emerged to provide either an Intelligent Hub Model, a Message Broker Model, or a hybrid Intelligent Hub-Message Broker Model solution. These solutions have been coined CAD-to-CAD products, because they form a data bridge between disparate CAD systems allowing data to be shared.

Within these CAD-to-CAD products there are two different levels of data sharing:

- The first is a one-way, view-only, interface that is used to extract data from each participating PSAPs CAD system and shared it with all of the participating PSAPs. The one-way, view-only, interface is very cost effective and does not require participation by each PSAP's CAD vendor, but it is very limiting. In a one-way, view-only interface data can be viewed by all participating agencies, but the data cannot be acted upon. For example, one PSAP can share information that there is an auto accident with injury at the intersection of Main/First, but no resources can be shared to assist with the incident.
- The second is a bi-directional interface used not only to extract data from each participating PSAPs CAD system, but more importantly it can share resources and incident information with each PSAPs CAD system. All data, including alerts, incident and narrative information, resources and text messages, can be shared between all participating PSAPs. This functionality means that any PSAP can send incident information to any other PSAP and each PSAP can share resources with other PSAPs. This allows multiple PSAPs to share a single incident and each one can electronically dispatch fire, EMS and police units based on mutual aid or regional resource sharing agreements. The bi-directional interface can also automate mutual aid responses, reduce response time and eliminate typing errors by telecommunicators.

All three of the CAD-to-CAD vendors provide solutions that address one or both of the connectivity options, one-way interface and/or bi-directional interface.

2e Regional CAD-to-CAD Data Interoperability Recommendations

Our team found widespread support for establishing CAD-to-CAD connectivity between all of the metro region PSAPs during our interview process. Prior to these discussions, steps were taken by some of the PSAPs to share data, and some even implemented a one-way, view-only CAD-to-CAD solution; but a comprehensive regional bi-directional CAD-to-CAD solution has not been attempted.

Our team's recommendations are based on the metro region PSAP interview process, industry knowledge and availability of COTS CAD-to-CAD product solutions.

We recommend that the MESB procure a bi-directional COTS CAD-to-CAD solution that will interconnect all metro region PSAPs. Should the MESB choose to purchase a COTS CAD-to-CAD solution on behalf of metro region PSAPs, it could consider purchasing a solution robust enough to allow neighboring counties/PSAPs to participate, if the MESB makes that policy decision. Winbourne acknowledges that allowing non-metro agencies to participate raises political and legal issues for the MESB that need to be considered.

We further recommend the use of a Request for Proposal (RFP) process that includes a detailed CAD-to-CAD operational and technical requirements section in order to procure the COTS CAD-to-CAD solution that best meets the needs of the metro region PSAPs.

The detailed CAD-to-CAD requirements need to address the following minimum features and functions:

- The CAD-to-CAD solution needs to be based on the Intelligent Hub Model, the Message Broker Model, or a hybrid Intelligent Hub-Message Broker Model
- The solution needs to support a standard Application Program Interface (API)
- Data sharing needs to be bi-directional in nature and provide each PSAP the capability to decide what information and resources will be shared
- Provide capability to track and view the status of all resources and assets of all agencies, in real-time
- Allow viewing and the ability to add information to any shared incident/call
- Ability to transfer incident/call information between all PSAPs CAD systems
- Send, receive and acknowledge requests for resources
- Approve or deny the request for resources
- Handle unit recommendations within each CAD supported by CAD-to-CAD.
- Send incident information to another PSAP or approved resource
- Send supplemental, hazard, premise or additional relevant information to another PSAP or approved resource

- Send information to another PSAP's mobile data computer system
- Support mutual aid and automatic aid agreements within CAD-to-CAD
- Support NG9-1-1 data including texting, photos, video, social media, electronic fire/burglar alarms, panic buttons, car-telematics, smartphone apps, etc.

While these are a few of the CAD-to-CAD requirements, we recommend partnering with a consulting firm that has extensive industry knowledge and customer references in providing CAD-to-CAD acquisition services in order to procure a CAD-to-CAD solution that meets all of the needs of the metro region PSAPs.

2f Legal Issues of a CAD-to-CAD Interoperability Solution

MESB requested Winbourne identify any legal issues which were raised in CAD-to-CAD interoperability solutions implemented in other parts of the country, and which may occur if such a solution was implemented in the metro region. Winbourne could not find any cases or legal precedence that involved sharing CAD data via a CAD-to-CAD system.

Because most data that is shared through a CAD-to-CAD solution is not considered sensitive, Winbourne surmises that the only legal issues that may arise are with the permission of each PSAP to share their information and resources with all of the other PSAPs. Typically, there are mutual aid, automatic aid or other data and resource sharing agreements that PSAPs sign in order to mitigate any legal concerns. Since MESB has cooperative agreements with some of the metro region PSAPs for other projects, we recommend taking a similar approach to cover the ability to share CAD-to-CAD related data and resources.

We have found that selecting a CAD-to CAD solution which includes the ability for each agency to control what information and resources it shares with other PSAPs eliminates concerns and helps with participation. This, on a local level, helps each PSAP control what information and resources it will share based on the approval of their legal representatives.

Winbourne Consulting can supply guidelines and best practices to help MESB develop CAD-to-CAD governance language that can augment the current agreements between the metro region PSAPs.

2g Report and Recommendations

Winbourne conducted a thorough analysis, including extensive interviews with all of the metro region PSAPs, to determine the feasibility of a regional CAD-to-CAD interoperability solution.

Our research shows that all of the metro region PSAPs are in favor of a CAD-to-CAD interoperability solution, with some of the PSAPs having taken steps toward interoperability on their own. All of the metro region PSAPs interviewed expressed full support for a regional CAD-to-CAD interoperability solution, if the MESB coordinated its procurement and was involved in its management. The PSAPs felt that MESB was in the best position to offer a neutral and supportive environment for all of the metro region PSAPs to participate equally in a CAD-to-CAD interoperability solution.

Based on our analysis, interview process, industry knowledge and other similar interoperability projects we highly recommend that MESB procure and implement a regional COTS CAD-to-CAD solution that will interconnect all of the metro region PSAPs.

