9-1-1 Technical Operations Committee

Meeting Notice

Thursday
February 15, 2018
10:00 AM

MESB Office
2099 University Ave W
St. Paul, MN 55104

Mark Your Calendars

Metropolitan Emergency Services Board

9-1-1 Technical Operations Committee

Tentative Agenda

February 15, 2018

1. Call to Order

2. Approval of Minutes / Agenda

3. Action Item
   - A. Election of SECB NG9-1-1 Committee Representatives
     1. Representative
     2. Designated Alternate Representative
   - B. By-law Change Request

4. Unfinished Business
   - A. Next Generation 9-1-1
     1. Text-to-9-1-1 implementation
        - a) Greater MN
        - b) Metro Area
     2. Firewall implementation
   - B. PSAP Operations Round Table Work Group update
   - C. Emergency Communications Professionals Training Curriculum Development Project
   - D. CAD-to-CAD Interoperability Feasibility Study
     1. Presentation by Winbourne Consulting, LLC on their findings

5. Pending Business
   - A. Legislation

6. Reports
   - A. Wireless Issues
   - B. GIS Issues
   - C. Data Issues (see attached)

7. Adjourn

Metropolitan Emergency Services Board

9-1-1 Technical Operations Committee
Draft Meeting Minutes
January 25, 2017

Committee Members

X	Heather Hunt, Minneapolis (Chair)	X	Kathy Hughes, Hennepin
X	Val Sprynczynatyk, Anoka (Vice-Chair)		Lisa Lovering, Isanti
X	Bob Dowd, Isanti		Nancie Pass, Ramsey
	Jim Scanlon, Bloomington PD		Jonathan Rasch, Ramsey
	Tim Walsh, Carver		Angie Iverson, Scott
	Jon Eckel, Chisago	X	Darlene Pankonie, Washington
X	Cheryl Pritzlaff, Dakota		Doug Anschutz, Washington
	Troy Ruby, Dakota		

Alternates

	Kyle Blum, Anoka		Bob Shogren, Isanti
	Deb Paige, Carver		Christine McPherson, Minneapolis
	Susan Bowler, Carver		Denise O'Leary, Ramsey
	Vicki Nelson, Dakota		Jill Martens, Scott
	Jeff Schlumpberger, Hennepin		

Others Attending

Pete Eggimann, MESB
Jill Rohret, MESB
Marcia Broman, MESB
Martha Ziese, MESB
Kay Simons, MESB
Scott Wosje, Northland
Jim Soukup, AHEMS
Kari Morrissey, Anoka
Dan Craigie, ECN
Cathy Anderson, ECN
Scott Haas, Scott Co.
Tony Martin, Edina
Heidi Hieserich, Airport
Lisa Vik, Eden Prairie
Vikki Vadnais, AHEMS
Jeff Lessard, U of M
Michael Melby, North EMS
Jake Jacobson, CenturyLink
Matthew Hoffer, CenturyLink
Diane Lind

1. Call to Order

Heather Hunt, Committee Chair, called the meeting to order at 10:01.

2. Approval of Minutes / Agenda

Heather asked for a motion to approve the agenda for the January 25, 2018 TOC.
Two items were added to the agenda: 5.C. By-Law Change and 5.D. Media Data Request
Motion (Heiserich/Dowd) to approve the January 25, 2018 TOC agenda. Approved.

Heather asked for a motion to approve the draft for the November 16, 2017 minutes if there were no corrections or additions.
Motion (Heiserich/Dowd) to approve the draft November 16, 2017 minutes. Approved.

3. Action Items

A. Election of SECB NG9-1-1 Committee Representatives

1. Primary Representative

A committee member asked if anyone knew if Christine McPherson, the current NG9-1-1 Committee Representative was interested in continuing in that role. Christine was not present and no one knew what her interest in continuing was. The committee suggested carrying this over until next month's meeting so that Christine and Susan Bowler, the alternate representative, wanted to continue in those roles. No further discussion.

2. Alternate Representative

(No action taken. See above)

4. Unfinished Business

A. Next Generation 9-1-1

1. Text-to-9-1-1 Implementation

Kathy Hughes distributed a summary of the text call activity. There were approximately 80 calls in December and about 40 in January. There was one true medical text. It is not known if any of the calls were from hearing impaired. About one third of the calls appear to require a responder to be dispatched. Airport also reported good results. They will continue taking State Patrol texts until sometime in February.