In conclusion, Winbourne consulting would like to thank MESB for the opportunity to conduct this valuable study and we are pleased to recommend that MESB strongly consider the procurement and implementation of a regional COTS CAD-to-CAD interoperability solution.

2g.1 CAD-to-CAD Cost Estimate

We based our cost estimates by contacting the CAD vendors of CAD systems utilized in the metro region PSAPs and the CAD-to-CAD solution vendors. Project management and implementation cost estimates are based on our experiences with these types of projects. Following are tables depicting the low, high and median cost estimates for each phase of the CAD-to-CAD interoperability solution project.

The table in Figure 5 depicts the cost estimates for each metro region PSAP's CAD system to interface with the selected CAD-to-CAD solution API.

Description	# of PSAPs	Low Cost Estimate	High Cost Estimate	Low Total for all PSAPs	High Total for all PSAPs
CAD Interface Cost					
TriTech	13	$40,000	$100,000	$520,000	$1,300,000
Tyler Technology (New World)	1	$60,000	$100,000	$60,000	$100,000
Superion (OSSI)	1	$60,000	$100,000	$60,000	$100,000
CIS (Computer Info Systems)	1	$40,000	$60,000	$40,000	$60,000
ProPhoenix	1	$40,000	$60,000	$40,000	$60,000
Zoll	1	$40,000	$60,000	$40,000	$60,000
Hexagon/Intergraph	1	$60,000	$100,000	$60,000	$100,000
CAD Interface Cost Totals	**19**			**$820,000**	**$1,780,000**

Figure 5

In addition, the cost for the Minnesota State Patrol to join the metro region CAD-to-CAD solution ranges from $60,000 to $100,000 for the CAD interface to the CAD-to-CAD interoperability solution API, and from $40,000 to $60,000 for the connection to the CAD-to-CAD interoperability solution.

The table in Figure 6 depicts the procurement and project management low, high and median cost estimates:

Description	Low Cost Estimate	High Cost Estimate	Median Cost Estimate
CAD-to-CAD Procurement/Implementation			
CAD-to-CAD detailed requirements	$15,000	$25,000	$20,000
CAD-to-CAD RFP support, vendor demonstrations, selection and contract negotiation	$15,000	$25,000	$20,000
CAD-to-CAD implementation and project management	$150,000	$300,000	$225,000
CAD-to-CAD Procurement/Implementation Totals	**$180,000**	**$350,000**	**$265,000**

(Figure 6)

The table in Figure 7 depicts the CAD-to-CAD Product and Solution low, high and median cost estimates:

Description	Low Cost Estimate	High Cost Estimate	Median Cost Estimate
CAD-to-CAD Product and Solution			
CAD-to-CAD software	$500,000	$2,100,000	$1,300,000
19 CAD interfaces to CAD-to-CAD software	$400,000	$600,000	$500,000
CAD-to-CAD training	$50,000	$260,000	$155,000
CAD-to-CAD project management	$150,000	$600,000	$375,000
CAD-to-CAD Solution/Product Totals	**$1,100,000**	**$3,560,000**	**$2,330,000**

(Figure 7)

The table in Figure 8 depicts the total budgetary requirements for the entire project using the low, high and median cost estimates:

Description	Low Cost Estimate	High Cost Estimate	Median Cost Estimate
CAD Interfaces to CAD-to-CAD solution Totals	$820,000	$1,780,000	$1,300,000
CAD-to-CAD Procurement/Implementation Totals	$180,000	$350,000	$265,000
CAD-to-CAD Solution/Product Totals	$1,100,000	$3,560,000	$2,330,000
CAD Interfaces and CAD-to-CAD Procurement/Implementation and Solution/Product Totals	**$2,100,000**	**$5,690,000**	**$3,895,000**

(Figure 8)

The table in Figure 9 depicts the ongoing yearly budgetary requirement for MESB to support the CAD-to-CAD solution and for the ongoing yearly cost for each PSAP to support their CAD interface to the CAD-to-CAD solution:

Description	Low Cost Estimate	High Cost Estimate	Median Cost Estimate
CAD-to-CAD Solution Annual Maintenance Totals	**$200,000**	**$600,000**	**$400,000**
Each PSAP's CAD interface to the CAD-to-CAD Solution Annual Maintenance Totals	**$12,000**	**$18,000**	**$15,000**

(Figure 9)

The table in Figure 10 depicts the cost per PSAP per year over a five-year period.

This cost was derived by multiplying the number of positions within each PSAP by the cost per position to get total cost estimates per year per PSAP:

County	Agency	Positions	Low Cost Estimate per Year	High Cost Estimate per Year High	Median Cost Estimate per Year
Anoka	Anoka County Central Communications	15	38,722	93,930	66,326
Carver	Carver County Sheriff Office Communications	9	23,233	56,358	39,796
Carver	Ridgeview Medical	4	10,326	25,048	17,687
Chisago	Chisago County Emergency Communications	10	25,815	62,620	44,217
Dakota	Dakota County Communications	25	64,537	156,550	110,543
Hennepin	Bloomington PD	12	30,978	75,144	53,061
Hennepin	Eden Prairie PD	4	10,326	25,048	17,687
Hennepin	Edina PD	5	12,907	31,310	22,109
Hennepin	Hennepin County Sheriff Communications	45	116,166	281,789	198,978
Hennepin	Hennepin EMS Communications	6	15,489	37,572	26,530
Hennepin	Minneapolis Emergency Communications	41	105,840	256,741	181,291
Hennepin	MSP Airport	10	25,815	62,620	44,217
Hennepin	North Memorial Ambulance	8	20,652	50,096	35,374
Hennepin	St. Louis Park PD	3	7,744	18,786	13,265
Hennepin	University of Minnesota	5	12,907	31,310	22,109
Isanti	Isanti County Sheriff	3	7,744	18,786	13,265
Ramsey	Allina Health EMS	17	43,885	106,454	75,169
Ramsey	Ramsey County Emergency Communications	65	167,796	407,029	287,412
Scott	Scott County Communications	8	20,652	50,096	35,374
Washington	Washington County Communications	18	46,466	112,716	79,591
	Total Positions	**313**	**808,000**	**1,960,000**	**1,384,000**

(Figure 10)

The table in Figure 11 depicts the cost per unit per year over a five-year period. This cost was derived by multiplying the number of units per shift by the cost per unit to get total cost estimates per year per PSAP:

County	Agency	Units per Shift	Low Cost Estimate per Year	High Cost Estimate per Year	Median Cost Estimate per Year
Anoka	Anoka County Central Communications	100	46,732	113,360	80,046
Carver	Carver County Sheriff Office Communications	30	14,020	34,008	24,014
Carver	Ridgeview Medical	10	4,673	11,336	8,005
Chisago	Chisago County Emergency Communications	46	21,497	52,146	36,821
Dakota	Dakota County Communications	255	119,167	289,069	204,118
Hennepin	Bloomington PD	100	46,732	113,360	80,046
Hennepin	Eden Prairie PD	10	4,673	11,336	8,005
Hennepin	Edina PD	20	9,346	22,672	16,009
Hennepin	Hennepin County Sheriff Communications	181	84,585	205,182	144,884
Hennepin	Hennepin EMS Communications	26	12,150	29,474	20,812
Hennepin	Minneapolis Emergency Communications	300	140,197	340,081	240,139
Hennepin	MSP Airport	40	18,693	45,344	32,019
Hennepin	North Memorial Ambulance	50	23,366	56,680	40,023
Hennepin	St. Louis Park PD	12	5,608	13,603	9,606
Hennepin	University of Minnesota	10	4,673	11,336	8,005
Isanti	Isanti County Sheriff	24	11,216	27,206	19,211
Ramsey	Allina Health EMS	50	23,366	56,680	40,023
Ramsey	Ramsey County Emergency Communications	250	116,831	283,401	200,116
Scott	Scott County Communications	65	30,376	73,684	52,030
Washington	Washington County Communications	150	70,098	170,040	120,069
	Total Units per Shift	**1,729**	**808,000**	**1,960,000**	**1,384,000**

(Figure 11)

The table in Figure 12 depicts the five-year total cost estimates for the initial procurement and implementation of the CAD-to-CAD solution, product and CAD interfaces, and the ongoing maintenance costs for the CAD-to-CAD solution and CAD interfaces:

Description	Low Cost Estimate	High Cost Estimate	Median Cost Estimate
CAD-to-CAD Procurement and Implementation Totals	$180,000	$350,000	$265,000
CAD-to-CAD Solution and Product Totals	$1,100,000	$3,560,000	$2,330,000
CAD Interfaces to CAD-to-CAD solution Totals	$820,000	$1,780,000	$1,300,000
5 Years of CAD-to-CAD Solution Maintenance Totals	$800,000	$2,400,000	$1,600,000
5 Years of 19 PSAPs CAD interface Maintenance Totals	$1,140,000	$1,710,000	$1,425,000
5 Year Cost of CAD-to-CAD and CAD interfaces Totals	**$4,040,000**	**$9,800,000**	**$6,920,000**

(Figure 12)

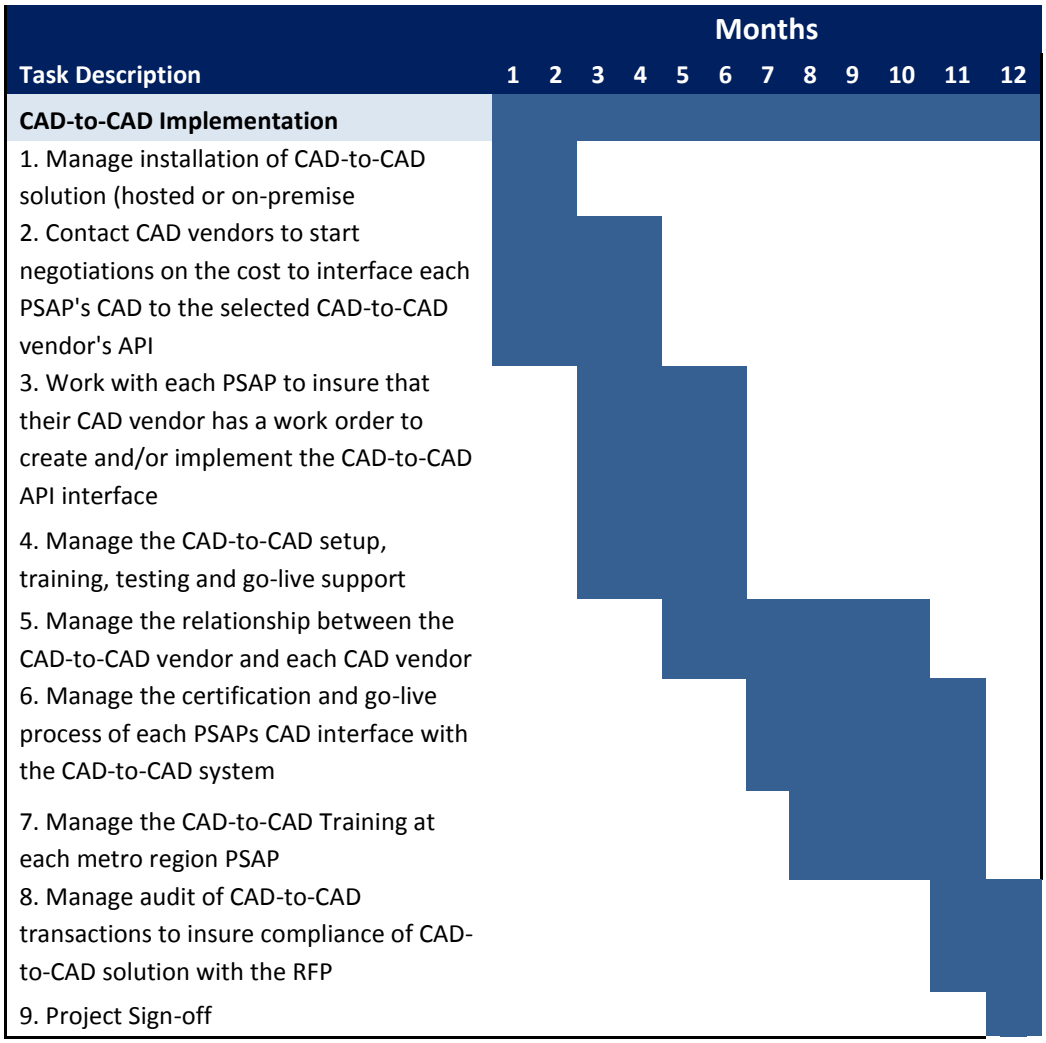
The CAD-to-CAD solution and CAD interface cost estimates, while having a relatively large variance, reflect the cost estimates received from the three major CAD-to-CAD vendors and the PSAPs' CAD vendors. The procurement and project management estimates were based on our knowledge of the industry and other similar projects.