2. Firewall implementation

Dan Craigie gave an update. Testing is being set up at the Ramsey County backup center. If the testing is successful, the Airport, U of M and Dakota County will be the first sites in the metro.

B. PSAP Operations Roundtable Work Group

Heidi said they had met last week but there were no action items.

C. Emergency Communications Professionals Training Curriculum Development Project

Diane Lind provided a written report to the committee. Diane believes the project is on track to be wrapped up by the end of April. The draft work is on the Roundtable website for review and comment by the PSAP training personnel. If your PSAP training personnel do not have access to the Roundtable website and want to review the curriculum draft work, contact Heidi.

D. CAD-to-CAD Interoperability Feasibility Study

Pete said that a draft will be available by the end of January, to be presented at the February TOC meeting.

5. Pending Business

A. Legislation

Jill reported to the committee that language in Chapter 403 is being reworked to make it more applicable to NG911. ECN and the MESB have been meeting with the telephone and wireless company representatives to go over the changes and get their input and agreement. Jill said they have also been working on a building a public safety coalition with law enforcement, EMS, and fire professional organizations.

B. Continuity of Operation Plan Development

Pete said that ECN is requiring the metro PSAPs to submit a continuity of operations plan (COOP) as part of the Consolidated 9-1-1 Plan. Greater MN PSAPs are also being required to include a COOP as part of their individual county 911 plans. The original due date was March 31st.

Cathy Anderson, ECN, said they are doing a tabletop exercise in the central region on February 8 with the outside facilitators that held the COOP course in St. Cloud last fall. Cathy reported there will also be two classes at the April 22 Interop Conference. One for smaller PSAPs and one for larger. Dar Pankonie said she thought the MESB should be forming a group for these discussions. The committee decided to hold a COOP development coordination meeting at the MESB on February 15. Cathy said that ECN intends to create a PowerPoint on developing a COOP.

C. By-law Change Request

The airport is requesting the TOC consider changing the by-laws to allow representation from all of the metro PSAPs. There was a discussion on how this might be accomplished. There were questions on the historical reasoning behind the current structure. Pete asked that questions committee members may have be sent to him so he can do the historical research or ask for legal advice on making the change.

D. Media Request to Minneapolis

A Star Tribune reporter is asking for information from MECC regarding the impact of roundabouts on emergency response. They also asked if other PSAPs had that type of CAD data. Heather wanted the committee members to be aware of the request. She believes the

reporter will be contacting other metro PSAPs, and that the request is somewhat unusual which may require more research than the usual media request.

6. Reports

A. Wireless Issues – No Report

B. Data – Written Report Provided

Kathy Hughes has a new assignment starting February 5th. Capt. Kevin Schwartz will be replacing her as the PSAP Manager at Hennepin Co.

There will be a SECB Strategic Planning meeting March 8 and 9.

Jeff Schlumpberger has announced he will be retiring the end of 2018.

PSAP Managers shared their Center's news.

Adjourn

Metropolitan Emergency Services Board

CAD-to-CAD Interoperability Feasibility Report and Recommendations – DRAFT v7

February 15, 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, and 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 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 PSAPs technology and CAD software, and determine each PSAPs 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.