2g.2 CAD-to-CAD Estimated Implementation Timeline

Since the CAD-to-CAD integration requires procuring and implementing a CAD-to-CAD solution as well as coordinating the CAD interfaces with each metro region PSAPs CAD vendor, we broke down the estimated timeline into two sections; CAD-to-CAD implementation and CAD-to-CAD procurement.

The CAD-to-CAD implementation timeline reflects the management of all of the installation processes including setup, administrative and end-user training, testing along with the administration of the CAD-to-CAD solution from start to go-live, as well as testing and certification of each PSAPs CAD vendor interface to the CAD-to-CAD solution.

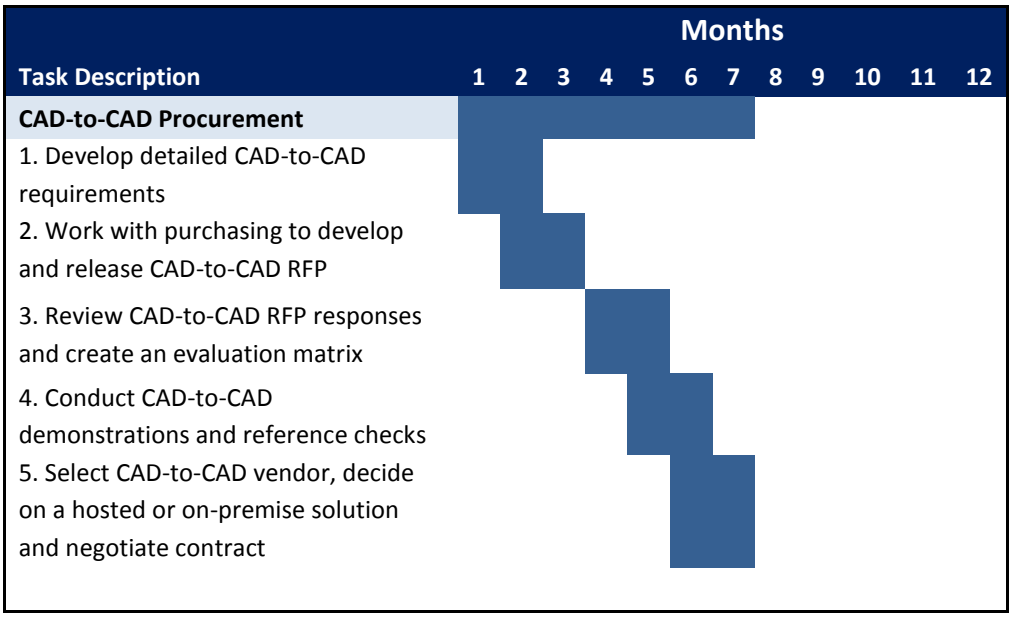
The table in Figure 12 depicts the tasks required to implement a CAD-to-CAD solution and certify all PSAPs CAD interfaces to the CAD-to-CAD solution:



(Figure 13)

The CAD-to-CAD procurement timeline reflects the development of a detailed requirements document, working with purchasing to release a RFP, reviewing, evaluating and rating the CAD-to-CAD responses, doing scenario-based demos with the CAD-to-CAD vendors to insure that the best solution is selected, selecting the vendor with the best CAD-to-CAD solution for the metro region, and negotiating the contract.

The table in Figure 13 depicts the tasks required to procure a CAD-to-CAD solution:



(Figure 13)

In Summary, the CAD-to-CAD procurement process is estimated to take between 6 to 7 months to complete.

The CAD-to-CAD implementation, CAD interface testing and certification of each PSAP is estimated to take between 12 to 18 months to complete.

Based on these estimates the entire project, from start to finish, is predicted to take between 18 and 24 months to complete.

2g.3 Scenario-Based Findings and Recommendations

The following scenarios and recommendations were developed based on our interview process with the metro region PSAPs; they substantiate our recommendation for a regional CAD-to-CAD solution and how it could positively affect the cooperation, data and resource sharing capability of the region.

The scenarios and recommendations aren't in any specific order and reflect the sentiments of the PSAPs that brought them up during our interview process.

The following table depicts scenarios and recommendations based on the interview process of the metro region PSAPs:

MESB PSAP Scenarios and CAD-to-CAD applicability

Finding: Current Methods to Obtain Mutual Aid

Many of the agencies hail over the radio when requesting mutual aid. They found this to be faster than calling on a non-emergency telephone line, which often goes unanswered if the other agency is busy. Some agencies do both, hailing via radio and calling via telephone for mutual aid. These methods are time consuming and may result in a mistake on the address, which could further delay a response. This puts a great workload on the call takers and/or dispatchers.

Recommendation:

Winbourne Consulting recognizes that all public safety agencies would benefit from using a CAD-to-CAD solution. By being able to send a CAD incident directly to the agency from which they are requesting mutual aid, they can save seconds, if not minutes in getting a response started. They will also be able to ensure that the mutual aid agency has all of the correct and current call information. Use of CAD-to-CAD could dramatically reduce the workload on both call takers and dispatchers.

Finding: Mapping

None of the agencies have the ability to see a map display that shows its units and those of its neighboring jurisdictions. When an agency has requested mutual aid, they do not have the ability to see how far away the mutual aid agency responders are. For example, if an EMS unit is on scene and awaiting law enforcement response for safety reasons, this information is critical to the safety of the paramedics on scene.

Recommendation:

Winbourne Consulting recognizes that all public safety agencies could benefit from being able to look at a regional map and see all available and activity resources. While this is not something that is used all of the time, in certain situations it can provide a critical first responder safety feature and situational awareness.

Finding: Automatic Mutual Aid

All fire agencies within Hennepin County have an automatic mutual aid agreement for working structure fires. When an agency is requesting mutual aid for a working structure fire, the dispatcher does not have to get permission from fire command as the appropriate available units are automatically dispatched.

Recommendation:

Winbourne Consulting recommends that each metro region PSAP evaluate their individual mutual aid agreements with other PSAPs and determine which ones could be automatic mutual aid agreements. CAD-to-CAD systems that have been implemented in other parts of the country have successfully expanded mutual aid agreements to automatic mutual aid agreements that incorporate fire, EMS and law enforcement services.

Finding: Mutual Aid Response

Agencies throughout the nine-county metro area often respond on mutual aid events. One example is when protesters close down major roadways. The only way to communicate regionally is via the radio system. This can be problematic, and transmissions can be missed and/or units can walk over each other in an active situation.

Recommendation:

Winbourne Consulting recommends that metro region PSAPs evaluate how a CAD-to-CAD solution could be utilized in major mutual aid events and develop standard operating procedures accordingly. The CAD-to-CAD map can also be used as a tool for a real-time view of staging and where current units are located. Emphasis can be placed on using CAD-to-CAD comments from dispatch, first responders and scene command to monitor real time information being provided.

Finding: Records Management

Several law enforcement agencies expressed interest in using CAD-to-CAD as a gateway for sharing RMS or more specifically Master Name Index information throughout the nine-county metro area.

Recommendation:

Winbourne Consulting recognizes that this feature was not part of the original idea of a CAD-to-CAD system but acknowledges the value and officer safety feature this could provide. We recommend asking vendors to offer this function as an optional feature in the predicted CAD-to-CAD RFP.

Finding: Current CAD System

Our analysis shows that most of the PSAPs have CAD systems that will support a CAD-to-CAD interface. The majority of the agencies in the metro region are using some version of CAD from TriTech.

Recommendation:

Winbourne Consulting recommends working directly with TriTech to try to leverage this for a lower CAD-to-CAD interface price.

Finding: Encrypted Radio Channels

Some of the agencies use an encrypted radio channel, but if a responding agency does not have access to the encrypted radio channel a CAD-to-CAD interface could provide a means to share critical information with responding units.

Recommendation:

Winbourne Consulting agrees that a CAD-to-CAD solution would add another method of communicating important incident and officer safety information, and it could help agencies that don't have access to a specific radio channel to communicate. We recommend this topic be addressed when developing the standard operating procedures for this project.

Finding: Dispatcher Workload

Many of the agencies interviewed felt that a CAD-to-CAD solution would help decrease the workload of their dispatchers; many PSAPs are short-staffed and this project would help them all around.

Recommendation:

Winbourne agrees that a CAD-to-CAD solution could help with dispatcher workload. We also recommend doing a study one year after implementation to see what type of impact the solution actually has on dispatcher workload.

Finding: MESB as Leader

The majority of agencies interviewed recognized the importance of having a known regional agency, such as the MESB, as a leader and conduit for this project. Doing so in a hosted CAD-to-CAD environment removes some of the potential political problems that could arise if one user agency were to act as the host.

Recommendation:

Winbourne Consulting agrees with the agencies' viewpoints and, based on previous experiences with other clients, acknowledges that an entity such as the MESB provides a situation that could remove some political push-back. When considering an on-premise CAD-to-CAD solution, Winbourne Consulting recommends choosing neutral sites for both the primary and secondary sites, or utilize a hosted option offered by the CAD-to-CAD vendor.

Meeting Minutes: PSAP Roundtable

Date & Time: Tuesday October 6th, 2020 1000-1200

Location: WebEx

Host contact: Kari Morrissey 763-324-4758 kari.morrissey@co.anoka.mn.us

Agenda Items:

1. Introductions/Attendance:
   Kari Morrissey, Heidi Meyer, Lauren Petersen, Candy Capra, LaVae Robinson, Tony Martin, Jack Cooper, Tonia Klinkner, Dawn Kenyon, Cheryl Pritzlaff, Lisa Vik, Chad Loeffler, Bill Anderson, Sheri Stevens, Linda Curtis, Dan Klawitter, Sara Johnson
2. Additions, changes to the agenda- none
3. Training (new employee and continuing ed.)
   a. Current in-service opportunities
      Regional Response Training - May 17-21, 2021. Multi discipline – active shooter training. 1-day courses. (Edina, Hopkins, St Louis Pk, Eden Prairie have done in the past). Goal is to get the new dispatcher and refresher for others. $30-40. When ready there will be a registration period.
   b. Metro curriculum change/maintenance process –
      9-1-1 Error Reporting Data best practice document will be added to the curriculum. Question posed to group on whether this should this be a standard or best practice. Consensus is best practice.
   c. CTO training/roundtable discussion update – MACC has experienced a slowdown of volume – questioned group on thoughts to extend probation as there isn't a big opportunity to test new employee skills, not as much opportunity to determine what will happen when volume picks up. Anoka adjusted classroom time, will add time for simulated calls. State Patrol has made individual requests for extension of probation; worked well for one who flourished, the other was not successful. Minneapolis has gotten extensions on case by case basis, but union was not in favor of overall changing the period to 18 months when previously explored. Tony advised in Edina the probation doesn't starts until the employee is working independently.

      CTO roundtable meetings have not taken place due to COVID- 19. Would be a benefit if we could attempt to provide a WebEx for CTO group. Heidi and Kari will set up a WebEx for a day and night shift. Send Heidi ideas for the agenda.