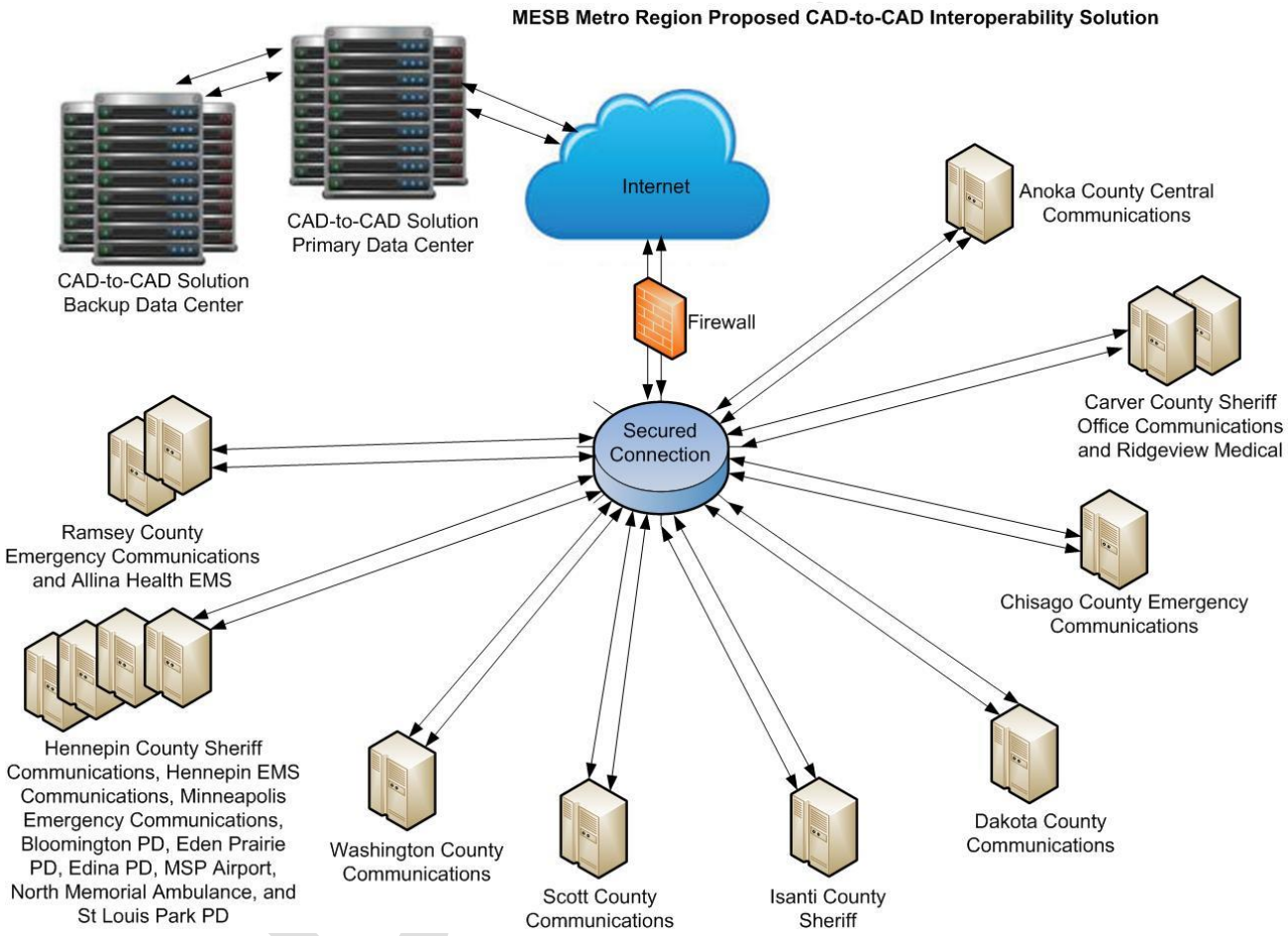
Based on our contact and interview process with the metro region PSAPs, we determined that there is a high level of interest for a COTS CAD-to-CAD regional interoperability solution. We also found that many of the PSAPs expressed a desire to expand the data sharing capability of a CAD-to-CAD solution 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 Sherburne County or the Minnesota State Patrol to the CAD-to-CAD interoperability project we estimate a range from $120,000 on the low end to $160,000 on the high end, with a median cost of $140,000 for each PSAP.

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 and 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	NO
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, and 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 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 there were steps 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 Sherburne County and the Minnesota State Patrol to join the metro region CAD-to-CAD solution ranges from $60,000 to $100,000 for each of the CAD interfaces to the CAD-to-CAD interoperability solution and from $40,000 to $60,000 for each 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	$2,330,000
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 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 11)

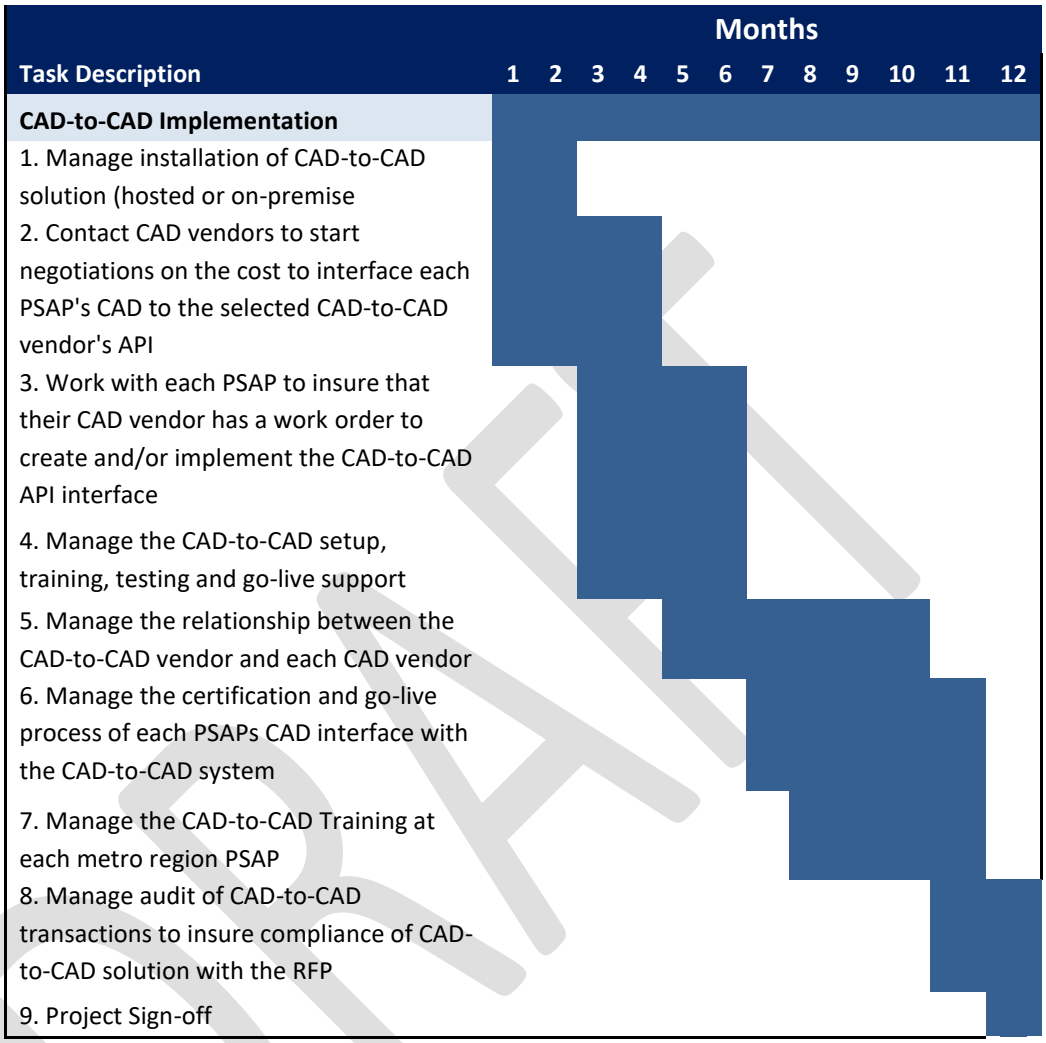
The CAD-to-CAD solution and CAD interface cost estimates, while having a relatively large variance, reflect the cost estimates received from the three major CAD-to-CAD vendors and the PSAPs' CAD vendors. The procurement and project management estimates were based on our knowledge of the industry and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