      Anoka has purchased the HipLink Integrated Public Alert and Warning System (IPAWS) module. This will allow supervisors to send emergency messages from the HipLink interface to FEMA using defined communication gateways. After doing some research, Anoka determined this product to be an efficient and easy product to use for supervisors to send emergency messages in a timely manner.
   d. General training questions, updates, etc. – nothing to discuss.

e. Leadership Mentoring – Anoka has some internal informal mentoring but wants a more formal program.
f. 911 Error data reporting (see item b above)
g. Location Accuracy services – Rapid SOS – Who's using it and how is it working? Was it used during the 911 outages? Lisa Vik – dispatchers use it all the time when there are address location issues. They tested some calls during outage – 2 showed up and 1 did not. The 1 that didn't show up had displayed in past testing. This indicated that RapidSOS may not be a catchall. They have a Tyler Technologies/New World CAD upgrade scheduled. RapidSOS will be integrated when they do their upgrade. This will allow both locations to be pinned on the map for their dispatchers.

   what3words – This is a free service like Rapid SOS that can send a link to a cell phone using 3 words and can pinpoint their location. The company has divided the world into 10 X 10-foot squares and preassigned 3 simple words to each square. That will be the only square in the word with that 3-word combination. There are coordinates behind the words so you can find out the coordinates or vice versa. Users do not need to download the app to use it. A dispatcher can send a link to the caller and if the caller has a data connection, they can click the link and see the 3 words and then repeat them back to the dispatcher. Or, if the caller has the app already loaded, they can open the app and find their 3 words because the map is already downloaded and using GPS and not a data signal.

   Dakota uses "National Grid" which sounds like a similar program. If the caller can supply the national grid, they add it into their address field very similar to how they add latitude longitude locations. They currently use it in their county parks (signs are marked with the national grid number) and for river calls, if the caller can open the website and give them their location.

   HENN/North Cad2Cad – Aware – will replace Fat Pot - anyone can connect because it's a Central Square Cloud (their cloud) so other CS customers would be able to utilize.

4. Standards – T-CPR small discussion, waiting for next steps.
5. Events and exercises (plans, meetings, 205's, impact on operations) – see above. State Patrol has been in meetings regarding possible protests related to the Pipeline in Crow Wing Co. area. Has anyone been working or making any changes for the Election on Nov 3rd? Hennepin county will probably up staff in preparation.
6. PSAP technical updates and info (CAD, radio, phone and other systems)
   Metro Transit will start to take text to 911 transfers within the next couple of weeks. They will continue to operate their internal texting as well. Metro Transit inquired what everyone's text to 911 volume is. Hennepin 100 per month / Anoka 20-25 per month / MACC 5-10 per month / State not specific but minimal / Dakota maybe 30.

   Anoka will be doing a CAD upgrade to version 20.3.3 – this is big jump being done to help more with their field ops problem but also will change the addressing issue when a premise is changed the premise field doesn't update.

   ASAP to PSAP – Ramsey county going live in production October 19th. Anoka County has meetings scheduled this week to start the ASAP to PSAP groundwork.

7. QA/QI – general updates, questions, etc. - nothing to discuss.
8. PSAP operational updates and information (management, staffing, schedules, major changes) – around the table updates from each agency
9. Meeting calendar 2021

    January 5th, 2021 TBD (Likely a Web-ex)
    April 6th, 2021 TBD
    July 6th, 2021 TBD
    October 5th, 2021 TBD

Roundtable:

Anoka will have 2 supervisor openings. Planned retirement. Oct 19 next classroom, starting 4. Scheduling – staying on emergency schedule through next year. Staff like the current rotation and voted overwhelmingly to stay on it – modification will be one day shortened day on the 48-hour week. It will be an 80 hour pay period, a 36-hour week and a 44-hour week. Ordered a seek scan camera – for employees to check temp. using CARES $ - fed funding for COVID related and there is a deadline of when to spend.

Minneapolis – new class to start in Nov? Group to backgrounds. No big technical updates.

HC - Tonia – 10 in training, 3 more on Nov 9th.

MACC – plexiglass dividers to help with social distancing, generally healthy team. Windows 10 upgrade occurring and replacing servers in the next few months to upgrade CAD operating system.

State – lost 3 trainees. 3 more in training. Hope to post openings in the next month or so.

Metro Transit – 2 in training, call volume down a little, ridership is down which affects their volume. Holding their own.

Wash Co – 3 in interviews and backgrounds, all good so far.

Dakota – 66 applicant/only 33 tested/only 10 passed (40 is their KPH and lost most due to typing speed) – will interview in Oct. Video wall being installed by end of year. Temp screening/scan just implemented on Friday and records info/frees up a supervisor.

Eden Prairie – fully staffed – 12 hr. schedule for short period in spring – back to normal schedule 8.75hrs (5 on/3 off). All healthy.

HEMS – open and posted for applications. Still on emergency/COVID schedule (2/12 & 2/8) like the 4/12s but will reevaluate in Dec. to decide if keep or go to another schedule. Since spring they split staff ½ at GV and other ½ at HEMS – then all moved all out to GV which enabled social distancing that their hospital location did not support.

Meeting Adjourned.

9-1-1 Automatic Location Information (ALI) Data Error Reporting

Objective

To create a best practice for reporting issues related to ALI data received at the PSAP with a 9-1-1 call. Typical issues to report would be: 1) incorrect ALI location, call back number, or subscriber name, 2) a No Record Found (NRF) condition, or 3) a misrouted 9-1-1 call.

Background

There are no current timeframes on the PSAP community for 9-1-1 trouble reporting, repair service, and call data or routing inquiries. Thus, there is no existing standard for PSAPs to report the ALI data errors in the MESB 9-1-1 service standards, only standards for the 9-1-1 system integrator and telecom service providers to investigate and respond to those reports.

Operational context

Outlines best practice for PSAP responsibilities for 9-1-1 ALI data error reporting.

Recommended Operational Best Practice

1. Each PSAP should have a documented and trained process for call takers to identify and report ALI data errors. The process should include call takers obtaining and documenting (to the extent possible) the correct/appropriate information to assist in error resolution.
2. Call takers should complete a 9-1-1 Inquiry Form and report ALI data errors to the PSAP data coordinator within one (1) business day.
3. Each PSAP should have two staff members trained as the PSAP data coordinator.

   Each user would have his/her own token fob and 911NET account. Each user would submit ALI discrepancy reports, as well as MSAG, TN or ESN changes. One user would be designated with Intrado as the primary user for the PSAP's MSAG change request referrals. The user accounts for the PSAP would be linked such that users would see/search all the transaction history for the PSAP and have visibility to transactions of the other user(s) from the PSAP. Each user's 911NET *Work Snapshot* would identify the active/inactive transactions for the PSAP, allowing any user to update those transactions.

4. PSAP data coordinators should review the ALI data errors reported by call takers and confirm their validity prior to submitting them on 911NET. Submissions will also be reviewed by MESB staff after they are entered into 911NET.
5. PSAP data coordinators should submit ALI data errors on 911NET within one (1) business day of receipt.
6. PSAP data coordinators should consult with MESB staff concerning issues or trends identified in the ALI data errors for their PSAP.
7. Responsibilities of the PSAP data coordinator would include:

   MSAG

   a. Ensure the PSAP's MSAG accurately reflects the current street names, address ranges, community names, and ESN assignments for the PSAP serving area
   b. Maintain the accuracy of the PSAP's MSAG by reviewing the content of the MSAG and submitting all necessary additions, changes, or deletions on a regular and timely basis

c. Update the PSAP's MSAG based on information from addressing, engineering, and/or GIS authorities to ensure MSAG is accurate and up to date
d. Retain quarterly MSAGs, providing copies to addressing, engineering, and/or GIS authorities as needed

911NET

e. Log into 911NET regularly to check for new or outstanding activity
f. Be familiar with the 911NET MSAG, ALI, TN, ESN, and Audit functions, contacting MESB or the Intrado data analyst with questions
g. Respond quickly to911NET MSAG Change Requests from telephone service providers/Intrado
h. Establish and encourage use of a process with call takers to identify errors/problems or discrepancies with the ALI data displayed on 9-1-1 calls
i. On a timely basis, enter all discrepancies related to ALI display data into 911NET; Verify that 911 problem reports are complete and accurate with an MSAG valid street address before entering in 911NET
j. Update ESN information as needed to add, change, or delete ESNs for the PSAP's serving area. Update ESN response agency display information as necessary
k. Review and archive completed 911NET transactions
l. Watch for suspended and/or rejected 911NET transactions and respond accordingly

Addressing/GIS

m. Establish relationships and workflows with addressing, engineering, and GIS authorities for the PSAP's serving area to ensure awareness of new streets, extensions, new developments, annexations, readdressing, etc. on a timely basis
n. Investigate and respond to questions related to the MSAG and official addresses in the PSAP's serving area in a timely manner

ESNs/Response Agencies

o. Establish contacts with responder agencies for the PSAP's area to be aware of changes in boundaries/service areas
p. Update ESNs and/or MSAG resulting from responder boundary changes

Coordination

q. Establish relationships with other PSAPs in the metro area, coordinating and resolving issues dealing with border areas, response, PSAP boundaries, etc.
r. Establish relationships with GIS authorities in the PSAP area
s. Have access to the MESB online PSAP Manual for reference (as needed). Notify MESB of any corrections or updates pertaining to the PSAP's data or serving area
t. Contact the MESB staff with any questions or concerns

References

MN Statue 403 makes no reference to the subject.

In the *NENA Data Standards for Local Exchange Carriers, ALI Service Providers & 9-1-1 Jurisdictions* (NENA 02-011, Version 7.1, May 12, 2012) under *Section 7 Government Entities*, there are the following two sections that seem to be applicable:

7.3.3 As NRFs, misroutes, or erroneous ALI displays are noted at the PSAP, it is required that a 9-1-1 Inquiry Form be completed by the call taker and returned to the Jurisdiction's 9-1-1 Database Coordinator within one (1) business day. The 9-1-1 Database Coordinator is then responsible for reviewing, researching, and forwarding the inquiry to the DBMSP within one (1) business day. Refer to NENA 02-015. NOTE: In some areas, where applicable, 9-1-1 Inquiry forms for erroneous ALI displays are routed directly to the entity providing the dial tone (Service Provider) based on the Access Infrastructure Provider NENA ID displayed at the time of the call.

7.4 The Jurisdiction is responsible for obtaining as much information as possible on the NRF and reporting the information within one business day to the SP. It is desirable that the Jurisdiction locate the SP for a Wireless Call by using the various systems available (NPAC, refer to NENA 02-015 and Section 27 of this document). Wireline NRF reports may be forwarded directly to the DBMSP. The ANI on the NRF is absolutely necessary. The date and time of the call are critical and must be provided for any investigation to occur. Any other information obtained from the caller is helpful for investigation of the NRF.

Metropolitan Emergency Services Board
9-1-1 Technical Operations Committee
Network Report
October 15, 2020

Agenda Number 6.C.

1. Text-to-9-1-1:
Washington and Scott Co. are the only remaining primary PSAPs in the metro area that have not yet implemented text capabilities on their answering applications. Both PSAPs are planning to implement text messaging concurrent with their next 9-1-1 answering application upgrade later this year.

2. Firewall Implementation:
The team working on the ESInet firewall implementation project is now focusing on turning up some of the greater MN PSAPs. It is not known at this time when the team will come back to the metro area. The MESB will pass on additional firewall implementation dates as they become available.

3. Other PSAP Activity:
(none)

4. NG9-1-1 ESInet:
A three-way contract between ECN, the MESB, and Inteliquent covering the 9-1-1 system ingress from the telecommunications service providers to the NG9-1-1 core services has been finalized. Implementation meetings have begun and will continue on a weekly basis as the project progresses. Additional work remains for the MESB and ECN on the RFP(s) for NG9-1-1 core services and 9-1-1 system egress connectivity between the core services and the PSAP.

The existing 9-1-1 services contract with CenturyLink will be extended until November 2021. This is the third extension of that contract and the last one permitted under the State's purchasing guidelines. The NG9-1-1 core services and ESInet egress connectivity RFP work mentioned above are intended to replace the current 9-1-1 services contract. It is anticipated that there will be a transition period as services are moved from the existing 9-1-1 service system to the new NG9-1-1 core services.

The MESB is focusing on giving our PSAPs better continuity-of-operations (COOP) options as well as enabling workload sharing for the PSAPs that are interested in working together. We want to ensure that our ESInet infrastructure can support shared/hosted and cloud-based applications and not limit the use of the ESInet to just handling 9-1-1 traffic. We are working now with ECN to consider ESInet options that would rehome our PSAP ESInet connections to redundant, diverse datacenters that can become the hubs for delivery of shared/hosted and cloud-based applications to all the metro PSAPs such as CAD, CAD-to-CAD interoperability, logging, as well as 9-1-1 answering applications.