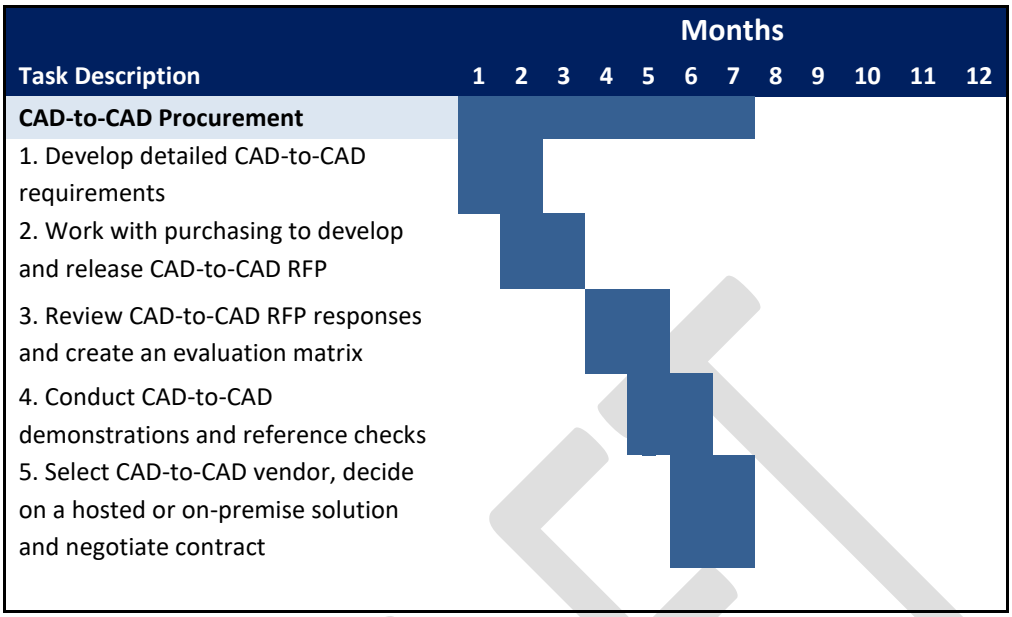
The table in Figure 12 depicts the tasks required to implement a CAD-to-CAD solution and certify all PSAPs CAD interfaces to the CAD-to-CAD solution:



(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.

Technical Operations Committee
9-1-1 Database Update – 02/15/2018

Metropolitan Emergency Services Board
2099 University Avenue
St. Paul, MN 55102
Web: www.mn-mesb.org

1. **GIS Standards:**
   a. On December 6, 2017, the Minnesota Geospatial Advisory Council (MGAC) adopted the **Minnesota Address Point Data Standard** v1.0. This standard data schema will be used for NG9-1-1 purposes in the State and represents the culmination of years of work by many professionals in the geospatial and 911 communities. Dan Ross, MN Chief Geospatial Information Officer, is still in the process of getting it signed off on by the State Chief Information Officer.
   b. MnGeo is in the process of preparing a second proposal to the MGAC Standards Committee for a **Minnesota Road Centerline Standard** (MRCS). The Standards Committee considered a proposal initially on November 30, 2017 and decided it wanted further development of the proposal packet to include additional information on the attribute definitions and the purpose of the standard. MnGeo is expected to deliver this second proposal to the committee by 2/16/18 for consideration at its 2/26/18 meeting. If the Committee decides to move forward with this version, it will authorize an initial 60-day public review period of the proposed standard.
   c. As reported last month, prior to an approved MRCS standard, the metro area GIS group is freezing its **Metro Road Centerline Collaborative** (MRCC) schema at version 1.7.
   d. **SECB standards** for geospatial data are in draft mode by the DPS and MnGeo.

2. **Regional GIS Data Aggregation:**
   a. **Centerline:** Metro county GIS groups continue to run the MRCC v1.7 schema validation tool and resolve errors. It was decided that the range overlap check available within the tool will be informational at this point rather than requiring mandatory/immediate resolution. The validation tool has made available to the seven metro counties and is available for Isanti and Chisago use when they are brought into the MRCC.
   b. **Address Points:** MetroGIS/Met Council is targeting the end of Q1 2018 for distributing to metro counties the schema validation tool using the Minnesota Address Point Data Standard and making its April request for metro address points in that standard. At this time, no further update on this target is available from them.

3. **Regional PSAP/ESZ Boundaries:**
   a. MESB has updated the regional PSAP/ESZ boundaries for recent changes in Emergency Service Zones throughout the metro area and the closure of the Minnetonka PSAP. It has also now included Text PSAP designations in the boundary polygon dataset.
   b. The updated regional polygon boundaries have been provided to MnGeo, DPS-ECN, VPC, MPC and TCC providers, and wireless carrier reps.