In April 2018, NENA published a new NG9-1-1 ESInet Design document that outlines new modifications to the existing ESInets in use today. The new design focuses on increasing reliability and resiliency by incorporating multiple network service providers using different network protocols (e.g. MPLS, Ethernet, cable broadband Internet, wireless carrier broadband Internet). The MESB will continue to work with ECN to develop an implementation strategy to

bring the metro area ESInet configuration into compliance with the NENA design recommendations.

Metropolitan Emergency Services Board
9-1-1 Technical Operations Committee
9-1-1 Data Report
October 15, 2020 Meeting

1. **Importance of GIS for 9-1-1:** PSAP managers are strongly encouraged to assist their GIS counterparts in communicating to key decisionmakers and county leadership what a **vital role GIS has to their current and future PSAP operations**. Geospatial datasets provide foundational data for PSAP CAD/mapping systems and future NG9-1-1 core services, as well as support many other non-public safety uses that are important to cities and counties.

2. **Regional NG911/GIS Data Synchronization and Preparation:**
    a. Metro county GIS departments continue to finalize their transition to an updated regional **address point aggregation and schema validation process tool**.
    b. MetroGIS has supplied the metro regional geospatial datasets to ESRI for use in the **ESRI Community Map Program**. By the end of October, the authoritative data should appear in ESRI basemap services that utilize Community Map data (rather than strictly HERE data). The county GIS managers have also stated that Google appears to be more open to accepting the local authoritative data now, so MetroGIS may be reviving their pursuit of submitting regional datasets to Google as well.

3. **Regional GIS-derived MSAG activity:** The transition of PSAP MSAGs to ones derived from each county's GIS data continues. The Ramsey County **GIS-derived MSAG** has been provided to Lumen/Intrado and is in the process of being transitioned. The Isanti County GIS-derived MSAG is in final preparation stages at MESB. Once transitioned, the GIS-derived MSAGs will be maintained manually through 911NET until future methods and processes are put in place.

4. **ECN NG9-1-1 Federal Grant:** Both Sherburne County and the MESB are engaging in their procurement processes for appropriate vendors to perform the **GIS work authorized under the NG9-1-1 federal grant**. Sherburne County's grant is for GIS development work and the regional grant is for GIS-derived MSAG processes.

5. **Statewide GIS Data Standards:** The public review period for the proposed revisions to the **Minnesota Geospatial Advisory Council (GAC) road centerline and address point schemas** ends in mid-October**.** Those revisions, proposed by the GAC Standards Committee, include the addition of legacy street name elements recommended in the NENA GIS data model. Should these revisions become approved, the metro regional partners will consider how to accommodate the updates for the metro area datasets.

6. **New Class of Service Codes (WDL2, WDL1, WCVC, and VNOM):** Comtech is finalizing the **activation plan for the new enhanced location class of service codes** at MESB PSAPs (except for Washington County that has already activated.) PSAPs will be notified of their planned activation date. Comtech's guidance on how a PSAP can perform self-initiated test calls was provided to PSAPs as part of the September TOC packet. It will be re-distributed in advance of the PSAP's activation date. As previously communicated, if they have not done so already, PSAPs should complete work now with their CAD/mapping vendor for any necessary updates to the system interface/setup to map caller locations for calls using these new codes, in addition to mapping WPH2 calls. This will ensure PSAP readiness for the October Comtech activation date. Dar Pankonie at Washington County has volunteered to be a PSAP resources on this change.

7. **Wireless callback number in ALI:** Lumen/Intrado put scheduling on hold for the remaining PSAPs to have **wireless callback numbers moved to the traditional phone number fields** (as is done with wireline and VoIP). Jake Jacobson will contact the affected PSAPs once scheduling

resumes. This change will avoid a conflict between the callback number and supplemental location information received as part of a wireless dispatchable location. Half the metro PSAPs will require a change.

ONGOING ACTIVITIES

8. **Statewide NG9-1-1 GIS Project:** The SECB NG911 GIS workgroup, under the leadership of Geoff Maas of Ramsey County GIS, meets regularly to discuss the statewide NG911 GIS effort.

9. **Regional GIS data support for Pandemic Response Planning/RapidDeploy Pilot:** The metro regional road centerline, address point, and boundary polygon datasets are being used for map, feature, and geocoding services for the RapidDeploy pilot and Pandemic Response PSAP Consolidation Plan. These services are being hosted by GeoComm. Rather than a custom basemap, an ESRI community basemap is being used for the RapidDeploy Nimbus environment.

10. **Wireless Cell Sector/Routing Data:** MESB continues to process wireless routing updates for all carriers on behalf of the metro PSAPs. Should PSAPs want the routing for a specific cell sector or 9-1-1 call reviewed, just email ***mesbgis@mn-mesb.org*** and MESB staff will investigate.

11. **Regional GIS Data Aggregation:**
    a. **Road Centerline and Address Points:** The MetroGIS/Met Council continues to process regional road centerline and address point dataset updates nightly to the MN Geospatial Commons website. Each metro county's most recent centerline and address point data that has been uploaded to the portal and passed validations is included in the regional datasets. All ten metro counties are using this process. These datasets are in the MN GAC schemas.
    b. **Boundary Polygons:** MESB uploads the regional PSAP, ESZ, MSAG community, law, fire, and EMS boundary polygon layers to the Minnesota Geospatial Commons. The datasets are updated as boundaries change or at a minimum of quarterly. Mobile Positioning Center, Text Control Center, and VoIP Positioning Center vendors are directed to the Commons for downloads of metro's PSAP boundary polygons.

12. **Regional Data Viewer:** The datasets pertinent to regional 9-1-1 interests are available in the dataviewer developed by MetroGIS/Met Council. (Access link is: https://www.metrogis.org/projects/9-1-1-Data-Viewer.aspx.) PSAP MSAG coordinators are encouraged to use the dataviewer as a resource to reference the geospatial data their county GIS departments consider valid for regional 9-1-1 use.

13. **Quarterly MSAGs:** PSAPs will receive their quarterly MSAG distributions in October.