4. **SECB Grant Work:**
   a. Both Isanti and Washington Counties have provided initial address point datasets to MESB. The counties have developed these datasets using SECB grant funds.

5. **Minnetonka PSAP Closure:**
   a. MESB has continued its work with DPS, MNIT, and West on several wireless data issues within the WERM application that are related to the Minnetonka transition. The Minnetonka cell sectors should be in the final stages of being transitioned at West and T-Mobile to no longer use Minnetonka p-ANIs. (This behind-the-scenes work does not affect call routing since Minnetonka wireless and VoIP ESNs were directed to route to Hennepin-South at the time of PSAP cutover.)

6. **Wireless Data:**
    a. MESB has been engaging in multiple calls and working sessions with DPS-ECN, MNIT, and West Mobility to address data work flow and integrity issues with WERM data and the application.
    b. MESB is also working with DPS-ECN to gain more clarity about the possibilities and timing of routing wireless calls based on caller location rather than cell sector. (Cell sector routing would be a fallback.) It is hoped that this information will assist in determining the best path forward for items such as WERM application enhancements, wireless ALI format re-evaluation, proactive WERM data clean-ups, etc.

7. **Data Contact Transitions:**
    a. New St. Louis Park PSAP Data Contact: Marv Solberg, msolberg2@stlouispark.org
    b. Adam Iten left his role as Minnesota NG9-1-1 GIS Project Manager at the end of 2017. The State is working on a replacement
    c. Dawn Evangelist retired from CenturyLink at the end of 2017. CenturyLink is working on a replacement.

8. **Regional 911/GIS Data Synchronization**:
    a. Attached is a high-level summary of the data synchronization activity by PSAP.

Summary of 9-1-1/GIS Data Preparation for NG9-1-1 (as of January 31, 2018)

	9-1-1/GIS Data Synchronization						GIS Integration					
PSAP	ESZ Validations	Response Area Validations	Street Name Validations	Postalize MSAG	Address Validations	Address ESN Validation	Integration to Regional Centerline	Integration to Regional ESZ Layer	Integration to Regional Address Points	GIS MSAG	Centerline Validations	Integration to Statewide SIF & ECRF/LVF
Airport	complete	na	complete	complete	complete	not started	active	active	active	not started	active	not started
Anoka	complete	complete	complete	complete	complete	active	active	active	not started	active	active	not started
Bloomington	complete	na	complete	complete	complete	not started	active	active	active	not started	active	not started
Carver	complete	complete	complete	complete	complete	not started	active	active	active	not started	not started	not started
Chisago	complete	complete	complete	complete	complete	not started	active	active	not started	active	complete	not started
Dakota	complete	complete	complete	complete	complete	active	active	active	active	active	complete	not started
Eden Prairie	complete	na	complete	complete	complete	not started	active	active	active	not started	active	not started
Edina	complete	complete	complete	complete	active	not started	active	active	active	not started	active	not started
Ft Snelling/Airbase	active	not started	na	complete	na	not started	active	active	not started	not started	not started	not started
Hennepin Sheriff	complete	not started	complete	complete	complete	not started	active	active	active	not started	active	not started
Hopkins (closed)	complete	na	complete	na	complete	na	na	na	na	na	na	na
Isanti	complete	not started	complete	complete	active	not started	active	active	not started	not started	active	not started
Minneapolis	complete	not started	complete	complete	active	not started	active	active	active	not started	active	not started
Minnetonka	complete	complete	complete	complete	complete	not started	active	active	active	not started	active	not started
Ramsey	complete	active	complete	complete	complete	active	active	active	active	not started	complete	not started
Richfield (closed)	complete	na	complete	na	complete	na	na	na	na	na	na	na
Scott	complete	active	complete	complete	active	not started	active	active	active	not started	not started	not started
St Louis Park	complete	na	complete	complete	complete	not started	active	active	active	not started	complete	not started
U of M	complete	na	complete	complete	active	not started	active	active	active	not started	not started	not started
Washington	active	not started	complete	complete	active	not started	active	active	not started	not started	not started	not started
White Bear Lake	complete	na	complete	complete	complete	not started	active	active	active	not started	not started	not started